0082750

SAF-RC-075
100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 8/4/09
INITIAL/DATE

COMMENTS:

SDG K1681 SAF RC-075

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Waste Site: 126-D-2, Verification I, split samples

RECEIVED
AUG 13 2009
EDMC

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
Richmond, California 94804-3849
Phone (510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
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July 16, 2009

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

Reference: **P.O. #S00W235A00**
Eberline Analytical R9-07-003-7413, SDG K1681

Dear Ms. Kessner:

Enclosed is a data report for one solid (soil) sample designated under SAF No. RC-075 received at Eberline Analytical on July 1, 2009. The sample was analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

N. Joseph Verville
Client Services Manager

NJV/ljb

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Samples Delivery Group K1681 was composed of one solid (soil) sample designated under SAF No. RC-075 with a Project Designation of: 100-D/DR Burial Grounds & Remaining Site-Soil Full Prot.

Any discrepancies are noted on the Eberline Analytical Samples Receipt Checklist. The results were transmitted to WCH via e-mail on July 16, 2009.

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."

N. Joseph Verville
Client Services Manager

Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1681

SDG	7413
Contact	N. Joseph Verville

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1681

SUMMARY DATA SECTION

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VB

Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

SDG 7413
Contact N. Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

SDG 7413
Contact N. Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

LAB SAMPLE SUMMARY

SDG 7413
Contact N. Joseph Verville

Client Hanford
Contract No. S00W235A00
Case no SDG K1681

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R907003-01	J19180	126-D-2, Verif.1, split	SOLID		RC-075	RC-075-099	06/29/09 09:42
R907003-02	Lab Control Sample		SOLID		RC-075		
R907003-03	Method Blank		SOLID		RC-075		
R907003-04	Duplicate (R907003-01)	126-D-2, Verif.1, split	SOLID		RC-075		06/29/09 09:42

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 07/16/09

EBERLINE SERVICES/RICHMOND

SDG 7413
Contact N. Joseph Verville

SAMPLE DELIVERY GROUP K1681

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1681

BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
13	RC-075-099	J19180	SOLID	99.0	1178 g		07/01/09	2	R907003-01	7413-001
		Method Blank	SOLID						R907003-03	7413-003
		Lab Control Sample	SOLID						R907003-02	7413-002
		Duplicate (R907003-01)	SOLID	99.0	1178 g		07/01/09	2	R907003-04	7413-004

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

SDG 7413
Contact N. Joseph Verville

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1681

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	7208-130	20.6	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	7208-130	20.6	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7208-130	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 07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

LAB WORK SUMMARY

SDG 7413
Contact N. Joseph Verville

Client Hanford
Contract No. S00W235A00
Case no SDG K1681

B SAMPLE / COLLECTED / RECEIVED	CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
07003-01	J19180			7413-001	93A/93		07/10/09	07/13/09	MWT	Gross Alpha in Solids
06/29/09	126-D-2, Verif.1, split		SOLID	7413-001	93B/93		07/10/09	07/13/09	MWT	Gross Beta in Solids
07/01/09	RC-075-099	RC-075		7413-001	GAM		07/06/09	07/07/09	CSS	Gamma Scan
07003-02	Lab Control Sample			7413-002	93A/93		07/10/09	07/13/09	MWT	Gross Alpha in Solids
			SOLID	7413-002	93B/93		07/10/09	07/13/09	MWT	Gross Beta in Solids
		RC-075		7413-002	GAM		07/07/09	07/07/09	CSS	Gamma Scan
07003-03	Method Blank			7413-003	93A/93		07/10/09	07/13/09	MWT	Gross Alpha in Solids
			SOLID	7413-003	93B/93		07/10/09	07/13/09	MWT	Gross Beta in Solids
		RC-075		7413-003	GAM		07/07/09	07/07/09	CSS	Gamma Scan
07003-04	Duplicate (R907003-01)			7413-004	93A/93		07/10/09	07/13/09	MWT	Gross Alpha in Solids
06/29/09	126-D-2, Verif.1, split		SOLID	7413-004	93B/93		07/10/09	07/13/09	MWT	Gross Beta in Solids
07/01/09		RC-075		7413-004	GAM		07/07/09	07/07/09	CSS	Gamma Scan

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-075	Gross Alpha in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	RC-075	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
GAM	RC-075	Gamma Scan	GAMMA_GS	1			1	1	1	4
TOTALS				3			3	3	3	12

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

7413-003 **Method Blank**

METHOD BLANK

SDG	7413	Client/Case no	Hanford SDG K1681
Contact	N. Joseph Verville	Contract	No. S00W235A00
Lab sample id	R907003-03	Client sample id	Method Blank
Dept sample id	7413-003	Material/Matrix	SOLID
		SAF No	RC-075

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.66	2.2	4.03	10.0	U	93A
Gross Beta	12587-47-2	-0.730	4.8	8.38	15.0	U	93B
Potassium 40	13966-00-2	U		0.355		U	GAM
Cobalt 60	10198-40-0	U		0.015	0.050	U	GAM
Cesium 137	10045-97-3	U		0.013	0.100	U	GAM
Radium 226	13982-63-3	U		0.031	0.100	U	GAM
Radium 228	15262-20-1	U		0.061	0.200	U	GAM
Europium 152	14683-23-9	U		0.034	0.100	U	GAM
Europium 154	15585-10-1	U		0.037	0.100	U	GAM
Europium 155	14391-16-3	U		0.031	0.100	U	GAM
Thorium 228	14274-82-9	U		0.019		U	GAM
Thorium 232	TH-232	U		0.061		U	GAM
Uranium 235	15117-96-1	U		0.061		U	GAM
Uranium 238	U-238	U		1.53		U	GAM
Americium 241	14596-10-2	U		0.037		U	GAM

100-D/DRBurialGrnds&RemainSites-SFP

QC-BLANK #70233

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

7413-002 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7413 Client/Case no Hanford SDG K1681

Contact N. Joseph Verville Contract No. S00W235A00

Lab sample id R907003-02 Client sample id Lab Control Sample

Dept sample id 7413-002 Material/Matrix SOLID

SAF No RC-075

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	115	13	4.42	10.0		93A	102	4.1	113	60-140	80-120
Gross Beta	87.2	7.1	5.41	15.0		93B	90.8	3.6	96	68-132	80-120
Cobalt 60	0.217	0.025	0.012	0.050		GAM	0.223	0.009	97	79-121	80-120
Cesium 137	0.273	0.024	0.017	0.100		GAM	0.271	0.011	101	82-118	80-120

100-D/DRBurialGrnds&RemainSites-SFP

QC-LCS #70232

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

7413-004 J19180

DUPLICATE

SDG 7413 Client/Case no Hanford SDG K1681

Contact N. Joseph Verville Contract No. S00W235A00

DUPLICATE	ORIGINAL	
Lab sample id R907003-04	Lab sample id R907003-01	Client sample id J19180
Dept sample id 7413-004	Dept sample id 7413-001	Location/Matrix 126-D-2, Verif.1, split SOLID
	Received 07/01/09	Collected/Weight 06/29/09 09:42 1178 g
% solids 99.0	% solids 99.0	Custody/SAF No RC-075-099 RC-075

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	9.00	3.5	3.15	10.0		93A	12.3	4.1	3.14		31	88	1.1
Gross Beta	17.3	5.4	8.22	15.0		93B	14.7	5.3	8.22		16	83	0.6
Potassium 40	11.7	0.45	0.190			GAM	11.5	0.43	0.207		2	17	0.3
Cobalt 60	U		0.017	0.050	U	GAM	U		0.020	U	-		0.2
Cesium 137	U		0.018	0.100	U	GAM	U		0.018	U	-		0
Radium 226	0.458	0.045	0.041	0.100		GAM	0.449	0.036	0.034		2	24	0.2
Radium 228	0.728	0.081	0.074	0.200		GAM	0.731	0.086	0.080		0	28	0
Europium 152	U		0.059	0.100	U	GAM	U		0.041	U	-		0.5
Europium 154	U		0.056	0.100	U	GAM	U		0.065	U	-		0.2
Europium 155	U		0.071	0.100	U	GAM	U		0.051	U	-		0.5
Thorium 228	0.766	0.032	0.030			GAM	0.648	0.026	0.022		17	17	2.9
Thorium 232	0.728	0.081	0.074			GAM	0.731	0.086	0.080		0	28	0
Uranium 235	U		0.150		U	GAM	U		0.108	U	-		0.5
Uranium 238	U		2.08		U	GAM	U		2.16	U	-		0.1
Americium 241	U		0.092		U	GAM	U		0.029	U	-		1.3

100-D/DRBurialGrnds&RemainSites-SFP

QC-DUP#1 70234

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 07/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1681

7413-001 J19180

DATA SHEET

SDG	7413	Client/Case no	Hanford SDG_K1681
Contact	N. Joseph Verville	Contract	No. S00W235A00
Lab sample id	R907003-01	Client sample id	J19180
Dept sample id	7413-001	Location/Matrix	126-D-2, Verif.1, split SOLID
Received	07/01/09	Collected/Weight	06/29/09 09:42 1178 g
% solids	99.0	Custody/SAF No	RC-075-099 RC-075

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	12.3	4.1	3.14	10.0		93A
Gross Beta	12587-47-2	14.7	5.3	8.22	15.0		93B
Potassium 40	13966-00-2	11.5	0.43	0.207			GAM
Cobalt 60	10198-40-0	U		0.020	0.050	U	GAM
Cesium 137	10045-97-3	U		0.018	0.100	U	GAM
Radium 226	13982-63-3	0.449	0.036	0.034	0.100		GAM
Radium 228	15262-20-1	0.731	0.086	0.080	0.200		GAM
Europium 152	14683-23-9	U		0.041	0.100	U	GAM
Europium 154	15585-10-1	U		0.065	0.100	U	GAM
Europium 155	14391-16-3	U		0.051	0.100	U	GAM
Thorium 228	14274-82-9	0.648	0.026	0.022			GAM
Thorium 232	TH-232	0.731	0.086	0.080			GAM
Uranium 235	15117-96-1	U		0.108		U	GAM
Uranium 238	U-238	U		2.16		U	GAM
Americium 241	14596-10-2	U		0.029		U	GAM

100-D/DRBurialGrnds&RemainSites-SFP

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

Test 93A Matrix SOLID
SDG 7413
Contact N. Joseph Verville

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1681

ESULTS

B MPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
eparation batch 7208-130					
07003-01	93		7413-001	J19180	12.3
07003-02	93		7413-002	Lab Control Sample	ok
07003-03	93		7413-003	Method Blank	U
07003-04	93		7413-004	Duplicate (R907003-01)	ok
minal values and limits from method				RDLs (pCi/g)	10.0
0-D/DRBurialGrnds&RemainSites-SFP					

ETHOD PERFORMANCE

B MPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 7208-130			2σ prep error 20.6 %	Reference Lab Notebook No. 7208 pg.130												
07003-01	93		J19180	3.14	0.100			55		100			11	07/10/09	07/10	GRB-214
07003-02	93		Lab Control Sample	4.42	0.100			64		100				07/10/09	07/10	GRB-216
07003-03	93		Method Blank	4.03	0.100			66		100				07/10/09	07/10	GRB-213
07003-04	93		Duplicate (R907003-01)	3.15	0.100			55		100			11	07/10/09	07/10	GRB-214
minal values and limits from method				10.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES			
	MDA	3.68	± 1.29
	RESIDUE	60	± 12

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

Test 93B Matrix SOLID
SDG 7413
Contact N. Joseph Verville

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1681

ESULTS

ıB / ıMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
eparation batch 7208-130					
07003-01	93		7413-001	J19180	14.7
07003-02	93		7413-002	Lab Control Sample	ok
07003-03	93		7413-003	Method Blank	U
07003-04	93		7413-004	Duplicate (R907003-01)	ok
minal values and limits from method				RDLs (pCi/g)	15.0
0-D/DRBurialGrnds&RemainSites-SFP					

ETHOD PERFORMANCE

ıB / ıMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
eparation batch 7208-130			2σ prep error 20.6 % Reference Lab Notebook No. 7208 pg.130													
07003-01	93		J19180	8.22	0.100			55		100			11	07/10/09	07/10	GRB-214
07003-02	93		Lab Control Sample	5.41	0.100			64		100				07/10/09	07/10	GRB-216
07003-03	93		Method Blank	8.38	0.100			66		100				07/10/09	07/10	GRB-213
07003-04	93		Duplicate (R907003-01)	8.22	0.100			55		100			11	07/10/09	07/10	GRB-214
minal values and limits from method				15.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 7.56 ± 2.87
RESIDUE 60 ± 12

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

Test GAM Matrix SOLID
SDG 7413
Contact N. Joseph Verville

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1681

ESULTS

B MPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
eparation batch 7208-130								
07003-01			7413-001	J19180	U		U	
07003-02			7413-002	Lab Control Sample	ok		ok	
07003-03			7413-003	Method Blank	U		U	
07003-04			7413-004	Duplicate (R907003-01)	-	U	-	U
minal values and limits from method				RDLs (pCi/g)	0.050		0.100	
0-D/DRBurialGrnds&RemainSites-SFP								

ETHOD PERFORMANCE

B MPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 7208-130			2σ prep error 7.0 %	Reference Lab Notebook No. 7208 pg.130												
07003-01			J19180	3.88	846					144			7	07/06/09	07/06	02,01,00
07003-02			Lab Control Sample	0.012	840					109				07/06/09	07/07	MB,07,00
07003-03			Method Blank	3.17	840					138				07/06/09	07/07	01,04,00
07003-04			Duplicate (R907003-01)	3.53	846					108			8	07/06/09	07/07	02,02,00
minal values and limits from method				0.050	840					100			180			

PROCEDURES REFERENCE GAMMA_GS
SPP-100 Preparation of Sample for Gamma Spectroscopy, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 2.65 ± 3.56
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

SDG 7413
Contact N. Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

SDG 7413
Contact N. Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

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 07/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1681

SDG 7413
Contact N. Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

EBERLINE SERVICES/RICHMOND

SDG 7413
Contact N. Joseph Verville

SAMPLE DELIVERY GROUP K1681

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

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).

