0078869

SAF-RC-029
Remaining Sites Confirmation Sampling - Soil
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 10/2/08
INITIAL/DATE

COMMENTS:

SDG K1319 SAF RC-029

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 100-H-28:6

RECEIVED
OCT 08 2008
EDMC

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
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Phone (510) 235-2633 Fax (510) 235-0438
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RECEIVED
SEP 2008

September 19, 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-09-047-7881, SDG K1319

Dear Ms. Kessner:

Enclosed is a data report for two solid (soil) samples designated under SAF No. RC-029 received at Eberline Services on September 5, 2008. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1319 was composed of two solid (soil) samples designated under SAF No. RC-029 with a Project Designation of: Remaining Sites Confirmation Sampling-Soil.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on September 18, 2008

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

Melissa C. Mannion

Melissa C. Mannion
Senior Program Manager

09/19/08

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 K1319

SDG	7881
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1319

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

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

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Prepared by

Melissa Mannion

Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	09/18/08

SDG 7881
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/08

SDG 7881
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

SDG 7881
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R809047-01	J17FY5	100-H-28:6	SOLID		RC-029	RC-029-053	09/03/08 09:40
R809047-02	J17FY6	100-H-28:6	SOLID		RC-029	RC-029-053	09/03/08 09:42
R809047-03	Lab Control Sample		SOLID		RC-029		
R809047-04	Method Blank		SOLID		RC-029		
R809047-05	Duplicate (R809047-01)	100-H-28:6	SOLID		RC-029		09/03/08 09:40

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

QC SUMMARY

SDG 7881
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

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
7881	RC-029-053	J17FY5	SOLID	97.1	1367 g		09/05/08	2	R809047-01	7881-001
		J17FY6	SOLID	97.2	1410 g		09/05/08	2	R809047-02	7881-002
		Method Blank	SOLID						R809047-04	7881-004
		Lab Control Sample	SOLID						R809047-03	7881-003
		Duplicate (R809047-01)	SOLID	97.1	1367 g		09/05/08	2	R809047-05	7881-005

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

SDG 7881
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	6160-120	20.6	2			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6160-120	11.0	2			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6160-120	7.0	2			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

SDG 7881
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R809047-01	J17FY5			7881-001	93A/93		09/14/08	09/18/08	BW	Gross Alpha in Solids
09/03/08	100-H-28:6		SOLID	7881-001	93B/93		09/14/08	09/18/08	BW	Gross Beta in Solids
09/05/08	RC-029-053	RC-029		7881-001	GAM		09/09/08	09/11/08	CSS	Gamma Scan
R809047-02	J17FY6			7881-002	93A/93		09/14/08	09/18/08	BW	Gross Alpha in Solids
09/03/08	100-H-28:6		SOLID	7881-002	93B/93		09/14/08	09/18/08	BW	Gross Beta in Solids
09/05/08	RC-029-053	RC-029		7881-002	GAM		09/09/08	09/11/08	CSS	Gamma Scan
R809047-03	Lab Control Sample			7881-003	93A/93		09/14/08	09/18/08	BW	Gross Alpha in Solids
			SOLID	7881-003	93B/93		09/14/08	09/18/08	BW	Gross Beta in Solids
		RC-029		7881-003	GAM		09/09/08	09/11/08	CSS	Gamma Scan
R809047-04	Method Blank			7881-004	93A/93		09/17/08	09/18/08	BW	Gross Alpha in Solids
			SOLID	7881-004	93B/93		09/17/08	09/18/08	BW	Gross Beta in Solids
		RC-029		7881-004	GAM		09/09/08	09/11/08	CSS	Gamma Scan
R809047-05	Duplicate (R809047-01)			7881-005	93A/93		09/17/08	09/18/08	BW	Gross Alpha in Solids
09/03/08	100-H-28:6		SOLID	7881-005	93B/93		09/17/08	09/18/08	BW	Gross Beta in Solids
09/05/08		RC-029		7881-005	GAM		09/09/08	09/11/08	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-029	Gross Alpha in Solids	900.0_ALPHABETA_GPC	2			1	1	1	5
93B/93	RC-029	Gross Beta in Solids	900.0_ALPHABETA_GPC	2			1	1	1	5
GAM	RC-029	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 09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

7881-004 Method Blank

METHOD BLANK

SDG	7881	Client/Case no	Hanford	SDG_K1319
Contact	Melissa C. Mannion	Contract	No. S00W235A00	
Lab sample id	R809047-04	Client sample id	Method Blank	
Dept sample id	7881-004	Material/Matrix		SOLID
		SAF No	RC-029	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	2.03	4.4	7.73	10.0	U	93A
Gross Beta	12587-47-2	-0.072	4.9	8.65	15.0	U	93B
Potassium 40	13966-00-2	U		0.266		U	GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Cesium 137	10045-97-3	U		0.015	0.100	U	GAM
Radium 226	13982-63-3	U		0.030	0.100	U	GAM
Radium 228	15262-20-1	U		0.053	0.200	U	GAM
Europium 152	14683-23-9	U		0.043	0.100	U	GAM
Europium 154	15585-10-1	U		0.050	0.100	U	GAM
Europium 155	14391-16-3	U		0.038	0.100	U	GAM
Thorium 228	14274-82-9	U		0.020		U	GAM
Thorium 232	TH-232	U		0.053		U	GAM
Uranium 235	15117-96-1	U		0.053		U	GAM
Uranium 238	U-238	U		1.60		U	GAM
Americium 241	14596-10-2	U		0.103		U	GAM

RemainSitesConfirmationSampling-Soil

QC-BLANK #67188

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

7881-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7881

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1319

Contract No. S00W235A00

Lab sample id R809047-03

Dept sample id 7881-003

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-029

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	113	17	8.27	10.0		93A	102	4.1	111	57-143	70-130
Gross Beta	94.6	7.4	5.65	15.0		93B	92.6	3.7	102	78-122	80-120
Cobalt 60	0.238	0.029	0.018	0.050		GAM	0.249	0.010	96	79-121	80-120
Cesium 137	0.303	0.029	0.020	0.100		GAM	0.277	0.011	109	80-120	80-120

RemainSitesConfirmationSampling-Soil

QC-LCS #67187

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

7881-005 J17FY5

DUPLICATE

SDG	7881			Client/Case no	Hanford SDG K1319
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R809047-05	Lab sample id	R809047-01	Client sample id	J17FY5
Dept sample id	7881-005	Dept sample id	7881-001	Location/Matrix	100-H-28:6 SOLID
		Received	09/05/08	Collected/Weight	09/03/08 09:40 1367 g
% solids	97.1	% solids	97.1	Custody/SAF No	RC-029-053 RC-029

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	13.3	7.3	8.67	10.0		93A	20.1	8.5	8.94		41	110	1.1
Gross Beta	21.9	4.5	5.70	15.0		93B	21.7	6.0	8.95		1	57	0
Potassium 40	14.2	0.62	0.193			GAM	13.9	0.61	0.198		2	18	0.4
Cobalt 60	U		0.020	0.050	U	GAM	U		0.020	U	-		0
Cesium 137	U		0.020	0.100	U	GAM	U		0.020	U	-		0
Radium 226	0.579	0.045	0.041	0.100		GAM	0.566	0.043	0.039		2	22	0.3
Radium 228	0.803	0.088	0.086	0.200		GAM	0.841	0.092	0.087		5	28	0.5
Europium 152	U		0.056	0.100	U	GAM	U		0.055	U	-		0
Europium 154	U		0.068	0.100	U	GAM	U		0.060	U	-		0.2
Europium 155	U		0.068	0.100	U	GAM	U		0.065	U	-		0.1
Thorium 228	0.840	0.033	0.029			GAM	0.808	0.032	0.028		4	17	0.7
Thorium 232	0.803	0.088	0.086			GAM	0.841	0.092	0.087		5	28	0.5
Uranium 235	U		0.093		U	GAM	U		0.088	U	-		0.1
Uranium 238	U		2.40		U	GAM	U		2.42	U	-		0
Americium 241	U		0.134		U	GAM	U		0.128	U	-		0.1

