

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

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt

H4-21

KW 1/19/09
INITIAL/DATE

COMMENTS:

SDG K1448

SAF RC-029

Rad only

Chem only

Rad & Chem

Complete

Partial

Waste Site: 100-H-28:2 Discovered French Drain

RECEIVED
JAN 28 2009
EDMC



EBERLINE SERVICES

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November 21, 2008

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



Reference: **P.O. #S00W235A00**
Eberline Services R8-11-081-7751, SDG K1448

Dear Ms. Kessner:

Enclosed is the data report for one solid (soil) sample designated under SAF No. RC-029 received at Eberline Services on November 12, 2008. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/jag

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1448 was composed of one solid (soil) sample designated under SAF No. RC-029 with a Project Designation of: Remaining Sites Confirmation Sampling-Soil.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on November 20, 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
Senior Program Manager



Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1448

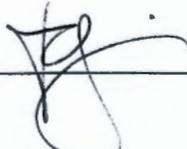
SDG 7751
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG_K1448

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				
About this section	.	.	.	1
Sample Summaries	.	.	.	3
Prep Batch Summary	.	.	.	5
Work Summary	.	.	.	6
Method Blanks	.	.	.	7
Lab Control Samples	.	.	.	8
Duplicates	.	.	.	9
Data Sheets	.	.	.	10
Method Summaries	.	.	.	11
Report Guides	.	.	.	14
End of Section	.	.	.	28

Prepared by



Melissa Mannion

Reviewed by

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1448

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.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1448

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.

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 2

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751

Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford

Contract No. S00W235A00

Case no SDG K1448

LAB	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R811081-01	J17W36	100-H-28:2 Disc.Fr.Drain	SOLID		RC-029	RC-029-062	11/10/08 12:00
R811081-02	Lab Control Sample		SOLID		RC-029		
R811081-03	Method Blank		SOLID		RC-029		
R811081-04	Duplicate (R811081-01)	100-H-28:2 Disc.Fr.Drain	SOLID		RC-029		11/10/08 12:00

LAB SUMMARY

Page 1

MMARY DATA SECTION

Page 3

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 11/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1448

QC SUMMARY

BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
'51	RC-029-062	J17W36	SOLID	94.5	1384 g		11/12/08 2	R811081-01		7751-001
		Method Blank	SOLID					R811081-03		7751-003
		Lab Control Sample	SOLID					R811081-02		7751-002
		Duplicate (R811081-01)	SOLID	94.5	1384 g		11/12/08 2	R811081-04		7751-004

QC SUMMARY

Page 1

SUMMARY DATA SECTION

Page 4

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 11/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1448

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Gas Proportional Counting										
93A	SOLID	Gross Alpha in Solids	6174-113	20.6	1			1	1	1/1
93B	SOLID	Gross Beta in Solids	6174-113	11.0	1			1	1	1/1
Gamma Spectroscopy										
GAM	SOLID	Gamma Scan	6174-113	7.0	1			1	1	1/1

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

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-PBS
 Version 3.06
 Report date 11/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751

Contact Melissa C. Mannion

Client Hanford

Contract No. S00W235A00

Case no SDG K1448

LAB WORK SUMMARY

LAB SAMPLE	CLIENT SAMPLE ID									
COLLECTED	LOCATION	MATRIX			SUF-					
RECEIVED	CUSTODY	SAF No	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
11081-01	J17W36		7751-001	93A/93		11/19/08	11/19/08	BW	Gross Alpha in Solids	
11/10/08	100-H-28:2 Disc.Fr.Drain	SOLID	7751-001	93B/93		11/19/08	11/19/08	BW	Gross Beta in Solids	
11/12/08	RC-029-062	RC-029	7751-001	GAM		11/18/08	11/19/08	BW	Gamma Scan	
11081-02	Lab Control Sample		7751-002	93A/93		11/19/08	11/19/08	BW	Gross Alpha in Solids	
		SOLID	7751-002	93B/93		11/19/08	11/19/08	BW	Gross Beta in Solids	
		RC-029	7751-002	GAM		11/18/08	11/19/08	BW	Gamma Scan	
11081-03	Method Blank		7751-003	93A/93		11/19/08	11/19/08	BW	Gross Alpha in Solids	
		SOLID	7751-003	93B/93		11/19/08	11/19/08	BW	Gross Beta in Solids	
		RC-029	7751-003	GAM		11/18/08	11/19/08	BW	Gamma Scan	
11081-04	Duplicate (R811081-01)		7751-004	93A/93		11/19/08	11/19/08	BW	Gross Alpha in Solids	
11/10/08	100-H-28:2 Disc.Fr.Drain	SOLID	7751-004	93B/93		11/19/08	11/19/08	BW	Gross Beta in Solids	
11/12/08		RC-029	7751-004	GAM		11/18/08	11/19/08	BW	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	1			1	1	1		4
93B/93	RC-029	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1		4
GAM	RC-029	Gamma Scan	GAMMA_GS	1			1	1	1		4
TOTALS				3			3	3	3		12

WORK SUMMARY

Page 1

PRIMARY DATA SECTION

Page 6

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-LWS
 Version 3.06
 Report date 11/20/08

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1448

7751-003

Method Blank

METHOD BLANK

SDG <u>7751</u>	Client/Case no <u>Hanford</u>	SDG <u>K1448</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>S00W235A00</u>	
Lab sample id <u>R811081-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7751-003</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>RC-029</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.156	3.3	7.18	10.0	U	93A
Gross Beta	12587-47-2	-1.15	2.9	5.18	15.0	U	93B
Potassium 40	13966-00-2	U		0.390		U	GAM
Cobalt 60	10198-40-0	U		0.015	0.050	U	GAM
Cesium 137	10045-97-3	U		0.015	0.100	U	GAM
Radium 226	13982-63-3	U		0.034	0.100	U	GAM
Radium 228	15262-20-1	U		0.068	0.200	U	GAM
Europium 152	14683-23-9	U		0.040	0.100	U	GAM
Europium 154	15585-10-1	U		0.045	0.100	U	GAM
Europium 155	14391-16-3	U		0.036	0.100	U	GAM
Thorium 228	14274-82-9	U		0.022		U	GAM
Thorium 232	TH-232	U		0.068		U	GAM
Uranium 235	15117-96-1	U		0.061		U	GAM
Uranium 238	U-238	U		1.73		U	GAM
Americium 241	14596-10-2	U		0.014		U	GAM

Remain. Sites Confirm. Sampl. - Soil

QC-BLANK #68112

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1448

7751-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7751</u> Contact <u>Melissa C. Mannion</u> Lab sample id <u>R811081-02</u> Dept sample id <u>7751-002</u>	Client/Case no <u>Hanford</u> SDG <u>K1448</u> Contract No. <u>S00W235A00</u> Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>RC-029</u>
---	--

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	‡	(TOTAL)	LIMITS
Gross Alpha	128	18	7.13	10.0	93A	112	4.5	114	57-143	70-130
Gross Beta	113	8.4	7.05	15.0	93B	111	4.4	102	79-121	80-120
Cobalt 60	0.578	0.032	0.018	0.050	GAM	0.611	0.024	95	86-114	80-120
Cesium 137	0.748	0.030	0.019	0.100	GAM	0.716	0.029	104	86-114	80-120

Remain. Sites Confirm. Sampl. - Soil

QC-LCS #68111

Lab id <u>EBRLINE</u>
Protocol <u>Hanford1</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>11/20/08</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1448

7751-004

J17W36

DUPLICATE

SDG <u>7751</u> Contact <u>Melissa C. Mannion</u> DUPLICATE Lab sample id <u>R811081-04</u> Dept sample id <u>7751-004</u> % solids <u>94.5</u>	ORIGINAL Lab sample id <u>R811081-01</u> Dept sample id <u>7751-001</u> Received <u>11/12/08</u> % solids <u>94.5</u>	Client/Case no <u>Hanford</u> SDG <u>K1448</u> Contract No. <u>S00W235A00</u> Client sample id <u>J17W36</u> Location/Matrix <u>100-H-28:2 Disc.Fr.Drain SOLID</u> Collected/Weight <u>11/10/08 12:00 1384 g</u> Custody/SAF No <u>RC-029-062 RC-029</u>
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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	8.62	7.0	9.60	10.0	U	93A	3.90	6.1	9.82	U	-	1.0	
Gross Beta	23.4	4.8	6.04	15.0		93B	20.7	4.4	5.44		12	50	0.7
Potassium 40	13.9	0.62	0.249			GAM	13.6	0.54	0.200		2	17	0.4
Cobalt 60	U		0.022	0.050	U	GAM	U		0.020	U	-		0.1
Cesium 137	U		0.025	0.100	U	GAM	U		0.019	U	-		0.4
Radium 226	0.538	0.052	0.047	0.100		GAM	0.537	0.040	0.036		0	24	0
Radium 228	0.797	0.096	0.090	0.200		GAM	0.832	0.083	0.079		4	28	0.5
Europium 152	U		0.067	0.100	U	GAM	U		0.050	U	-		0.4
Europium 154	U		0.076	0.100	U	GAM	U		0.066	U	-		0.2
Europium 155	U		<u>0.179</u>	0.100	U	GAM	U		0.059	U	-		1.3
Thorium 228	0.833	0.039	0.035			GAM	0.822	0.031	0.026		1	17	0.2
Thorium 232	0.797	0.096	0.090			GAM	0.832	0.083	0.079		4	28	0.5
Uranium 235	U		0.117		U	GAM	U		0.098	U	-		0.2
Uranium 238	U		2.88		U	GAM	U		2.19	U	-		0.4
Americium 241	U		0.167		U	GAM	U		0.130	U	-		0.3

Remain. Sites Confirm. Sampl. - Soil

QC-DUP#1 68113

DUPLICATES

Page 1

SUMMARY DATA SECTION

Page 9

Lab id <u>EBRLNE</u>
Protocol <u>Hanford1</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>11/20/08</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1448