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

SDG 7413
Contact N. Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

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.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

SDG 7413
Contact N. Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

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.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

SDG 7413
Contact N. Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

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.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

SDG 7413
Contact N. Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

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.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

SDG 7413
Contact N. Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

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 07/16/09

SDG 7413
Contact N. Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

SDG 7413
Contact N. Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

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 07/16/09

SDG 7413
Contact N. Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

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 07/16/09

SDG 7413
Contact N. Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/09

SDG 7413
Contact N. Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1681

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 07/16/09

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-099	Page 1 of 1
Collector: J Sellers	Company Contact: D.W.Shea; Telephone No.: 521-6014	Project Coordinator: KESSNER, JH	Price Code: 8L; Data Turnaround: 21 days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 126-D-2, Verification I, split samples K1681 (7413)	SAF No.: RC-075	
Ice Chest No.	Field Logbook No.: EL-1607-6; COA: R126D22000	Method of Shipment: Fed Ex	
Shipped To: EBERLINE, TestAmerica Incorporated, Richland	Offsite Property No.	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	G P	G/P	aG	aG	aG	aG	G P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1 DWShea 6/25/09		
Volume	60ml	60mL	125mL	60mL	120mL	120g	500mL	2g		
SAMPLE ANALYSIS	See item (1) in Special instructions	Chromium Hex - 7196	Pesticides - 8081 JEB 6-30-09	PCBs - 8082	Semi-VOA - 8270A (TCL)	PAHs - 8310	See item (2) in Special Instructions.	Gross Alpha; Gross Beta		
Sample No.	Matrix *	Sample Date	Sample Time							
J19180	SOIL	6/29/09	0942	✓	✓	✓	✓	✓	✓	✓ ✓

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J.Sellers J.Sellers	6-29-09 1313	DWShea DWSHEA	6/29/09 1313
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DWShea DWShea	6/29/09 1658	Fridge 3A	6/29/09 1658
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fridge 3A J.E. Benhal	6-30-09 0830	J. E. Benhal	6-30-09 0830
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J. E. Benhal WCH	6-30-09 1000	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX		R.F. WATKINS	07/01/09 0915
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Lithium~~, Magnesium, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury} DWShea 6/25/09

(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

Matrix *

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

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

WCH-EE-011

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Jh 7/1/09

Client: W-C. HANFORD City RICHLAND State WA

Date/Time received 07/01/09 0915 CoC No. RC-075-099

Container I.D. No. WCH-08-CDI-9 Requested TAT (Days) 21 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 [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 1 Sample Matrix S
7. Number of containers per sample: 1 (Or see CoC _____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by MFuey Date: 07/01/09 Time: 1015

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J19150	260						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100487 Calibration date 10 Jun 08

Form SCP-02, 07-30-07

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

21 July 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 #	0907001
SDG #	K1681
SAF #	RC-075
Date Received	07/01/09
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	X
Pest/PCB	X
PAH	X
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

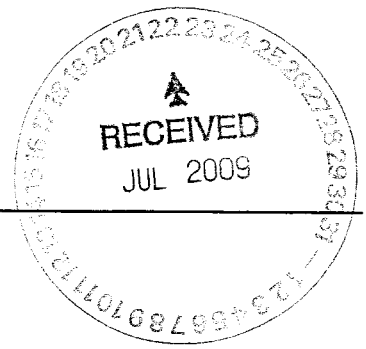
Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

ANALYSES DATA PACKAGE COVER PAGE

8270C



Laboratory: Lionville Laboratory

Client: WC-Hanford, Inc.

SDG: K1681

Project: RC-075

Client Sample Id:	Lab Sample Id:
J19180	0907001-01

I certify that this data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in computer-readable data submitted on diskette has been autorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

Signature: _____ Name: Iain Daniels

Date: 7/17/09 Title: Laboratory Manager

0000000001

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/16/2009 14:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J19180	0907001-01	Solid	06/29/2009 09:42	07/01/2009 09:50

0000000002

LVL
LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-075
LVL #: 0907001
SDG/SAF # K1681 / RC-075

W.O. #: 60049-001-001-0001-00
Date Received: 07-01-2009

SEMIVOLATILE

One (1) soil sample was collected on 06-29-2009.

The sample and associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 07-07-2009 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 07-08-2009.

All soil, sediment, solid and sludge 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. All results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. The samples were extracted and analyzed within holding time.
3. Non-target compounds were detected in these samples.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. Five (5) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 09MS165) is enclosed.
7. The method blank was below the reporting limit for all target compounds.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. Internal standard area criteria were not met for samples L9070460-BS1, L907046-MS1. Associated blank/matrix spike duplicate analyses fulfilled the reanalysis requirements. The GC/MS instrument was inspected for possible malfunction and was judged to be functioning properly and all surrogate recoveries were within QC limits; consequently, the samples were not reanalyzed.

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 20 pages.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

7/17/09
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 09MS165

Initiator: Sham Sayla
Date: 7-15-09
Client: WCHamford RC-075

Batch: 0907001
Samples: BS
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: SOLID
Prep Batch: L907046

1. Reason for SDR

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

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

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

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

low spike recoveries in the BS but MS + MSD are ok (2 methyphenol, 3/4 methyphenol, isophorone, 1,2,4-Trichlorobenzene, 4,6-Dinitro 2 methyphenol)

All surrogates within acceptance criteria

2. Known or Probable Causes(s) acidic phenols are subject to erratic chromatographic behavior especially if the GC system is contaminated with high boiling material. others sporadic. All MS/MSD spike recoveries within criteria

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

Other Description:

narrate

4. Project Manager Instructions...signature/date: [signature] 7/17/09
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: [signature] 7/17/09
__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

Other Explanation:

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

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

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

QA-139-A-0208

000000005

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Notes and Definitions

U	Analyte included in the analysis, but not detected
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
B	Analyte is found in the associated blank as well as in the sample (CLP B-flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Richland WA, 99354	Project Manager: Joan Kessner	07/16/2009 14:04

J19180

0907001-01 (Solid)

Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2,4-Trichlorobenzene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
1,2-Dichlorobenzene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
1,3-Dichlorobenzene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
1,4-Dichlorobenzene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2,4,5-Trichlorophenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2,4,6-Trichlorophenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2,4-Dichlorophenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2,4-Dimethylphenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2,4-Dinitrophenol	1660 U	1660	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2,4-Dinitrotoluene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2,6-Dinitrotoluene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2-Chloronaphthalene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2-Chlorophenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2-Methylnaphthalene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2-Methylphenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2-Nitroaniline	1660 U	1660	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
2-Nitrophenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
3,3'-Dichlorobenzidine	665 U	665	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
3-Nitroaniline	1660 U	1660	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
4,6-Dinitro-2-methylphenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
4-Bromophenyl Phenyl Ether	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
4-Chloro-3-methylphenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
4-Chloroaniline	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
4-Chlorophenyl Phenyl Ether	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
3- and/or 4-Methylphenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
4-Nitroaniline	1660 U	1660	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
4-Nitrophenol	1660 U	1660	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Acenaphthene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Acenaphthylene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Anthracene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Benz[a]anthracene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Benzo[a] pyrene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Benzo[b] fluoranthene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Benzo[g,h,i] perylene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Benzo[k] fluoranthene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Bis(2-chloroethoxy) methane	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Bis(2-chloroethyl) ether	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Bis(2-chloroisopropyl) ether	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Bis(2-ethylhexyl) phthalate	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C

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Richland WA, 99354	Project Manager: Joan Kessner	07/16/2009 14:04

J19180

0907001-01 (Solid)

Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Butyl Benzyl Phthalate	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Carbazole	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Chrysene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Dibenz[a,h]anthracene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Dibenzofuran	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Diethyl Phthalate	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Dimethyl Phthalate	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Di-n-butyl Phthalate	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Di-n-octyl Phthalate	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Fluoranthene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Fluorene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Hexachlorobenzene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Hexachlorobutadiene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Hexachlorocyclopentadiene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Hexachloroethane	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Indeno[1,2,3-cd]pyrene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Isophorone	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Naphthalene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Nitrobenzene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
N-Nitrosodi-n-propylamine	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
N-Nitrosodiphenylamine	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Pentachlorophenol	1660 U	1660	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Phenanthrene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Phenol	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Pyrene	332 U	332	ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
TIC:2-Pentene, 2,3-dimethyl-	**700** B, J		ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
TIC:Alkane 1	**271** J		ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
TIC:Alkane 2	**275** J		ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
TIC:Unknown 1	**81800** B, J		ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
TIC:Unknown 2	**303** J, B RGC 7/16/09 MA		ug/kg dry	1	L907046	07/07/2009	07/08/2009	8270C
Surrogate: 2-Fluorophenol	*36 %*	*25-121*			*L907046*	*07/07/2009*	*07/08/2009*	*8270C*
Surrogate: Phenol-d5	*37 %*	*24-113*			*L907046*	*07/07/2009*	*07/08/2009*	*8270C*
Surrogate: Nitrobenzene-d5	*35 %*	*23-120*			*L907046*	*07/07/2009*	*07/08/2009*	*8270C*
Surrogate: 2-Fluorobiphenyl	*40 %*	*30-115*			*L907046*	*07/07/2009*	*07/08/2009*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*40 %*	*19-122*			*L907046*	*07/07/2009*	*07/08/2009*	*8270C*
Surrogate: p-Terphenyl-d14	*45 %*	*18-137*			*L907046*	*07/07/2009*	*07/08/2009*	*8270C*

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Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907046 - SW 3540C									
Blank (L907046-BLK1)				Prepared: 07/07/2009 Analyzed: 07/08/2009					
1,2,4-Trichlorobenzene	330 U	330	ug/kg wet						
1,2-Dichlorobenzene	330 U	330	ug/kg wet						
1,3-Dichlorobenzene	330 U	330	ug/kg wet						
1,4-Dichlorobenzene	330 U	330	ug/kg wet						
2,4,5-Trichlorophenol	330 U	330	ug/kg wet						
2,4,6-Trichlorophenol	330 U	330	ug/kg wet						
2,4-Dichlorophenol	330 U	330	ug/kg wet						
2,4-Dimethylphenol	330 U	330	ug/kg wet						
2,4-Dinitrophenol	1650 U	1650	ug/kg wet						
2,4-Dinitrotoluene	330 U	330	ug/kg wet						
2,6-Dinitrotoluene	330 U	330	ug/kg wet						
2-Chloronaphthalene	330 U	330	ug/kg wet						
2-Chlorophenol	330 U	330	ug/kg wet						
2-Methylnaphthalene	330 U	330	ug/kg wet						
2-Methylphenol	330 U	330	ug/kg wet						
2-Nitroaniline	1650 U	1650	ug/kg wet						
2-Nitrophenol	330 U	330	ug/kg wet						
3,3'-Dichlorobenzidine	660 U	660	ug/kg wet						
3-Nitroaniline	1650 U	1650	ug/kg wet						
4,6-Dinitro-2-methylphenol	330 U	330	ug/kg wet						
4-Bromophenyl Phenyl Ether	330 U	330	ug/kg wet						
4-Chloro-3-methylphenol	330 U	330	ug/kg wet						
4-Chloroaniline	330 U	330	ug/kg wet						
4-Chlorophenyl Phenyl Ether	330 U	330	ug/kg wet						
3- and/or 4-Methylphenol	330 U	330	ug/kg wet						
4-Nitroaniline	1650 U	1650	ug/kg wet						
4-Nitrophenol	1650 U	1650	ug/kg wet						
Acenaphthene	330 U	330	ug/kg wet						
Acenaphthylene	330 U	330	ug/kg wet						
Anthracene	330 U	330	ug/kg wet						
Benz[a]anthracene	330 U	330	ug/kg wet						
Benzo[a] pyrene	330 U	330	ug/kg wet						
Benzo[b] fluoranthene	330 U	330	ug/kg wet						
Benzo[g,h,i] perylene	330 U	330	ug/kg wet						
Benzo[k] fluoranthene	330 U	330	ug/kg wet						
Bis(2-chloroethoxy) methane	330 U	330	ug/kg wet						
Bis(2-chloroethyl) ether	330 U	330	ug/kg wet						
Bis(2-chloroisopropyl) ether	330 U	330	ug/kg wet						
Bis(2-ethylhexyl) phthalate	330 U	330	ug/kg wet						
Butyl Benzyl Phthalate	330 U	330	ug/kg wet						
Carbazole	330 U	330	ug/kg wet						
Chrysene	330 U	330	ug/kg wet						
Dibenz[a,h]anthracene	330 U	330	ug/kg wet						

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Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907046 - SW 3540C									
Blank (L907046-BLK1)			Prepared: 07/07/2009 Analyzed: 07/08/2009						
Dibenzofuran	330 U	330	ug/kg wet						
Diethyl Phthalate	330 U	330	ug/kg wet						
Dimethyl Phthalate	330 U	330	ug/kg wet						
Di-n-butyl Phthalate	330 U	330	ug/kg wet						
Di-n-octyl Phthalate	330 U	330	ug/kg wet						
Fluoranthene	330 U	330	ug/kg wet						
Fluorene	330 U	330	ug/kg wet						
Hexachlorobenzene	330 U	330	ug/kg wet						
Hexachlorobutadiene	330 U	330	ug/kg wet						
Hexachlorocyclopentadiene	330 U	330	ug/kg wet						
Hexachloroethane	330 U	330	ug/kg wet						
Indeno[1,2,3-cd]pyrene	330 U	330	ug/kg wet						
Isophorone	330 U	330	ug/kg wet						
Naphthalene	330 U	330	ug/kg wet						
Nitrobenzene	330 U	330	ug/kg wet						
N-Nitrosodi-n-propylamine	330 U	330	ug/kg wet						
N-Nitrosodiphenylamine	330 U	330	ug/kg wet						
Pentachlorophenol	1650 U	1650	ug/kg wet						
Phenanthrene	330 U	330	ug/kg wet						
Phenol	330 U	330	ug/kg wet						
Pyrene	330 U	330	ug/kg wet						
TIC:Unknown 1	54500 J		ug/kg wet						
TIC:2-Pentene, 2,3-dimethyl-	433 J		ug/kg wet						
TIC:Unknown 2	403 J		ug/kg wet						
Surrogate: 2-Fluorophenol	*876*		*ug/kg wet*	*2500.0*		*35*	*25-121*		
Surrogate: Phenol-d5	*886*		*ug/kg wet*	*2500.0*		*35*	*24-113*		
Surrogate: Nitrobenzene-d5	*595*		*ug/kg wet*	*1666.7*		*36*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*691*		*ug/kg wet*	*1666.7*		*41*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*749*		*ug/kg wet*	*2500.0*		*30*	*19-122*		
Surrogate: p-Terphenyl-d14	*791*		*ug/kg wet*	*1666.7*		*47*	*18-137*		