RemainSitesConfirmationSampling-Soil

QC-DUP#1 67189

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

7881-001 J17FY5

DATA SHEET

SDG	7881	Client/Case no	Hanford		SDG K1319
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R809047-01	Client sample id	J17FY5		
Dept sample id	7881-001	Location/Matrix	100-H-28:6		SOLID
Received	09/05/08	Collected/Weight	09/03/08 09:40	1367 g	
% solids	97.1	Custody/SAF No	RC-029-053	RC-029	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	20.1	8.5	8.94	10.0		93A
Gross Beta	12587-47-2	21.7	6.0	8.95	15.0		93B
Potassium 40	13966-00-2	13.9	0.61	0.198			GAM
Cobalt 60	10198-40-0	U		0.020	0.050	U	GAM
Cesium 137	10045-97-3	U		0.020	0.100	U	GAM
Radium 226	13982-63-3	0.566	0.043	0.039	0.100		GAM
Radium 228	15262-20-1	0.841	0.092	0.087	0.200		GAM
Europium 152	14683-23-9	U		0.055	0.100	U	GAM
Europium 154	15585-10-1	U		0.060	0.100	U	GAM
Europium 155	14391-16-3	U		0.065	0.100	U	GAM
Thorium 228	14274-82-9	0.808	0.032	0.028			GAM
Thorium 232	TH-232	0.841	0.092	0.087			GAM
Uranium 235	15117-96-1	U		0.088		U	GAM
Uranium 238	U-238	U		2.42		U	GAM
Americium 241	14596-10-2	U		0.128		U	GAM

RemainSitesConfirmationSampling-Soil

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

7881-002 J17FY6

DATA SHEET

SDG	7881	Client/Case no	Hanford	SDG K1319	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R809047-02	Client sample id	J17FY6		
Dept sample id	7881-002	Location/Matrix	100-H-28:6	SOLID	
Received	09/05/08	Collected/Weight	09/03/08 09:42	1410 g	
% solids	97.2	Custody/SAF No	RC-029-053	RC-029	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	5.68	6.6	9.84	10.0	U	93A
Gross Beta	12587-47-2	21.1	6.0	9.00	15.0		93B
Potassium 40	13966-00-2	15.0	0.46	0.160			GAM
Cobalt 60	10198-40-0	U		0.018	0.050	U	GAM
Cesium 137	10045-97-3	U		0.016	0.100	U	GAM
Radium 226	13982-63-3	0.551	0.040	0.039	0.100		GAM
Radium 228	15262-20-1	0.853	0.084	0.075	0.200		GAM
Europium 152	14683-23-9	U		0.046	0.100	U	GAM
Europium 154	15585-10-1	U		0.052	0.100	U	GAM
Europium 155	14391-16-3	U		0.059	0.100	U	GAM
Thorium 228	14274-82-9	0.878	0.033	0.029			GAM
Thorium 232	TH-232	0.853	0.084	0.075			GAM
Uranium 235	15117-96-1	U		0.094		U	GAM
Uranium 238	U-238	U		1.97		U	GAM
Americium 241	14596-10-2	U		0.073		U	GAM

RemainSitesConfirmationSampling-Soil

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

Test 93A Matrix SOLID
SDG 7881
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1319

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
Preparation batch 6160-120					
R809047-01	93		7881-001	J17FY5	20.1
R809047-02	93		7881-002	J17FY6	U
R809047-03	93		7881-003	Lab Control Sample	ok
R809047-04	93		7881-004	Method Blank	U
R809047-05	93		7881-005	Duplicate (R809047-01)	ok

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

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-120 2σ prep error 20.6 % Reference Lab Notebook #6160, pg. 120																
R809047-01	93		J17FY5	8.94	0.100			71		100			11	09/11/08	09/14	GRB-213
R809047-02	93		J17FY6	9.84	0.100			116		100			11	09/11/08	09/14	GRB-214
R809047-03	93		Lab Control Sample	8.27	0.100			61		100				09/11/08	09/14	GRB-216
R809047-04	93		Method Blank	7.73	0.100			63		100				09/11/08	09/17	GRB-214
R809047-05	93		Duplicate (R809047-01)	8.67	0.100			72		100			14	09/11/08	09/17	GRB-216
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 FOR 5 SAMPLES
MDA 8.69 ± 1.58
RESIDUE 77 ± 45

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

Test 93B Matrix SOLID
SDG 7881
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1319

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 6160-120					
R809047-01	93		7881-001	J17FY5	21.7
R809047-02	93		7881-002	J17FY6	21.1
R809047-03	93		7881-003	Lab Control Sample	ok
R809047-04	93		7881-004	Method Blank	U
R809047-05	93		7881-005	Duplicate (R809047-01)	ok

Nominal values and limits from method RDLs (pCi/g) 15.0
RemainSitesConfirmationSampling-Soil

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-120 2σ prep error 11.0 % Reference Lab Notebook #6160, pg. 120																
R809047-01	93		J17FY5	8.95	0.100			71		100			11	09/11/08	09/14	GRB-213
R809047-02	93		J17FY6	9.00	0.100			116		100			11	09/11/08	09/14	GRB-214
R809047-03	93		Lab Control Sample	5.65	0.100			61		100				09/11/08	09/14	GRB-216
R809047-04	93		Method Blank	8.65	0.100			63		100				09/11/08	09/17	GRB-214
R809047-05	93		Duplicate (R809047-01)	5.70	0.100			72		100			14	09/11/08	09/17	GRB-216
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 FOR 5 SAMPLES
MDA 7.59 ± 3.51
RESIDUE 77 ± 45

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1319

Test GAM Matrix SOLID
SDG 7881
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1319

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 6160-120								
R809047-01			7881-001	J17FY5	U		U	
R809047-02			7881-002	J17FY6	U		U	
R809047-03			7881-003	Lab Control Sample	ok		ok	
R809047-04			7881-004	Method Blank	U		U	
R809047-05			7881-005	Duplicate (R809047-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.100	

RemainSitesConfirmationSampling-Soil

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6160-120			2σ prep error 7.0 %	Reference Lab Notebook #6160, pg. 120												
R809047-01			J17FY5	4.31	841					161			6	09/06/08	09/09	MB,08,00
R809047-02			J17FY6	3.37	856					122			6	09/06/08	09/09	MB,02,00
R809047-03			Lab Control Sample	0.018	840					122				09/06/08	09/09	01,04,00
R809047-04			Method Blank	4.04	840					122				09/06/08	09/09	MB,05,00
R809047-05			Duplicate (R809047-01)	4.47	841					151			6	09/06/08	09/09	MB,08,00
Nominal values and limits from method				0.050	840					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	SPP-100	Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 3.24 ± 3.70
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/18/08

SDG 7881
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/08

SDG 7881
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

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SDG 7881
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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Protocol Hanford1
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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

SDG 7881
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

DATA SHEET

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

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

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

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Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/18/08

SDG 7881
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

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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SDG 7881
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1319

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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GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

DUPLICATE

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

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

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

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

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

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Protocol Hanford1
Version Ver 1.0
Form DVD-RG
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SDG 7881
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REPORT GUIDE

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Contract No. S00W235A00
Case no SDG K1319

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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Form DVD-RG
Version 3.06
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SDG 7881
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1319

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
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SDG 7881
Contact Melissa C. Mannion

REPORT GUIDE

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Contract No. S00W235A00
Case no SDG K1319

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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Version 3.06
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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-029-053	Page 1 of 1

Collector: WELCH KOELLING	Company Contact: Matt Perrott	Telephone No.: 372-9088	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-H-28:6 K1319 (7881)		SAF No.: RC-029
Ice Chest No.: SMC-544 24 MO 9/4/08	Field Logbook No.: EL-1601-2	COA: C00H28A000	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES ~~IRONVILLE~~	Offsite Property No.: A080		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	Cool 4C							
Type of Container	P	G/P	G/P	G							
No. of Container(s)	1	1	1	1							
Volume	1000mL	250mL	250mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082; Pesticides - 8081							

	Sample No.	Matrix *	Sample Date	Sample Time										
3	J17FY5	SOIL	9/3/08	0940	X	X	X	X						
4	J17FY6	SOIL	9/3/08	0942	X	X	X	X						
6	J17FY7	SOIL	9/3/08	0840		X								
	~~J17FY8~~	SOIL												
	~~J17FY9~~ BH 9/3/08	SOIL												

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Todd Krawiec	Date/Time: 9/3/08 1000	Received By/Stored In: BHUDSON BHudson	Date/Time: 9/3/08 1000
Relinquished By/Removed From: BHUDSON BHudson	Date/Time: 9/3/08 1630	Received By/Stored In: 1060 #3C	Date/Time: 9/3/08 1630
Relinquished By/Removed From: 1060/3C	Date/Time: 9/4/08 1030	Received By/Stored In: MSTankovich	Date/Time: 1030 9/4/08
Relinquished By/Removed From: WCK MSTankovich	Date/Time: 1030 9/4/08	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time:	Received By/Stored In:	Date/Time: 09/05/08 09:15
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; ~~Gamma Spec - Add-on {Americium-241}~~; Gross Alpha & Gross Beta
(2) ICP Metals - 6010TR (Client List {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)

BH 9/3/08

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

Matrix *
S=Soil
SE=Sediment
SO=Solid
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

MW

ESERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

AL 9/05/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 09/05/08 09:15 CoC No. RC-029-053

Container I.D. No. SML-524 Requested TAT (Days) 15 P.D. Received Yes [ ] No [X]

INSPECTION

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

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

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

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

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

6 Number of samples in shipping container: 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: 09/05/08 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 staples	<60						

Ion Chamber Ser. No _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 19JUL08

Form SCP-02, 07-30-07

"over 55 years of quality nuclear services"

LIONVILLE LABORATORY INC.