7751-001

J17W36

DATA SHEET

<u>SDG 7751</u>	Client/Case no <u>Hanford</u>	<u>SDG K1448</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. S00W235A00</u>	
Lab sample id <u>R811081-01</u>	Client sample id <u>J17W36</u>	
Dept sample id <u>7751-001</u>	Location/Matrix <u>100-H-28:2 Disc.Fr.Drain SOLID</u>	
Received <u>11/12/08</u>	Collected/Weight <u>11/10/08 12:00</u> <u>1384 g</u>	
% solids <u>94.5</u>	Custody/SAF No <u>RC-029-062</u> <u>RC-029</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	3.90	6.1	9.82	10.0	U	93A
Gross Beta	12587-47-2	20.7	4.4	5.44	15.0		93B
Potassium 40	13966-00-2	13.6	0.54	0.200			GAM
Cobalt 60	10198-40-0	U		0.020	0.050	U	GAM
Cesium 137	10045-97-3	U		0.019	0.100	U	GAM
Radium 226	13982-63-3	0.537	0.040	0.036	0.100		GAM
Radium 228	15262-20-1	0.832	0.083	0.079	0.200		GAM
Europium 152	14683-23-9	U		0.050	0.100	U	GAM
Europium 154	15585-10-1	U		0.066	0.100	U	GAM
Europium 155	14391-16-3	U		0.059	0.100	U	GAM
Thorium 228	14274-82-9	0.822	0.031	0.026			GAM
Thorium 232	TH-232	0.832	0.083	0.079			GAM
Uranium 235	15117-96-1	U		0.098		U	GAM
Uranium 238	U-238	U		2.19		U	GAM
Americium 241	14596-10-2	U		0.130		U	GAM

Remain. Sites Confirm. Sampl. - Soil

Lab id <u>EBRLNE</u>
Protocol <u>Hanford1</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>11/20/08</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1448

Test 93A Matrix SOLID
 SDG 7751
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
 GAS PROPORTIONAL COUNTING

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1448

RESULTS

LAB RAW SUP-
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Gross Alpha

Preparation batch 6174-113

111081-01	93		7751-001	J17W36	U
111081-02	93		7751-002	Lab Control Sample	ok
111081-03	93		7751-003	Method Blank	U
111081-04	93		7751-004	Duplicate (R811081-01)	- U

Minimal values and limits from method RDLs (pCi/g) 10.0
 main. Sites Confirm. Sampl. - Soil

METHOD PERFORMANCE

LAB RAW SUP- MDA ALIQ PREP DILU- RESID EFF COUNT FWHM DRIFT DAYS ANAL-
 SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/g g FAC TION mg % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 6174-113 2σ prep error 20.6 % Reference Lab Notebook #6174, pg. 113

11081-01	93		J17W36	9.82	0.100			79	100		9	11/18/08	11/19	GRB-101
11081-02	93		Lab Control Sample	7.13	0.100			62	100			11/18/08	11/19	GRB-103
11081-03	93		Method Blank	7.18	0.100			64	100			11/18/08	11/19	GRB-104
11081-04	93		Duplicate (R811081-01)	9.60	0.100			78	100		9	11/18/08	11/19	GRB-105

Minimal values and limits from method 10.0 0.100 5-250 100 180

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

AVERAGES ± 2 SD MDA 8.43 ± 2.96
 FOR 4 SAMPLES RESIDUE 71 ± 18

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 11/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1448

Test 93B Matrix SOLID
 SDG 7751
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1448

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS
 GAS PROPORTIONAL COUNTING

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta

Preparation batch 6174-113

11081-01	93	7751-001	J17W36	20.7
11081-02	93	7751-002	Lab Control Sample	ok
11081-03	93	7751-003	Method Blank	U
11081-04	93	7751-004	Duplicate (R811081-01)	ok

Minimal values and limits from method RDLs (pCi/g) 15.0
 Main. Sites Confirm. Sampl. - Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	mg	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR

Preparation batch 6174-113 2σ prep error 11.0 % Reference Lab Notebook #6174, pg. 113

11081-01	93	J17W36	5.44	0.100			79	100				9	11/18/08	11/19	GRB-101
11081-02	93	Lab Control Sample	7.05	0.100			62	100					11/18/08	11/19	GRB-103
11081-03	93	Method Blank	5.18	0.100			64	100					11/18/08	11/19	GRB-104
11081-04	93	Duplicate (R811081-01)	6.04	0.100			78	100				9	11/18/08	11/19	GRB-105

Minimal values and limits from method 15.0 0.100 5-250 100 180

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

AVERAGES ± 2 SD	MDA	<u>5.93</u> ± <u>1.66</u>
FOR 4 SAMPLES	RESIDUE	<u>71</u> ± <u>18</u>

METHOD SUMMARIES

Page 2

PRIMARY DATA SECTION

Page 12

Lab id	<u>EBRLNE</u>
Protocol	<u>Hanford1</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-LMS</u>
Version	<u>3.06</u>
Report date	<u>11/20/08</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1448

Client Hanford

Contract No. S00W235A00

Contract SDG K1448

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Test GAM Matrix SOLID

SDG 7751

Contact Melissa C. Mannion

RESULTS

RAW SUP-
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Cobalt 60 Cesium 137

Preparation batch 6174-113

SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137
11081-01		7751-001	J17W36	U	U
11081-02		7751-002	Lab Control Sample	ok	ok
11081-03		7751-003	Method Blank	U	U
11081-04		7751-004	Duplicate (R811081-01)	- U	- U

Minimal values and limits from method RDLs (pCi/g) 0.050 0.100
 Main. Sites Confirm. Sampl. - Soil

METHOD PERFORMANCE

RAW SUP- MDA ALIQ PREP DILU- YIELD EFF COUNT FWHM DRIFT DAYS ANAL-
 SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/g g FAC TION % % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 6174-113 2σ prep error 7.0 % Reference Lab Notebook #6174, pg. 113

SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANALYZED	DETECTOR
11081-01		J17W36	3.97	778					191			8	11/17/08	11/18	MB,08,00
11081-02		Lab Control Sample	0.018	777					192				11/17/08	11/18	01,04,00
11081-03		Method Blank	3.46	777					192				11/17/08	11/18	MB,06,00
11081-04		Duplicate (R811081-01)	5.52	778					116			8	11/17/08	11/18	MB,08,00

Minimal values and limits from method 0.050 777 100 180

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

AVERAGES ± 2 SD MDA 3.24 ± 4.64
 FOR 4 SAMPLES YIELD _____ ± _____

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1448

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.

REPORT GUIDES

Page 1

SAMPLE SUMMARY DATA SECTION

Page 14

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1448

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1448

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.

REPORT GUIDES

Page 3

SUMMARY DATA SECTION

Page 16

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751

Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford

Contract No. S00W235A00

Case no SDG K1448

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).

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751

Contact Melissa C. Mannion

Client Hanford

Contract No. S00W235A00

Case no SDG K1448

GUIDE, cont.

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.

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1448

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.

REPORT GUIDES

Page 6

SUMMARY DATA SECTION

Page 19

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1448

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.

REPORT GUIDES

Page 7

SUMMARY DATA SECTION

Page 20

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1448

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.

REPORT GUIDES

Page 8

SUMMARY DATA SECTION

Page 21

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1448

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.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751

Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford

Contract No. S00W235A00

Case no SDG K1448

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

REPORT GUIDES

Page 10

PRIMARY DATA SECTION

Page 23

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1448

MATRIX SPIKE

for the recovery.

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1448

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1448

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.
- * Preparation 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.

REPORT GUIDES

Page 13

SUMMARY DATA SECTION

Page 26

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1448

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

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 11/20/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1448

SDG 7751
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1448

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.

REPORT GUIDES

Page 15

SUMMARY DATA SECTION

Page 28

Lab id EBRINE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/20/08

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-029-062		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-28:2 Discovered French Drain K1448 (7751)			SAF No. RC-029							
Ice Chest No. Delta 1		Field Logbook No. EL-1601-2		COA C00H28A000		Method of Shipment FedEx						
Shipped To (EBERLINE SERVICES) LIONVILLE		Offsite Property No. A090101			Bill of Lading/Air Bill No. see aspc							
POSSIBLE SAMPLE HAZARDS/REMARKS												
Special Handling and/or Storage				Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
				Type of Container	P	G/P	G/P	aG	aG	G		
				No. of Container(s)	1	1	1	1	1	1		
				Volume	1000mL	250mL	120mL	250mL	250mL	250mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082; Pesticides - 8081	PAHs - 8310	TPH-Diesel Range - WTPH-D +			
Sample No.	Matrix *	Sample Date	Sample Time									
J17W36	SOIL	11/10/08	1200	X								
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From <i>[Signature]</i>		Date/Time 1210 11/10/08		Received By/Stored In <i>[Signature]</i>		Date/Time 1210 11/10/08		<p>(1) Gamma Spectroscopy (TCL List) / <i>at well 08</i> Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155; Gamma Spec - Add on (Americium-241); Gross Alpha & Gross Beta</p> <p>(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)</p> <p>Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.</p>				<ul style="list-style-type: none"> S=Soil SE=Sediment SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WJ=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>[Signature]</i>		Date/Time 1615 11/10/08		Received By/Stored In <i>[Signature]</i>		Date/Time 1615 11/10/08						
Relinquished By/Removed From <i>[Signature]</i>		Date/Time 1000 NOV 11 2008		Received By/Stored In <i>[Signature]</i>		Date/Time 1000 NOV 11 2008						
Relinquished By/Removed From <i>[Signature]</i>		Date/Time 1000 NOV 11 2008		Received By/Stored In <i>[Signature]</i>		Date/Time <i>[Signature]</i>						
Relinquished By/Removed From <i>[Signature]</i>		Date/Time <i>[Signature]</i>		Received By/Stored In <i>[Signature]</i>		Date/Time 09:10						
Relinquished By/Removed From <i>[Signature]</i>		Date/Time <i>[Signature]</i>		Received By/Stored In <i>[Signature]</i>		Date/Time <i>[Signature]</i>						
LABORATORY SECTION	Received By		Title						Date/Time			
FINAL SAMPLE DISPOSITION	Disposal Method		Disposed By						Date/Time			

Client: W.C. HANFORD City RICHLAND State WA
 Date/Time received 11/12/08 09:10 CoC No. RC-029-062
 Container I.D. No. DELTA-1 Requested TAT (Days) 15 P.O. Received Yes [] No []

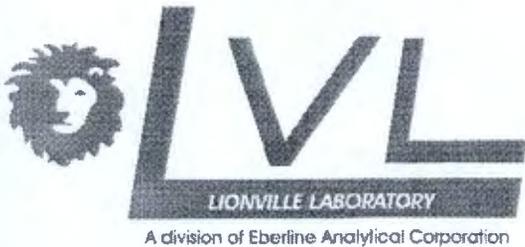
INSPECTION

1. Custody seals on shipping container intact? Yes No [] N/A []
2. Custody seals on shipping container dated & signed? Yes No [] N/A []
3. Custody seals on sample containers intact? Yes No [] N/A []
4. Custody seals on sample containers dated & signed? Yes No [] N/A []
5. Packing material is: Wet [] Dry
6. Number of samples in shipping container: 1 Sample Matrix S
7. Number of containers per sample: 1 (Or see CoC _____)
8. Samples are in correct container Yes No []
9. Paperwork agrees with samples? Yes No []
10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels
11. Samples are: In good condition 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 MF Date: 11/12/08 Time: 10:15

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wide	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wide
J17W36	260						

Ion Chamber Ser. No. _____ Calibration date _____
 Alpha Meter Ser. No. _____ Calibration date _____
 Beta/Gamma Meter Ser. No. 100482 Calibration date 10 JUL 08



264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

17 January 2009

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 #	0811L062
SDG #	K1448
SAF #	RC-029
Date Received	11/12/08
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	X
Pest/PCB	X
PAH	X
DRO/KRO/GRO	X
GC Alcohols	
Herbicides	
Metals	X
Inorganics	

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation



Orlette S. Johnson
Project Manager

Lionville Laboratory, Inc.
DRO ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1448



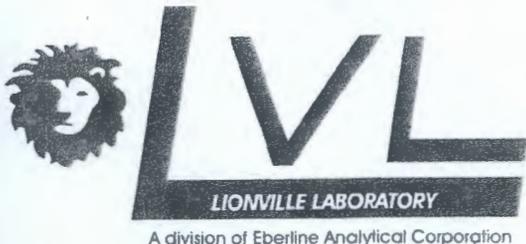
DATE RECEIVED: 11/12/08

LVL LOT # :08111062

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17W36	001	S	08LE0606	11/10/08	11/18/08	12/12/08
J17W36	001 MS	S	08LE0606	11/10/08	11/18/08	12/12/08
J17W36	001 MSD	S	08LE0606	11/10/08	11/18/08	12/12/08

LAB QC:

SBLKAI	MB1	S	08LE0606	N/A	11/18/08	12/12/08
SBLKAI	MB1 BS	S	08LE0606	N/A	11/18/08	12/12/08



264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-029
LVL #: 0811L062
SDG/SAF # K1448 /RC-029

W.O. #: 60049-001-001-0001-00
Date Received: 11-12-2008

DIESEL RANGE ORGANICS

One (1) soil sample was collected on 11-10-2008.

The sample and its associated QC samples were extracted on 11-18-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 12-12-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8015B.

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 QC results accompanying the sample results. Lionville Laboratory Inc (LvL) 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 contained Diesel Range Organics (DRO) and Motor Oil Range Organics (MRO) at a level above the reporting limit. DRO and MRO were not detected in any samples processed with this blank at levels at or above the reporting limit.
3. All obtainable 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 initial calibrations associated with this data set were within acceptance criteria.
7. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
8. LvL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

9. 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.



Ian Daniels
Laboratory Manager
Lionville Laboratory

1/13/09
Date



GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Sample Information	Cust ID:	J17W36	J17W36	J17W36	SBLKAI	SBLKAI BS
	RFW#:	001	001 MS	001 MSD	08LE0606-MB1	08LE0606-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
	p-Terphenyl	88 %	95 %	116 %	71 %	96 %
		fl	fl	fl	fl	fl
Diesel Range Organics		2700 JB	89 %	112 %	22000	71 %
Motor Oil Range Organics		6100 JB	NS	NS	50000	NS

000000005

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

Extract. Date: 11/18/08

Extraction Batch No: 08LE0606

Analyst: MF

Method: ****

Test: ODR0

Cleanup Date:

Analyst:

Client: WC-HANFORD RC-029 K1448

LIMS Report Date: 01/07/09

Solvent:

Adsorbent:

Sample No:	Client Name Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solid	C/D FACTOR
0811L062-	WC-HANFORD RC-029 K1448										
001	J17W36	7	30.0	1.0		1.0		1.0	N	93.42	35.68
001 -S	J17W36	7	30.0	1.0	1.0	1.0		1.0	N	93.42	35.68
001 -T	J17W36	7	30.0	1.0	1.0	1.0		1.0	N	93.42	35.68
0811L085-	WC-HANFORD RC-029 K1454										
002	J17T55	7	30.0	1.0		1.0		1.0	N	86.22	38.66
002 -S	J17T55	7	30.0	1.0	1.0	1.0		1.0	N	86.22	38.66
002 -T	J17T55	7	30.0	1.0	1.0	1.0		1.0	N	86.22	38.66
003	J17T56	7	30.0	1.0		1.0		1.0	N	86.07	38.73
004	J17T57	7	30.0	1.0		1.0		1.0	N	87.89	37.93
08LE0606-MB1		7	30.0	1.0		1.0		1.0	N	100.00	33.33
08LE0606-MB1 -S		7	30.0	1.0	1.0	1.0		1.0	N	100.00	33.33

Comments:

Surrogate: 1.0ML DIESEL SURR 86972005

Spike: 1.0ML DIESEL SPIKE 86971905

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer

000000006

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-28:2 Discovered French Drain	SAF No. RC-029			
Ice Chest No. GWS-132	Field Logbook No. EL-1601-2	COA C00H28A000	Method of Shipment Fed Ex		
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A090076	Bill of Lading/Air Bill No. See ospc			

0000000000

POSSIBLE SAMPLE HAZARDS/REMARKS	Special Handling and/or Storage	Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
		Type of Container	P	G/P	G/P	aG	aG	G				
		No. of Container(s)	1	1	1	1	1	1				
		Volume	105mL	250mL	120mL	250mL	250mL	250mL				

SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082; Pesticides - 8081	PAHs - 8310	TPH-Diesel Range - WTPH-D +				
-----------------	---------------------------------------	---------------------------------------	---------------------	--------------------------------	-------------	-----------------------------	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time									
J17W36	SOIL	11/10/08	1200		X	X	X	X	X			

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 12/10/08	Received By/Stored In <i>[Signature]</i>	Date/Time 12/10/08	(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)	S=Soil SE=Soil/metal SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WJ=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 11/10/08 1615	Received By/Stored In <i>[Signature]</i>	Date/Time 11/10/08 1615			
Relinquished By/Removed From <i>[Signature]</i>	Date/Time NOV 11 2008 0820	Received By/Stored In <i>[Signature]</i>	Date/Time NOV 11 2008 0820			
Relinquished By/Removed From <i>[Signature]</i>	Date/Time NOV 11 2008 0820	Received By/Stored In <i>[Signature]</i>	Date/Time NOV 11 2008 0820			
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 11-12-08 0910	Received By/Stored In <i>[Signature]</i>	Date/Time 11-12-08 0910			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			

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

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

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD
 Project/SAP/SOW/Release #: RC-029

Date: 11/12/08

LvLI Batch #: 0811L 062

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|--|--|--|
| 1. Samples Hand Delivered or <u>Shipped?</u> | Carrier <u>Fed Ex</u> | Airbill # <u>7980 5896 4709</u> |
| 2. Custody Seals on coolers or shipping containers intact, signed & dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Comments: |
| 4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient?
How was the temperature taken?
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C) | Temp <u>32°</u> °C
<input checked="" type="checkbox"/> IR <input type="checkbox"/> Temp. Blank
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Cooler # <u>GWS-132</u>
<input type="checkbox"/> Other (Specify): |
| 6. Custody seals on sample containers intact, signed and dated? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. COC (Client & LvLI) signed & dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on COC received?
All samples received on COC? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches COC? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? (If #5 is no, then this is no.) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times?
Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No | N/A |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | N/A |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> 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.) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning any discrepancies?
Person Contacted _____
Date _____ | <input type="checkbox"/> Yes <input type="checkbox"/> No | N/A |

LvLI

Lionville Laboratory, Inc.
 8310 ANALYTICAL DATA PACKAGE FOR
 WC-HANFORD RC-029 K1448



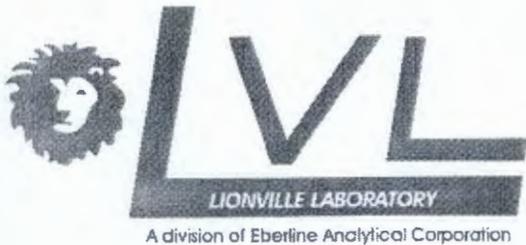
DATE RECEIVED: 11/12/08

LVL LOT # 0811L062

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17W36	001	S	08LE0647	11/10/08	12/04/08	12/18/08
J17W36	001 MS	S	08LE0647	11/10/08	12/04/08	12/18/08
J17W36	001 MSD	S	08LE0647	11/10/08	12/04/08	12/18/08

LAB QC:

BLK	MB1	S	08LE0647	N/A	12/04/08	12/18/08
BLK	MB1 BS	S	08LE0647	N/A	12/04/08	12/18/08



264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-029
LVL #: 0811L062
SDG/SAF # K1448 /RC-029

W.O. #: 60049-001-001-0001-00
Date Received: 11-12-2008

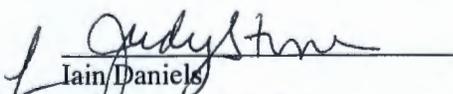
POLYAROMATIC HYDROCARBONS

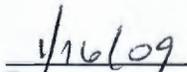
One (1) soil sample was collected on 11-10-2008.

The sample and its associated QC samples were extracted on 12-04-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 12-18-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8310.

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 QC results accompanying the sample results. Lionville Laboratory (LVL) certifies that all test results meet the requirements of NELAC except as noted below:

1. The sample was extracted 10 days outside of recommended hold time.
2. The method blank was below the reporting limits for all target compounds.
3. All obtainable 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 initial calibrations associated with this data set were within acceptance criteria.
7. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
8. LVL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.


Iain Daniels
Laboratory Manager
Lionville Laboratory


Date



GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

000000004

Sample Information	Cust ID:	J17W36	J17W36	J17W36	BLK	BLK BS
	RFW#:	001	001 MS	001 MSD	08LE0647-MB1	08LE0647-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Triphenylene		88 %	90 %	88 %	84 %	91 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
Naphthalene		35.7 U	97 %	95 %	33.3 U	94 %
Acenaphthylene		35.7 U	88 %	88 %	33.3 U	85 %
Acenaphthene		35.7 U	86 %	76 %	33.3 U	85 %
Fluorene		2.0 J	86 %	74 %	3.33 U	84 %
Phenathrene		5.5	87 %	77 %	3.33 U	85 %
Anthracene		3.57 U	102 %	91 %	3.33 U	96 %
Fluoranthrene		13	95 %	78 %	3.33 U	83 %
Indeno (1,2,3-cd) pyrene		6.9	90 %	83 %	3.33 U	85 %
Pyrene		7.6	85 %	76 %	3.33 U	85 %
Benzo (a) anthracene		4.8	79 %	74 %	3.33 U	79 %
Chrysene		5.7	90 %	78 %	3.33 U	85 %
Benzo (b) fluoranthrene		10	106 %	93 %	3.33 U	88 %
Benzo (k) fluoranthrene		3.7	95 %	87 %	3.33 U	90 %
Benzo (a) pyrene		8.0	89 %	82 %	3.33 U	86 %
Dibenzo (a,h) anthracene		1.1 J	91 %	85 %	3.33 U	88 %
Benzo (ghi) perylene		7.0	85 %	78 %	3.33 U	84 %

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

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 12/04/08

Extraction Batch No: 08LE0647

Analyst: MF

Method: ****

Test: 0831

Cleanup Date:

Analyst:

Client: WC-HANFORD RC-029 K1448

LIMS Report Date: 01/04/09

Solvent:

Adsorbent:

Sample No:	Client Name Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solid	C/D FACTOR
0811L062-	WC-HANFORD RC-029 K1448										
001 0	J17W36	7	30.0	1.0		5.0		1.0	N	93.42	178.4
001 OS	J17W36	7	30.0	1.0	1.0	5.0		1.0	N	93.42	178.4
001 OT	J17W36	7	30.0	1.0	1.0	5.0		1.0	N	93.42	178.4
0811L112-	WC-HANFORD RC-075 K1462										
011 0	J17V07	7	30.0	1.0		5.0		1.0	N	99.93	166.8
011 OS	J17V07	7	30.0	1.0	1.0	5.0		1.0	N	99.93	166.8
011 OT	J17V07	7	30.0	1.0	1.0	5.0		1.0	N	99.93	166.8
0811L129-	WC-HANFORD RC-123 K1465										
002 0	J17XW5	7	30.0	1.0		5.0		1.0	N	97.10	171.6
003 0	J17XW6	7	30.0	1.0		5.0		1.0	N	95.86	173.9
004 0	J17XW7	7	30.0	1.0		5.0		1.0	N	96.90	172.0
005 0	J17XW8	7	30.0	1.0		5.0		1.0	N	97.00	171.8
006 0	J17XW9	7	30.0	1.0		5.0		1.0	N	96.34	173.0
007 0	J17XX5	7	30.0	1.0		5.0		1.0	N	96.84	172.1
008 0	J17XX6	7	30.0	1.0		5.0		1.0	N	95.83	173.9
009 0	J17XX7	7	30.0	1.0		5.0		1.0	N	96.97	171.9
010 0	J17XX0	7	30.0	1.0		5.0		1.0	N	96.08	173.5
011 0	J17XX1	7	30.0	1.0		5.0		1.0	N	96.00	173.6
012 0	J17XX2	7	30.0	1.0		5.0		1.0	N	98.20	169.7
013 0	J17XX3	7	30.0	1.0		5.0		1.0	N	96.54	172.6
014 0	J17XX4	7	30.0	1.0		5.0		1.0	N	98.06	170.0
08LE0647-MB1 0		7	30.0	1.0		5.0		1.0	N	100.00	166.7
08LE0647-MB1 OS		7	30.0	1.0	1.0	5.0		1.0	N	100.00	166.7

Comments:

Surrogate: 500UL 8310 PAH SURR 86972006

Spike: 1.0ML 8310 SPIKE 86971907

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer

00000000

Extract. Date: 12/04/08

Extraction Batch No: 08LE0647

Analyst: MF

Method: ****

Test: 0831

Cleanup Date:

Analyst:

Client: WC-HANFORD RC-029 K1448

LIMS Report Date: 01/04/09

Solvent:

Adsorbent:

Sample No:	Client Name Client ID	pH	Initial Surr. WT/VOL	Spike Final Mult.	Final Final VOL	Split Mult.	GPC Y/N	% Solid	C/D FACTOR

Comments:

Surrogate: 500UL 8310 PAH SURR 86972006

Spike: 1.0ML 8310 SPIKE 86971907

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer

0000000006

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-002
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-28:2 Discovered French Drain		SAF No. RC-029		
Ice Chest No. GWS-132	Field Logbook No. EL-1601-2	COA C00H28A000	Method of Shipment Fed Ex			
Shipped To EBERLINE SERVICES (LIONVILLE)		Offsite Property No. A090076	Bill of Lading/Air Bill No. See aspc			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
	Type of Container	P	G/P	G/P	aG	aG	G				
	No. of Container(s)	1	1	1	1	1	1				
	Volume	100 mL	250mL	120mL	250mL	250mL	250mL				
Special Handling and/or Storage											

SAMPLE ANALYSIS				Item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082; Pesticides - 8081	PAHs - 8310	TPH-Diesel Range - WTPH-D +			
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Sample No.	Matrix *	Sample Date	Sample Time								
J17W36	SOIL	11/10/08	1200		X	X	X	X	X		

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From [Signature]	Date/Time 11/10/08 1210	Received By/Stored In BHUDSON	Date/Time 11/10/08 1210	(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)				S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Dryn Solids DL=Dryn Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From BHUDSON	Date/Time 11/10/08 1615	Received By/Stored In 1603C	Date/Time 11/10/08 1615					
Relinquished By/Removed From 160/3C	Date/Time NOV 11 2008 0820	Received By/Stored In mstankovich	Date/Time NOV 11 2008 0820					
Relinquished By/Removed From mstankovich	Date/Time NOV 11 2008 0820	Received By/Stored In FED EX	Date/Time					
Relinquished By/Removed From FED EX	Date/Time 11-20-08 0910	Received By/Stored In [Signature]	Date/Time 11-20-08 0910					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					

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

0000000000

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD
 Project/SAP/SOW/Release #: RC-029

Date: 11/12/08

LvLI Batch #: 0811L 062

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|--|---|
| 1. Samples Hand Delivered or <u>Shipped?</u> | Carrier <u>Fed Ex</u> | Airbill # <u>7980 5896 4709</u> |
| 2. Custody Seals on coolers or shipping containers intact, signed & dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Comments: |
| 4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <u>32°</u> °C | Cooler # <u>GWS-132</u> |
| How was the temperature taken? | <input checked="" type="checkbox"/> IR <input type="checkbox"/> Temp. Blank | <input type="checkbox"/> Other (Specify): |
| Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. COC (Client & LvLI) signed & dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on COC received?
All samples received on COC? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches COC? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? (If #5 is no, then this is no.) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times?
Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> 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.) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning any discrepancies?
Person Contacted _____ | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| | Date _____ | |



Lionville Laboratory, Inc.
 PCB ANALYTICAL DATA PACKAGE FOR
 WC-HANFORD RC-029 K1448



DATE RECEIVED: 11/12/08

LVL LOT # : 0811L062

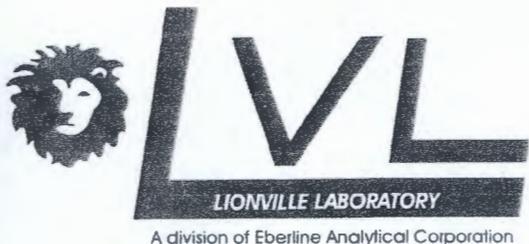
CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17W36	001	S	08LE0610	11/10/08	12/02/08	12/09/08
J17W36	001 MS	S	08LE0610	11/10/08	12/02/08	12/09/08
J17W36	001 MSD	S	08LE0610	11/10/08	12/02/08	12/09/08
LAB QC:						
PBLKYH	MB1	S	08LE0610	N/A	12/02/08	12/08/08
PBLKYH	MB1 BS	S	08LE0610	N/A	12/02/08	12/08/08

ID 12/17/08

11/19/08

ID

12/17/08



264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-029
LVL #: 0811L062
SDG/SAF # K1448 / RC-029

W.O. #: 60049-001-001-0001-00
Date Received: 11-12-2008

PCB

One (1) soil sample was collected on 11-10-2008.

The sample and its associated QC samples were extracted on 11-19-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 12-08,09-2008. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

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

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

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

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



Iain Daniels
Laboratory Manager
Lionville Laboratory

12/19/08
Date



GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

RFW Batch Number: 0811L062

Client: WC-HANFORD RC-029 K1448

Work Order: 60049001001 Page: 1

00000005

Sample Information	Cust ID:	J17W36	J17W36	J17W36	PBLKYH	PBLKYH BS
	RFW#:	001	001 MS	001 MSD	08LE0610-MB1	08LE0610-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	90 %	109 %	103 %	84 %	113 %
	Decachlorobiphenyl	103 %	126 %	116 %	103 %	128 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
Aroclor-1016		14 U	107 %	106 %	13 U	108 %
Aroclor-1221		14 U	14 U	14 U	13 U	13 U
Aroclor-1232		14 U	14 U	14 U	13 U	13 U
Aroclor-1242		14 U	14 U	14 U	13 U	13 U
Aroclor-1248		14 U	14 U	14 U	13 U	13 U
Aroclor-1254		14 U	14 U	14 U	13 U	13 U
Aroclor-1260		14 U	131 %	122 %	13 U	126 %

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

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 11/19/08

Extraction Batch No: 08LE0610

Analyst: MF

Method: **** *SOK3540*

Test: OPCB

Cleanup Date: 12/02/08

Analyst: MF

Client: WC-HANFORD RC-030 K1450

LIMS Report Date: 12/05/08

Solvent: DCM/ACETONE,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
0811L059-	WC-HANFORD RC-030 K1450										
001	J17W52		30.0	1.0		10		1.0	N	0.00	333.3
001 -S	J17W52		20.0	1.0	1.0	10		1.0	N	0.00	500.0
001 -T	J17W52		20.0	1.0	1.0	10		1.0	N	0.00	500.0
0811L060-	WC-HANFORD RC-119 K1459										
001	J17V82		30.0	1.0		10		1.0	N	92.94	358.7
001 -S	J17V82		30.0	1.0	1.0	10		1.0	N	92.94	358.7
001 -T	J17V82		30.0	1.0	1.0	10		1.0	N	92.94	358.7
0811L061-	WC-HANFORD RC-029 K1449										
001	J17W41		30.0	1.0		10		1.0	N	96.43	345.7
001 -S	J17W41		30.0	1.0	1.0	10		1.0	N	96.43	345.7
001 -T	J17W41		30.0	1.0	1.0	10		1.0	N	96.43	345.7
0811L062-	WC-HANFORD RC-029 K1448										
001	J17W36		30.0	1.0		10		1.0	N	93.42	356.8
001 -S	J17W36		30.0	1.0	1.0	10		1.0	N	93.42	356.8
001 -T	J17W36		30.0	1.0	1.0	10		1.0	N	93.42	356.8
08LE0610-MB1	PBLKYH		30.0	1.0		10		1.0	N	100.00	333.3
08LE0610-MB1 -S	PBLKYH		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:

Surrogate: 250 UL OLM PSURR 89917104

Spike: 250 UL AR1660 89916605

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
<i>[Signature]</i>	<i>[Signature]</i>	12/5/08 11:15	SZ	12/5/08 11:15	GC

0000000006

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			RC-029-004
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-28:2 Discovered French Drain		SAF No. RC-029		
Ice Chest No. GWS-132	Field Logbook No. EL-1601-2	COA C00H28A000	Method of Shipment Fed Ex		
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A090076	Bill of Lading/Air Bill No. Sec ospc			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
	Type of Container	P	G/P	G/P	aG	aG	G				
	No. of Container(s)	1	1	1	1	1	1				
	Volume	1000 mL	250mL	120mL	250mL	250mL	250mL				

SPECIAL HANDLING AND/OR STORAGE	Item (1) in Special Instructions.		Item (2) in Special Instructions.		Chromium Hex - 7196		PCBs - 8082; Pesticides - 8081		PAHs - 8310		TPH-Diesel Range - WTPH-D +	
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Sample No.	Matrix *	Sample Date	Sample Time								
J17W36	SOIL	11/10/08	1200		X	X	X	X	X		

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 11/10/08 1210	Received By/Stored In <i>[Signature]</i>	Date/Time 11/10/08 1210	(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)		S=Soil SE=Setiment 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
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 11/10/08 1615	Received By/Stored In <i>[Signature]</i>	Date/Time 11/10/08 1615			
Relinquished By/Removed From <i>[Signature]</i>	Date/Time NOV 11 2008 0820	Received By/Stored In <i>[Signature]</i>	Date/Time NOV 11 2008 0820			
Relinquished By/Removed From <i>[Signature]</i>	Date/Time NOV 11 2008 0820	Received By/Stored In <i>[Signature]</i>	Date/Time NOV 11 2008 0820			
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 11-12-08 0910	Received By/Stored In <i>[Signature]</i>	Date/Time 11-12-08 0910			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			

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

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

0000000000

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD
 Project/SOP/Release #: RC-029

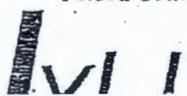
Date: 11/12/08

LvLI Batch #: 0811L 062

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or <u>Shipped?</u>	Carrier <u>Fed Ex</u>	Airbill # <u>7980 5896 4709</u>
2. Custody Seals on coolers or shipping containers intact, signed & dated?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> No Seals
3. Outside of coolers or shipping containers are free from damage?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Samples received cooled or ambient?	Temp <u>32°</u> °C	Cooler # <u>GWS-132</u>
How was the temperature taken?	<input checked="" type="checkbox"/> IR <input type="checkbox"/> Temp. Blank	<input type="checkbox"/> Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
6. Custody seals on sample containers intact, signed and dated?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> No Seals
7. COC (Client & LvLI) signed & dated?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
8. Sample containers are intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
9. All samples on COC received?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
All samples received on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
10. All sample label information matches COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
11. Samples properly preserved? (If #5 is no, then this is no.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
12. Samples received within hold times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Short holds taken to wet lab?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
13. VOA, TOC, TOX free of headspace?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
14. QC stickers placed on bottles designated by client?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> 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.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
16. Project Manager contacted concerning any discrepancies?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Person Contacted _____	Date _____	



Lionville Laboratory, Inc.
 PEST/PCB ANALYTICAL DATA PACKAGE FOR
 WC-HANFORD RC-029 K1448



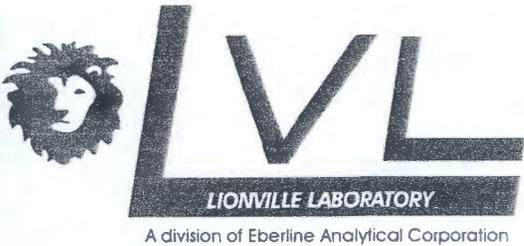
DATE RECEIVED: 11/12/08

LVL LOT # :0811L062

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17W36	001	S	08LE0610	11/10/08	11/19/08	12/05/08
J17W36	001 MS	S	08LE0610	11/10/08	11/19/08	12/05/08
J17W36	001 MSD	S	08LE0610	11/10/08	11/19/08	12/05/08

LAB QC:

PBLKYH	MB1	S	08LE0610	N/A	11/19/08	12/05/08
PBLKYH	MB1 BS	S	08LE0610	N/A	11/19/08	12/05/08



264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-029
LVL #: 0811L062
SDG/SAF # K1448 / RC-029

W.O. #: 60049-001-001-0001-00
Date Received: 11-12-2008

CHLORINATED PESTICIDES

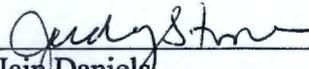
One (1) soil sample was collected on 11-10-2008.

The sample and its associated QC samples were extracted on 11-19-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 12-05-2008. 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 (LvL) 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 obtainable surrogate recoveries were within acceptance criteria.
4. All blank spike recoveries were within acceptance criteria.
5. Two (2) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08GC175) has been enclosed.
6. All samples required a 4-fold instrument dilution due to matrix.
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.
9. LvL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory manager or a designee, as verified by the following signature.



Ian Daniels
Laboratory Manager
Lionville Laboratory

12/19/08
Date



GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

RFW Batch Number: 0811L062

Client: WC-HANFORD RC-029 K1448 Work Order: 60049001001 Page: 1

Sample Information	Cust ID:	J17W36	J17W36	J17W36	PBLKYH	PBLKYH BS
	RFW#:	001	001 MS	001 MSD	08LE0610-MB1	08LE0610-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	4.00	4.00	4.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene		110 %	105 %	92 %	73 %	86 %
Decachlorobiphenyl		111 %	106 %	88 %	78 %	85 %
-----fl-----fl-----fl-----fl-----fl-----fl-----fl-----						
Alpha-BHC		1.4 U	90 %	74 %	0.33 U	97 %
gamma-BHC (Lindane)		1.4 U	97 %	81 %	0.33 U	102 %
Beta-BHC		1.4 U	119 %	102 %	0.33 U	104 %
Heptachlor		1.4 U	108 %	91 %	0.33 U	100 %
Delta-BHC		1.4 U	58 %	49 * %	0.33 U	66 %
Aldrin		1.4 U	104 %	86 %	0.33 U	100 %
Heptachlor epoxide		1.4 U	109 %	94 %	0.33 U	102 %
gamma-Chlordane		1.4 U	110 %	94 %	0.33 U	102 %
Endosulfan I		1.4 U	111 %	94 %	0.33 U	103 %
alpha-Chlordane		1.4 U	110 %	94 %	0.33 U	101 %
4,4'-DDE		1.4 U	123 %	104 %	0.33 U	120 %
Dieldrin		1.4 U	108 %	90 %	0.33 U	108 %
Endrin		1.4 U	118 %	100 %	0.33 U	113 %
4,4'-DDD		1.4 U	117 %	94 %	0.33 U	126 %
Endosulfan II		1.4 U	113 %	94 %	0.33 U	107 %
4,4'-DDT		1.4 U	121 %	100 %	0.33 U	114 %
Endrin aldehyde		1.4 U	114 %	101 %	0.33 U	110 %
Endosulfan sulfate		1.4 U	101 %	85 %	0.33 U	97 %
Methoxychlor		1.4 U	147 * %	122 %	0.33 U	125 %
Endrin ketone		1.4 U	115 %	96 %	0.33 U	108 %
Toxaphene		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

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SAMPLE EXTRACTION RECORD

Sheet no.: 1 *507*

Extract. Date: 11/19/08

Extraction Batch No: 08LE0610

Analyst: MF

Method: **** *3540*

Test: 0608

Cleanup Date:

Analyst:

Client: WC-HANFORD RC-119 K1459

LIMS Report Date: 12/05/08

Solvent: DCM/ACETONE,HEXANE

Adsorbent:

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
0811L060-	WC-HANFORD RC-119 K1459										
001 H	J17V82		30.0	1.0		10		1.0	N	92.94	358.7
001 HS	J17V82		30.0	1.0	1.0	10		1.0	N	92.94	358.7
001 HT	J17V82		30.0	1.0	1.0	10		1.0	N	92.94	358.7
0811L062-	WC-HANFORD RC-029 K1448										
001 H	J17W36		30.0	1.0		10		1.0	N	93.42	356.8
001 HS	J17W36		30.0	1.0	1.0	10		1.0	N	93.42	356.8
001 HT	J17W36		30.0	1.0	1.0	10		1.0	N	93.42	356.8
08LE0610-MB1 H	PBLKYH		30.0	1.0		10		1.0	N	100.00	333.3
08LE0610-MB1 HS	PBLKYH		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:

Surrogate: 250 UL OLM PSURR 89917104

Spike: 250 UL FULL LIST PEST SPIKE 89915510

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
<i>all</i>	<i>[Signature]</i>	<i>12/5/08 11:15</i>	<i>SZ</i>	<i>12/5/08 11:15</i>	<i>GC</i>

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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-28:2 Discovered French Drain		SAF No. RC-029		
Ice Chest No. GWS-132	Field Logbook No. EL-1601-2	COA C00H28A000	Method of Shipment Fed Ex		
Shipped To EBERLINE SERVICES ALIONVILLE	Offsite Property No. A090076	Bill of Lading/Air Bill No. See ospc			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
	Type of Container	P	G/P	G/P	aG	aG	G				
	No. of Container(s)	1	1	1	1	1	1				
	Volume	100 mL	250 mL	120 mL	250 mL	250 mL	250 mL				
Special Handling and/or Storage											
SAMPLE ANALYSIS		See item (1) in Special Instructions.	See item (2) in Special Instructions.	Chromium Hex - 7196	PCBs - 8082; Pesticides - 8081	PAHs - 8310	TPH-Diesel Range - WTPH-D +				

Sample No.	Matrix *	Sample Date	Sample Time								
J17W36	SOIL	11/10/08	1200		X	X	X	X	X		

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From <i>Matt Perrott</i>	Date/Time 11/10/08 1210	Received By/Stored In <i>B Hudson</i>	Date/Time 11/10/08 1210	(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)				S=Soil SE=Soil Sediment SO=Soils SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>B Hudson</i>	Date/Time 11/10/08 1615	Received By/Stored In <i>1060/3C</i>	Date/Time 11/10/08 1615					
Relinquished By/Removed From <i>1060/3C</i>	Date/Time NOV 11 2008 0820	Received By/Stored In <i>mstankovich</i>	Date/Time NOV 11 2008 0820					
Relinquished By/Removed From <i>mstankovich</i>	Date/Time NOV 11 2008 0820	Received By/Stored In <i>Fed Ex</i>	Date/Time					
Relinquished By/Removed From <i>Fed Ex</i>	Date/Time 11-12-08 0910	Received By/Stored In <i>[Signature]</i>	Date/Time 11-12-08 0910					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					

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

0000000009

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD
 Project/SAP/SOW/Release #: RC-029

Date: 11/12/08

LvLI Batch #: 0811L 062

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|---|---|
| 1. Samples Hand Delivered or <u>Shipped?</u> | Carrier <u>Fed Ex</u> | Airbill # <u>7980 5896 4709</u> |
| 2. Custody Seals on coolers or shipping containers intact, signed & dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Comments: |
| 4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <u>32°</u> °C | Cooler # <u>GWS-132</u> |
| How was the temperature taken? | <input checked="" type="checkbox"/> IR <input type="checkbox"/> Temp. Blank | <input type="checkbox"/> Other (Specify): |
| Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. COC (Client & LvLI) signed & dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on COC received? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| All samples received on COC? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches COC? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? (If #5 is no, then this is no.) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| Short holds taken to wet lab? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <u>N/A</u> |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <u>N/A</u> |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <u>N/A</u> |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning any discrepancies? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <u>N/A</u> |
| Person Contacted _____ | Date _____ | |



Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 WC-HANFORD RC-029 K1448



DATE RECEIVED: 11/12/08

LVL LOT # :08111062

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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J17W36

SILVER, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
SILVER, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
SILVER, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
ALUMINUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/25/08
ALUMINUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/25/08
ALUMINUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/25/08
ARSENIC, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
ARSENIC, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
ARSENIC, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
BORON, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/25/08
BORON, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/25/08
BORON, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/25/08
BARIUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
BARIUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
BARIUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
BERYLLIUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
BERYLLIUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
BERYLLIUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
CALCIUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/25/08
CALCIUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/25/08
CALCIUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/25/08
CADMIUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
CADMIUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
CADMIUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
COBALT, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
COBALT, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
COBALT, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
CHROMIUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
CHROMIUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
CHROMIUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
COPPER, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
COPPER, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
COPPER, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
IRON, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/25/08
IRON, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/25/08

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 WC-HANFORD RC-029 K1448

DATE RECEIVED: 11/12/08

LVL LOT # :0811L062

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/25/08
MERCURY, TOTAL	001	S	08C0208	11/10/08	11/18/08	11/19/08
MERCURY, TOTAL	001 REP	S	08C0208	11/10/08	11/18/08	11/19/08
MERCURY, TOTAL	001 MS	S	08C0208	11/10/08	11/18/08	11/19/08
POTASSIUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/25/08
POTASSIUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/25/08
POTASSIUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/25/08
MAGNESIUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/25/08
MAGNESIUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/25/08
MAGNESIUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/25/08
MANGANESE, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
MANGANESE, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
MANGANESE, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
MOLYBDENUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
MOLYBDENUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
MOLYBDENUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
SODIUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/25/08
SODIUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/25/08
SODIUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/25/08
NICKEL, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
NICKEL, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
NICKEL, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
LEAD, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
LEAD, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
LEAD, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
ANTIMONY, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/25/08
ANTIMONY, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/25/08
ANTIMONY, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/25/08
SELENIUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/25/08
SELENIUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/25/08
SELENIUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/25/08
SILICON, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/25/08
SILICON, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/25/08
SILICON, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/25/08
VANADIUM, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08
VANADIUM, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
VANADIUM, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08
ZINC, TOTAL	001	S	08L0436	11/10/08	11/24/08	11/26/08

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 WC-HANFORD RC-029 K1448

DATE RECEIVED: 11/12/08

LVL LOT # :0811L062

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 REP	S	08L0436	11/10/08	11/24/08	11/26/08
ZINC, TOTAL	001 MS	S	08L0436	11/10/08	11/24/08	11/26/08

LAB QC:

SILVER LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
SILVER, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
ALUMINUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/25/08
ALUMINUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
ARSENIC LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
ARSENIC, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
BORON LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/25/08
BORON, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
BARIUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
BARIUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
BERYLLIUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
CALCIUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/25/08
CALCIUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
CADMIUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
CADMIUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
COBALT LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
COBALT, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
CHROMIUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
CHROMIUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
COPPER LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
COPPER, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
IRON LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/25/08
IRON, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
MERCURY LABORATORY	LC1 BS	S	08C0208	N/A	11/18/08	11/19/08
MERCURY, TOTAL	MB1	S	08C0208	N/A	11/18/08	11/19/08
POTASSIUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/25/08
POTASSIUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/25/08
MAGNESIUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
MANGANESE LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
MANGANESE, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 WC-HANFORD RC-029 K1448

DATE RECEIVED: 11/12/08

LVL LOT # :0811L062

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MOLYBDENUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
SODIUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/25/08
SODIUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
NICKEL LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
NICKEL, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
LEAD LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
LEAD, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
ANTIMONY LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/25/08
ANTIMONY, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
SELENIUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/25/08
SELENIUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
SILICON LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/25/08
SILICON, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
VANADIUM LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
VANADIUM, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08
ZINC LABORATORY	LC1 BS	S	08L0436	N/A	11/24/08	11/26/08
ZINC, TOTAL	MB1	S	08L0436	N/A	11/24/08	11/25/08



Analytical Report

Client: WC-HANFORD RC-029
LVL#: 0811L062
SDG/SAF#: K1448/RC-029

W.O.#: 60049-001-001-0001-00
Date Received: 11-12-08

METALS CASE NARRATIVE

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

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

1. This narrative covers the analysis of 1 soil sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.

The sample was run on a different instrument for Aluminum, Calcium, Iron, Potassium, Magnesium, Sodium, and Silicon.

The sample was run with a 3-fold dilution for ICP metals in file TA1126B due to sample matrix.

3. All analyses were performed within the required holding times.
4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of various analytes in file TA1125B. The sample was rerun in file PS1125B for Sodium, Aluminum, Calcium, Iron, Potassium, Magnesium, and Silicon. The sample was rerun in file TA1126B for the remainder of the analytes. All sample results contained in this report were surrounded by QC within control.
5. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the LOQ).
6. The preparation/method blank for 1 analyte was outside method criteria {less than the Limit of Quantitation (3-10X the LOD), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

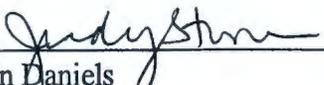
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 19 pages.

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

7. All ICP Interference Check Standards were within control limits.
8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon (16.3%). Refer to the Inorganics Laboratory Control Standards Report. Sample results for Silicon may be biased low.
9. The matrix spike (MS) recoveries for 3 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:

<u>Sample ID</u>	<u>Element</u>	<u>PDS</u> <u>Concentration (ppb)</u>	<u>PDS</u> <u>% Recovery</u>
J17W36	Aluminum	42,000	88.5
	Iron	82,000	76.2
	Antimony	300	91.7

11. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
12. For the purposes of this report, the data has been reported to the Limit of Detection (LOD). Values between the LOD and the Limit of Quantitation (LOQ) are acquired in a region of less-certain quantification.
13. LvL is NELAP accredited by the state of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory

12/5/08
Date

alm/m11-062



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METALS METHOD GLOSSARY

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

Lot#: 0811 L062

Leaching Procedure: 1310 1311 1312 Other: _____

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A 3010A 3015 3020A 3050B 3051 200.7 SS17
Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Antimony	<input checked="" type="checkbox"/> 6010B <u>7041^s</u>	<u>200.7</u> <u>204.2</u>			<u>99</u>
Arsenic	<input checked="" type="checkbox"/> 6010B <u>7060A^s</u>	<u>200.7</u> <u>206.2</u>	<u>3113B</u>		<u>99</u>
Barium	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Beryllium	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>		<u>1620</u>	<u>99</u>
Bismuth	<input checked="" type="checkbox"/> 6010B ¹	<u>200.7¹</u>			<u>99</u>
Boron	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Cadmium	<input checked="" type="checkbox"/> 6010B <u>7131A^s</u>	<u>200.7</u> <u>213.2</u>			<u>99</u>
Calcium	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>SS17</u>
Chromium	<input checked="" type="checkbox"/> 6010B <u>7191^s</u>	<u>200.7</u> <u>218.2</u>			<u>99</u>
Cobalt	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Copper	<input checked="" type="checkbox"/> 6010B <u>7211^s</u>	<u>200.7</u> <u>220.2</u>			<u>99</u>
Iron	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Lead	<input checked="" type="checkbox"/> 6010B <u>7421^s</u>	<u>200.7</u> <u>239.2</u>	<u>3113B</u>		<u>99</u>
Lithium	<input checked="" type="checkbox"/> 6010B <u>7430⁴</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Magnesium	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Manganese	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Mercury	<input checked="" type="checkbox"/> 7470A <input checked="" type="checkbox"/> 7471A ³	<u>245.1²</u> <u>245.5²</u>			<u>99</u>
Molybdenum	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Nickel	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Potassium	<input checked="" type="checkbox"/> 6010B <u>7610⁴</u>	<u>200.7</u> <u>258.1⁴</u>		<u>1620</u>	<u>99</u>
Rare Earths	<input checked="" type="checkbox"/> 6010B ¹	<u>200.7¹</u>			<u>99</u>
Selenium	<input checked="" type="checkbox"/> 6010B <u>7740^s</u>	<u>200.7</u> <u>270.2</u>	<u>3113B</u>		<u>99</u>
Silicon	<input checked="" type="checkbox"/> 6010B ¹	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silica	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silver	<input checked="" type="checkbox"/> 6010B <u>7761^s</u>	<u>200.7</u> <u>272.2</u>			<u>99</u>
Sodium	<input checked="" type="checkbox"/> 6010B <u>7770⁴</u>	<u>200.7</u> <u>273.1⁴</u>			<u>99</u>
Strontium	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Thallium	<input checked="" type="checkbox"/> 6010B <u>7841^s</u>	<u>200.7</u> <u>279.2</u> <u>200.9</u>			<u>99</u>
Tin	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Titanium	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>		<u>1620</u>	<u>99</u>
Uranium	<input checked="" type="checkbox"/> 6010B ¹	<u>200.7¹</u>			<u>99</u>
Vanadium	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>			<u>99</u>
Zinc	<input checked="" type="checkbox"/> 6010B	<u>200.7</u>		<u>1620</u>	<u>99</u>
Zirconium	<input checked="" type="checkbox"/> 6010B ¹	<u>200.7¹</u>			<u>99</u>

Other: _____

Method: _____

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 12/03/08

CLIENT: WC-HANFORD RC-029 K1448
 WORK ORDER: 60049-001-001-0001-00

LVL LOT #: 0811L062

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17W36	Silver, Total	0.26 u	MG/KG	0.26	3.0
		Aluminum, Total	7660	MG/KG	3.4	1.0
		Arsenic, Total	7.5	MG/KG	1.3	3.0
		Boron, Total	1.4	MG/KG	0.43	1.0
		Barium, Total	68.9	MG/KG	0.26	3.0
		Beryllium, Total	0.41	MG/KG	0.13	3.0
		Calcium, Total	3700	MG/KG	3.4	1.0
		Cadmium, Total	0.13 u	MG/KG	0.13	3.0
		Cobalt, Total	7.0	MG/KG	0.51	3.0
		Chromium, Total	13.9	MG/KG	0.51	3.0
		Copper, Total	14.2	MG/KG	0.51	3.0
		Iron, Total	18400	MG/KG	3.9	1.0
		Mercury, Total	0.02	MG/KG	0.009	1.0
		Potassium, Total	1060	MG/KG	42.2	1.0
		Magnesium, Total	4520	MG/KG	3.2	1.0
		Manganese, Total	308	MG/KG	0.10	3.0
		Molybdenum, Total	0.77 u	MG/KG	0.77	3.0
		Sodium, Total	157	MG/KG	1.7	1.0
		Nickel, Total	13.9	MG/KG	0.51	3.0
		Lead, Total	44.7	MG/KG	0.77	3.0
		Antimony, Total	0.33	MG/KG	0.26	1.0
		Selenium, Total	0.51 u	MG/KG	0.51	1.0
		Silicon, Total	205	MG/KG	5.7	1.0
		Vanadium, Total	44.0	MG/KG	0.36	3.0
		Zinc, Total	44.4	MG/KG	1.5	3.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/03/08

CLIENT: WC-HANFORD RC-029 K1448
 WORK ORDER: 60049-001-001-0001-00

LVL LOT #: 0811L062

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK1	08L0436-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	21.9	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	0.10	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	16.2	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	17.1	MG/KG	4.5	1.0
		Potassium, Total	49.3 u	MG/KG	49.3	1.0
		Magnesium, Total	3.7 u	MG/KG	3.7	1.0
		Manganese, Total	0.27	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	10.7	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	10.5	MG/KG	6.7	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	08C0208-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/03/08

CLIENT: WC-HANFORD RC-029 K1448
 WORK ORDER: 60049-001-001-0001-00

LVL LOT #: 0811L062

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J17W36	Silver, Total	3.8	0.26u	4.2	90.5	3.0
		Aluminum, Total	9010	7660	170	794.1*	1.0
		Arsenic, Total	164	7.5	170	92.4	3.0
		Boron, Total	77.0	1.4	85.0	88.9	1.0
		Barium, Total	235	68.9	170	97.6	3.0
		Beryllium, Total	4.5	0.41	4.2	97.4	3.0
		Calcium, Total	6230	3700	2120	119.1	1.0
		Cadmium, Total	4.0	0.13u	4.2	95.2	3.0
		Cobalt, Total	47.4	7.0	42.5	95.1	3.0
		Chromium, Total	30.4	13.9	17.0	97.1	3.0
		Copper, Total	34.5	14.2	21.3	95.3	3.0
		Iron, Total	19500	18400	85.0	1319 *	1.0
		Mercury, Total	0.17	0.02	0.15	99.3	1.0
		Potassium, Total	3000	1060	2120	91.0	1.0
		Magnesium, Total	6540	4520	2120	95.3	1.0
		Manganese, Total	361	308	42.5	124.0*	3.0
		Molybdenum, Total	79.1	0.77u	85.0	93.1	3.0
		Sodium, Total	2180	157	2120	95.3	1.0
		Nickel, Total	52.6	13.9	42.5	91.1	3.0
		Lead, Total	81.1	44.7	42.5	85.6	3.0
		Antimony, Total	18.4	0.33	42.5	42.5	1.0
		Selenium, Total	157	0.51u	170	92.2	1.0
		Silicon, Total	276	205	85.0	83.4	1.0
		Vanadium, Total	90.7	44.0	42.5	109.9	3.0
		Zinc, Total	84.7	44.4	42.5	94.8	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/03/08

CLIENT: WC-HANFORD RC-029 K1448
 WORK ORDER: 60049-001-001-0001-00

LVL LOT #: 0811L062

SAMPLE	SITE ID	ANALYTE	INITIAL		DILUTION
			RESULT	REPLICATE RPD	
-001REP	J17W36	Silver, Total	0.26u	0.26u NC	3.0
		Aluminum, Total	7660	8480 10.1	1.0
		Arsenic, Total	7.5	7.3 2.7	3.0
		Boron, Total	1.4	1.6 13.3	1.0
		Barium, Total	68.9	69.1 0.29	3.0
		Beryllium, Total	0.41	0.40 2.6	3.0
		Calcium, Total	3700	4160 11.9	1.0
		Cadmium, Total	0.13u	0.13u NC	3.0
		Cobalt, Total	7.0	7.6 8.2	3.0
		Chromium, Total	13.9	14.4 3.5	3.0
		Copper, Total	14.2	14.7 3.5	3.0
		Iron, Total	18400	20300 10.1	1.0
		Mercury, Total	0.02	0.03 53.7	1.0
		Potassium, Total	1060	1080 1.7	1.0
		Magnesium, Total	4520	4910 8.4	1.0
		Manganese, Total	308	319 3.4	3.0
		Molybdenum, Total	0.77u	0.77u NC	3.0
		Sodium, Total	157	203 25.3	1.0
		Nickel, Total	13.9	13.7 1.4	3.0
		Lead, Total	44.7	42.9 4.1	3.0
		Antimony, Total	0.33	0.26u NC <i>b 200</i>	1.0
		Selenium, Total	0.51u	0.51u NC	1.0
		Silicon, Total	205	191 7.3	1.0
		Vanadium, Total	44.0	49.9 12.6	3.0
		Zinc, Total	44.4	45.5 2.4	3.0

*Converted RPD
 AEM 12/3/08*

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/03/08

CLIENT: WC-HANFORD RC-029 K1448
 WORK ORDER: 60049-001-001-0001-00

LVL LOT #: 0811L062

SAMPLE	SITE ID	ANALYTE	SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0436-LC1	Silver, LCS	49.0	50.0	MG/KG	98.0
		Aluminum, LCS	487	500	MG/KG	97.5
		Arsenic, LCS	949	1000	MG/KG	94.9
		Boron, LCS	476	500	MG/KG	95.2
		Barium, LCS	490	500	MG/KG	98.0
		Beryllium, LCS	24.5	25.0	MG/KG	98.0
		Calcium, LCS	2370	2500	MG/KG	94.6
		Cadmium, LCS	24.0	25.0	MG/KG	96.0
		Cobalt, LCS	243	250	MG/KG	97.1
		Chromium, LCS	50.3	50.0	MG/KG	100.6
		Copper, LCS	122	125	MG/KG	97.5
		Iron, LCS	492	500	MG/KG	98.4
		Potassium, LCS	2280	2500	MG/KG	91.3
		Magnesium, LCS	2270	2500	MG/KG	90.9
		Manganese, LCS	75.6	75.0	MG/KG	100.8
		Molybdenum, LCS	482	500	MG/KG	96.5
		Sodium, LCS	2340	2500	MG/KG	93.5
		Nickel, LCS	196	200	MG/KG	98.1
		Lead, LCS	242	250	MG/KG	96.8
		Antimony, LCS	289	300	MG/KG	96.3
		Selenium, LCS	965	1000	MG/KG	96.5
		Silicon, LCS	81.3	500	MG/KG	16.3
		Vanadium, LCS	250	250	MG/KG	100.1
		Zinc, LCS	101	100	MG/KG	100.8
LCS1	08C0208-LC1	Mercury, LCS	4.7	4.7	MG/KG	101.0

SAMPLE DIGESTION RECORD

Digestion Batch #: 0810436
 Date/Time Initiated: 11/24/08 1700
 Date/Time Completed: 11/24/08 2145
 Analyst(s): NW
 Matrix: Soil / Water / Other: _____
 Instr. Type: AA (ICP)
 Parameters: see backing

SOP: L-SPI-3020 Rev. 00
 Method: SW 3005A DW 200.7 (1994)
 (circle) 3010A 200.9
 3015 3113B
 3020A
 7060A (As/Se) MCAWW 200.7 (1982)
 7760A (Ag) 200 (AA)
 206.2 (As/Se)
3050B
 3051 SM 3030C (NC)
 CLP ILMO3.0 Other _____
 ILMO4.0

Digested/ Undigested (circle one)
 Balance #: 820
 Balance Cal Verif: (Y) NA
 Hot Plate Temp: 90°

WC-Hanford

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH	Type: To/So/ TC	Texture	Color/Appearance	Artifact	Turb
0811L059-001		1.270g	100ml	2.2	TO	not fine	brown soil	rocks/clay	
001R		1.340g							
001S	60ml	1.320g							
0811L061-001		1.300g						rocks	
001R		1.290g							
001S	60ml	1.300g							
002		1.360g				coarse	orange sand	N/A	
0811L062-001		1.250g				fine	brown soil	rocks	
001R		1.250g							
001S	60ml	1.260g							
0811L063-001		1.150g				coarse	gray soil	rocks, scale	
001R		1.170g							
001S	60ml	1.160g							
0811L078-001		1.300g				not fine	brown soil	rocks	
001R		1.310g							
001S		1.340g							
002		1.280g							
003		1.340g				coarse	orange sand	N/A	
0810436-MB		1.00g					boiling chips		
LC1	10ml	1.00g							

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

Reagent IDs:
 HNO3 617027
 HCL 626054
 H2O2 615A18
 1:1 HNO3 9789-089-07
 1:1 HCL _____

File ID#: IC043601
IC043602
 LIMS Transfer: (Y) N
 Data Review By/Date: PMP, 11/25/08

* also 0.5ml 6072-080-10 (B)
 0.5ml 6072-079-14 (P-)
 0.5ml 6072-080-12 (W-)

MERCURY PREPARATION

Logbook # 526

Analyst: EDS
Date: 11/18/08
Start Time/Temp: 1255 | 91°
End Time/Temp: 1325 | 99°

Instrument ID: 463.2/3.1
Balance #: 329 /NA
Pipette Calibration (Daily) Y /

Prep Batch: 080208
Worksheet: HG11902 | HG11201
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 Initial/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	857			10mL	50mL	
0.2 µg/L	1721	0.100				
1.0	WK	0.500				
2.0	H2	1.000				
5.0	BL	2.500				
10.0	K35	5.000				
ICV	Z4	0.1250	2.5			
CCV	I4	0.2500	5.0			
ICB/CCB	L15					90.30L
MB1	F2			0.30		PBS108 100.0
L11	V5H			0.30		LCSS108
0811L058-001	SHV			0.31		
001R	154			0.36		
001S	N30	0.050	10.0	0.31		
0811L039-001	TR			0.33		R
002	A			0.30		
002R	CB			0.32		
002S	111E	0.050	10.0	0.31		
003	DR			0.32		R
004	AHA			0.30		
005	H5			0.32		
0811L085-001	303			0.32		99.94
002	312			0.31		86.22
002R	A9			0.30		
002S	PA	0.500	1.0	0.31		
003	290			0.34		86.07
004	313			0.30		87.89

Standard:	ID	Prep Date/Time
ICALMS	R1 6072-78-14B	11/18/08 1030
ICV/CCV/LCS	US 6072-78-15A	

Reviewed By/Date: Alm 11/24/08

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

MERCURY PREPARATION

Logbook # 526

Analyst: CO
Date: 11/18/08
Start Time/Temp: _____
End Time/Temp: See page 005

Instrument ID: HG3.213.1
Balance #: B29 / NA
Pipette Calibration (Daily): Y

Prep Batch: 08C0208
Worksheet: HG11902 / HG11200
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 Initial/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.
0811052-001	1C			0.33	50mL	73.68
WIR	194			0.35		⊥
0015	P3	0.500	1.0	0.33		⊥
002	X8			0.31		75.91
003	194			0.35		76.75
004	AP			0.32		76.71
0811061-001	AN			0.33		96.43
WIR	NR			0.35		⊥
0015	224	0.500	1.0	0.34		⊥
002	PL			0.36		99.88
0811062-001	3P			0.35		93.42
WIR	216			0.33		⊥
0015	JB	0.500	1.0	0.35		⊥
0811063-001	R2			0.31		R 99.26
WIR	GR			0.36		⊥
0015	695	0.500	1.0	0.31		⊥
<p><i>See page 005</i></p>						

Standard:	ID	Prep Date/Time
ICALMS		
ICV/CV/LCS	<u>See page 005</u>	

Reviewed By/Date: CO 11/18/08

see book # 936Y 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

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-28:2 Discovered French Drain	SAF No. RC-029			
Field Chest No. GWS-132	Field Logbook No. EL-1601-2	COA C00H28A000	Method of Shipment Fed Ex		
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A090076	Bill of Lading/Air Bill No. See ospc			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C				
	Type of Container	P	G/P	G/P	aG	aG	G				
	No. of Container(s)	1	1	1	1	1	1				
	Volume	100mL	250mL	120mL	250mL	250mL	250mL				

Special Handling and/or Storage	Item (1) in Special Instructions.		Item (2) in Special Instructions.		Chromium Hex - 7196		PCBs - 8082; Pesticides - 8081		PAHs - 8310		TPH-Diesel Range - WTPH-D +	
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SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time								
117W36	SOIL	11/10/08	1200		X	X	X	X	X		

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 11/10/08 1210	Received By/Stored In <i>[Signature]</i>	Date/Time 11/10/08 1210	(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)	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	
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 11/10/08 1615	Received By/Stored In <i>[Signature]</i>	Date/Time 11/10/08 1615			
Relinquished By/Removed From <i>[Signature]</i>	Date/Time NOV 11 2008 0820	Received By/Stored In <i>[Signature]</i>	Date/Time NOV 11 2008 0820			
Relinquished By/Removed From <i>[Signature]</i>	Date/Time NOV 11 2008 0820	Received By/Stored In <i>[Signature]</i>	Date/Time NOV 11 2008 0820			
Relinquished By/Removed From <i>[Signature]</i>	Date/Time 11-12-08 0910	Received By/Stored In <i>[Signature]</i>	Date/Time 11-12-08 0910			
Relinquished By/Removed From <i>[Signature]</i>	Date/Time	Received By/Stored In <i>[Signature]</i>	Date/Time			

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

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

000000018

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD
 Project/SAP/SOW/Release #: RC-029

Date: 11/12/08

LvLI Batch #: 0811L 062

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|--|---|
| 1. Samples Hand Delivered or <u>Shipped?</u> | Carrier <u>Fed Ex</u> | Airbill # <u>7980 5896 4709</u> |
| 2. Custody Seals on coolers or shipping containers intact, signed & dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Comments: |
| 4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 5. Samples received cooled or ambient? | Temp <u>32°</u> °C | Cooler # <u>GWS-132</u> |
| How was the temperature taken? | <input checked="" type="checkbox"/> IR <input type="checkbox"/> Temp. Blank | <input type="checkbox"/> Other (Specify): |
| Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 6. Custody seals on sample containers intact, signed and dated? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals |
| 7. COC (Client & LvLI) signed & dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 8. Sample containers are intact? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. All samples on COC received?
All samples received on COC? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. All sample label information matches COC? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 11. Samples properly preserved? (If #5 is no, then this is no.) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12. Samples received within hold times?
Short holds taken to wet lab? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Yes <input type="checkbox"/> No | <u>N/A</u> |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <u>N/A</u> |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> 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.) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 16. Project Manager contacted concerning any discrepancies?
Person Contacted _____ | <input type="checkbox"/> Yes <input type="checkbox"/> No | <u>N/A</u>
Date _____ |



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



DATE RECEIVED: 11/12/08

LVL LOT # :0811L062

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17W36						
% SOLIDS	001	S	08L&S098	11/10/08	11/14/08	11/17/08
% SOLIDS	001 REP	S	08L&S098	11/10/08	11/14/08	11/17/08
CHROMIUM VI	001	S	08LVI075	11/10/08	11/20/08	11/20/08
CHROMIUM VI	001 REP	S	08LVI075	11/10/08	11/20/08	11/20/08
CHROMIUM VI	001 MS	S	08LVI075	11/10/08	11/20/08	11/20/08
CHROMIUM VI	001 MSD	S	08LVI075	11/10/08	11/20/08	11/20/08

LAB QC:

CHROMIUM VI	MB1	S	08LVI075	N/A	11/20/08	11/20/08
CHROMIUM VI	MB1 BS	S	08LVI075	N/A	11/20/08	11/20/08
CHROMIUM VI	MB1 BSD	S	08LVI075	N/A	11/20/08	11/20/08



Analytical Report

Client: WC-HANFORD RC-029
LVL#: 0811L062

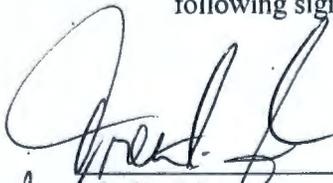
W.O.#: 60049-001-001-0001-00
Date Received: 11-12-08

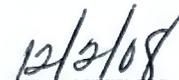
INORGANIC NARRATIVE

1. This narrative covers the analyses of ^{1 sample per} 2 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 LvL'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.


Brian Daniels
Laboratory Manager
Lionville Laboratory


Date

njpl11-062

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

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% 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 11/25/08

CLIENT: WC-HANFORD RC-029
 WORK ORDER: 60049-001-001-0001-00

LVL LOT #: 0811L062

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17W36	% Solids	93.4	%	0.01	1.0
		Chromium VI	1.1	u MG/KG	1.1	5.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/25/08

CLIENT: WC-HANFORD RC-029
WORK ORDER: 60049-001-001-0001-00

LVL LOT #: 0811L062

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LVI075-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/25/08

CLIENT: WC-HANFORD RC-029
 WORK ORDER: 60049-001-001-0001-00

LVL LOT #: 0811L062

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J17W36	Soluble Chromium VI	4.0	1.1 u	4.3	107.2	5.0
		Insoluble Chromium VI	1220	1.1 u	1160	104.6	100
BLANK10	08LVI075-MB1	Soluble Chromium VI	3.4	0.20u	4.0	85.0	1.0
		Insoluble Chromium VI	1330	0.20u	1280	104.6	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/25/08

CLIENT: WC-HANFORD RC-029
WORK ORDER: 60049-001-001-0001-00

LVL LOT #: 0811L062

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	J17W36	% Solids	93.4	93.1	0.39	1.0
		Chromium VI	1.1 u	1.1 u	NC	5.0