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Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907046 - SW 3540C									
LCS (L907046-BS1)				Prepared: 07/07/2009 Analyzed: 07/08/2009					
1,2,4-Trichlorobenzene	1170	330	ug/kg wet	2000.0		58*	60-120		
1,2-Dichlorobenzene	1200	330	ug/kg wet	2000.0		60	50-110		
1,3-Dichlorobenzene	1130	330	ug/kg wet	2000.0		57	50-110		
1,4-Dichlorobenzene	1130	330	ug/kg wet	2000.0		57	50-120		
2,4,5-Trichlorophenol	1350	330	ug/kg wet	2000.0		67	50-110		
2,4,6-Trichlorophenol	1250	330	ug/kg wet	2000.0		62	50-110		
2,4-Dichlorophenol	1220	330	ug/kg wet	2000.0		61	45-110		
2,4-Dimethylphenol	1120	330	ug/kg wet	2000.0		56	50-120		
2,4-Dinitrophenol	448 J	1650	ug/kg wet	2000.0		22	20-120		
2,4-Dinitrotoluene	1350	330	ug/kg wet	2000.0		68	60-130		
2,6-Dinitrotoluene	1320	330	ug/kg wet	2000.0		66	50-140		
2-Chloronaphthalene	1310	330	ug/kg wet	2000.0		65	50-130		
2-Chlorophenol	1150	330	ug/kg wet	2000.0		58	50-130		
2-Methylnaphthalene	1300	330	ug/kg wet	2000.0		65	60-100		
2-Methylphenol	1160	330	ug/kg wet	2000.0		58*	60-120		
2-Nitroaniline	1220 J	1650	ug/kg wet	2000.0		61	60-130		
2-Nitrophenol	1130	330	ug/kg wet	2000.0		57	50-130		
3,3'-Dichlorobenzidine	783	660	ug/kg wet	2000.0		39	20-140		
3-Nitroaniline	1180 J	1650	ug/kg wet	2000.0		59	40-130		
4,6-Dinitro-2-methylphenol	729	330	ug/kg wet	2000.0		36*	40-140		
4-Bromophenyl Phenyl Ether	1450	330	ug/kg wet	2000.0		72	50-120		
4-Chloro-3-methylphenol	1230	330	ug/kg wet	2000.0		62	60-130		
4-Chloroaniline	829	330	ug/kg wet	2000.0		41	20-120		
4-Chlorophenyl Phenyl Ether	1350	330	ug/kg wet	2000.0		68	50-120		
3- and/or 4-Methylphenol	1150	330	ug/kg wet	2000.0		58*	60-130		
4-Nitroaniline	1190 J	1650	ug/kg wet	2000.0		60	50-120		
4-Nitrophenol	1150 J	1650	ug/kg wet	2000.0		57	40-140		
Acenaphthene	1300	330	ug/kg wet	2000.0		65	60-130		
Acenaphthylene	1320	330	ug/kg wet	2000.0		66	60-110		
Anthracene	1440	330	ug/kg wet	2000.0		72	60-130		
Benz[a]anthracene	1360	330	ug/kg wet	2000.0		68	50-130		
Benzo[a] pyrene	1330	330	ug/kg wet	2000.0		67	50-130		
Benzo[b] fluoranthene	1300	330	ug/kg wet	2000.0		65	60-130		
Benzo[g,h,i] perylene	1510	330	ug/kg wet	2000.0		76	60-140		
Benzo[k] fluoranthene	1330	330	ug/kg wet	2000.0		67	50-130		
Bis(2-chloroethoxy) methane	1300	330	ug/kg wet	2000.0		65	40-140		
Bis(2-chloroethyl) ether	1190	330	ug/kg wet	2000.0		59	50-130		
Bis(2-chloroisopropyl) ether	1250	330	ug/kg wet	2000.0		63	50-120		
Bis(2-ethylhexyl) phthalate	1360	330	ug/kg wet	2000.0		68	50-150		
Butyl Benzyl Phthalate	1410	330	ug/kg wet	2000.0		70	50-150		
Carbazole	1350	330	ug/kg wet	2000.0		67	60-120		
Chrysene	1380	330	ug/kg wet	2000.0		69	50-130		
Dibenz[a,h]anthracene	1430	330	ug/kg wet	2000.0		72	50-140		

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/16/2009 14:04

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907046 - SW 3540C									
LCS (L907046-BS1)				Prepared: 07/07/2009 Analyzed: 07/08/2009					
Dibenzofuran	1310	330	ug/kg wet	2000.0		65	60-130		
Diethyl Phthalate	1410	330	ug/kg wet	2000.0		71	50-130		
Dimethyl Phthalate	1410	330	ug/kg wet	2000.0		71	50-140		
Di-n-butyl Phthalate	1460	330	ug/kg wet	2000.0		73	40-150		
Di-n-octyl Phthalate	1290	330	ug/kg wet	2000.0		65	50-150		
Fluoranthene	1480	330	ug/kg wet	2000.0		74	50-130		
Fluorene	1330	330	ug/kg wet	2000.0		66	60-130		
Hexachlorobenzene	1420	330	ug/kg wet	2000.0		71	60-130		
Hexachlorobutadiene	1300	330	ug/kg wet	2000.0		65	40-130		
Hexachlorocyclopentadiene	1010	330	ug/kg wet	2000.0		50	20-100		
Hexachloroethane	1170	330	ug/kg wet	2000.0		58	50-110		
Indeno[1,2,3-cd]pyrene	1440	330	ug/kg wet	2000.0		72	60-140		
Isophorone	1090	330	ug/kg wet	2000.0		54*	60-120		
Naphthalene	1220	330	ug/kg wet	2000.0		61	40-130		
Nitrobenzene	1140	330	ug/kg wet	2000.0		57	50-110		
N-Nitrosodi-n-propylamine	1210	330	ug/kg wet	2000.0		60	50-130		
N-Nitrosodiphenylamine	1220	330	ug/kg wet	2000.0		61	50-130		
Pentachlorophenol	1190 J	1650	ug/kg wet	2000.0		59	30-130		
Phenanthrene	1390	330	ug/kg wet	2000.0		70	60-130		
Phenol	1180	330	ug/kg wet	2000.0		59	50-130		
Pyrene	1320	330	ug/kg wet	2000.0		66	50-140		
Surrogate: 2-Fluorophenol	*759*		*ug/kg wet*	*2500.0*		*30*	*25-121*		
Surrogate: Phenol-d5	*777*		*ug/kg wet*	*2500.0*		*31*	*24-113*		
Surrogate: Nitrobenzene-d5	*512*		*ug/kg wet*	*1666.7*		*31*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*620*		*ug/kg wet*	*1666.7*		*37*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*894*		*ug/kg wet*	*2500.0*		*36*	*19-122*		
Surrogate: p-Terphenyl-d14	*604*		*ug/kg wet*	*1666.7*		*36*	*18-137*		

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/16/2009 14:04

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907046 - SW 3540C									
Matrix Spike (L907046-MS1)	**Source: 0907001-01**	Prepared: 07/07/2009 Analyzed: 07/08/2009							
1,2,4-Trichlorobenzene	1540	332	ug/kg dry	2014.2	332	76	60-120		
1,2-Dichlorobenzene	1590	332	ug/kg dry	2014.2	332	79	50-110		
1,3-Dichlorobenzene	1500	332	ug/kg dry	2014.2	332	74	50-110		
1,4-Dichlorobenzene	1490	332	ug/kg dry	2014.2	332	74	50-120		
2,4,5-Trichlorophenol	1950	332	ug/kg dry	2014.2	332	97	50-110		
2,4,6-Trichlorophenol	1650	332	ug/kg dry	2014.2	332	82	50-110		
2,4-Dichlorophenol	1820	332	ug/kg dry	2014.2	332	90	45-110		
2,4-Dimethylphenol	1750	332	ug/kg dry	2014.2	332	87	50-120		
2,4-Dinitrophenol	1520 J	1660	ug/kg dry	2014.2	1660	75	20-120		
2,4-Dinitrotoluene	1930	332	ug/kg dry	2014.2	332	96	60-130		
2,6-Dinitrotoluene	1930	332	ug/kg dry	2014.2	332	96	50-140		
2-Chloronaphthalene	1820	332	ug/kg dry	2014.2	332	90	50-130		
2-Chlorophenol	1660	332	ug/kg dry	2014.2	332	82	50-130		
2-Methylnaphthalene	1860	332	ug/kg dry	2014.2	332	92	60-100		
2-Methylphenol	1810	332	ug/kg dry	2014.2	332	90	60-120		
2-Nitroaniline	1920	1660	ug/kg dry	2014.2	1660	95	60-130		
2-Nitrophenol	1510	332	ug/kg dry	2014.2	332	75	50-130		
3,3'-Dichlorobenzidine	1040	665	ug/kg dry	2014.2	665	52	20-140		
3-Nitroaniline	1640 J	1660	ug/kg dry	2014.2	1660	82	40-130		
4,6-Dinitro-2-methylphenol	1740	332	ug/kg dry	2014.2	332	86	40-140		
4-Bromophenyl Phenyl Ether	1940	332	ug/kg dry	2014.2	332	97	50-120		
4-Chloro-3-methylphenol	1910	332	ug/kg dry	2014.2	332	95	60-130		
4-Chloroaniline	1130	332	ug/kg dry	2014.2	332	56	20-120		
4-Chlorophenyl Phenyl Ether	1920	332	ug/kg dry	2014.2	332	95	50-120		
3- and/or 4-Methylphenol	1760	332	ug/kg dry	2014.2	332	87	60-130		
4-Nitroaniline	1930	1660	ug/kg dry	2014.2	1660	96	50-120		
4-Nitrophenol	1970	1660	ug/kg dry	2014.2	1660	98	40-140		
Acenaphthene	1800	332	ug/kg dry	2014.2	332	89	60-130		
Acenaphthylene	1840	332	ug/kg dry	2014.2	332	91	60-110		
Anthracene	1790	332	ug/kg dry	2014.2	332	89	60-130		
Benz[a]anthracene	1880	332	ug/kg dry	2014.2	332	94	50-130		
Benzo[a] pyrene	1920	332	ug/kg dry	2014.2	332	95	50-130		
Benzo[b] fluoranthene	1880	332	ug/kg dry	2014.2	332	93	60-130		
Benzo[g,h,i] perylene	1830	332	ug/kg dry	2014.2	332	91	60-140		
Benzo[k] fluoranthene	1830	332	ug/kg dry	2014.2	332	91	50-130		
Bis(2-chloroethoxy) methane	1870	332	ug/kg dry	2014.2	332	93	40-140		
Bis(2-chloroethyl) ether	1660	332	ug/kg dry	2014.2	332	82	50-130		
Bis(2-chloroisopropyl) ether	1770	332	ug/kg dry	2014.2	332	88	50-120		
Bis(2-ethylhexyl) phthalate	2150	332	ug/kg dry	2014.2	332	107	50-150		
Butyl Benzyl Phthalate	1970	332	ug/kg dry	2014.2	332	98	50-150		
Carbazole	1970	332	ug/kg dry	2014.2	332	98	60-120		
Chrysene	1890	332	ug/kg dry	2014.2	332	94	50-130		
Dibenz[a,h]anthracene	1910	332	ug/kg dry	2014.2	332	95	50-140		

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/16/2009 14:04

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907046 - SW 3540C									
Matrix Spike (L907046-MS1)		**Source: 0907001-01**		Prepared: 07/07/2009 Analyzed: 07/08/2009					
Dibenzofuran	1780	332	ug/kg dry	2014.2	332	88	60-130		
Diethyl Phthalate	2040	332	ug/kg dry	2014.2	332	101	50-130		
Dimethyl Phthalate	2010	332	ug/kg dry	2014.2	332	100	50-140		
Di-n-butyl Phthalate	2020	332	ug/kg dry	2014.2	332	100	40-150		
Di-n-octyl Phthalate	2120	332	ug/kg dry	2014.2	332	105	50-150		
Fluoranthene	1930	332	ug/kg dry	2014.2	332	96	50-130		
Fluorene	1840	332	ug/kg dry	2014.2	332	92	60-130		
Hexachlorobenzene	1820	332	ug/kg dry	2014.2	332	91	60-130		
Hexachlorobutadiene	1690	332	ug/kg dry	2014.2	332	84	40-130		
Hexachlorocyclopentadiene	1610	332	ug/kg dry	2014.2	332	80	20-100		
Hexachloroethane	1590	332	ug/kg dry	2014.2	332	79	50-110		
Indeno[1,2,3-cd]pyrene	1880	332	ug/kg dry	2014.2	332	93	60-140		
Isophorone	1570	332	ug/kg dry	2014.2	332	78	60-120		
Naphthalene	1620	332	ug/kg dry	2014.2	332	80	40-130		
Nitrobenzene	1580	332	ug/kg dry	2014.2	332	78	50-110		
N-Nitrosodi-n-propylamine	1810	332	ug/kg dry	2014.2	332	90	50-130		
N-Nitrosodiphenylamine	1710	332	ug/kg dry	2014.2	332	85	50-130		
Pentachlorophenol	1860	1660	ug/kg dry	2014.2	1660	92	30-130		
Phenanthrene	1840	332	ug/kg dry	2014.2	332	92	60-130		
Phenol	1730	332	ug/kg dry	2014.2	332	86	50-130		
Pyrene	1710	332	ug/kg dry	2014.2	332	85	50-140		
Surrogate: 2-Fluorophenol	*1040*		*ug/kg dry*	*2517.8*		*41*	*25-121*		
Surrogate: Phenol-d5	*1130*		*ug/kg dry*	*2517.8*		*45*	*24-113*		
Surrogate: Nitrobenzene-d5	*690*		*ug/kg dry*	*1678.5*		*41*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*843*		*ug/kg dry*	*1678.5*		*50*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1070*		*ug/kg dry*	*2517.8*		*42*	*19-122*		
Surrogate: p-Terphenyl-d14	*798*		*ug/kg dry*	*1678.5*		*48*	*18-137*		