30 September 2008

RECEIVED
OCT 2008

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

Subject: Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0809L036
SDG #	K1319
SAF #	RC-029
Date Received	9/05/08
# Samples	3
Matrix	SOIL
Volatiles	
Semivolatiles	X
Pest/PCB	X
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

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

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

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OCT 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1319

DATE RECEIVED: 09/05/08 LVL LOT # :0809L036

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17FY5						
SILVER, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
SILVER, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
SILVER, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
ALUMINUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
ALUMINUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
ALUMINUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
ARSENIC, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
ARSENIC, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
ARSENIC, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
BORON, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
BORON, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
BORON, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
BARIUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
BARIUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
BARIUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
BERYLLIUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
BERYLLIUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
BERYLLIUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
CALCIUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
CALCIUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
CALCIUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
CADMIUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
CADMIUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
CADMIUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
COBALT, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
COBALT, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
COBALT, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
CHROMIUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
CHROMIUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
CHROMIUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
COPPER, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
COPPER, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
COPPER, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
IRON, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
IRON, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1319

DATE RECEIVED: 09/05/08 LVL LOT # :0809L036

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
MERCURY, TOTAL	001	S	08C0157	09/03/08	09/10/08	09/10/08
MERCURY, TOTAL	001 REP	S	08C0157	09/03/08	09/10/08	09/10/08
MERCURY, TOTAL	001 MS	S	08C0157	09/03/08	09/10/08	09/10/08
POTASSIUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
POTASSIUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
POTASSIUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
MAGNESIUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
MAGNESIUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
MAGNESIUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
MANGANESE, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
MANGANESE, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
MANGANESE, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
MOLYBDENUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
MOLYBDENUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
MOLYBDENUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
SODIUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
SODIUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
SODIUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
NICKEL, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
NICKEL, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
NICKEL, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
LEAD, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
LEAD, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
LEAD, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
ANTIMONY, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
ANTIMONY, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
ANTIMONY, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
SELENIUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
SELENIUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
SELENIUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
SILICON, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
SILICON, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
SILICON, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
VANADIUM, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08
VANADIUM, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
VANADIUM, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
ZINC, TOTAL	001	S	08L0338	09/03/08	09/17/08	09/18/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1319

DATE RECEIVED: 09/05/08 LVL LOT # :0809L036

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 REP	S	08L0338	09/03/08	09/17/08	09/18/08
ZINC, TOTAL	001 MS	S	08L0338	09/03/08	09/17/08	09/18/08
J17FY6						
SILVER, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
ALUMINUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
ARSENIC, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
BORON, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
BARIUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
BERYLLIUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
CALCIUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
CADMIUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
COBALT, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
CHROMIUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
COPPER, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
IRON, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
MERCURY, TOTAL	002	S	08C0157	09/03/08	09/10/08	09/10/08
POTASSIUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
MAGNESIUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
MANGANESE, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
MOLYBDENUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
SODIUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
NICKEL, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
LEAD, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
ANTIMONY, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
SELENIUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
SILICON, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
VANADIUM, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
ZINC, TOTAL	002	S	08L0338	09/03/08	09/17/08	09/18/08
J17FY7						
SILVER, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
ALUMINUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
ARSENIC, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
BORON, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
BARIUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1319

DATE RECEIVED: 09/05/08 LVL LOT # :0809L036

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
CALCIUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
CADMIUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
COBALT, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
CHROMIUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
COPPER, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
IRON, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
MERCURY, TOTAL	003	S	08C0157	09/03/08	09/10/08	09/10/08
POTASSIUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
MAGNESIUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
MANGANESE, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
MOLYBDENUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
SODIUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
NICKEL, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
LEAD, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
ANTIMONY, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
SELENIUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
SILICON, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
VANADIUM, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08
ZINC, TOTAL	003	S	08L0338	09/03/08	09/17/08	09/18/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
SILVER, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
ALUMINUM LABORTORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
ALUMINUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
ARSENIC LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
ARSENIC, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
BORON LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
BORON, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
BARIUM LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
BARIUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
BERYLLIUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
CALCIUM LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
CALCIUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
CADMIUM LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1319

DATE RECEIVED: 09/05/08 LVL LOT # :0809L036

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CADMIUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
COBALT LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
COBALT, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
CHROMIUM LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
CHROMIUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
COPPER LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
COPPER, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
IRON LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
IRON, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
MERCURY LABORATORY	LC1 BS	S	08C0157	N/A	09/10/08	09/10/08
MERCURY, TOTAL	MB1	S	08C0157	N/A	09/10/08	09/10/08
POTASSIUM LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
POTASSIUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
MAGNESIUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
MANGANESE LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
MANGANESE, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
MOLYBDENUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
SODIUM LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
SODIUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
NICKEL LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
NICKEL, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
LEAD LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
LEAD, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
ANTIMONY LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
ANTIMONY, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
SELENIUM LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
SELENIUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
SILICON LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
SILICON, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
VANADIUM LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
VANADIUM, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08
ZINC LABORATORY	LC1 BS	S	08L0338	N/A	09/17/08	09/18/08
ZINC, TOTAL	MB1	S	08L0338	N/A	09/17/08	09/18/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-029
LVL#: 0809L036
SDG/SAF#: K1319/RC-029

W.O.#: 60049-001-001-0001-00
Date Received: 09-05-08

METALS CASE NARRATIVE

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

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

1. This narrative covers the analyses of 3 soil samples.

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

   The samples, with the exception of sample J17FY7, were run with 3-fold dilutions for ICP metals due to sample matrix.

   The samples were run on a different instrument for Aluminum, Potassium and Sodium due to sample matrix.

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

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

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

6. The preparation/method blank for 2 analytes were outside method criteria. {less than the Limit of Quantitation (3-10X the LOD), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a). The MB results for Manganese and Sodium were greater than the Limit of Quantitation (LOQ) {3-10x the (LOD) Limit of Detection}. Sample J17FY7 for Manganese and all samples for Sodium read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample result was reported herein "uncorrected" for the levels found in the MB.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 22 pages.

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 (20%). Sample results for Silicon may be biased low. Refer to the Inorganics Laboratory Control Standards Report.

9. All 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
J17H00	Aluminum	126,000	95.5
	Iron	60,000	93.1
	Antimony	300	103.8
	Calcium	60,000	95.8

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

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/22/08
Date

alm/m09-036

LvLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

ot#: 0809L036

eaching Procedure: __1310 __1311 __1312 __Other:_____

LP 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
luminum	✓6010B		__200.7				__99
ntimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
rsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
arium	✓6010B		__200.7				__99
eryllium	✓6010B		__200.7				__99
ismuth	__6010B [1]		__200.7 [1]			__1620	__99
oron	✓6010B		__200.7				__99
admium	✓6010B	__7131A [5]	__200.7	__213.2			__99
alcium	✓6010B		__200.7				__99
hromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
obalt	✓6010B		__200.7				__99
opper	✓6010B	__7211 [5]	__200.7	__220.2			__99
ron	✓6010B		__200.7				__99
ead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
ithium	__6010B	__7430 [4]	__200.7			__1620	__99
agnesium	✓6010B		__200.7				__99
anganese	✓6010B		__200.7				__99
ercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
olybdenum	✓6010B		__200.7				__99
ickel	✓6010B		__200.7				__99
otassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
are Earths	__6010B [1]		__200.7 [1]			__1620	__99
elenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
ilicon	✓6010B [1]		__200.7			__1620	__99
ilica	__6010B		__200.7			__1620	__99
ilver	✓6010B	__7761 [5]	__200.7	__272.2			__99
odium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
trontium	__6010B		__200.7				__99
hallium	__6010B	__7841 [5]	__200.7	__279.2 __200.9			__99
in	__6010B		__200.7				__99
itanium	__6010B		__200.7				__99
ranium	__6010B [1]		__200.7 [1]			__1620	__99
anadium	✓6010B		__200.7				__99
inc	✓6010B		__200.7				__99
irconium	__6010B [1]		__200.7 [1]			__1620	__99

Method: _____

L-W[illegible] 000000008

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/22/08

CLIENT: WC-HANFORD RC-029 K1319 LVL LOT #: 0809L036

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17FY5	Silver, Total	0.24 u	MG/KG	0.24	3.0
		Aluminum, Total	7790	MG/KG	9.5	3.0
		Arsenic, Total	3.4	MG/KG	1.2	3.0
		Boron, Total	1.2 u	MG/KG	1.2	3.0
		Barium, Total	75.8	MG/KG	0.24	3.0
		Beryllium, Total	0.25	MG/KG	0.12	3.0
		Calcium, Total	8810	MG/KG	9.5	3.0
		Cadmium, Total	0.14	MG/KG	0.12	3.0
		Cobalt, Total	6.8	MG/KG	0.48	3.0
		Chromium, Total	16.6	MG/KG	0.48	3.0
		Copper, Total	13.9	MG/KG	0.48	3.0
		Iron, Total	19700	MG/KG	10.7	3.0
		Mercury, Total	0.008u	MG/KG	0.008	1.0
		Potassium, Total	1120	MG/KG	117	3.0
		Magnesium, Total	5080	MG/KG	6.0	3.0
		Manganese, Total	287	MG/KG	0.1	3.0
		Molybdenum, Total	0.72 u	MG/KG	0.72	3.0
		Sodium, Total	216	MG/KG	4.8	3.0
		Nickel, Total	15.0	MG/KG	0.48	3.0
		Lead, Total	5.3	MG/KG	0.72	3.0
		Antimony, Total	0.72 u	MG/KG	0.72	3.0
		Selenium, Total	1.4 u	MG/KG	1.4	3.0
		Silicon, Total	375	MG/KG	9.5	3.0
		Vanadium, Total	44.7	MG/KG	0.33	3.0
		Zinc, Total	48.1	MG/KG	1.4	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/22/08

CLIENT: WC-HANFORD RC-029 K1319 LVL LOT #: 0809L036

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J17FY6	Silver, Total	0.24 u	MG/KG	0.24	3.0
		Aluminum, Total	7850	MG/KG	9.6	3.0
		Arsenic, Total	4.9	MG/KG	1.2	3.0
		Boron, Total	1.6	MG/KG	1.2	3.0
		Barium, Total	74.9	MG/KG	0.24	3.0
		Beryllium, Total	0.25	MG/KG	0.12	3.0
		Calcium, Total	6880	MG/KG	9.6	3.0
		Cadmium, Total	0.20	MG/KG	0.12	3.0
		Cobalt, Total	7.1	MG/KG	0.48	3.0
		Chromium, Total	16.8	MG/KG	0.48	3.0
		Copper, Total	15.0	MG/KG	0.48	3.0
		Iron, Total	19800	MG/KG	10.8	3.0
		Mercury, Total	0.01	MG/KG	0.01	1.0
		Potassium, Total	1140	MG/KG	118	3.0
		Magnesium, Total	5200	MG/KG	6.0	3.0
		Manganese, Total	284	MG/KG	0.1	3.0
		Molybdenum, Total	0.72 u	MG/KG	0.72	3.0
		Sodium, Total	217	MG/KG	4.8	3.0
		Nickel, Total	15.4	MG/KG	0.48	3.0
		Lead, Total	5.2	MG/KG	0.72	3.0
		Antimony, Total	0.72 u	MG/KG	0.72	3.0
		Selenium, Total	1.4 u	MG/KG	1.4	3.0
		Silicon, Total	402	MG/KG	9.6	3.0
		Vanadium, Total	45.2	MG/KG	0.34	3.0
		Zinc, Total	49.3	MG/KG	1.4	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/22/08

CLIENT: WC-HANFORD RC-029 K1319 LVL LOT #: 0809L036

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J17FY7	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Aluminum, Total	92.3	MG/KG	3.2	1.0
		Arsenic, Total	0.40 u	MG/KG	0.40	1.0
		Boron, Total	0.40 u	MG/KG	0.40	1.0
		Barium, Total	1.6	MG/KG	0.08	1.0
		Beryllium, Total	0.04 u	MG/KG	0.04	1.0
		Calcium, Total	23.6	MG/KG	3.2	1.0
		Cadmium, Total	0.05	MG/KG	0.04	1.0
		Cobalt, Total	0.16 u	MG/KG	0.16	1.0
		Chromium, Total	0.21	MG/KG	0.16	1.0
		Copper, Total	0.16 u	MG/KG	0.16	1.0
		Iron, Total	175	MG/KG	3.6	1.0
		Mercury, Total	0.007u	MG/KG	0.007	1.0
		Potassium, Total	62.7	MG/KG	39.7	1.0
		Magnesium, Total	21.5	MG/KG	2.0	1.0
		Manganese, Total	4.1	MG/KG	0.03	1.0
		Molybdenum, Total	0.24 u	MG/KG	0.24	1.0
		Sodium, Total	10.9	MG/KG	1.6	1.0
		Nickel, Total	0.16 u	MG/KG	0.16	1.0
		Lead, Total	0.24 u	MG/KG	0.24	1.0
		Antimony, Total	0.24 u	MG/KG	0.24	1.0
		Selenium, Total	0.48 u	MG/KG	0.48	1.0
		Silicon, Total	52.3	MG/KG	3.2	1.0
		Vanadium, Total	0.11 u	MG/KG	0.11	1.0
		Zinc, Total	1.3	MG/KG	0.48	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/22/08

CLIENT: WC-HANFORD RC-Q29 K1319 LVL LOT #: 0809L036

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0338-MB1	Silver, Total	0.16	MG/KG	0.10	1.0
		Aluminum, Total	4.0 u	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Boron, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.13	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	6.6	MG/KG	4.0	1.0
		Cadmium, Total	0.06	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.25	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	5.5	MG/KG	4.5	1.0
		Potassium, Total	49.3 u	MG/KG	49.3	1.0
		Magnesium, Total	3.1	MG/KG	2.5	1.0
		Manganese, Total	0.45	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	22.1	MG/KG	2.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Silicon, Total	4.0 u	MG/KG	4.0	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	08C0157-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/22/08

CLIENT: WC-HANFORD RC-029 K1319 LVL LOT #: 0809L036

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17FY5	Silver, Total	3.9	0.24u	4.0	97.5	3.0
		Aluminum, Total	8380	7790	159	369.1*	3.0
		Arsenic, Total	154	3.4	159	94.9	3.0
		Boron, Total	72.2	1.2 u	79.5	90.8	3.0
		Barium, Total	230	75.8	159	96.8	3.0
		Beryllium, Total	4.1	0.25	4.0	96.3	3.0
		Calcium, Total	8680	8810	1990	-6.7*	3.0
		Cadmium, Total	4.0	0.14	4.0	96.5	3.0
		Cobalt, Total	44.6	6.8	39.8	95.0	3.0
		Chromium, Total	31.4	16.6	15.9	93.1	3.0
		Copper, Total	33.1	13.9	19.9	96.5	3.0
		Iron, Total	19400	19700	79.5	-350. *	3.0
		Mercury, Total	0.16	0.00u	0.14	115.3	1.0
		Potassium, Total	2880	1120	1990	88.5	3.0
		Magnesium, Total	7020	5080	1990	97.3	3.0
		Manganese, Total	326	287	39.8	98.5*	3.0
		Molybdenum, Total	74.6	0.72u	79.5	93.8	3.0
		Sodium, Total	2120	216	1990	95.7	3.0
		Nickel, Total	53.4	15.0	39.8	96.5	3.0
		Lead, Total	43.1	5.3	39.8	95.0	3.0
		Antimony, Total	12.7	0.72u	39.8	31.9	3.0
		Selenium, Total	132	1.4 u	159	83.1	3.0
		Silicon, Total	441	375	79.5	83.0*	3.0
		Vanadium, Total	81.9	44.7	39.8	93.5	3.0
		Zinc, Total	85.7	48.1	39.8	94.5	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/22/08