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/16/2009 14:04

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907046 - SW 3540C									
Matrix Spike Dup (L907046-MSD1)	**Source: 0907001-01**	Prepared: 07/07/2009 Analyzed: 07/08/2009							
1,2,4-Trichlorobenzene	1540	332	ug/kg dry	2014.2	332	76	60-120	0.3	40
1,2-Dichlorobenzene	1530	332	ug/kg dry	2014.2	332	76	50-110	3	40
1,3-Dichlorobenzene	1440	332	ug/kg dry	2014.2	332	72	50-110	4	40
1,4-Dichlorobenzene	1440	332	ug/kg dry	2014.2	332	72	50-120	3	40
2,4,5-Trichlorophenol	1880	332	ug/kg dry	2014.2	332	93	50-110	4	40
2,4,6-Trichlorophenol	1730	332	ug/kg dry	2014.2	332	86	50-110	4	40
2,4-Dichlorophenol	1700	332	ug/kg dry	2014.2	332	84	45-110	7	40
2,4-Dimethylphenol	1680	332	ug/kg dry	2014.2	332	84	50-120	4	40
2,4-Dinitrophenol	793 J	1660	ug/kg dry	2014.2	1660	39	20-120	63*	40
2,4-Dinitrotoluene	1810	332	ug/kg dry	2014.2	332	90	60-130	7	40
2,6-Dinitrotoluene	1820	332	ug/kg dry	2014.2	332	90	50-140	6	40
2-Chloronaphthalene	1820	332	ug/kg dry	2014.2	332	90	50-130	0.06	40
2-Chlorophenol	1600	332	ug/kg dry	2014.2	332	80	50-130	3	40
2-Methylnaphthalene	1790	332	ug/kg dry	2014.2	332	89	60-100	4	40
2-Methylphenol	1690	332	ug/kg dry	2014.2	332	84	60-120	6	40
2-Nitroaniline	1740	1660	ug/kg dry	2014.2	1660	87	60-130	10	40
2-Nitrophenol	1500	332	ug/kg dry	2014.2	332	75	50-130	0.7	40
3,3'-Dichlorobenzidine	921	665	ug/kg dry	2014.2	665	46	20-140	12	40
3-Nitroaniline	1480 J	1660	ug/kg dry	2014.2	1660	73	40-130	11	40
4,6-Dinitro-2-methylphenol	1400	332	ug/kg dry	2014.2	332	70	40-140	21	40
4-Bromophenyl Phenyl Ether	1920	332	ug/kg dry	2014.2	332	95	50-120	1	40
4-Chloro-3-methylphenol	1730	332	ug/kg dry	2014.2	332	86	60-130	10	40
4-Chloroaniline	998	332	ug/kg dry	2014.2	332	50	20-120	13	40
4-Chlorophenyl Phenyl Ether	1860	332	ug/kg dry	2014.2	332	93	50-120	3	40
3- and/or 4-Methylphenol	1650	332	ug/kg dry	2014.2	332	82	60-130	7	40
4-Nitroaniline	1460 J	1660	ug/kg dry	2014.2	1660	72	50-120	28	40
4-Nitrophenol	1580 J	1660	ug/kg dry	2014.2	1660	78	40-140	22	40
Acenaphthene	1820	332	ug/kg dry	2014.2	332	90	60-130	1	40
Acenaphthylene	1800	332	ug/kg dry	2014.2	332	90	60-110	2	40
Anthracene	1780	332	ug/kg dry	2014.2	332	88	60-130	0.8	40
Benz[a]anthracene	1850	332	ug/kg dry	2014.2	332	92	50-130	2	40
Benzo[a] pyrene	1860	332	ug/kg dry	2014.2	332	92	50-130	3	20
Benzo[b] fluoranthene	1850	332	ug/kg dry	2014.2	332	92	60-130	2	20
Benzo[g,h,i] perylene	1580	332	ug/kg dry	2014.2	332	78	60-140	15	20
Benzo[k] fluoranthene	1850	332	ug/kg dry	2014.2	332	92	50-130	1	20
Bis(2-chloroethoxy) methane	1780	332	ug/kg dry	2014.2	332	88	40-140	5	40
Bis(2-chloroethyl) ether	1600	332	ug/kg dry	2014.2	332	80	50-130	3	40
Bis(2-chloroisopropyl) ether	1730	332	ug/kg dry	2014.2	332	86	50-120	2	40
Bis(2-ethylhexyl) phthalate	2110	332	ug/kg dry	2014.2	332	105	50-150	2	40
Butyl Benzyl Phthalate	1980	332	ug/kg dry	2014.2	332	98	50-150	0.7	40
Carbazole	1830	332	ug/kg dry	2014.2	332	91	60-120	7	40
Chrysene	1850	332	ug/kg dry	2014.2	332	92	50-130	2	40
Dibenz[a,h]anthracene	1670	332	ug/kg dry	2014.2	332	83	50-140	13	40

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WC-Hanford, Inc.	Project: RC-075	
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Richland WA, 99354	Project Manager: Joan Kessner	07/16/2009 14:04

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907046 - SW 3540C									
Matrix Spike Dup (L907046-MSD1)	**Source: 0907001-01**		Prepared: 07/07/2009 Analyzed: 07/08/2009						
Dibenzofuran	1810	332	ug/kg dry	2014.2	332	90	60-130	2	40
Diethyl Phthalate	1920	332	ug/kg dry	2014.2	332	95	50-130	6	40
Dimethyl Phthalate	1900	332	ug/kg dry	2014.2	332	94	50-140	5	40
Di-n-butyl Phthalate	1980	332	ug/kg dry	2014.2	332	98	40-150	2	40
Di-n-octyl Phthalate	2150	332	ug/kg dry	2014.2	332	107	50-150	1	40
Fluoranthene	1950	332	ug/kg dry	2014.2	332	97	50-130	1	40
Fluorene	1810	332	ug/kg dry	2014.2	332	90	60-130	2	40
Hexachlorobenzene	1810	332	ug/kg dry	2014.2	332	90	60-130	0.9	40
Hexachlorobutadiene	1700	332	ug/kg dry	2014.2	332	84	40-130	0.3	40
Hexachlorocyclopentadiene	1500	332	ug/kg dry	2014.2	332	75	20-100	7	40
Hexachloroethane	1510	332	ug/kg dry	2014.2	332	75	50-110	5	40
Indeno[1,2,3-cd]pyrene	1630	332	ug/kg dry	2014.2	332	81	60-140	14	40
Isophorone	1510	332	ug/kg dry	2014.2	332	75	60-120	4	40
Naphthalene	1630	332	ug/kg dry	2014.2	332	81	40-130	0.7	40
Nitrobenzene	1570	332	ug/kg dry	2014.2	332	78	50-110	0.2	40
N-Nitrosodi-n-propylamine	1750	332	ug/kg dry	2014.2	332	87	50-130	3	40
N-Nitrosodiphenylamine	1650	332	ug/kg dry	2014.2	332	82	50-130	4	40
Pentachlorophenol	1820	1660	ug/kg dry	2014.2	1660	91	30-130	2	40
Phenanthrene	1840	332	ug/kg dry	2014.2	332	91	60-130	0.09	40
Phenol	1660	332	ug/kg dry	2014.2	332	83	50-130	4	40
Pyrene	1750	332	ug/kg dry	2014.2	332	87	50-140	2	40
Surrogate: 2-Fluorophenol	*1050*		*ug/kg dry*	*2517.8*		*42*	*25-121*		
Surrogate: Phenol-d5	*1110*		*ug/kg dry*	*2517.8*		*44*	*24-113*		
Surrogate: Nitrobenzene-d5	*721*		*ug/kg dry*	*1678.5*		*43*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*884*		*ug/kg dry*	*1678.5*		*53*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1200*		*ug/kg dry*	*2517.8*		*48*	*19-122*		
Surrogate: p-Terphenyl-d14	*807*		*ug/kg dry*	*1678.5*		*48*	*18-137*		

PREPARATION BENCH SHEET

025

L907046

Lionville Laboratory

Printed: 7/8/2009 12:36:34PM

Matrix: Solid **Prepared using: SVOCGCMS - SW 3540C** **Surrogate used: 0901103**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
0907001-01	8270C TCL SVOC	07/07/2009 15:54	30	1				500	WC-Hanford, Inc.	
L907046-BLK1	QC	07/07/2009 15:54	30	1				500		
L907046-BS1	QC	07/07/2009 15:54	30	1	0900376		600	500		
L907046-MS1	QC	07/07/2009 15:54	30	1	0900376	0907001-01	600	500		
L907046-MSD1	QC	07/07/2009 15:54	30	1	0900376	0907001-01	600	500		

Spiking Witnessed By Date

Preparation Reviewed By 7/8/09 1247 Date

Extracts Received By 7-8-09 1440 Date

See SRC

Lionville Laboratory Use Only
0907001

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client WC HANFORD SAF# RC-075

Est. Final Proj. Sampling Date

Project# 60049-001-001-0001

Project Contact/Phone#

Lionville Laboratory Project Manager O. JOHNSON

QC SW846 Del STD TAT 21 days

Date Rec'd 7-1-09 Date Due 7-22-09

		A	B	C	D	E	F
Refrigerator #		2	2	2	2	2	2
#/Type Container	Liquid						
	Solid	1AG	1AG	1AG	1AG	1AG	1AG
Volume		120	60	125	250	250	60
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED →		ORGANIC				INORG	
		VOA / BNA	~~Pest~~/PCB / Herb	PEST	PAH	Metal Hg / CN	Hex Chrom

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0625H	OPCB	0608H	0830	Met(1)	ICR6
01	J19180	✓	✓	Soil	6-29-9	0942	X	X	X	X	X	X

Special Instructions:

Met(1) = RCRA + B, Co, Cu, Mn, Mo, Ni, V, Zn

Special Instructions:

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

Relinquished by	Received by	Date	Time
[signature]	[signature]	7/1/09	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-099	Page 1 of 1

Collector: J Sellers	Company Contact: D.W.Shea — Telephone No.: 521-6014	Project Coordinator: KESSNER, JH	Price Code: 8L — Data Turnaround: 21 days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 126-D-2, Verification I, split samples	SAF No.: RC-075	
Ice Chest No.: 106	Field Logbook No.: EL-1607-6 — COA: R126D22000	Method of Shipment: Fed Ex	
Shipped To: LIONVILLE TestAmerica Incorporated, Richland	Offsite Property No.: A090260	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	G/P E	G/P F	aG C	aG B	aG A	aG D	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	~~1~~ DWShea 6/25/09		
Volume	60ml	60mL	125mL	60mL	120mL	120g	500mL	2g		
SAMPLE ANALYSIS	See item (1) in Special instructions	Chromium Hex - 7196	Pesticides - 8081	PCBs - 8082	Semi VOA - 8270A (TCL)	PAHs - 8310	See item (2) in Special Instructions	Gross Alpha, Gross Beta		

Sample No	Matrix *	Sample Date	Sample Time										
J19180	SOIL	6/29/09	0942	✓	✓	✓	✓	✓	✓	✓	✓		

JEB 6-30-09

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: J. Sellers Josh Sellers	Date/Time: 6-29-09 1313	Received By/Stored In: DWShea DWSHEA	Date/Time: 6/29/09 1313
Relinquished By/Removed From: DWShea DWShea	Date/Time: 6/29/09 1658	Received By/Stored In: Fridge 3A	Date/Time: 6/29/09 1658
Relinquished By/Removed From: Fridge 3A / J.E. Bernhard	Date/Time: 0830 6-30-09	Received By/Stored In: J.E. Bernhard	Date/Time: 0830 6-30-09
Relinquished By/Removed From: J.E. Bernhard WCH	Date/Time: 1000 6-30-09	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 7-1-09 0950	Received By/Stored In: Victor Hernandez	Date/Time: 7-1-09 0950
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Lithium~~, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury} DWShea 6/25/09

(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

KW

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

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

WCH-EE 011

0000000019

Liorville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD Date: 7/1/09

Project/SAR/SOW/Release #: RC-075

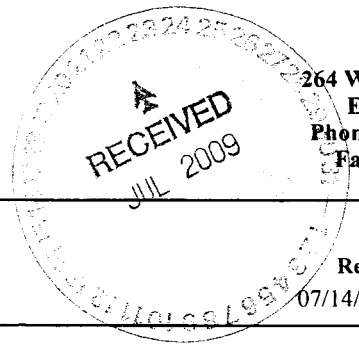
LvLI Batch #: 0907001 Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: FedEx		Airbill # 796739579285
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.3°	°C	Cooler # 106
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	SAMPLE #C1-C,D Rec'd in 250mL AG COC INDICATES 120mL AND 60mL.
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A
Person Contacted: D JOHNSON		Date: 7/1/09	

LVLI

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041



WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/14/2009 17:12

Pesticides

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J19180	0907001-01	Solid	06/29/2009 09:42	07/01/2009 09:50

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-075
LVL #: 0907001
SDG/SAF # K1681 /RC-075

W.O. #: 60049-001-001-0001-00
Date Received: 07-01-2009

CHLORINATED PESTICIDES

One (1) soil sample was collected on 06-29-2009.

The sample and associated QC samples were extracted on 07-07-2009 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 07-08-2009. 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. 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 time for extraction and analysis have been met.

2. The sample and it's associated QC samples received Copper-Sulfur cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A.

3. The method blank was below the reporting limit 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. Sample J19180 required a 4-fold instrument dilution due to matrix. Reporting limits have been adjusted to reflect the necessary dilutions.

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

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

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 12 pages.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

1/07/09
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.

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Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/14/2009 17:12

J19180

0907001-01 (Solid)

Lionville Laboratory

Organochlorine Pesticides by SW846 8081A

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
alpha-BHC	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
gamma-BHC	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
beta-BHC	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
delta-BHC	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Heptachlor	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Aldrin	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Heptachlor epoxide	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
gamma-Chlordane	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
alpha-Chlordane	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Endosulfan I	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
4,4'-DDE	**1.34** J, D	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Dieldrin	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Endrin	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
4,4'-DDD	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Endosulfan II	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
4,4'-DDT	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Endrin aldehyde	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Endosulfan sulfate	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Methoxychlor	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Endrin ketone	1.33 U	1.33	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Toxaphene	13.3 U	13.3	ug/kg dry	4	L907044	07/07/2009	07/08/2009	8081A
Surrogate: Tetrachloro-meta-xylene	*109 %*	*28-166*			*L907044*	*07/07/2009*	*07/08/2009*	*8081A*
Surrogate: Decachlorobiphenyl	*110 %*	*37-153*			*L907044*	*07/07/2009*	*07/08/2009*	*8081A*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/14/2009 17:12