CLIENT: WC-HANFORD RC-029 K1319 LVL LOT #: 0809L036

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17FY5	Silver, Total	0.24u	0.23u	NC	3.0
		Aluminum, Total	7790	7910	1.5	3.0
		Arsenic, Total	3.4	4.6	30.0	3.0
		Boron, Total	1.2 u	1.2	~~NC~~ 200 *	3.0
		Barium, Total	75.8	76.7	1.2	3.0
		Beryllium, Total	0.25	0.24	5.0	3.0
		Calcium, Total	8810	6960	23.5 *	3.0
		Cadmium, Total	0.14	0.12u	~~NC~~ 200	3.0
		Cobalt, Total	6.8	7.2	5.7	3.0
		Chromium, Total	16.6	16.3	1.8	3.0
		Copper, Total	13.9	14.3	2.8	3.0
		Iron, Total	19700	19700	0.22	3.0
		Mercury, Total	0.00u	0.01u	NC	1.0
		Potassium, Total	1120	1090	2.3	3.0
		Magnesium, Total	5080	5190	2.2	3.0
		Manganese, Total	287	296	3.4	3.0
		Molybdenum, Total	0.72u	0.69u	NC	3.0
		Sodium, Total	216	213	1.2	3.0
		Nickel, Total	15.0	15.6	3.9	3.0
		Lead, Total	5.3	5.5	3.7	3.0
		Antimony, Total	0.72u	0.69u	NC	3.0
		Selenium, Total	1.4 u	1.4 u	NC	3.0
		Silicon, Total	375	434	14.6	3.0
		Vanadium, Total	44.7	43.9	1.8	3.0
		Zinc, Total	48.1	49.1	2.1	3.0

* Corrected value
aem 9/22/08

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 09/22/08

CLIENT: WC-HANFORD RC-029 K1319 LVL LOT #: 0809L036

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0338-LC1	Silver, LCS	48.3	50.0	MG/KG	96.6
		Aluminum, LCS	456	500	MG/KG	91.3
		Arsenic, LCS	935	1000	MG/KG	93.5
		Boron, LCS	454	500	MG/KG	90.7
		Barium, LCS	474	500	MG/KG	94.8
		Beryllium, LCS	24.3	25.0	MG/KG	97.2
		Calcium, LCS	2450	2500	MG/KG	98.2
		Cadmium, LCS	23.8	25.0	MG/KG	95.2
		Cobalt, LCS	240	250	MG/KG	96.0
		Chromium, LCS	48.8	50.0	MG/KG	97.6
		Copper, LCS	121	125	MG/KG	96.9
		Iron, LCS	516	500	MG/KG	103.2
		Potassium, LCS	2200	2500	MG/KG	88.1
		Magnesium, LCS	2370	2500	MG/KG	94.9
		Manganese, LCS	73.7	75.0	MG/KG	98.3
		Molybdenum, LCS	482	500	MG/KG	96.4
		Sodium, LCS	2250	2500	MG/KG	90.1
		Nickel, LCS	194	200	MG/KG	96.8
		Lead, LCS	242	250	MG/KG	96.8
		Antimony, LCS	281	300	MG/KG	93.5
		Selenium, LCS	891	1000	MG/KG	89.1
		Silicon, LCS	100	500	MG/KG	20.0
		Vanadium, LCS	240	250	MG/KG	96.2
		Zinc, LCS	96.5	100	MG/KG	96.5
LCS1	08C0157-LC1	Mercury, LCS	4.7	4.7	MG/KG	99.3

Lionville Laboratory Incorporated

Logbook #: 70L

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0338
Date/Time Initiated: 9/17/08 1130
Date/Time Completed: 9/17/08 2030
Analyst(s): JW
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: See backlog

(Digested) / Undigested (circle one)
Balance #: B20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 91°

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

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

TMW

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
0809L021-001		1.27gm	100ml	<2	TO	coarse	Ottawa sand		
002		1.23gm					brown soil - fine	with lumps	
002R		1.25gm							
002S	1.0ml	1.24gm							
003		1.35gm							
004		1.33gm					with ass't debris *		
0809L022-001		1.29gm					Ottawa sand		
002		1.27gm					brown soil - fine	w/ ass't debris	
002R		1.37gm							
002S	1.0ml	1.29gm							
003		1.23gm						rocks	
0809L035-001		1.28gm					dark brown soil	N/A	
001R		1.31gm							
001S	1.0ml	1.29gm							
002		1.24gm							
0809L036-001		1.28gm				fine	brown soil	rocks	
001R		1.32gm							
001S	1.0ml	1.28gm							
002		1.28gm							
003		1.24gm				coarse	Ottawa sand	N/A	
08L0338-MB1		1.0gm					boiling chips		
LC1	1.0ml	1.0gm							
			JW	9/17/08					

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

Reagent IDs:
HNO_3 607057
HCL 676054
H_2O_2 G15P118
1:1 HNO_3 9789-053-08
1:1 HCL

File ID#: IC033801 IC033802

LIMS Transfer: (Y) N Uploaded

Data Review By/Date: PMP, 09/17/08

* per COC, only soil (no debris) included in aliquot. JW 9/17/08

Lionville Laboratory
Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: TEB
Date 9/10/08
Start Time/Temp: 1005 / 92°
End Time/Temp: 1035 / 92°

Instrument ID HG32
Balance #: B29 / NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0157
Worksheet: HG091002
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes / N 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	500			10mL	50mL	
0.2 µg/L	3VG	0.100				
1.0	PC	0.500				
2.0	Gd	1.000				
5.0	R	2.500				
10.0	11A	5.000				
ICV	H3	0.125	2.5			
CCV	8	0.250	5.0			
ICB/CCB	PA/NJ					9.80L
MB1	JC			0.30		PBS157 100.0
LC1	NR	*	*	0.30		LCSS157
0809L034-001	1721			0.33		R 95.3
W1R	K17			0.38		
W1S	6J	0.500	1.0	0.35		
0809L006-001	L15			0.33		100.00
W1R	NB			0.39		
001S	E7	0.500	1.0	0.33		
0809L021-001	31			0.41		99.98
002	537			0.31		96.97
002R	N2			0.35		
002S	KX	0.500	1.0	0.31		
003	P3			0.31		96.99
004	CM			0.31		92.3
0809L022-001	514			0.31		99.9
002	AP			0.32		98.05
002R	114			0.36		
002S	8/6	0.500	1.0	0.32		

Standard:	ID	Prep Date/Time
CAL/MS	RI 6072-78-14B	9/10/08 0730
ICV/CCV/LCS	US 6072-78-15A	

Reviewed By/Date: [signature] 9/12/08

see book # 9368 for std traceability information

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

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

ME-HgCVAA-Prep1007

Page #:

000000018

Jonville Laboratory
Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: EA
Date 9/10/08
Start Time/Temp:
End Time/Temp: See page 016

Instrument ID HG-3.2
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0157
Worksheet: HG-091002
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.
0809L022-003	P1			0.35	50mL	98.07
0809L035-001	40			0.31	↓	78.28
W1R	L53			0.32	↓	↓
W1S	UT	0.500	1.0	0.31	↓	↓
002	205			0.35	↓	82.56
0809L036-001	DX			0.36	↓	98.31
W1R	H2			0.32	↓	↓
W1S	41	0.500	1.0	0.37	↓	↓
002	RU			0.31	↓	97.75
003	194			0.41	↓	99.95

EA 9/10/08

Standard:	ID	Prep Date/Time
CAL/MS		
CV/CCV/LCS	See page 016	

Reviewed By/Date: [signature] 9/12/08

see book # 9368 for std traceability information

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

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

ME-HgCVAA-Prep1007

Page #:

000000019

nville Laboratory Use Only

)809L036

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

000000020

nt Washington Closure Hanford RC-029

Final Proj. Sampling Date

ject# 60049-001-001-0001

ject Contact/Phone#

nville Laboratory Project Manager Quintin Johnson

SW846 Del 817 TAT 15 days

e Rec'd 9.5.08 Date Due 9-20-08

		A					B		C					
Refrigerator #		3					3		3					
#/Type Container	Liquid / Solid	1gl					1gl		1gl					
Volume	Solid	250					250		120					
Preservatives		—					—		—					
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal + Hg	CN	Cr+6			

Lionville Laboratory Use Only

RIX ES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected			OPCB 8082B				METO		IC R6				
Soil	001	J17FY5			S	9-3-08	0940			X				X		X				
Sediment	002	J17FY6					0942			X				X		X				
Solid	003	J17FY7					0840							X						
Sludge																				
Water																				
Oil																				
Air																				
Drum Solids																				
Drum Liquids																				
EP/TCLP																				
Leachate																				
Wipe																				
Other																				
Fish																				

ecial Instructions:
Matrix QC

Special Instructions:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	9-5-08	0952

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

SOD SRC

ORIGINAL REWRITTEN

COMPOSITE WASTE

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-029-053 | Page 1 of 1

ollector: WELCH KOELLING	Company Contact: Matt Perrott	Telephone No.: 372-9088	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
oject Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-H-28:6		SAF No.: RC-029
e Chest No.: ASF-04-054	Field Logbook No.: EL-1601-2	COA: C00H28A000	Method of Shipment: FedEx
ipped To: ~~EBERLINE SERVICES~~ LIONVILLE BH 9/3/08	Offsite Property No.: 080345		Bill of Lading/Air Bill No.: see ospc

000000021

'OSSIBLE SAMPLE HAZARDS/REMARKS

pecial Handling and/or Storage

Preservation	None	None	Cool 4C	Cool 4C							
Type of Container	P	G/P	G/P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	250mL	120mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082; Pesticides - 8081							

Sample No.	Matrix *	Sample Date	Sample Time										
7FY5	SOIL	9/3/08	0940	X	X	X	X						
7FY6	SOIL	9/3/08	0942	X	X	X	X						
7FY7	SOIL	9/3/08	0840		X								
~~7FY8~~	SOIL												
~~7FY9~~ BH 9/3/08	SOIL												

CHAIN OF POSSESSION	Sign/Print Names		
linquished By/Removed From	Date/Time 1000 9/3/08	Received By/Stored In BHUDSON	Date/Time 1000 9/3/08
linquished By/Removed From BHUDSON	Date/Time 1630 9/3/08	Received By/Stored In 1060#3C	Date/Time 9/3/08 1630
linquished By/Removed From 060/3C	Date/Time 9/4/08 0915	Received By/Stored In MStankovich	Date/Time 9/4/08 0915
linquished By/Removed From WCH MStankovich	Date/Time 9/4/08 0915	Received By/Stored In FedEx	Date/Time
Relinquished By/Removed From FedEx	Date/Time 9.5.08/0950	Received By/Stored In	Date/Time 9.5.08/0950
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS BH 9/2/08

(1) ~~Gamma Spectroscopy (TCL List) [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; Gamma Spec - Add on [Americium-241], Gross Alpha & Gross Beta~~

(2) ICP Metals - 6010TR (Client List [Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc]; Mercury - 7471 - (CV)

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

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

CH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford RC-029 Date: 9.5.08

Project/SAF/SOW/Release #:

LvLI Batch #: 0809L036 Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 798005761115
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.2 °C		Cooler # AFS-04-054
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A
Person Contacted _____		Date _____	

LvLI

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1319

DATE RECEIVED: 09/05/08 LVL LOT # :0809L036

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17FY5	001	S	08LE0423	09/03/08	09/09/08	09/12/08
J17FY5	001 MS	S	08LE0423	09/03/08	09/09/08	09/12/08
J17FY5	001 MSD	S	08LE0423	09/03/08	09/09/08	09/12/08
J17FY6	002	S	08LE0423	09/03/08	09/09/08	09/12/08

LAB QC:

PBLKUL	MB1	S	08LE0423	N/A	09/09/08	09/12/08
PBLKUL	MB1 BS	S	08LE0423	N/A	09/09/08	09/12/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-029
LVL #: 0809L036
SDG/SAF # K1319 / RC-029

W.O. #: 60049-001-001-0001-00
Date Received: 09-05-2008

CHLORINATED PESTICIDES

Two (2) soil samples were collected on 09-03-2008.

The samples and their associated QC samples were extracted on 09-09-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 09-12-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081A.

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

1. All required holding times for extraction and analysis have been met.
2. The method blank was below the reporting limits for all target compounds.
3. All surrogate recoveries were within acceptance criteria.
4. All blank spike recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. All samples required a 4-fold instrument dilution due to the matrix. Reporting limits have been adjusted to reflect the necessary dilutions.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

r:\group\data\2008\pest\tnu\0809-036cs2.pest.doc

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

LIONVILLE LABORATORY INC.

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

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

Judy Stum

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/17/08
Date

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

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
P	=	This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

No pattern match for multi-component target analytes

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 09/15/08 14:23

RFW Batch Number: 0809L036 Client: WC-HANFORD RC-029 K1319 Work Order: 60049001001 Page: 1

000000005

	Cust ID:	J17FY5	J17FY5	J17FY5	J17FY6	PBLKUL	PBLKUL BS
Sample Information	RFW#:	001	001 MS	001 MSD	002	08LE0423-MB1	08LE0423-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	4.00	4.00	4.00	4.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	93 %	83 %	92 %	88 %	73 %	77 %
	Decachlorobiphenyl	99 %	94 %	99 %	88 %	71 %	78 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		1.4 U	86 %	90 %	1.4 U	0.33 U	91 %
gamma-BHC (Lindane)		1.4 U	91 %	96 %	1.4 U	0.33 U	92 %
Beta-BHC		1.4 U	100 %	103 %	1.4 U	0.33 U	87 %
Heptachlor		1.4 U	95 %	100 %	1.4 U	0.33 U	90 %
Delta-BHC		1.4 U	66 %	68 %	1.4 U	0.33 U	70 %
Aldrin		1.4 U	92 %	97 %	1.4 U	0.33 U	93 %
Heptachlor epoxide		1.4 U	97 %	101 %	1.4 U	0.33 U	90 %
gamma-Chlordane		1.4 U	99 %	104 %	1.4 U	0.33 U	92 %
Endosulfan I		1.4 U	103 %	108 %	1.4 U	0.33 U	100 %
alpha-Chlordane		1.4 U	100 %	104 %	1.4 U	0.33 U	90 %
4,4'-DDE		1.4 U	98 %	102 %	1.4 U	0.33 U	91 %
Dieldrin		1.4 U	97 %	101 %	1.4 U	0.33 U	94 %
Endrin		1.4 U	105 %	110 %	1.4 U	0.33 U	99 %
4,4'-DDD		1.4 U	98 %	102 %	1.4 U	0.33 U	98 %
Endosulfan II		1.4 U	100 %	105 %	1.4 U	0.33 U	91 %
4,4'-DDT		1.4 U	98 %	102 %	1.4 U	0.33 U	95 %
Endrin aldehyde		1.4 U	97 %	98 %	1.4 U	0.33 U	79 %
Endosulfan sulfate		1.4 U	89 %	93 %	1.4 U	0.33 U	81 %
Methoxychlor		1.4 U	112 %	116 %	1.4 U	0.33 U	94 %
Endrin ketone		1.4 U	100 %	105 %	1.4 U	0.33 U	90 %
Toxaphene		14 U	14 U	14 U	14 U	3.3 U	3.3 U

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

Richvile Laboratory, Inc.