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907044 - SW 3540C									
Blank (L907044-BLK1)			Prepared: 07/07/2009 Analyzed: 07/08/2009						
alpha-BHC	0.330 U	0.330	ug/kg wet						
gamma-BHC	0.330 U	0.330	ug/kg wet						
beta-BHC	0.330 U	0.330	ug/kg wet						
delta-BHC	0.330 U	0.330	ug/kg wet						
Heptachlor	0.330 U	0.330	ug/kg wet						
Aldrin	0.330 U	0.330	ug/kg wet						
Heptachlor epoxide	0.330 U	0.330	ug/kg wet						
gamma-Chlordane	0.330 U	0.330	ug/kg wet						
alpha-Chlordane	0.330 U	0.330	ug/kg wet						
Endosulfan I	0.330 U	0.330	ug/kg wet						
4,4'-DDE	0.330 U	0.330	ug/kg wet						
Dieldrin	0.330 U	0.330	ug/kg wet						
Endrin	0.330 U	0.330	ug/kg wet						
4,4'-DDD	0.330 U	0.330	ug/kg wet						
Endosulfan II	0.330 U	0.330	ug/kg wet						
4,4'-DDT	0.330 U	0.330	ug/kg wet						
Endrin aldehyde	0.330 U	0.330	ug/kg wet						
Endosulfan sulfate	0.330 U	0.330	ug/kg wet						
Methoxychlor	0.330 U	0.330	ug/kg wet						
Endrin ketone	0.330 U	0.330	ug/kg wet						
Toxaphene	3.30 U	3.30	ug/kg wet						
Surrogate: Tetrachloro-meta-xylene	*40.7* ✓		*ug/kg wet*	*33.337*		*122* ✓	*28-166*		
Surrogate: Decachlorobiphenyl	*34.7*		*ug/kg wet*	*33.333*		*104*	*37-153*		
LCS (L907044-BS1)			Prepared: 07/07/2009 Analyzed: 07/08/2009						
alpha-BHC	40.3	0.330	ug/kg wet	33.333		121	61-142		
gamma-BHC	39.7	0.330	ug/kg wet	33.333		119	65-142		
beta-BHC	39.0	0.330	ug/kg wet	33.333		117	71-134		
delta-BHC	36.3	0.330	ug/kg wet	33.333		109	53-144		
Heptachlor	41.0	0.330	ug/kg wet	33.333		123	70-138		
Aldrin	40.0	0.330	ug/kg wet	33.333		120	70-143		
Heptachlor epoxide	41.3	0.330	ug/kg wet	33.333		124	72-140		
gamma-Chlordane	41.3	0.330	ug/kg wet	33.333		124	74-140		
alpha-Chlordane	41.3	0.330	ug/kg wet	33.333		124	74-138		
Endosulfan I	41.3	0.330	ug/kg wet	33.333		124	81-141		
4,4'-DDE	39.3	0.330	ug/kg wet	33.333		118	82-145		
Dieldrin	41.7	0.330	ug/kg wet	33.333		125	79-144		
Endrin	42.7	0.330	ug/kg wet	33.333		128	73-147		
4,4'-DDD	34.0	0.330	ug/kg wet	33.333		102	77-148		
Endosulfan II	41.0	0.330	ug/kg wet	33.333		123	80-140		
4,4'-DDT	37.0	0.330	ug/kg wet	33.333		111	82-142		
Endrin aldehyde	34.7	0.330	ug/kg wet	33.333		104	59-133		
Endosulfan sulfate	39.7	0.330	ug/kg wet	33.333		119	77-135		

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/14/2009 17:12

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907044 - SW 3540C									
LCS (L907044-BS1)				Prepared: 07/07/2009 Analyzed: 07/08/2009					
Methoxychlor	31.0	0.330	ug/kg wet	33.333		93.0	77-136		
Endrin ketone	37.7	0.330	ug/kg wet	33.333		113	85-134		
Surrogate: Tetrachloro-meta-xylene	*39.7*		*ug/kg wet*	*33.337*		*119*	*28-166*		
Surrogate: Decachlorobiphenyl	*32.0*		*ug/kg wet*	*33.333*		*96.0*	*37-153*		
Matrix Spike (L907044-MS1)		**Source: 0907001-01**		Prepared: 07/07/2009 Analyzed: 07/08/2009					
alpha-BHC	36.6 D	1.33	ug/kg dry	33.571	1.33	109	61-142		
gamma-BHC	32.9 D	1.33	ug/kg dry	33.571	1.33	98.0	65-142		
beta-BHC	41.0 D	1.33	ug/kg dry	33.571	1.33	122	71-134		
delta-BHC	31.2 D	1.33	ug/kg dry	33.571	1.33	93.0	53-144		
Heptachlor	40.3 D	1.33	ug/kg dry	33.571	1.33	120	70-138		
Aldrin	36.9 D	1.33	ug/kg dry	33.571	1.33	110	70-143		
Heptachlor epoxide	37.3 D	1.33	ug/kg dry	33.571	1.33	111	72-140		
gamma-Chlordane	39.9 D	1.33	ug/kg dry	33.571	1.33	119	74-140		
alpha-Chlordane	40.6 D	1.33	ug/kg dry	33.571	1.33	121	74-138		
Endosulfan I	41.0 D	1.33	ug/kg dry	33.571	1.33	122	81-141		
4,4'-DDE	39.3 D	1.33	ug/kg dry	33.571	1.34	113	82-145		
Dieldrin	39.3 D	1.33	ug/kg dry	33.571	1.33	117	79-144		
Endrin	42.3 D	1.33	ug/kg dry	33.571	1.33	126	73-147		
4,4'-DDD	32.9 D	1.33	ug/kg dry	33.571	1.33	98.0	77-148		
Endosulfan II	39.9 D	1.33	ug/kg dry	33.571	1.33	119	80-140		
4,4'-DDT	35.6 D	1.33	ug/kg dry	33.571	1.33	106	82-142		
Endrin aldehyde	38.3 D	1.33	ug/kg dry	33.571	1.33	114	59-133		
Endosulfan sulfate	37.3 D	1.33	ug/kg dry	33.571	1.33	111	77-135		
Methoxychlor	34.6 D	1.33	ug/kg dry	33.571	1.33	103	77-136		
Endrin ketone	37.6 D	1.33	ug/kg dry	33.571	1.33	112	85-134		
Surrogate: Tetrachloro-meta-xylene	*38.6*		*ug/kg dry*	*33.574*		*115*	*28-166*		
Surrogate: Decachlorobiphenyl	*36.6*		*ug/kg dry*	*33.571*		*109*	*37-153*		

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/14/2009 17:12

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907044 - SW 3540C									
Matrix Spike Dup (L907044-MSD1)	**Source: 0907001-01**	Prepared: 07/07/2009 Analyzed: 07/08/2009							
alpha-BHC	35.2 D	1.33	ug/kg dry	33.571	1.33	105	61-142	3.74	40
gamma-BHC	31.9 D	1.33	ug/kg dry	33.571	1.33	95.0	65-142	3.11	40
beta-BHC	42.3 D	1.33	ug/kg dry	33.571	1.33	126	71-134	3.23	40
delta-BHC	30.2 D	1.33	ug/kg dry	33.571	1.33	90.0	53-144	3.28	40
Heptachlor	38.9 D	1.33	ug/kg dry	33.571	1.33	116	70-138	3.39	40
Aldrin	35.2 D	1.33	ug/kg dry	33.571	1.33	105	70-143	4.65	40
Heptachlor epoxide	36.6 D	1.33	ug/kg dry	33.571	1.33	109	72-140	1.82	40
gamma-Chlordane	37.9 D	1.33	ug/kg dry	33.571	1.33	113	74-140	5.17	40
alpha-Chlordane	38.9 D	1.33	ug/kg dry	33.571	1.33	116	74-138	4.22	40
Endosulfan I	39.6 D	1.33	ug/kg dry	33.571	1.33	118	81-141	3.33	40
4,4'-DDE	39.3 D	1.33	ug/kg dry	33.571	1.34	113	82-145	0.00	40
Dieldrin	38.6 D	1.33	ug/kg dry	33.571	1.33	115	79-144	1.72	40
Endrin	41.3 D	1.33	ug/kg dry	33.571	1.33	123	73-147	2.41	40
4,4'-DDD	33.2 D	1.33	ug/kg dry	33.571	1.33	99.0	77-148	1.02	40
Endosulfan II	38.9 D	1.33	ug/kg dry	33.571	1.33	116	80-140	2.55	40
4,4'-DDT	35.2 D	1.33	ug/kg dry	33.571	1.33	105	82-142	0.948	40
Endrin aldehyde	37.9 D	1.33	ug/kg dry	33.571	1.33	113	59-133	0.881	40
Endosulfan sulfate	36.9 D	1.33	ug/kg dry	33.571	1.33	110	77-135	0.905	40
Methoxychlor	34.2 D	1.33	ug/kg dry	33.571	1.33	102	77-136	0.976	40
Endrin ketone	36.9 D	1.33	ug/kg dry	33.571	1.33	110	85-134	1.80	40
Surrogate: Tetrachloro-meta-xylene	*36.9*		*ug/kg dry*	*33.574*		*110*	*28-166*		
Surrogate: Decachlorobiphenyl	*33.6*		*ug/kg dry*	*33.571*		*100*	*37-153*		

PREPARATION BENCH SHEET

L907044

Lionville Laboratory

Printed: 7/8/2009 12:54:31PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 0901396**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
0907001-01	8081A TCL Pesticides	07/07/2009 15:49	30	10				250	WC-Hanford, Inc.	
0907001-01	8082 PCBs	07/07/2009 15:49	30	10				250	WC-Hanford, Inc.	
L907044-BLK1	QC	07/07/2009 15:49	30	10				250		
L907044-BLK2	QC	07/07/2009 15:49	30	10				250		
L907044-BS1	QC	07/07/2009 15:49	30	10	0901105		250	250		
L907044-BS2	QC	07/07/2009 15:49	30	10	0901200		250	250		
L907044-MS1	QC	07/07/2009 15:49	30	10	0901105	0907001-01	250	250		
L907044-MS2	QC	07/07/2009 15:49	30	10	0901200	0907001-01	250	250		
L907044-MSD1	QC	07/07/2009 15:49	30	10	0901105	0907001-01	250	250		
L907044-MSD2	QC	07/07/2009 15:49	30	10	0901200	0907001-01	250	250		

Spiking Witnessed By Date

Preparation Reviewed By 7/8/09 1300 Date

Extracts Received By 7/8.09 13:00 Date

See SRC

Lionville Laboratory Use Only

0907001

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI Lionville Laboratory, Inc.

Client WC HANFORD SAF # RC-075

Est. Final Proj. Sampling Date

Project# 60049-001-001-0001

Project Contact/Phone#

Lionville Laboratory Project Manager O. JOHNSON

QC SW846 Del STD TAT 21 days

Date Rec'd 7-1-09 Date Due 7-22-09

Refrigerator #		A	B	C	D	E	F
		2	2	2	2	2	2
#/Type Container	Liquid	1AG	1AG	1AG	1AG	1AG	1AG
	Solid						
Volume		120	60	125	250	250	60
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED →		VOA	BNA	~~Pest~~ PCB	Herb	PEST	PAH
		ORGANIC				INORG	
						Metal Hg	CN
							Hex Cr

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only																
								062354	062355		060849	060850		MET40		1CR6								
S- Soil SE- Sediment SO- Solid SL- Sludge W- Water O- Oil A- Air DS- Drum Solids DL- Drum Liquids L- EP/TCLP Leachate WI- Wipe X- Other F- Fish	01	J19180	✓	✓	Soil	6-29-9	0942	X	X		X	X		X		X								

Special Instructions:

MET40 = RCRA + B, Co, Cu, Mn, Mo, Ni, V, Zn

Special Instructions:

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

Relinquished by	Received by	Date	Time
FedEx	V. Hunnard	7/1/09	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPLETE	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-075-099	Page 1 of 1
Collector J Sellers	Company Contact D.W.Shea	Telephone No. 521-6014	Project Coordinator KESSNER, JH	Price Code 8L
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 126-D-2, Verification I, split samples		SAF No. RC-075	Data Turnaround 21 days
Ice Chest No. 106	Field Logbook No. EL-1607-6	COA R126D22000	Method of Shipment Fed Ex	
Shipped To TestAmerica Incorporated, Richland	Offsite Property No. A090260		Bill of Lading/Air Bill No. See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	G/P E	G/P F	aG C	aG B	aG A	aG D	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1 DWShea 6/25/09		
Volume	60ml	60mL	125mL	60mL	120mL	120g	500mL	2g		
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	Pesticides - 8081	PCBs - 8082	Semi-VOA - 8270A (TCL)	PAHs - 8310	See item (2) in Special Instructions	Gross Alpha, Gross Beta		
Sample No	Matrix *	Sample Date	Sample Time							
J19180	SOIL	6/29/09	0942	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J.Sellers J.Sellers	6-29-09 1313	DWShea DWSHEA	6/29/09 1313
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DWShea DWShea	6/29/09 1658	Fridge 3A	6/29/09 1658
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fridge 3A / J.E. Bernhard	6-30-09 0830	J.E. Bernhard	6-30-09 0830
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J.E. Bernhard WCH	6-30-09 1000	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX	7-1-09 0950	Cuco Hernandez	7-1-09 0950
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Lithium~~, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury} DWShea 6/25/09

(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

Matrix *
S- Soil
SE- Sediment
SD- Solid
SL- Sludge
W- Water
O- Oil
A- Air
DS- Drum Solid
DL- Drum Liquid
T- Tissue
WI- Wipe
L- Liquid
V- Vegetation
X- Other

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

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD
Project/SAP/SOW/Release #: RC-075

Date: 7/1/09

LvLI Batch #: 0907001

Sample Custodian: Victor Hernandez

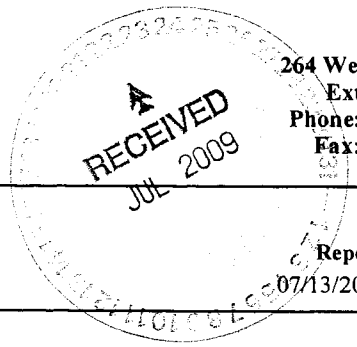
NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier: FedEx		Airbill #: 796739579285
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.3	°C	Cooler #: 106
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	SAMPLE #C1-C,D Rec'd in 250mL AG COC INDICATES 120mL AND 60mL.
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☐ N/A
Person Contacted: J JOHNSON		Date: 7/1/09	

LVLI

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

PCB



WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/13/2009 09:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J19180	0907001-01	Solid	06/29/2009 09:42	07/01/2009 09:50

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-075
LVL #: 0907001
SDG/SAF # K1681 / RC-075

W.O. #: 60049-001-001-0001-00
Date Received: 07-01-2009

PCBs

One (1) soil sample was collected on 06-29-2009.