PCBs by GC

Report Date: 09/16/08 10:59

RFW Batch Number: **0809L036** Client: **WC-HANFORD RC-029 K1319** Work Order: 60049001001 Page: 1

	Cust ID:	J17FY5	J17FY6	J17FY6	J17FY6	PBLKUL	PBLKUL BS
Sample Information	RFW#:	001	002	002 MS	002 MSD	08LE0423-MB1	08LE0423-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	87 %	109 %	99 %	78 %	69 %	86 %
	Decachlorobiphenyl	83 %	98 %	86 %	69 %	72 %	90 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		14 U	14 U	103 %	87 %	13 U	80 %
Aroclor-1221		14 U	14 U	14 U	14 U	13 U	13 U
Aroclor-1232		14 U	14 U	14 U	14 U	13 U	13 U
Aroclor-1242		14 U	14 U	14 U	14 U	13 U	13 U
Aroclor-1248		14 U	14 U	14 U	14 U	13 U	13 U
Aroclor-1254		14 U	14 U	14 U	14 U	13 U	13 U
Aroclor-1260		14 U	14 U	155 * %	131 %	13 U	102 %

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

000000006

Lionville Laboratory Use Only

0809L036

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Washington Closure Hanford RC-029

Est. Final Proj. Sampling Date

Project#: 60049-001-001-0001

Project Contact/Phone#

Lionville Laboratory Project Manager: Christie Johnson

SW846 Del 8/2 TAT 15 days

Date Rec'd: 9-5-08 Date Due: 9-20-08

		A							B		C					
Refrigerator #				3					3		3					
#/Type Container	Liquid															
	Solid			1gl					1gl		1gl					
Volume	Solid			250					250		120					
Preservatives				—					—		—					
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal + Hg	CN	Cr+6					
				OPCB 0008H					METO		IcRb					

Lionville Laboratory Use Only

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	J17FY5			S	9-3-08	0940			X					X		X			
002	J17FY6					0942			X					X		X			
003	J17FY7					0840								X					

Special Instructions: Matrix QC

Special Instructions:

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

Relinquished by	Received by	Date	Time
FedEx	[signature]	9-5-08	0952

Relinquished by	Received by	Date	Time
	SOB SRC		

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

0000000007

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector: WELLH KOELLING	Company Contact: Matt Perrott	Telephone No.: 372-9088	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-H-28:6		SAF No.: RC-029
Ice Chest No.: ASF-04-054	Field Logbook No.: EL-1601-2	COA: C00H28A000	Method of Shipment: FedEx
Shipped To: BH 9/3/08 ~~EBERLINE SERVICES~~ LIONVILLE	Offsite Property No.: 1080345		Bill of Lading/Air Bill No.: see OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	Cool 4C							
Type of Container	P	G/P	G/P	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	250mL	120mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082; Pesticides - 8081							
Sample No.	Matrix *	Sample Date	Sample Time								
J17FY5	SOIL	9/3/08	0940	X	X	X	X				
J17FY6	SOIL	9/3/08	0942	X	X	X	X				
J17FY7	SOIL	9/3/08	0840		X						
~~J17FY8~~	SOIL										
~~J17FY9~~ BH 9/3/08	SOIL										

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible]	9/3/08 1000	BHUDSON	9/3/08 1000
BHUDSON	9/3/08 1630	1060#3C	9/3/08 1630
1060/3C	9/4/08 0915	MSTankovich	9/4/08 0915
MSTankovich (WCH)	9/4/08 0915	FedEx	
FedEx	9.5.08/0950	[illegible]	9.5.08/0950

SPECIAL INSTRUCTIONS

BH 9/3/08

(1) ~~Gamma Spectroscopy (TCL List) [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; Gamma Spec - Add-on [Americium-241], Gross Alpha & Gross Beta~~

(2) ICP Metals - 6010TR (Client List [Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc]; Mercury - 7471 - (CV)

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

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford RC-029 Date: 9.5.08

Project/SAF/SOW/Release #:

LvLI Batch #: 0809L036 Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 79800576 1115
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.2 °C		Cooler # AFS-04-054
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1319

DATE RECEIVED: 09/05/08 LVL LOT # :0809L036

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17FY5	001	S	08LE0423	09/03/08	09/09/08	09/15/08
J17FY6	002	S	08LE0423	09/03/08	09/09/08	09/15/08
J17FY6	002 MS	S	08LE0423	09/03/08	09/09/08	09/15/08
J17FY6	002 MSD	S	08LE0423	09/03/08	09/09/08	09/15/08

LAB QC:

PBLKUL	MB1	S	08LE0423	N/A	09/09/08	09/12/08
PBLKUL	MB1 BS	S	08LE0423	N/A	09/09/08	09/12/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-029
LVL #: 0809L036
SDG/SAF # K1319 / RC-029

W.O. #: 60049-001-001-0001-00
Date Received: 09-05-2008

PCB

Two (2) soil samples were collected on 09-03-2008.

The samples and their associated QC samples were extracted on 09-09-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 09-12,15-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

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

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

2. The samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.

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

4. All obtainable surrogate recoveries were within acceptance criteria.

5. All blank spike recoveries were within acceptance criteria.

6. One (1) of four (4) matrix spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08GC113) has been enclosed.

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

r:\group\data\2008\pest\tmu\0809-036cs2.pcb.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

LIONVILLE LABORATORY INC.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/18/08
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08QC113

Initiator: CAC
Date: 09/16/08
Client: WC-Hanford

Batch: 0809L036
Samples: 002 MS
Method: SW846/MCAWW/CLP/

Parameter: PCB
Matrix: SOIL
Prep Batch: 08LE0423

1. Reason for SDR

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

b. General Discrepancy

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

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

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

Recovery of Aroclor 1260 is high in MS

Okay in MSD + BS

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

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

Other Description:

Samples are ND so any high bias is not significant

Narrate

[signature] 9/18/08

ID.

4. Project Manager Instructions...signature/date: _____

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

5. Final Action...signature/date: C Kelly 9/17/08

Other Explanation:

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

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

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

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

QA-139-A-0208

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Richville Laboratory, Inc.

PCBs by GC

Report Date: 09/16/08 10:59

RFW Batch Number: 0809L036 Client: WC-HANFORD RC-029 K1319 Work Order: 60049001001 Page: 1

	Cust ID:	J17FY5	J17FY6	J17FY6	J17FY6	PBLKUL	PBLKUL BS
Sample Information	RFW#:	001	002	002 MS	002 MSD	08LE0423-MB1	08LE0423-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		87 %	109 %	99 %	78 %	69 %	86 %
Decachlorobiphenyl		83 %	98 %	86 %	69 %	72 %	90 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		14 U	14 U	103 %	87 %	13 U	80 %
Aroclor-1221		14 U	14 U	14 U	14 U	13 U	13 U
Aroclor-1232		14 U	14 U	14 U	14 U	13 U	13 U
Aroclor-1242		14 U	14 U	14 U	14 U	13 U	13 U
Aroclor-1248		14 U	14 U	14 U	14 U	13 U	13 U
Aroclor-1254		14 U	14 U	14 U	14 U	13 U	13 U
Aroclor-1260		14 U	14 U	155 * %	131 %	13 U	102 %

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

000000006

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 09/09/09 Extraction Batch No: 08LE0423 Analyst: MF Method: **** SOX3540

Test: OPCB Cleanup Date: 09/11/08 Analyst: MF Client: WC-HANFORD RC-029 K1316

LIMS Report Date: 09/12/08 Solvent: DCM/SCETONE,HEXANE Adsorbent: H2SO4

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0809L021-	WC-HANFORD RC-029 K1316										
002	J17FV6		30.0	1.0		10		1.0	N	96.97	343.7
003	J17FV7		30.0	1.0		10		1.0	N	96.99	343.7
003 -S	J17FV7		30.0	1.0	1.0	10		1.0	N	96.99	343.7
003 -T	J17FV7		30.0	1.0	1.0	10		1.0	N	96.99	343.7
004	J17FV8		30.0	1.0		10		1.0	N	92.34	361.0
0809L035-	WC-HANFORD RC-030 K1320										
001	J17H00		30.0	1.0		10		1.0	N	78.28	425.8
002	J17H01		30.0	1.0		10		1.0	N	82.56	403.7
002 -S	J17H01		30.0	1.0	1.0	10		1.0	N	82.56	403.7
002 -T	J17H01		30.0	1.0	1.0	10		1.0	N	82.56	403.7
0809L036-	WC-HANFORD RC-029 K1319										
001	J17FY5		30.0	1.0		10		1.0	N	98.31	339.1
002	J17FY6		30.0	1.0		10		1.0	N	97.75	341.0
002 -S	J17FY6		30.0	1.0	1.0	10		1.0	N	97.75	341.0
002 -T	J17FY6		30.0	1.0	1.0	10		1.0	N	97.75	341.0
08LE0423-MB1	PBLKUL		30.0	1.0		10		1.0	N	100.00	333.3
08LE0423-MB1 -S	PBLKUL		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:
Surrogate: 250 UL OLM PSURR 89916407
Spike: 250 UL AR1660 89916604

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
GC	[illegible]	9/12/08 0901	CZ	9/12/08 9:10	GC