The sample and associated QC samples were extracted on 07-07-2009 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 07-08-2009. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

The following is a summary of the QC results accompanying the sample results. All solid samples are reported on a dry weight basis. 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 sample and 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.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

7/13/09
Date

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/13/2009 09:44

Notes and Definitions

U	Analyte included in the analysis, but not detected
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/13/2009 09:44

J19180

0907001-01 (Solid)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Polychlorinated Biphenyls by SW846 8082								
Aroclor 1016	13.4 U	13.4	ug/kg dry	1	L907044	07/07/2009	07/08/2009	8082
Aroclor 1221	13.4 U	13.4	ug/kg dry	1	L907044	07/07/2009	07/08/2009	8082
Aroclor 1232	13.4 U	13.4	ug/kg dry	1	L907044	07/07/2009	07/08/2009	8082
Aroclor 1242	13.4 U	13.4	ug/kg dry	1	L907044	07/07/2009	07/08/2009	8082
Aroclor 1248	13.4 U	13.4	ug/kg dry	1	L907044	07/07/2009	07/08/2009	8082
Aroclor 1254	13.4 U	13.4	ug/kg dry	1	L907044	07/07/2009	07/08/2009	8082
Aroclor 1260	13.4 U	13.4	ug/kg dry	1	L907044	07/07/2009	07/08/2009	8082
Surrogate: Decachlorobiphenyl	*88 %*	*43-144*			*L907044*	*07/07/2009*	*07/08/2009*	*8082*
Surrogate: Tetrachloro-meta-xylene	*103 %*	*52-141*			*L907044*	*07/07/2009*	*07/08/2009*	*8082*

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/13/2009 09:44

Polychlorinated Biphenyls by SW846 8082 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907044 - SW 3540C									
Blank (L907044-BLK2)			Prepared: 07/07/2009 Analyzed: 07/08/2009						
Aroclor 1016	13.3 U	13.3	ug/kg wet						
Aroclor 1260	13.3 U	13.3	ug/kg wet						
Surrogate: Decachlorobiphenyl	*31.6*		*ug/kg wet*	*33.333*		*95*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*29.8*		*ug/kg wet*	*33.337*		*89*	*52-141*		
LCS (L907044-BS2)			Prepared: 07/07/2009 Analyzed: 07/08/2009						
Aroclor 1016	139	13.3	ug/kg wet	166.67		83	50-138		
Aroclor 1260	150	13.3	ug/kg wet	166.67		90	50-148		
Surrogate: Decachlorobiphenyl	*33.4*		*ug/kg wet*	*33.333*		*100*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*32.9*		*ug/kg wet*	*33.337*		*99*	*52-141*		
Matrix Spike (L907044-MS2)		**Source: 0907001-01**	Prepared: 07/07/2009 Analyzed: 07/08/2009						
Aroclor 1016	134	13.4	ug/kg dry	167.85	13.4	80	50-138		
Aroclor 1260	171	13.4	ug/kg dry	167.85	13.4	102	50-148		
Surrogate: Decachlorobiphenyl	*34.0*		*ug/kg dry*	*33.571*		*101*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*28.9*		*ug/kg dry*	*33.574*		*86*	*52-141*		
Matrix Spike Dup (L907044-MSD2)		**Source: 0907001-01**	Prepared: 07/07/2009 Analyzed: 07/08/2009						
Aroclor 1016	131	13.4	ug/kg dry	167.85	13.4	78	50-138	2	40
Aroclor 1260	164	13.4	ug/kg dry	167.85	13.4	98	50-148	4	40
Surrogate: Decachlorobiphenyl	*33.6*		*ug/kg dry*	*33.571*		*100*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*28.0*		*ug/kg dry*	*33.574*		*83*	*52-141*		

PREPARATION BENCH SHEET

L907044

Lionville Laboratory

Printed: 7/8/2009 12:54:31PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 0901396**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
0907001-01	8081A TCL Pesticides	07/07/2009 15:49	30	10				250	WC-Hanford, Inc.	
0907001-01	8082 PCBs	07/07/2009 15:49	30	10				250	WC-Hanford, Inc.	
L907044-BLK1	QC	07/07/2009 15:49	30	10				250		
L907044-BLK2	QC	07/07/2009 15:49	30	10				250		
L907044-BS1	QC	07/07/2009 15:49	30	10	0901105		250	250		
L907044-BS2	QC	07/07/2009 15:49	30	10	0901200		250	250		
L907044-MS1	QC	07/07/2009 15:49	30	10	0901105	0907001-01	250	250		
L907044-MS2	QC	07/07/2009 15:49	30	10	0901200	0907001-01	250	250		
L907044-MSD1	QC	07/07/2009 15:49	30	10	0901105	0907001-01	250	250		
L907044-MSD2	QC	07/07/2009 15:49	30	10	0901200	0907001-01	250	250		

Spiking Witnessed By Date

Preparation Reviewed By 7/8/09 1300 Date

Extracts Received By 7/8/09 13:50 Date

See SRC

Lionville Laboratory Use Only: 0907001

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WC HANFORD SAF# RC-075

Est. Final Proj. Sampling Date:

Project#: 60049-001-001-0001

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

QC: SW846 Del: STD TAT: 21 days

Date Rec'd: 7-1-09 Date Due: 7-22-09

		A	B	C	D	E	F
Refrigerator #		2	2	2	2	2	2
#/Type Container	Liquid						
	Solid	1AG	1AG	1AG	1AG	1AG	1AG
Volume		120	60	125	250	250	60
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED →		ORGANIC				INORG	
		VOA	BNA	~~Pest~~/PCB	Herb	Metal Hg	CN
				PEST	PAH		Hex Chrom

Lionville Laboratory Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0625H	OPCB	0608H	0830	Met(1)	ICR6
01	J19180	✓	✓	Soil	6-29-9	0942	X	X	X	X	X	X

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

Special Instructions:

met(1) = RCRA + B, Co, Cu, Mn, MO, Ni, V, Zn

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

Relinquished by	Received by	Date	Time
[signature]	[signature]	7/1/09	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSIT WASTE	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-099	Page 1 of 1

Collector: J Sellers	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 126-D-2, Verification I, split samples		SAF No.: RC-075
Ice Chest No.: 106	Field Logbook No.: EL-1607-6	COA: R126D22000	Method of Shipment: Fed Ex
Shipped To: LIONVILLE TestAmerica Incorporated, Richland	Offsite Property No.: A090260		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8L

Data Turnaround: 21 days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	G/P E	G/P F	aG C	aG B	aG A	aG D	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	~~1~~ DWShea 6/25/09		
Volume	60ml	60mL	125mL	60mL	120mL	120g	500mL	2g		
SAMPLE ANALYSIS	See item (1) in Special instructions	Chromium Hex - 7196	Pesticides - 8081	PCBs - 8082	Semi-VOA - 8270A (TCL)	PAHs - 8310	See item (2) in Special Instructions	Gross Alpha, Gross Beta		

JEB 6/30/09

Sample No	Matrix *	Sample Date	Sample Time										
J19180	SOIL	6/29/09	0942	✓	✓	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: J.Sellers Josh Sellers	Date/Time: 6-29-09 1313	Received By/Stored In: DWShea DWSHEA	Date/Time: 6/29/09 1313
Relinquished By/Removed From: DWShea DWShea	Date/Time: 6/29/09 1658	Received By/Stored In: Fridge 3A	Date/Time: 6/29/09 1658
Relinquished By/Removed From: Fridge 3A / J.E. Bernhard	Date/Time: 0830 6-30-09	Received By/Stored In: J.E. Bernhard	Date/Time: 0830 6-30-09
Relinquished By/Removed From: J. E. Bernhard WCH	Date/Time: 1000 6-30-09	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time: 7-1-09 0950	Received By/Stored In: Victor Hernandez	Date/Time: 7-1-09 0950
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {~~Aluminum,~~ Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium,~~ Chromium, Cobalt, Copper, ~~Iron,~~ Lead, ~~Lithium, Magnesium,~~ Manganese, Molybdenum, Nickel, ~~Potassium,~~ Selenium, ~~Silicon,~~ Silver, ~~Sodium,~~ Vanadium, Zinc}, Mercury - 7471 - (CV) {Mercury} DWShea 6/25/09

(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

KW

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

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

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD Date: 7/1/09

Project/SAF/SOW/Release #: RC-075

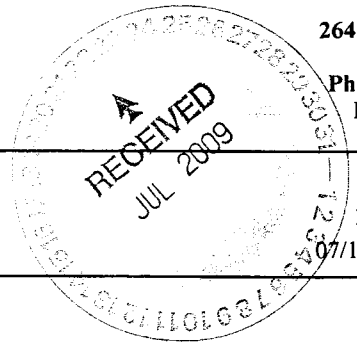
LvLI Batch #: 0907001 Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 796739579285
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.3°	°C	Cooler # 106
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	SAMPLE #C1-C,D Rec'd in 250mL AG COC INDICATES 120mL AND 60mL.
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A
Person Contacted D JOHNSON		Date 7/1/09	

LVLI

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041



WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/15/2009 14:02

PAH's

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J19180	0907001-01	Solid	06/29/2009 09:42	07/01/2009 09:50

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-075 K1681
LVL #: 0907001

W.O. #: 60049-001-001-0001-00
Date Received: 07-01-2009

POLYAROMATIC HYDROCARBONS (PAH)

One (1) soil sample was collected on 06-29-2009.

The sample and associated QC samples were extracted on 07-07-2009 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 07-09-2009. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8310.

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

1. All required holding times for extraction and analysis have been met.
2. The method blank was below the reporting limits for all target compounds.
3. One (1) of Five (5) surrogate recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Repot (SDR# 09GC161) has been enclosed.
4. All blank spike recoveries were within acceptance criteria.
5. Five (5) of Thirty-two (32) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 09GC161) has been enclosed.
6. The 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.

Iain Daniels
Laboratory Manager
Lionville Laboratory

7/17/09
Date

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

0000000002

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 096C161

Initiator: L. Kauffman
Date: 7-15-2009
Client: WC. Hanford RL075

Batch: 0907001
Samples: 01
Method: SW846/MCAWW/CLP/

Parameter: 8310F
Matrix: Soil
Prep Batch: L907045

1. Reason for SDR

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

b. General Discrepancy

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

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

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

One of five surrogate recoveries outside acceptance range
Five of thirty-two matrix spike recoveries outside acceptance range.
Recoveries are high.

2. Known or Probable Causes(s)

Background of non-target compounds

3. Discussion and Proposed Action Other Description:

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

report and narrate

4. Project Manager Instructions...signature/date: 7/17/09

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

5. Final Action...signature/date: 7/17/09 Other Explanation:

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

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

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

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

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.

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Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/15/2009 14:02

J19180

0907001-01 (Solid)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Polynuclear Aromatic Compounds by SW846 8310								
Naphthalene	33.6 U	33.6	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Acenaphthylene	33.6 U	33.6	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Acenaphthene	**22.0** J	33.6	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Fluorene	**8.06**	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Phenanthrene	**14.8**	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Anthracene	3.36 U	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Fluoranthene	**37.3**	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Indeno[1,2,3-cd]pyrene	**66.0**	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Pyrene	**2.85** J	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Benz[a]anthracene	**3.69**	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Chrysene	**3.69**	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Benzo[b] fluoranthene	**9.74**	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Benzo[k] fluoranthene	**1.51** J	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Benzo[a] pyrene	**2.18** J	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Dibenz[a,h]anthracene	**4.03**	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Benzo[g,h,i] perylene	**10.6**	3.36	ug/kg dry	1	L907045	07/07/2009	07/09/2009	8310
Surrogate: Triphenylene	*109 %*	*68-129*			*L907045*	*07/07/2009*	*07/09/2009*	*8310*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/15/2009 14:02

Polynuclear Aromatic Compounds by SW846 8310 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907045 - SW 3540C									
Blank (L907045-BLK1)			Prepared: 07/07/2009 Analyzed: 07/09/2009						
Naphthalene	33.4 U	33.4	ug/kg wet						
Acenaphthylene	33.4 U	33.4	ug/kg wet						
Acenaphthene	33.4 U	33.4	ug/kg wet						
Fluorene	3.34 U	3.34	ug/kg wet						
Phenanthrene	3.34 U	3.34	ug/kg wet						
Anthracene	3.34 U	3.34	ug/kg wet						
Fluoranthene	3.34 U	3.34	ug/kg wet						
Indeno[1,2,3-cd]pyrene	3.34 U	3.34	ug/kg wet						
Pyrene	3.34 U	3.34	ug/kg wet						
Benz[a]anthracene	3.34 U	3.34	ug/kg wet						
Chrysene	3.34 U	3.34	ug/kg wet						
Benzo[b] fluoranthene	3.34 U	3.34	ug/kg wet						
Benzo[k] fluoranthene	3.34 U	3.34	ug/kg wet						
Benzo[a] pyrene	3.34 U	3.34	ug/kg wet						
Dibenz[a,h]anthracene	3.34 U	3.34	ug/kg wet						
Benzo[g,h,i] perylene	3.34 U	3.34	ug/kg wet						
Surrogate: Triphenylene	*170*		*ug/kg wet*	*166.67*		*102*	*68-129*		
LCS (L907045-BS1)			Prepared: 07/07/2009 Analyzed: 07/09/2009						
Naphthalene	153	33.4	ug/kg wet	166.67		92	0-127		
Acenaphthylene	168	33.4	ug/kg wet	166.67		100	50-140		
Acenaphthene	144	33.4	ug/kg wet	166.67		86	17-139		
Fluorene	156	3.34	ug/kg wet	166.67		93	28-145		
Phenanthrene	156	3.34	ug/kg wet	166.67		94	30-152		
Anthracene	156	3.34	ug/kg wet	166.67		94	19-171		
Fluoranthene	157	3.34	ug/kg wet	166.67		94	34-159		
Indeno[1,2,3-cd]pyrene	146	3.34	ug/kg wet	166.67		87	31-156		
Pyrene	150	3.34	ug/kg wet	166.67		90	33-152		
Benz[a]anthracene	163	3.34	ug/kg wet	166.67		98	32-157		
Chrysene	172	3.34	ug/kg wet	166.67		103	31-159		
Benzo[b] fluoranthene	172	3.34	ug/kg wet	166.67		103	33-164		
Benzo[k] fluoranthene	165	3.34	ug/kg wet	166.67		99	28-161		
Benzo[a] pyrene	147	3.34	ug/kg wet	166.67		88	29-149		
Dibenz[a,h]anthracene	167	3.34	ug/kg wet	166.67		100	27-153		
Benzo[g,h,i] perylene	159	3.34	ug/kg wet	166.67		96	32-157		
Surrogate: Triphenylene	*170*		*ug/kg wet*	*166.67*		*102*	*68-129*		

0000000

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/15/2009 14:02

Polynuclear Aromatic Compounds by SW846 8310 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907045 - SW 3540C									
Matrix Spike (L907045-MS1)	**Source: 0907001-01**	Prepared: 07/07/2009 Analyzed: 07/09/2009							
Naphthalene	173	33.6	ug/kg dry	167.85	33.6	103	0-127		
Acenaphthylene	277	33.6	ug/kg dry	167.85	33.6	165*	50-140		
Acenaphthene	334	33.6	ug/kg dry	167.85	22.0	186*	17-139		
Fluorene	204	3.36	ug/kg dry	167.85	8.06	117	28-145		
Phenanthrene	236	3.36	ug/kg dry	167.85	14.8	132	30-152		
Anthracene	179	3.36	ug/kg dry	167.85	3.36	106	19-171		
Fluoranthene	365	3.36	ug/kg dry	167.85	37.3	195*	34-159		
Indeno[1,2,3-cd]pyrene	270	3.36	ug/kg dry	167.85	66.0	122	31-156		
Pyrene	193	3.36	ug/kg dry	167.85	2.85	114	33-152		
Benz[a]anthracene	182	3.36	ug/kg dry	167.85	3.69	106	32-157		
Chrysene	306	3.36	ug/kg dry	167.85	3.69	180*	31-159		
Benzo[b] fluoranthene	222	3.36	ug/kg dry	167.85	9.74	126	33-164		
Benzo[k] fluoranthene	184	3.36	ug/kg dry	167.85	1.51	109	28-161		
Benzo[a] pyrene	167	3.36	ug/kg dry	167.85	2.18	98	29-149		
Dibenz[a,h]anthracene	201	3.36	ug/kg dry	167.85	4.03	117	27-153		
Benzo[g,h,i] perylene	189	3.36	ug/kg dry	167.85	10.6	106	32-157		
Surrogate: Triphenylene	*234*		*ug/kg dry*	*167.85*		*140**	*68-129*		
Matrix Spike Dup (L907045-MSD1)	**Source: 0907001-01**	Prepared: 07/07/2009 Analyzed: 07/09/2009							
Naphthalene	149	33.6	ug/kg dry	167.85	33.6	89	0-127	15	40
Acenaphthylene	213	33.6	ug/kg dry	167.85	33.6	127	50-140	26	40
Acenaphthene	284	33.6	ug/kg dry	167.85	22.0	156*	17-139	16	40
Fluorene	194	3.36	ug/kg dry	167.85	8.06	111	28-145	5	40
Phenanthrene	207	3.36	ug/kg dry	167.85	14.8	114	30-152	13	40
Anthracene	171	3.36	ug/kg dry	167.85	3.36	102	19-171	4	40
Fluoranthene	300	3.36	ug/kg dry	167.85	37.3	157	34-159	19	40
Indeno[1,2,3-cd]pyrene	302	3.36	ug/kg dry	167.85	66.0	141	31-156	11	40
Pyrene	151	3.36	ug/kg dry	167.85	2.85	89	33-152	24	40
Benz[a]anthracene	164	3.36	ug/kg dry	167.85	3.69	95	32-157	10	40
Chrysene	178	3.36	ug/kg dry	167.85	3.69	104	31-159	53*	40
Benzo[b] fluoranthene	186	3.36	ug/kg dry	167.85	9.74	105	33-164	18	40
Benzo[k] fluoranthene	170	3.36	ug/kg dry	167.85	1.51	100	28-161	8	40
Benzo[a] pyrene	155	3.36	ug/kg dry	167.85	2.18	91	29-149	7	40
Dibenz[a,h]anthracene	195	3.36	ug/kg dry	167.85	4.03	114	27-153	3	40
Benzo[g,h,i] perylene	174	3.36	ug/kg dry	167.85	10.6	97	32-157	8	40
Surrogate: Triphenylene	*214*		*ug/kg dry*	*167.85*		*128*	*68-129*		

PREPARATION BENCH SHEET

L907045

Lionville Laboratory

Printed: 7/8/2009 12:51:58PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 0900671**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
0907001-01	8310 PAH	07/07/2009 15:51	30	5				500	WC-Hanford, Inc.	
L907045-BLK1	QC	07/07/2009 15:51	30	5				500		
L907045-BS1	QC	07/07/2009 15:51	30	5	0900672		1000	500		
L907045-MS1	QC	07/07/2009 15:51	30	5	0900672	0907001-01	1000	500		
L907045-MSD1	QC	07/07/2009 15:51	30	5	0900672	0907001-01	1000	500		

Spiking Witnessed By Date

Preparation Reviewed By 7/8/09 1300 Date

Extracts Received By 7/8/09 13 00 Date

Lionville Laboratory Use Only: 0907001

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WC HANFORD SAF # RC-075

Est. Final Proj. Sampling Date:

Project#: 60049-001-001-0001

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

QC: SW846 Del: STD TAT: 21 days

Date Rec'd: 7-1-09 Date Due: 7-22-09

	A	B		C	D		E		F
Refrigerator #	Z	Z		Z	Z		Z		Z
#/Type Container (Liquid / Solid)	1AG	1AG		1AG	1AG		1AG		1AG
Volume	120	60		125	250		250		60
Preservatives	—	—		—	—		—		—
ANALYSES REQUESTED	ORGANIC: BNA	ORGANIC: ~~Pest~~/PCB	ORGANIC: Herb	Pest	PAH	VOA	INORG: Metal / Hg	INORG: CN	Hex Chrom
Lionville Laboratory Use Only	06254	OPCB		06084	08310		Met(1)		ICR6

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

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	BNA	PCB	Pest	PAH	Metal	Hex Chrom
01	J19180	✓	✓	Soil	6-29-09	0942	X	X	X	X	X	X

Special Instructions:

Met(1) = RCRA + B, Co, Cu, Mn, Mo, Ni, V, Zn

Special Instructions:

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

Relinquished by	Received by	Date	Time
[signature]	V. [signature]	7/1/09	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE MASTER	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-099	Page 1 of 1

Collector: J Sellers	Company Contact: D.W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 126-D-2, Verification I, split samples		SAF No.: RC-075
Ice Chest No.: 106	Field Logbook No.: EL-1607-6	COA: R126D22000	Method of Shipment: Fed Ex
Shipped To: LIONVILLE TestAmerica Incorporated, Richland	Offsite Property No.: A090260		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8L

Data Turnaround: 21 days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	G/P E	G/P F	aG C	aG B	aG A	aG D	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	~~1~~ DWShea 6/25/09		
Volume	60ml	60mL	125mL	60mL	120mL	120g	500mL	2g		
SAMPLE ANALYSIS	See item (1) in Special instructions	Chromium Hex - 7196	Pesticides - 8081	PCBs - 8082	Semi-VOA - 8270A (TCL)	PAHs - 8310	See item (2) in Special Instructions	Gross Alpha, Gross Beta		

JEB 6-30-09

Sample No	Matrix *	Sample Date	Sample Time										
J19180	SOIL	6/29/09	0942	✓	✓	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: J.Sellers Josh Sellers Date/Time: 6-29-09 1313	Received By/Stored In: DWShea DWSHEA Date/Time: 6/29/09 1313	
Relinquished By/Removed From: DWShea DWShea Date/Time: 6/29/09 1658	Received By/Stored In: Fridge 3A Date/Time: 6/29/09 1658	
Relinquished By/Removed From: Fridge 3A / J.E. Bernhard Date/Time: 6-30-09 0830	Received By/Stored In: J.E. Bernhard Date/Time: 6-30-09 0830	
Relinquished By/Removed From: J.E. Bernhard WCH Date/Time: 6-30-09 1000	Received By/Stored In: FED EX Date/Time:	
Relinquished By/Removed From: Fed Ex Date/Time: 7-1-09 0950	Received By/Stored In: Victor Hernandez Date/Time: 7-1-09 0950	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {~~Aluminum,~~ Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium,~~ Chromium, Cobalt, Copper, ~~Iron,~~ Lead, ~~Lithium, Magnesium,~~ Manganese, Molybdenum, Nickel, ~~Potassium,~~ Selenium, ~~Silicon,~~ Silver, ~~Sodium,~~ Vanadium, Zinc}, Mercury - 7471 - (CV) {Mercury} DWShea 6/25/09

(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

KW

Matrix *

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

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

WCH-EE 011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD Date: 7/1/09

Project/SAF/SOW/Release #: RC-075

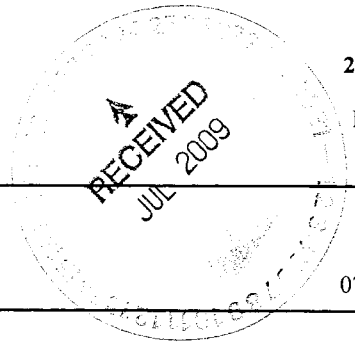
LvLI Batch #: 0907001 Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 796739579285
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.3° °C		Cooler # 106
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	SAMPLE #C1-C,D Rec'd in 250mL AG COC INDICATES 120mL AND 60mL.
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☐ N/A
Person Contacted J JOHNSON		Date 7/1/09	

LVLI

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041



WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/15/2009 09:21

METALS

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J19180	0907001-01	Solid	06/29/2009 09:42	07/01/2009 09:50

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-075
LVL#: 0907001
SDG/SAF#: K1681/RC-075

W.O.#: 60049-001-001-0001-00
Date Received: 07-01-09

METALS

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.

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

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

5. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation (3-10X the LOD), or samples greater than 20X MB value}.

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

7. All Standard Reference Material (SRM) analytes were within the Prediction Interval control limits supplied by the manufacturer.

8. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J19180	Antimony	100	85.9

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 13 pages.

10. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

7/15/09
Date

jjw/m07-001

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/15/2009 09:21

Notes and Definitions

U	Analyte included in the analysis, but not detected
D	Data reported from a dilution
B	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/15/2009 09:21

J19180
0907001-01 (Solid)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Antimony	0.853 U	0.853	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Arsenic	**3.74**	0.853	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Barium	**71.9**	0.427	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Beryllium	**0.237**	0.171	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Boron	**1.91**	1.71	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Cadmium	**0.107** B	0.213	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Chromium	**10.2**	0.171	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Cobalt	**8.25**	1.71	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Copper	**15.0**	0.853	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Lead	**3.35**	0.427	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Manganese	**325**	4.27	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Molybdenum	**0.345** B	1.71	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Nickel	**10.1**	3.41	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Selenium	0.853 U	0.853	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Silver	0.171 U	0.171	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Vanadium	**58.4**	2.13	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Zinc	**44.8**	8.53	mg/kg dry	1	L907054	07/08/2009	07/08/2009	6010B
Mercury	0.0267 U	0.0267	mg/kg dry	1	L907013	07/02/2009	07/07/2009	7471A

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/15/2009 09:21

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907013 - SW 7471A Prep									
Blank (L907013-BLK1)			Prepared: 07/02/2009 Analyzed: 07/07/2009						
Mercury	0.0300 U	0.0300	mg/kg wet						
Duplicate (L907013-DUP4)		**Source: 0907001-01**	Prepared: 07/02/2009 Analyzed: 07/07/2009						
Mercury	0.0259 U	0.0259	mg/kg dry		0.0259				20
Matrix Spike (L907013-MS4)		**Source: 0907001-01**	Prepared: 07/02/2009 Analyzed: 07/07/2009						
Mercury	0.158	0.0267	mg/kg dry	0.14811	0.0267	107	75-125		
Reference (L907013-SRM1)			Prepared: 07/02/2009 Analyzed: 07/07/2009						
Mercury	4.61 D	0.174	mg/kg wet	4.7000		98.0	80-120		
Batch L907054 - SW 3050B									
Blank (L907054-BLK1)			Prepared & Analyzed: 07/08/2009						
Antimony	0.492 U	0.492	mg/kg wet						
Arsenic	0.820 U	0.820	mg/kg wet						
Barium	0.410 U	0.410	mg/kg wet						
Beryllium	0.164 U	0.164	mg/kg wet						
Boron	1.64 U	1.64	mg/kg wet						
Cadmium	0.164 U	0.164	mg/kg wet						
Chromium	0.246 U	0.246	mg/kg wet						
Cobalt	1.64 U	1.64	mg/kg wet						
Copper	0.820 U	0.820	mg/kg wet						
Lead	0.410 U	0.410	mg/kg wet						
Manganese	4.10 U	4.10	mg/kg wet						
Molybdenum	1.64 U	1.64	mg/kg wet						
Nickel	3.28 U	3.28	mg/kg wet						
Selenium	0.820 U	0.820	mg/kg wet						
Silver	0.164 U	0.164	mg/kg wet						
Vanadium	2.05 U	2.05	mg/kg wet						
Zinc	8.20 U	8.20	mg/kg wet						

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/15/2009 09:21

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907054 - SW 3050B									
Duplicate (L907054-DUP1)		**Source: 0907001-01**	Prepared & Analyzed: 07/08/2009						
Antimony	0.581 U	0.581	mg/kg dry		0.581				20
Arsenic	3.62	0.968	mg/kg dry		3.74			3	20
Barium	74.7	0.484	mg/kg dry		71.9			4	20
Beryllium	0.249	0.194	mg/kg dry		0.237			5	20
Boron	1.77 B	1.94	mg/kg dry		1.91			8	20
Cadmium	0.194 U	0.194	mg/kg dry		0.107				20
Chromium	9.32	0.291	mg/kg dry		10.2			9	20
Cobalt	8.17	1.94	mg/kg dry		8.25			1	20
Copper	15.3	0.968	mg/kg dry		15.0			2	20
Lead	3.32	0.484	mg/kg dry		3.35			0.7	20
Manganese	335	4.84	mg/kg dry		325			3	20
Molybdenum	0.310 B	1.94	mg/kg dry		0.345			11	20
Nickel	9.65	3.87	mg/kg dry		10.1			5	20
Selenium	0.968 U	0.968	mg/kg dry		0.968				20
Silver	0.194 U	0.194	mg/kg dry		0.194				20
Vanadium	58.1	2.42	mg/kg dry		58.4			0.4	20
Zinc	45.7	9.68	mg/kg dry		44.8			2	20
Matrix Spike (L907054-MS1)		**Source: 0907001-01**	Prepared & Analyzed: 07/08/2009						
Antimony	18.0	0.472	mg/kg dry	39.341	0.472	46*	75-125		
Arsenic	136	0.787	mg/kg dry	157.36	3.74	84	75-125		
Barium	211	0.393	mg/kg dry	157.36	71.9	89	75-125		
Beryllium	3.72	0.157	mg/kg dry	3.9341	0.237	89	75-125		
Boron	65.4	1.57	mg/kg dry	78.681	1.91	81	75-125		
Cadmium	3.62	0.157	mg/kg dry	3.9341	0.107	89	75-125		
Chromium	23.6	0.236	mg/kg dry	15.736	10.2	85	75-125		
Cobalt	41.1	1.57	mg/kg dry	39.341	8.25	83	75-125		
Copper	31.3	0.787	mg/kg dry	19.670	15.0	83	75-125		
Lead	35.6	0.393	mg/kg dry	39.341	3.35	82	75-125		
Manganese	369	3.93	mg/kg dry	39.341	325	111	75-125		
Molybdenum	67.6	1.57	mg/kg dry	78.681	0.345	85	75-125		
Nickel	42.6	3.15	mg/kg dry	39.341	10.1	83	75-125		
Selenium	129	0.787	mg/kg dry	157.36	0.787	82	75-125		
Silver	3.49	0.157	mg/kg dry	3.9341	0.157	89	75-125		
Vanadium	92.2	1.97	mg/kg dry	39.341	58.4	86	75-125		
Zinc	77.7	7.87	mg/kg dry	39.341	44.8	84	75-125		

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/15/2009 09:21

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907054 - SW 3050B									
Reference (L907054-SRM1)			Prepared & Analyzed: 07/08/2009						
Antimony	55.7	0.820	mg/kg wet	56.630		98	0-225.6		
Arsenic	111	0.820	mg/kg wet	113.85		97	85-115		
Barium	282	0.410	mg/kg wet	298.35		95	75.7-124.3		
Beryllium	106	0.164	mg/kg wet	108.32		98	85.2-114.8		
Boron	78.3	1.64	mg/kg wet	86.580		90	68.5-131.6		
Cadmium	215	0.205	mg/kg wet	224.09		96	84.9-115.1		
Chromium	82.1	0.820	mg/kg wet	77.590		106	76.8-123.2		
Cobalt	156	2.46	mg/kg wet	163.19		96	79.4-120.6		
Copper	250	1.64	mg/kg wet	265.65		94	82.4-117.6		
Lead	171	0.820	mg/kg wet	187.62		91	81.5-118.5		
Manganese	839	0.820	mg/kg wet	951.35		88	69-131		
Molybdenum	238	0.820	mg/kg wet	234.78		101	80.1-119.9		
Nickel	218	2.05	mg/kg wet	220.85		99	81.4-118.6		
Selenium	179	0.820	mg/kg wet	187.99		95	78.8-121.2		
Silver	81.2	0.820	mg/kg wet	83.960		97	81.9-118.1		
Vanadium	103	0.820	mg/kg wet	97.430		106	75.8-124.2		
Zinc	190	2.46	mg/kg wet	196.52		97	78.9-121.1		

Lionville Laboratory

MERCURY PREPARATION

Logbook # 621

Analyst: TEB
Date 7/2/09
Start Time/Temp: 1400 | 93°
End Time/Temp: TE 1430 | 95

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

Prep Batch: L907013
Worksheet: HG070701
SOP No. ME-HgCVAA

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

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

LvL Batch #	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank			10mL	50mL	
0.2 µg/L	0.100				
1.0	0.500				
2.0	1.000				
5.0	2.500				
10.0	5.000				
ICV	0.125	2.5			
CCV	0.250	5.0			
ICB/CCB					
MB1			0.30		L907013-BLK
LC1	*	*	0.31		L907013-SRM
0906061-01			0.33		
01R			0.33		
01S	0.050	10.0	0.33		
0906064-02			0.30		
04			0.32		
04S	0.050	10.0	0.32		
04T	0.050	10.0	0.33		
0906071-01			0.36		
01R			0.31		
01S	0.500	1.0	0.36		
0907001-01			0.34		
01R			0.35		
01S	0.500	1.0	0.34		
		TEB 7/2/09			

Standard:	ID	Prep Date/Time
ICAL/MS	R16072-080-14B	7/2/09 0930
ICV/CCV/LCS	IV 6072-080-15A	

Reviewed By/Date: [signature] 7/8/09

see book # 9368 for std traceability information

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

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

ME-HgCVAA-Prep0509

Lionville Laboratory Incorporated Logbook #: 626

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: L907054
Date/Time Initiated: 7/8/09 1045
Date/Time Completed: 7/8/09 1400
Analyst(s): JJS
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters:

Digested / Undigested (circle one)
Balance #: B19
Balance Cal Verif: Y NA
Hot Plate Temp: 95°

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

DW 200.7 (1994)
200.9
3113B

MCAWW 200.7 (1982)
200 (AA)
206.2 (As/Se)

SM 3030C (NC)

CLP ILMO3.0
ILMO4.0

Other

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
0907001-1		0.59	50ml	<2	To	Fine	Brown Sed.	Rocks	
L907054-Dup1		0.52							
↓ -MS1	0.5	0.64							
0907005-1		0.80				Course	White/Grey Sed.	Rocks	
L907054-Dup2		0.61							
↓ -MS2	0.5	0.68							
0907005-2		0.59							
↓ -3		0.67							
0907006-1		0.64				Fine	Brown Soil	Rocks	
L907054-Dup3		0.55							
↓ -MS3	0.5	0.69							
0907006-2		0.64							
↓ -3		0.65							
L907054-BLK1		0.61				Course	Boiling chips		
↓ -SRM1		0.61				Fine	dusty pink sand		

JJ
7/8/09

Spiking IDs:
MS #: X100-04-04
-05
-06
G072-080-16
LCS #:

Reagent IDs:
HNO_3 H02026
HCL G51040
H_2O_2 G34A19
1:1 HNO_3 9789-097-01
1:1 HCL

File ID#:

LIMS Transfer: Y N

Data Review By/Date: [illegible] 7/9/09

800 SRC

Lionville Laboratory Use Only
0907001

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY INC.

Client: WC HANFORD SAF# RC-075

Est. Final Proj. Sampling Date:

Project#: 60049-001-001-0001

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

QC: SW846 Del: STD TAT: 21 days

Date Rec'd: 7-1-09 Date Due: 7-22-09

		A	B	C	D	E	F
Refrigerator #		2	2	2	2	2	2
#/Type Container	Liquid						
	Solid	1AG	1AG	1AG	1AG	1AG	1AG
Volume		120	60	125	250	250	60
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED →		ORGANIC				INORG	
		VOA	BNA	~~Pest~~/PCB	Herb	Metal Hg	CN
				PAH	PAH		Hex Chrom

Lionville Laboratory Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0625H	OPCB	0608H	0830	Met(1)	ICR6
01	J19180	✓	✓	Soil	6-29-9	0942	X	X	X	X	X	X

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

Special Instructions:

met(1) = RCRA + B, Co, Cu, Mn, Mo, Ni, V, Zn

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

Relinquished by	Received by	Date	Time
Fed Ex	V. Hernandez	7/1/09	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSIT WASTE	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-075-099	Page 1 of 1
Collector J Sellers	Company Contact D.W.Shea	Telephone No. 521-6014	Project Coordinator KESSNER, JH	Price Code 8L
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 126-D-2, Verification I, split samples		SAF No. RC-075	Data Turnaround 21 days
Ice Chest No. 106	Field Logbook No. EL-1607-6	COA R126D22000	Method of Shipment Fed Ex	
Shipped To TestAmerica Incorporated, Richland	Offsite Property No. A090260		Bill of Lading/Air Bill No. See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	G/P E	G/P F	aG C	aG B	aG A	aG D	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1 DWShea 6/25/09		
Volume	60ml.	60mL	125mL	60mL	120mL	120g	500mL	2g		
SAMPLE ANALYSIS	See item (1) in Special instructions.	Chromium Hex - 7196	Pesticides - 8081	PCBs - 8082	Semi-VOA - 8270A (TCL)	PAHs - 8310	See item (2) in Special Instructions.	Gross Alpha; Gross Beta		

Sample No.	Matrix *	Sample Date	Sample Time									
J19130	SOIL	6/29/09	0942	✓	✓	✓	✓	✓	✓	✓	✓	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
J.Sellers JSellers	6-29-09 1313	DWShea DWSHEA	6/29/09 1313
DWShea DWShea	6/29/09 1658	Fridge 3A	6/29/09 1658
Fridge 3A/J. E. Bemhard	6-30-09 0830	J. E. Bemhard	6-30-09 0830
J. E. Bemhard WCH	6-30-09 1000	FED EX	
FED EX	7-1-09 0950	Cindy Hernandez	7-1-09 0950

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {~~Aluminum,~~ Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium,~~ Chromium, Cobalt, Copper, ~~Iron,~~ Lead, ~~Lithium,~~ Magnesium, Manganese, Molybdenum, Nickel, ~~Potassium,~~ Selenium, ~~Silicon,~~ Silver, ~~Sodium,~~ Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury} DWShea 6/25/09

(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

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

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

WCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD Date: 7/1/09

Project/USACE/SOW/Release #: RC-075

LvLI Batch #: 0907001 Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 796739579285
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.3°	°C	Cooler # 106
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	SAMPLE #01-C, D Recd in 250mL AG COC INDICATES 120mL AND 60mL.
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A
Person Contacted D JOHNSON		Date 7/1/09	

LVLI

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K1681 Project Manager: Joan Kessner	**Reported:** 07/17/2009 11:43

WET CHEMISTRY

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J19180	0907001-01	Solid	06/29/2009 09:42	07/01/2009 09:50

LVL
LIONVILLE LABORATORY, INC.
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-075 K1681
LVL#: 0907001

W.O.#: 60049-001-001-0001-00
Date Received: 07-01-09

INORGANIC NARRATIVE

1. This narrative covers the analysis of 1 solid sample.

2. The sample was prepared and analyzed in accordance with the method indicated on the data summary report.

   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 time as required by the method and/or contract was met.

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

5. The method blank was within the method criteria.

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

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

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

9. Results for this solid sample are reported on a dry weight basis.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

7/20/09
Date

njp\i07-001

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 8 pages.

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/17/2009 11:43

Notes and Definitions

U	Analyte included in the analysis, but not detected
D	Data reported from a dilution
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/17/2009 11:43

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J19180 (0907001-01) Solid								
Hexavalent Chromium	0.20 U	0.20	mg/kg dry	1	L907129	07/16/2009	07/16/2009	SW846 7196A

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K1681	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/17/2009 11:43

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L907129 - Default Prep GenChem									
Blank (L907129-BLK1)			Prepared & Analyzed: 07/16/2009						
Hexavalent Chromium	0.20 U	0.20	mg/kg wet						
LCS (L907129-BS1)			Prepared & Analyzed: 07/16/2009						
Hexavalent Chromium	3.93	0.20	mg/kg wet	4.0000		98	80-120		
LCS (L907129-BS2)			Prepared & Analyzed: 07/16/2009						
Hexavalent Chromium	1010 D	20.0	mg/kg wet	1056.2		96	80-120		
Duplicate (L907129-DUP1)	**Source: 0907001-01**		Prepared & Analyzed: 07/16/2009						
Hexavalent Chromium	0.20 U	0.20	mg/kg dry		0.20 U				20
Matrix Spike (L907129-MS1)	**Source: 0907001-01**		Prepared & Analyzed: 07/16/2009						
Hexavalent Chromium	3.76	0.20	mg/kg dry	4.0285	0.20 U	93	75-125		
Matrix Spike (L907129-MS2)	**Source: 0907001-01**		Prepared & Analyzed: 07/16/2009						
Hexavalent Chromium	1180 D	20.1	mg/kg dry	1083.1	0.20 U	109	75-125		

See SRC

Lionville Laboratory Use Only
0907001

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY INC.

Client WC HANFORD SAF # RC-075

Est. Final Proj. Sampling Date

Project# 60049-001-001-0001

Project Contact/Phone#

Lionville Laboratory Project Manager O. JOHNSON

QC SW846 Del STD TAT 21 days

Date Rec'd 7-1-09 Date Due 7-22-09

		A	B	C	D	E	F
Refrigerator #		2	2	2	2	2	2
#/Type Container	Liquid						
	Solid	1AG	1AG	1AG	1AG	1AG	1AG
Volume		120	60	125	250	250	60
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED →		ORGANIC: VOA, BNA, ~~Pest~~/PCB, Herb		PAH	PAH	INORG: Metal Hg, CN	Hex Chrom

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0625H	OPCB	0608H	0830	Met(1)	ICR6
01	J19180	✓	✓	Soil	6-29-9	0942	X	X	X	X	X	X

Special Instructions:

Met(1) = RCRA + B, Co, Cu, Mn, Mo, Ni, V, Zn

Special Instructions:

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

Relinquished by	Received by	Date	Time
[signature]	[signature]	7/1/09	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSIT WASTE	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-099	Page 1 of 1

Collector: J Sellers	Company Contact: D W.Shea	Telephone No.: 521-6014	Project Coordinator: KESSNER, JH
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 126-D-2, Verification I, split samples		SAF No.: RC-075
Ice Chest No.: 106	Field Logbook No.: EL-1607-6	COA: R126D22000	Method of Shipment: Fed Ex
Shipped To: LIONVILLE TestAmerica Incorporated, Richland	Offsite Property No.: A090260		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8L

Data Turnaround: 21 days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
Type of Container	G/P E	G/P F	aG C	aG B	aG A	aG D	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	~~1~~ 0 DWShea 6/25/09		
Volume	60ml	60mL	125mL	60mL	120mL	120g	500mL	2g		
SAMPLE ANALYSIS	See item (1) in Special instructions	Chromium Hex - 7196	Pesticides - 8081	PCBs - 8082	Semi-VOA - 8270A (TCL)	PAHs - 8310	See item (2) in Special Instructions	Gross Alpha, Gross Beta		

Sample No	Matrix *	Sample Date	Sample Time										
J19180	SOIL	6/29/09	0942	✓	✓	✓	✓	✓	✓	✓	✓		

JEB 6-30-09

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: J. Sellers Josh Sellers	Date/Time: 6-29-09 1313	Received By/Stored In: DWShea DWSHEA	Date/Time: 6/29/09 1313
Relinquished By/Removed From: DWShea DWShea	Date/Time: 6/29/09 1658	Received By/Stored In: Fridge 3A	Date/Time: 6/29/09 1658
Relinquished By/Removed From: Fridge 3A / J.E. Bernhard	Date/Time: 0830 6-30-09	Received By/Stored In: J.E. Bernhard	Date/Time: 0830 6-30-09
Relinquished By/Removed From: J. E. Bernhard WCH	Date/Time: 1000 6-30-09	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 7-1-09 0950	Received By/Stored In: Victor Hernandez	Date/Time: 7-1-09 0950
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010 (Client List) {~~Aluminum,~~ Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium,~~ Chromium, Cobalt, Copper, ~~Iron,~~ Lead, ~~Lithium, Magnesium,~~ Manganese, Molybdenum, Nickel, ~~Potassium,~~ Selenium, ~~Silicon,~~ Silver, ~~Sodium,~~ Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury} DWShea 6/25/09

(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

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

KW

Matrix *

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

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

WCH-EE 011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC HANFORD Date: 7/1/09

Project/SAP/SOW/Release #: RC-075

LvLI Batch #: 0907001 Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 796739579285
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	Comments:
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.3°	°C	Cooler # 106
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	Sample #ci-C, D Recd in 250mL AG COC INDICATES 120mL AND 60mL.
11. Samples properly preserved? (if #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A
Person Contacted D JOHNSON		Date 7/1/09	

LVLI

888888888