0000000007

nville Laboratory Use Only

3809L036

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

000000008

nt Washington Closure Hanford RC-029

Final Proj. Sampling Date

ect# 600749-B01-001-0001

ect Contact/Phone#

nville Laboratory Project Manager Christa Johnson

SW846 Del 8/2 TAT 15 days

e Rec'd 9.5.08 Date Due 9-20-08

		A	B	C
Refrigerator #		3	3	3
#/Type Container	Liquid / Solid	1gl	1gl	1gl
Volume	Solid	250	250	120
Preservatives		—	—	—

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb				INORG Metal + Hg	CN					
									OPCB 0608H					METO		IcR6				
001	J17FY5			S	9-3-08	0940			X					X		X				
002	J17FY6					0942			X					X		X				
003	J17FY7					0840								X						

Lionville Laboratory Use Only

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

cial Instructions:
atrix QC

Special Instructions:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	9-5-08	0952

Relinquished by	Received by	Date	Time
	SRC		

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-029-033

Collector: WELLH KOELLING	Company Contact: Matt Perrott	Telephone No.: 372-9088	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-H-28:6		SAF No.: RC-029
Ice Chest No.: ASF-04-054	Field Logbook No.: EL-1601-2	COA: C00H28A000	Method of Shipment: FedEx
Shipped To: ~~EBERLINE SERVICES~~ LIONVILLE BH 9/3/08	Offsite Property No.: A080345		Bill of Lading/Air Bill No.: SEC OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	Cool 4C							
Type of Container	P	G/P	G/P	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	250mL	120mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082; Pesticides - 8081							

Sample No.	Matrix *	Sample Date	Sample Time										
17FY5	SOIL	9/3/08	0940	X	X	X	X						
17FY6	SOIL	9/3/08	0942	X	X	X	X						
17FY7	SOIL	9/3/08	0840		X								
~~17FY8~~	SOIL												
~~17FY9~~ BH 9/3/08	SOIL												

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	9/3/08 1000	BHUDSON [signature]	9/3/08 1000
BHUDSON [signature]	9/3/08 1630	10600 #3C	9/3/08 1630
060/3C	9/4/08 0915	MStankovich	9/4/08 0915
WCH MStankovich	9/4/08 0915	FedEx	
[signature] FedEx	9.5.08/0950	[signature]	9.5.08/0950

SPECIAL INSTRUCTIONS

BH 9/3/08

(1) ~~Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241), Gross Alpha & Gross Beta~~

(2) ICP Metals - 6010TR (Client List {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)

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

000000009

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford RC.029 Date: 9.5.08

Project/SAF/SOW/Release #:

LvLI Batch #: 0809L036 Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 79800576 1115
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.2 °C		Cooler # AFS-04-054
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1319

DATE RECEIVED: 09/05/08 LVL LOT # :0809L036

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17FY5						
% SOLIDS	001	S	08L%S073	09/03/08	09/08/08	09/09/08
% SOLIDS	001 REP	S	08L%S073	09/03/08	09/08/08	09/09/08
CHROMIUM VI	001	S	08LVI062	09/03/08	09/10/08	09/10/08
CHROMIUM VI	001 REP	S	08LVI062	09/03/08	09/10/08	09/10/08
CHROMIUM VI	001 MS	S	08LVI062	09/03/08	09/10/08	09/10/08
CHROMIUM VI	001 MSD	S	08LVI062	09/03/08	09/10/08	09/10/08
J17FY6						
% SOLIDS	002	S	08L%S073	09/03/08	09/08/08	09/09/08
CHROMIUM VI	002	S	08LVI062	09/03/08	09/10/08	09/10/08
J17FY7						
% SOLIDS	003	S	08L%S073	09/03/08	09/08/08	09/09/08

LAB QC:

CHROMIUM VI	MB1	S	08LVI062	N/A	09/10/08	09/10/08
CHROMIUM VI	MB1 BS	S	08LVI062	N/A	09/10/08	09/10/08
CHROMIUM VI	MB1 BSD	S	08LVI062	N/A	09/10/08	09/10/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-029 K1319
LVL#: 0809L036

W.O.#: 60049-001-001-0001-00
Date Received: 09-05-08

INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 soil samples.

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

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

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

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

5. The method blank for Chromium VI was within the method criteria.

6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.

7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.

8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for soil samples are reported on a dry weight basis.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

9/30/08
Date

njp\i09-036

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/19/08

CLIENT: WC-HANFORD RC-029 K1319 LVL LOT #: 0809L036
WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17FY5	% Solids	98.3	%	0.01	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
-002	J17FY6	% Solids	97.8	%	0.01	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
-003	J17FY7	% Solids	100	%	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/19/08

CLIENT: WC-HANFORD RC-029 K1319 LVL LOT #: 0809L036

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LVI062-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/19/08

CLIENT: WC-HANFORD RC-029 K1319 LVL LOT #: 0809L036

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17FY5	Soluble Chromium VI	4.2	0.20u	4.1	108.4	1.0
		Insoluble Chromium VI	1020	0.20u	1170	86.8	100
BLANK10	08LVI062-MB1	Soluble Chromium VI	4.2	0.20u	4.0	104.9	1.0
		Insoluble Chromium VI	1070	0.20u	1150	93.0	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/19/08

CLIENT: WC-HANFORD RC-029 K1319 LVL LOT #: 0809L036

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17FY5	% Solids	98.3	97.6	0.72	1.0
		Chromium VI	0.20u	0.20u	NC	1.0

onville Laboratory Use Only

0809L036

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

ent: Washington Closure Hanford RC-029

t. Final Proj. Sampling Date

ject# 60049-001-001-0001

ject Contact/Phone#

nville Laboratory Project Manager Arlette Johnson

SW846 Del 817 TAT 15 days

te Rec'd 9.5.08 Date Due 9-20-08

	A	B	C
Refrigerator #	3	3	3
#/Type Container Liquid			
#/Type Container Solid	1gl	1gl	1gl
Volume Solid	250	250	120
Preservatives	—	—	—
ANALYSES REQUESTED (ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal + Hg, CN)	Pest/PCB	Metal + Hg	CN

Lionville Laboratory Use Only: OPCB 0608H; METD; ICP6

TRIX DES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OPCB 0608H	METD	ICP6
	001	J17FY5			S	9.3.08	0940	X	X	X
	002	J17FY6					0942	X	X	X
	003	J17FY7					0840		X	

ecial Instructions:
Matrix QC

Special Instructions:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	9.5.08	0952

Relinquished by	Received by	Date	Time
	SOB SRC		

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

000000009

Washington Closure Hanford | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | RC-029-053 | Page 1 of 1

Collector: WELCH KOELLING	Company Contact: Matt Perrott	Telephone No.: 372-9088	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-H-28:6		SAF No.: RC-029
Ice Chest No.: ASF-04-054	Field Logbook No.: EL-1601-2	COA: C00H28A000	Method of Shipment: Fed Ex
Shipped To: BH 9/3/08 ~~EBERLINE SERVICES~~ LIONVILLE	Offsite Property No.: A080345		Bill of Lading/Air Bill No.: SEC OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	Cool 4C	Cool 4C								
Type of Container	P	G/P	G/P	aG								
No. of Container(s)	1	1	1	1								
Volume	500mL	250mL	120mL	250mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082; Pesticides - 8081								
Sample No. / Matrix * / Sample Date / Sample Time												
17FY5 / SOIL / 9/3/08 / 0940	X	X	X	X								
17FY6 / SOIL / 9/3/08 / 0942	X	X	X	X								
17FY7 / SOIL / 9/3/08 / 0840		X										
~~17FY8~~ / SOIL												
~~17FY9~~ BH 9/3/08 / SOIL												

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible]	9/3/08 1000	BHUDSON	9/3/08 1000
BHUDSON	9/3/08 1630	1060 #3C	9/3/08 1630
060/3C	9/4/08 0915	MStankovich	9/4/08 0915
MStankovich (WCH)	9/4/08 0915	Fed Ex	
Fed Ex	9.5.08/0950	[illegible]	9.5.08/0950

SPECIAL INSTRUCTIONS BH 9/3/08

(1) ~~Gamma Spectroscopy (TCL List) [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; Gamma Spec - Add on [Americium-241], Gross Alpha & Gross Beta~~

(2) ICP Metals - 6010TR (Client List [Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc]; Mercury - 7471 - (CV)

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

000000010

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford RC-029 Date: 9.5.08

Project/SAF/SOW/Release #:

LvLI Batch #: 0809L036 Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 79800576 1115
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.2 °C		Cooler # AFS-04-054
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI