0079255

SAF-RC-088
618-7 Burial Ground – Other Liquids
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Rick Kerkow	L6-06	KW 11/3/08 Initials/Date
Kathy Wendt	H4-21	KW 11/3/08 Initials/Date

RECEIVED
NOV 07 2008
EDMC

COMMENTS:

SDG K1371 **SAF-RC-088**

Rad only Chem only X Rad & Chem

X Complete Partial

WASTE SITE: 618-7 Burial Ground (Tank w/hinged lid)

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
Richmond, California 94804-3849
Phone (510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

October 6, 2008

RECEIVED
OCT 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-10-036-7713, SDG K1371

Dear Ms. Kessner:

Enclosed is the data report for one solid (other solid) sample designated under SAF No. RC-088 received at Eberline Services on October 3, 2008. The sample was analyzed for gross alpha/gross beta activity, and gamma emitting nuclides only.

Please call if you have any questions concerning this report.

Sincerely,

FOR Melissa C. Mannion
Senior Program Manager

NJV

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1371 was composed of one solid (other solid) sample designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Ground-Other.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on October 6, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

FOR **Melissa C. Mannion**
Senior Program Manager

10/6/08
Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K1371

SDG	7713
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1371

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

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

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Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	10/06/08

SDG 7713
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1371

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/06/08

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

SDG 7713
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R810036-01	J17K38	618-7 BG(Tank HingedLid)	SOLID		RC-088	RC-088-091	10/01/08 10:00
R810036-02	Lab Control Sample		SOLID		RC-088		
R810036-03	Method Blank		SOLID		RC-088		
R810036-04	Duplicate (R810036-01)	618-7 BG(Tank HingedLid)	SOLID		RC-088		10/01/08 10:00

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 10/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

SDG 7713
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

C 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
713	RC-088-091	J17K38	SOLID	100.0	224 g		10/03/08	2	R810036-01	7713-001
		Method Blank	SOLID						R810036-03	7713-003
		Lab Control Sample	SOLID						R810036-02	7713-002
		Duplicate (R810036-01)	SOLID	100.0	224 g		10/03/08	2	R810036-04	7713-004

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 10/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

SDG 7713
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

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	6174-016	20.6	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6174-016	11.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6174-016	7.0	1			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 10/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

SDG 7713
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

AB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
810036-01	J17K38			7713-001	93A/93		10/04/08	10/06/08	BW	Gross Alpha in Solids
10/01/08	618-7 BG(Tank HingedLid)		SOLID	7713-001	93B/93		10/04/08	10/06/08	BW	Gross Beta in Solids
10/03/08	RC-088-091	RC-088		7713-001	GAM		10/04/08	10/06/08	CSS	Gamma Scan
810036-02	Lab Control Sample			7713-002	93A/93		10/04/08	10/06/08	BW	Gross Alpha in Solids
			SOLID	7713-002	93B/93		10/04/08	10/06/08	BW	Gross Beta in Solids
		RC-088		7713-002	GAM		10/04/08	10/06/08	CSS	Gamma Scan
810036-03	Method Blank			7713-003	93A/93		10/04/08	10/06/08	BW	Gross Alpha in Solids
			SOLID	7713-003	93B/93		10/04/08	10/06/08	BW	Gross Beta in Solids
		RC-088		7713-003	GAM		10/04/08	10/06/08	CSS	Gamma Scan
810036-04	Duplicate (R810036-01)			7713-004	93A/93		10/04/08	10/06/08	BW	Gross Alpha in Solids
10/01/08	618-7 BG(Tank HingedLid)		SOLID	7713-004	93B/93		10/04/08	10/06/08	BW	Gross Beta in Solids
10/03/08		RC-088		7713-004	GAM		10/04/08	10/06/08	CSS	Gamma Scan

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-088	Gross Alpha in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	RC-088	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
GAM	RC-088	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 10/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

7713-003 Method Blank

METHOD BLANK

SDG	7713	Client/Case no	Hanford	SDG_K1371	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R810036-03	Client sample id	Method Blank		
Dept sample id	7713-003	Material/Matrix		SOLID	
		SAF No	RC-088		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-2.51	3.1	7.97	10.0	U	93A
Gross Beta	12587-47-2	-0.567	3.4	5.90	15.0	U	93B
Potassium 40	13966-00-2	U		0.635		U	GAM
Cobalt 60	10198-40-0	U		0.044	0.050	U	GAM
Cesium 137	10045-97-3	U		0.040	0.100	U	GAM
Radium 226	13982-63-3	U		0.070	0.100	U	GAM
Radium 228	15262-20-1	U		0.143	0.200	U	GAM
Europium 152	14683-23-9	U		0.099	0.100	U	GAM
Europium 154	15585-10-1	U		0.120	0.100	U	GAM
Europium 155	14391-16-3	U		0.087	0.100	U	GAM
Thorium 228	14274-82-9	U		0.058		U	GAM
Thorium 232	TH-232	U		0.143		U	GAM
Uranium 235	15117-96-1	U		0.129		U	GAM
Uranium 238	U-238	U		4.55		U	GAM
Americium 241	14596-10-2	U		0.155		U	GAM

618-7 Burial Ground-Other

QC-BLANK #67551

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

7713-002 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7713
Contact Melissa C. Mannion
Lab sample id R810036-02
Dept sample id 7713-002

Client/Case no Hanford SDG K1371
Contract No. S00W235A00
Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No RC-088

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	102	19	16.1	10.0		93A	102	4.1	100	58-142	70-130
Gross Beta	93.8	7.6	6.17	15.0		93B	92.5	3.7	101	78-122	80-120
Cobalt 60	1.55	0.076	0.039	0.050		GAM	1.48	0.059	105	85-115	80-120
Cesium 137	1.80	0.072	0.050	0.100		GAM	1.66	0.066	108	86-114	80-120

618-7 Burial Ground-Other

QC-LCS #67550

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 10/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

7713-004 J17K38

DUPLICATE

SDG	7713			Client/Case no	Hanford SDG K1371
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R810036-04	Lab sample id	R810036-01	Client sample id	J17K38
Dept sample id	7713-004	Dept sample id	7713-001	Location/Matrix	618-7 BG(Tank HingedLid) SOLID
		Received	10/03/08	Collected/Weight	10/01/08 10:00 224 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-088-091 RC-088

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	1.76	3.5	6.21	10.0	U	93A	-1.03	3.4	7.95	U	-		1.1
Gross Beta	-2.19	3.3	5.99	15.0	U	93B	0.176	3.4	5.80	U	-		1.0
Potassium 40	U		0.406		U	GAM	U		0.384	U	-		0.1
Cobalt 60	U		0.023	0.050	U	GAM	U		0.039	U	-		0.7
Cesium 137	U		0.021	0.100	U	GAM	U		0.032	U	-		0.6
Radium 226	U		0.046	0.100	U	GAM	U		0.071	U	-		0.6
Radium 228	U		0.093	0.200	U	GAM	U		0.209	U	-		1.0
Europium 152	U		0.055	0.100	U	GAM	U		0.092	U	-		0.7
Europium 154	U		0.064	0.100	U	GAM	U		0.094	U	-		0.5
Europium 155	U		0.040	0.100	U	GAM	U		0.058	U	-		0.5
Thorium 228	U		0.033		U	GAM	U		0.052	U	-		0.6
Thorium 232	U		0.093		U	GAM	U		0.209	U	-		1.0
Uranium 235	U		0.066		U	GAM	U		0.109	U	-		0.7
Uranium 238	U		2.60		U	GAM	U		4.45	U	-		0.7
Americium 241	U		0.019		U	GAM	U		0.032	U	-		0.7

618-7 Burial Ground-Other

QC-DUP#1 67552

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

7713-001 J17K38

DATA SHEET

SDG	7713	Client/Case no	Hanford SDG K1371
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R810036-01	Client sample id	J17K38
Dept sample id	7713-001	Location/Matrix	618-7 BG(Tank HingedLid) SOLID
Received	10/03/08	Collected/Weight	10/01/08 10:00 224 g
% solids	100.0	Custody/SAF No	RC-088-091 RC-088

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-1.03	3.4	7.95	10.0	U	93A
Gross Beta	12587-47-2	0.176	3.4	5.80	15.0	U	93B
Potassium 40	13966-00-2	U		0.384		U	GAM
Cobalt 60	10198-40-0	U		0.039	0.050	U	GAM
Cesium 137	10045-97-3	U		0.032	0.100	U	GAM
Radium 226	13982-63-3	U		0.071	0.100	U	GAM
Radium 228	15262-20-1	U		0.209	0.200	U	GAM
Europium 152	14683-23-9	U		0.092	0.100	U	GAM
Europium 154	15585-10-1	U		0.094	0.100	U	GAM
Europium 155	14391-16-3	U		0.058	0.100	U	GAM
Thorium 228	14274-82-9	U		0.052		U	GAM
Thorium 232	TH-232	U		0.209		U	GAM
Uranium 235	15117-96-1	U		0.109		U	GAM
Uranium 238	U-238	U		4.45		U	GAM
Americium 241	14596-10-2	U		0.032		U	GAM

618-7 Burial Ground-Other

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

Test 93A	Matrix SOLID
SDG 7713	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client	Hanford
Contract	No. S00W235A00
Contract	SDG K1371

RESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
reparation batch 6174-016					
810036-01	93		7713-001	J17K38	U
810036-02	93		7713-002	Lab Control Sample	ok
810036-03	93		7713-003	Method Blank	U
810036-04	93		7713-004	Duplicate (R810036-01)	- U

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

18-7 Burial Ground-Other

METHOD PERFORMANCE

AB AMPLE 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
reparation batch 6174-016			2σ prep error 20.6 % Reference Lab Notebook #6174, pg. 16													
810036-01	93		J17K38	7.95	0.100			89		100			3	10/04/08	10/04	GRB-109
810036-02	93		Lab Control Sample	16.1	0.100			65		100				10/04/08	10/04	GRB-110
810036-03	93		Method Blank	7.97	0.100			64		100				10/04/08	10/04	GRB-111
810036-04	93		Duplicate (R810036-01)	6.21	0.100			89		100			3	10/04/08	10/04	GRB-112
ominal values and limits from method				10.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD	MDA	9.56	± 8.88
FOR 4 SAMPLES	RESIDUE	77	± 28

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

Test 93B Matrix SOLID
SDG 7713
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1371

RESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
reparation batch 6174-016					
810036-01	93		7713-001	J17K38	U
810036-02	93		7713-002	Lab Control Sample	ok
810036-03	93		7713-003	Method Blank	U
810036-04	93		7713-004	Duplicate (R810036-01)	- U

'ominal values and limits from method RDLs (pCi/g) 15.0
18-7 Burial Ground-Other

METHOD PERFORMANCE

AB AMPLE 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
reparation batch 6174-016			2σ prep error 11.0 % Reference Lab Notebook #6174, pg. 16													
.810036-01	93		J17K38	5.80	0.100			89		100			3	10/04/08	10/04	GRB-109
.810036-02	93		Lab Control Sample	6.17	0.100			65		100				10/04/08	10/04	GRB-110
.810036-03	93		Method Blank	5.90	0.100			64		100				10/04/08	10/04	GRB-111
.810036-04	93		Duplicate (R810036-01)	5.99	0.100			89		100			3	10/04/08	10/04	GRB-112
lominal values and limits from method				15.0	0.100			5-250		100			180			

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

AVERAGES ± 2 SD	MDA	5.96	± 0.314
FOR 4 SAMPLES	RESIDUE	77	± 28

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/06/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1371

Test GAM Matrix SOLID
SDG 7713
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1371

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
reparation batch 6174-016								
810036-01			7713-001	J17K38	U		U	
810036-02			7713-002	Lab Control Sample	ok		ok	
810036-03			7713-003	Method Blank	U		U	
810036-04			7713-004	Duplicate (R810036-01)	-	U	-	U
ominal values and limits from method				RDLs (pCi/g)	0.050		0.100	
18-7 Burial Ground-Other								

IETHOD PERFORMANCE

AB AMPLE 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
reparation batch 6174-016			2σ prep error 7.0 %	Reference Lab Notebook #6174, pg. 16												
810036-01			J17K38	10.5	143					414			3	10/03/08	10/04	JR,01,00
810036-02			Lab Control Sample	0.039	140					414				10/03/08	10/04	JR,02,00
810036-03			Method Blank	7.76	140					414				10/03/08	10/04	JR,05,00
810036-04			Duplicate (R810036-01)	6.36	143					1079			3	10/03/08	10/04	JR,01,00
ominal values and limits from method				0.050	140					100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 6.16 ± 8.86
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/06/08

SDG 7713
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1371

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/06/08

SDG 7713
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/06/08

SDG 7713
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

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 10/06/08

SDG 7713
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1371

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
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Version 3.06
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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

SDG 7713
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

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.

SDG 7713
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1371

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 10/06/08

SDG 7713
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

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 10/06/08

DUPLICATE

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

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

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

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

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

SDG 7713
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

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 10/06/08

SDG 7713
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

MATRIX SPIKE

for the recovery.

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

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

SDG 7713
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1371

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
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Version 3.06
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METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-091	Page 1 of 1

Collector T. Stephens	**Company Contact** Joan Kessner **Telephone No.** 509-375-4688 K1371	**Project Coordinator** KESSNER, JH	**Price Code** / **Data Turnaround** ~~15~~ 7 Days RJC 10/1/08
Project Designation 618-7 Burial Ground - Other	**Sampling Location** 618-7 Burial Ground (Tank w/hinged lid) (7713)	**SAF No.** RC-088	
Ice Chest No. ERC-02-405	**Field Logbook No.** EL-1395-13 / **COA** RG61878500	**Method of Shipment** FED EX	
Shipped To: EBERLINE SERVICES / LIONVILLE	**Offsite Property No.** A090011	**Bill of Lading/Air Bill No.** SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination.

Special Handling and/or Storage

None

Preservation	Cool 4C	None	Cool 4C	None	Cool 4C	None	None			
Type of Container	P	P	P	P	P	P	P			
No. of Container(s)	0	1	0	0	0	0	1			
Volume	125mL	500mL	60mL	60mL	100mL	60mL	500mL			
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	See item (1) in Special Instructions.	Cyanide (Total) - 335.2; Sulfides - 9030	Ignitability - 1010 RJC 10/1/08	IC Anions - 300.0	pH (Soil) - 9045	See item (2) in Special Instructions.			
Sample No.	**Matrix ***	**Sample Date**	**Sample Time**								
J17K38	OTHER	10/1/08	1000				X	SS TANK W/ HINGED LID		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1410	Received By/Stored In	Date/Time 1410
T Stephens TW Stephens	10.1.08	RT Coffman / RT Coffman	10/1/08
Relinquished By/Removed From	Date/Time 1500	Received By/Stored In	Date/Time 1500
RT Coffman / RT Coffman	10/1/08	Refer # 1B; 1060	10/1/08
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time 1000
Refer 1B / J.E. Bernhard	10-2-08	J.E. Bernhard	10-2-08
Relinquished By/Removed From	Date/Time 1015	Received By/Stored In	Date/Time
J.E. Bernhard WCH	10-2-08	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX		[illegible]	10/07/08 09:00
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Thallium, Tin, Zirconium}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

JH 10/2/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 10/03/08 09:00 CoC No. RC-088-091

Container I.D. No. ERC-02-405 Requested TAT (Days) 7 P.O. Received Yes [ ] No [X]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 1 Sample Matrix X SOLID
7. Number of containers per sample: 1 (Or see CoC _____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date: 10/03/08 Time: 09:15

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J17K38	<60						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

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

"over 55 years of quality nuclear services"

LIONVILLE LABORATORY INC.

RECEIVED OCT 2008

27 October 2008

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	0810L042
SDG #	K1371
SAF #	RC-088
Date Received	10/03/08
# Samples	1
Matrix	OTHER
Volatiles	
Semivolatiles	X
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

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

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

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1371

DATE RECEIVED: 10/03/08 LVL LOT # :0810L042

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17K38						
BROMIDE BY IC	001	SO	08LICT80	10/01/08	10/16/08	10/17/08
BROMIDE BY IC	001 REP	SO	08LICT80	10/01/08	10/16/08	10/17/08
BROMIDE BY IC	001 MS	SO	08LICT80	10/01/08	10/16/08	10/17/08
CHLORIDE BY IC	001	SO	08LICT80	10/01/08	10/16/08	10/17/08
CHLORIDE BY IC	001 REP	SO	08LICT80	10/01/08	10/16/08	10/17/08
CHLORIDE BY IC	001 MS	SO	08LICT80	10/01/08	10/16/08	10/17/08
FLUORIDE BY IC	001	SO	08LICT80	10/01/08	10/16/08	10/17/08
FLUORIDE BY IC	001 REP	SO	08LICT80	10/01/08	10/16/08	10/17/08
FLUORIDE BY IC	001 MS	SO	08LICT80	10/01/08	10/16/08	10/17/08
NITRITE BY IC	001	SO	08LICT80	10/01/08	10/16/08	10/17/08
NITRITE BY IC	001 REP	SO	08LICT80	10/01/08	10/16/08	10/17/08
NITRITE BY IC	001 MS	SO	08LICT80	10/01/08	10/16/08	10/17/08
NITRATE BY IC	001	SO	08LICT80	10/01/08	10/16/08	10/17/08
NITRATE BY IC	001 REP	SO	08LICT80	10/01/08	10/16/08	10/17/08
NITRATE BY IC	001 MS	SO	08LICT80	10/01/08	10/16/08	10/17/08
TOTAL CYANIDE	001	SO	08LC052	10/01/08	10/12/08	10/12/08
TOTAL CYANIDE	001 REP	SO	08LC052	10/01/08	10/12/08	10/12/08
TOTAL CYANIDE	001 MS	SO	08LC052	10/01/08	10/12/08	10/12/08
PHOSPHATE BY IC	001	SO	08LICT80	10/01/08	10/16/08	10/17/08
PHOSPHATE BY IC	001 REP	SO	08LICT80	10/01/08	10/16/08	10/17/08
PHOSPHATE BY IC	001 MS	SO	08LICT80	10/01/08	10/16/08	10/17/08
SULFATE BY IC	001	SO	08LICT80	10/01/08	10/16/08	10/17/08
SULFATE BY IC	001 REP	SO	08LICT80	10/01/08	10/16/08	10/17/08
SULFATE BY IC	001 MS	SO	08LICT80	10/01/08	10/16/08	10/17/08
IGNITABILITY	001	SO	08LFP035	10/01/08	10/09/08	10/09/08
NITRITE	001	SO	08LN3S31	10/01/08	10/13/08	10/13/08
NITRITE	001 REP	SO	08LN3S31	10/01/08	10/13/08	10/13/08
NITRITE	001 MS	SO	08LN3S31	10/01/08	10/13/08	10/13/08
NITRATE	001	SO	08LN3S31	10/01/08	10/13/08	10/13/08
NITRATE	001 REP	SO	08LN3S31	10/01/08	10/13/08	10/13/08
NITRATE	001 MS	SO	08LN3S31	10/01/08	10/13/08	10/13/08
PH	001	SO	08LPH054	10/01/08	10/09/08	10/09/08
SULFIDE	001	SO	08LSD055	10/01/08	10/10/08	10/10/08
SULFIDE	001 REP	SO	08LSD055	10/01/08	10/10/08	10/10/08
SULFIDE	001 MS	SO	08LSD055	10/01/08	10/10/08	10/10/08

AB QC:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1371

DATE RECEIVED: 10/03/08 LVL LOT # :0810L042

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BROMIDE BY IC	MB1	S	08LICT80	N/A	10/16/08	10/16/08
BROMIDE BY IC	MB1 BS	S	08LICT80	N/A	10/16/08	10/16/08
CHLORIDE BY IC	MB1	S	08LICT80	N/A	10/16/08	10/16/08
CHLORIDE BY IC	MB1 BS	S	08LICT80	N/A	10/16/08	10/16/08
FLUORIDE BY IC	MB1	S	08LICT80	N/A	10/16/08	10/16/08
FLUORIDE BY IC	MB1 BS	S	08LICT80	N/A	10/16/08	10/16/08
NITRITE BY IC	MB1	S	08LICT80	N/A	10/16/08	10/16/08
NITRITE BY IC	MB1 BS	S	08LICT80	N/A	10/16/08	10/16/08
NITRATE BY IC	MB1	S	08LICT80	N/A	10/16/08	10/16/08
NITRATE BY IC	MB1 BS	S	08LICT80	N/A	10/16/08	10/16/08
TOTAL CYANIDE	LCS L	S	08LC052	N/A	10/12/08	10/12/08
TOTAL CYANIDE	LCS L	S	08LC052	N/A	10/12/08	10/12/08
TOTAL CYANIDE	MB1	S	08LC052	N/A	10/12/08	10/12/08
PHOSPHATE BY IC	MB1	S	08LICT80	N/A	10/16/08	10/16/08
PHOSPHATE BY IC	MB1 BS	S	08LICT80	N/A	10/16/08	10/16/08
SULFATE BY IC	MB1	S	08LICT80	N/A	10/16/08	10/16/08
SULFATE BY IC	MB1 BS	S	08LICT80	N/A	10/16/08	10/16/08
NITRITE	MB1	S	08LN3S31	N/A	10/13/08	10/13/08
NITRITE	MB1 BS	S	08LN3S31	N/A	10/13/08	10/13/08
NITRITE	MB1 BSD	S	08LN3S31	N/A	10/13/08	10/13/08
NITRATE	MB1	S	08LN3S31	N/A	10/13/08	10/13/08
NITRATE	MB1 BS	S	08LN3S31	N/A	10/13/08	10/13/08
NITRATE	MB1 BSD	S	08LN3S31	N/A	10/13/08	10/13/08
SULFIDE	MB1	S	08LSD055	N/A	10/10/08	10/10/08
SULFIDE	MB1 BS	S	08LSD055	N/A	10/10/08	10/10/08
SULFIDE	MB1 BSD	S	08LSD055	N/A	10/10/08	10/10/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-088 K1371
LVL#: 0810L042

W.O.#: 60049-001-001-0001-00
Date Received: 10-03-08

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 solid sample of a salt nature that was found to dissolve into deionized water used for extraction purposes.

2. The sample was prepared and analyzed in accordance with the methods indicated on the attached glossary.

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

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

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

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS were within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries were within the 75-125% control limits with the exception of Sulfate at 133.0%.

8. The replicate analyses were within the 20% RPD control limit.

9. Results for solid samples are reported on a n "as-received" 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

10/22/08
Date

njp\i09-042

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 15 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	__ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		__ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod)	__ 9045C
Cyanide, Total		✓ 9010B/9014	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		✓ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		✓ 9045~~C~~ D 10-22-05	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		✓ 9030B(mod)/9034	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: Bromide, Chloride, Fluoride, Nitrite, **Method:** } EPA 300.0

Other: Phosphate, Nitrate, Sulfate **Method** }

Nitrite
Nitrate } EPA 353.2 (mod.)

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Inorganic Data Summary Report
Physical Testing Observation

Client: WC-HANFORD RC-088 K1371
LVL#: 0810L042

W.O.#: 60049-001-001-0001-00
Date Received: 10-03-08

Analyte:	**Observation:**
Ignitability	Sample J17K38 did not ignite. The sample was heated to approximately 220°F. p-Xylene was used to determined the accuracy of the ignitability apparatus. The p-Xylene will ignite at 81°F +/- 1°F. For this test, the p-Xylene ignited at 81°F.

njp\i10-042pt2

LVLI
LIONVILLE LABORATORY INC.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/21/08

CLIENT: WC-HANFORD RC-088 K1371 LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17K38	Bromide by IC	27.5	u	MG/KG	27.5	2.0
		Chloride by IC	1980		MG/KG	138	10.0
		Fluoride by IC	27.5	u	MG/KG	27.5	2.0
		Nitrite by IC	68.8	u	MG/KG	68.8	5.0
		Nitrate by IC	27.5	u	MG/KG	27.5	2.0
		Cyanide, Total	0.48	u	MG/KG	0.48	1.0
		Phosphate by IC	247		MG/KG	27.5	2.0
		Sulfate by IC	31.1		MG/KG	27.5	2.0
		Nitrite, as N	0.29	u	MG/KG	0.29	1.0
		Nitrate, as N	0.63		MG/KG	0.29	1.0
		pH	10		SOIL PH	0.01	1.0
		Sulfide	21.0	u	MG/KG	21.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/21/08

CLIENT: WC-HANFORD RC-088 K1371 LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LICT80-MB1	Bromide by IC	2.4	u	MG/KG	2.4	1.0
		Chloride by IC	2.4	u	MG/KG	2.4	1.0
		Fluoride by IC	2.4	u	MG/KG	2.4	1.0
		Nitrite by IC	2.37	u	MG/KG	2.37	1.0
		Nitrate by IC	2.37	u	MG/KG	2.37	1.0
		Phosphate by IC	2.4	u	MG/KG	2.4	1.0
		Sulfate by IC	2.4	u	MG/KG	2.4	1.0
BLANK1	08LC052-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	08LN3S31-MB1	Nitrite, as N	0.20	u	MG/KG	0.20	1.0
		Nitrate, as N	0.20	u	MG/KG	0.20	1.0
BLANK10	08LSD055-MB1	Sulfide	20.5	u	MG/KG	20.5	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/21/08

CLIENT: WC-HANFORD RC-088 K1371 LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17K38	Bromide by IC	1620	7.3	1550	104.3	5.0
		Chloride by IC	5640	1980	3090	118.5	10.0
		Fluoride by IC	1570	0.0	1550	101.7	5.0
		Nitrite by IC	1600	68.8 u	1550	103.6	5.0
		Nitrate by IC	1570	27.5 u	1550	101.7	5.0
		Cyanide, Total	5.02	0.48u	4.99	100.7	1.0
		Phosphate by IC	1720	247	1550	95.4	5.0
		Sulfate by IC	2090	31.1	1550	133.0	5.0
		Nitrite, as N	4.4	0.29u	4.0	110.8	1.0
		Nitrate, as N	5.9	0.63	5.5	95.7	1.0
		Sulfide	254	0.0	249	102.2	1.0
BLANK10	08LICT80-MB1	Bromide by IC	58.3	2.4 u	60.6	96.2	1.0
		Chloride by IC	57.5	2.4 u	60.6	94.9	1.0
		Fluoride by IC	58.7	2.4 u	60.6	96.8	1.0
		Nitrite by IC	58.6	2.37u	60.6	96.7	1.0
		Nitrate by IC	57.8	2.37u	60.6	95.3	1.0
		Phosphate by IC	59.2	2.4 u	60.6	97.6	1.0
		Sulfate by IC	57.8	2.4 u	60.6	95.3	1.0
BLANK10	08LN3S31-MB1	Nitrite, as N	5.0	0.20u	5.0	101.2	1.0
		Nitrite, as N MSD	4.9	0.20u	4.9	101.0	1.0
		Nitrate, as N	5.0	0.20u	5.0	101.4	1.0
		Nitrate, as N MSD	4.8	0.20u	4.9	99.2	1.0
BLANK10	08LSD055-MB1	Sulfide	245	20.5 u	247	98.9	1.0
		Sulfide MSD	251	20.5 u	250	100.5	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 10/21/08

CLIENT: WC-HANFORD RC-088 K1371 LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	08LN3S31-MB1	Nitrite, as N	101.2	101.0	0.22
		Nitrate, as N	101.4	99.2	2.2
BLANK10	08LSD055-MB1	Sulfide	98.9	100.5	1.6

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/21/08

CLIENT: WC-HANFORD RC-088 K1371 LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17K38	Bromide by IC	27.5 u	26.7 u	NC	2.0
		Chloride by IC	1980	2240	12.4	10.0
		Fluoride by IC	27.5 u	26.7 u	NC	2.0
		Nitrite by IC	68.8 u	66.8 u	NC	5.0
		Nitrate by IC	27.5 u	26.7 u	NC	2.0
		Cyanide, Total	0.48u	0.47u	NC	1.0
		Phosphate by IC	247	263	6.3	2.0
		Sulfate by IC	31.1	30.1	3.4	2.0
		Nitrite, as N	0.29u	0.25u	NC	1.0
		Nitrate, as N	0.63	0.55	13.5	1.0
		Sulfide	21.0 u	20.3 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/21/08

CLIENT: WC-HANFORD RC-088 K1371 LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	08LC052-LCS1	Cyanide, Total LCS	1.90	2.0	MG/KG	94.8
LCSS2	08LC052-LCS2	Cyanide, Total LCS	9.77	10.0	MG/KG	97.7

Lionville Laboratory Use Only

08 10L042

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

A

Client: W.C. Hanford SAF# RC-088

Est. Final Proj. Sampling Date

Project#: 60049-001-001-0000-00

Project Contact/Phone#

Lionville Laboratory Project Manager: Arlette Johnson

PO: SW846 Del: STO TAT: 12 Days

Date Rec'd: 10-3-08 Date Due: 10-15-08 WA 10-8-08

Refrigerator #			3													
#/Type Container	Liquid / Solid		1(p)													
Volume			500													
Preservatives			–													
ANALYSES REQUESTED →		ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: Herb				INORG: Met Metal	INORG: CN	SFD	Ign + Ash		FP		
Lionville Laboratory Use Only			0625H						Met①	ICAT0	ISFD	IIGN	ICO	IPH		

MATRIX CODES: Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
001	J17K38	✓	✓	X	10-1-08	1000		X						X	X	X	X	X	X	

Special Instructions: X = other-soil

I ca① = Cl, Fl, SO4, PO4, NO2, NO3

Met① = HSL + Sn, Zr

Special Instructions:

1. Relog of 08 10L021-006
2. 10-9-08 Added Metals - WA
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
F.	[signature]	10-8-08	0820

Relinquished by	Received by	Date	Time

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

000000013

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-091

tor tephens	Company Contact Joan Kessner Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code
t Designation -7 Burial Ground - Other	Sampling Location 618-7 Burial Ground (Tank w/hinged lid)	SAF No. RC-088	Data Turnaround ~~15~~ 7 Days RJC 10/1/08
est No. AFS-04-124	Field Logbook No. EL-1395-13 COA RG61878500	Method of Shipment FED EX	
ed To ERLINE SERVICES / LIONVILLE	Offsite Property No. A090026	Bill of Lading/Air Bill No. SEE OSPC	

SIBLE SAMPLE ~~HAZARDS~~/REMARKS

rial Radioactive contamination.

ial Handling and/or Storage

Preservation	Cool 4C	None	Cool 4C	None	Cool 4C	None	None			
Type of Container	P	P	P	P	P	P	P			
No. of Container(s)	0	1	0	0	0	0	1			
Volume	125mL	500mL	60mL	60mL	100mL	60mL	100mL			
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	See item (1) in Special Instructions.	Cyanide (Total) - 335.2; Sulfides - 9030	Ignitability - 1010	IC Anions - 300.0	pH (Soil) - 9045	See item (2) in Special Instructions. RJC 10/1/08			

Sample No.	Matrix *	Sample Date	Sample Time									
38	OTHER	10/1/08	1000	X	X	X	X	X	X		SS TANK W/ HINGED LID.	

CHAIN OF POSSESSION	Sign/Print Names	
shed By/Removed From tephens TCS BSAS	Date/Time 1410 10-1-08	Received By/Stored In RT Coffman / RT Coffman
shed By/Removed From offman / RT Coffman	Date/Time 1500 10/1/08	Received By/Stored In Refer #1B, 1060
shed By/Removed From r 1B / J.E. Bernhard	Date/Time 1000 10-2-08	Received By/Stored In J.E. Bernhard
shed By/Removed From Bernhard	Date/Time 1015 10-2-08	Received By/Stored In FED EX
shed By/Removed From D FX	Date/Time 10-3-08 0935	Received By/Stored In Kennedy
shed By/Removed From	Date/Time	Received By/Stored In

Date/Time 1410 / 1500 / 1000 / 1000 / 0935

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Aluminum, Antimony, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}; ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Thallium, Tin, Zirconium}; Mercury - 7471 - (CV)

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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
SD=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

ORATORY CTION	Received By	Title	Date/Time
SAMPLE OSITION	Disposal Method	Disposed By	Date/Time

EE-011

000000014

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. HANFORD

Project/SAP/SOW/Release #: RC-088

Date: 10/3/08

LvLI Batch #: 08101021

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 791153750427 791963095404
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 2-7, 2-2	°C	Cooler # ERC-99-056 AFS-04-124
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☑ Yes	☐ No	☐ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LVLI

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1371

DATE RECEIVED: 10/03/08 LVL LOT # :0810L042

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17K38						
SILVER, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
SILVER, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
SILVER, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
ALUMINUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
ALUMINUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
ALUMINUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
ARSENIC, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
ARSENIC, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
ARSENIC, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
BARIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
BARIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
BARIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
BERYLLIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/17/08
BERYLLIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/17/08
BERYLLIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/17/08
CALCIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
CALCIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
CALCIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
CADMIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
CADMIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
CADMIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
COBALT, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
COBALT, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
COBALT, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
CHROMIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
CHROMIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
CHROMIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
COPPER, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
COPPER, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
COPPER, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
IRON, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
IRON, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
IRON, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
MERCURY, TOTAL	001	SO	08C0183	10/01/08	10/14/08	10/15/08
MERCURY, TOTAL	001 REP	SO	08C0183	10/01/08	10/14/08	10/15/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1371

DATE RECEIVED: 10/03/08 LVL LOT # :0810L042

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 MS	SO	08C0183	10/01/08	10/14/08	10/15/08
POTASSIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/17/08
POTASSIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/17/08
POTASSIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/17/08
MAGNESIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
MAGNESIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
MAGNESIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
MANGANESE, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
MANGANESE, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
MANGANESE, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
SODIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/20/08
SODIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/20/08
SODIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/20/08
NICKEL, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
NICKEL, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
NICKEL, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
LEAD, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
LEAD, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
LEAD, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
ANTIMONY, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
ANTIMONY, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
ANTIMONY, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
SELENIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
SELENIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
SELENIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
TIN, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
TIN, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
TIN, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
THALLIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
THALLIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
THALLIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
VANADIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
VANADIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
VANADIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
ZINC, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08
ZINC, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
ZINC, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08
ZIRCONIUM, TOTAL	001	SO	08L0374	10/01/08	10/14/08	10/16/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1371

DATE RECEIVED: 10/03/08 LVL LOT # :0810L042

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZIRCONIUM, TOTAL	001 REP	SO	08L0374	10/01/08	10/14/08	10/16/08
ZIRCONIUM, TOTAL	001 MS	SO	08L0374	10/01/08	10/14/08	10/16/08

AB QC:

SILVER LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
SILVER, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
ALUMINUM LABORTORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
ALUMINUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
ARSENIC LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
ARSENIC, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
BARIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
BARIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/17/08
BERYLLIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/17/08
CALCIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
CALCIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
CADMIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
CADMIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
COBALT LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
COBALT, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
CHROMIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
CHROMIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
COPPER LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
COPPER, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
IRON LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
IRON, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
MERCURY LABORATORY	LC1 BS	S	08C0183	N/A	10/14/08	10/15/08
MERCURY, TOTAL	MB1	S	08C0183	N/A	10/14/08	10/15/08
POTASSIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/17/08
POTASSIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/17/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
MAGNESIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
MANGANESE LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
MANGANESE, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
SODIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/17/08
SODIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/17/08
NICKEL LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1371

DATE RECEIVED: 10/03/08 LVL LOT # :0810L042

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
LEAD LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
LEAD, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
ANTIMONY LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
ANTIMONY, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
SELENIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
SELENIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
TIN LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
TIN, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
THALLIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
THALLIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
VANADIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
VANADIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
ZINC LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
ZINC, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08
ZIRCONIUM LABORATORY	LC1 BS	S	08L0374	N/A	10/14/08	10/16/08
ZIRCONIUM, TOTAL	MB1	S	08L0374	N/A	10/14/08	10/16/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-088
LVL#: 0810L042
SDG/SAF#: K1371/RC-088

W.O.#: 60049-001-001-0001-00
Date Received: 10-03-08

METALS CASE NARRATIVE

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

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

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

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. The sample results were reported on a wet weight "as received" basis.

   The sample is a relog of LvL#: 0810L021-006 for metals analysis as per client.

   The sample was run on a different instrument for Beryllium, Potassium, and Sodium due to sample matrix.

   The sample was rerun with a 12-fold dilution for Sodium due to high concentration.

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

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

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

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

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

8. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

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 17 pages.

9. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J17K38	Sodium	600,000	89.6

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

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/23/08
Date

alm/m10-042

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

ɔt#: 0816L042

:aching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
luminum	✓6010B		__200.7				__99
ntimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
rsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
arium	✓6010B		__200.7				__99
eryllium	✓6010B		__200.7				__99
ismuth	__6010B [1]		__200.7 [1]			__1620	__99
oron	__6010B		__200.7				__99
admium	✓6010B	__7131A [5]	__200.7	__213.2			__99
alcium	✓6010B		__200.7				__99
hromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
obalt	✓6010B		__200.7				__99
opper	✓6010B	__7211 [5]	__200.7	__220.2			__99
on	✓6010B		__200.7				__99
ead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
ithium	__6010B	__7430 [4]	__200.7			__1620	__99
lagnesium	✓6010B		__200.7				__99
langanese	✓6010B		__200.7				__99
lercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
lolybdenum	__6010B		__200.7				__99
ickel	✓6010B		__200.7				__99
otassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
are Earths	__6010B [1]		__200.7 [1]			__1620	__99
elenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
ilicon	__6010B [1]		__200.7			__1620	__99
ilica	__6010B		__200.7			__1620	__99
ilver	✓6010B	__7761 [5]	__200.7	__272.2			__99
odium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
trontium	__6010B		__200.7				__99
hallium	✓6010B	__7841 [5]	__200.7	__279.2 __200.9			__99
in	✓6010B		__200.7				__99
itanium	__6010B		__200.7				__99
ranium	__6010B [1]		__200.7 [1]			__1620	__99
anadium	✓6010B		__200.7				__99
inc	✓6010B		__200.7				__99
irconium	✓6010B [1]		__200.7 [1]			__1620	__99

ther: _____ Method: _____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/21/08

CLIENT: WC-HANFORD RC-088 K1371 LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17K38	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Aluminum, Total	5.1	MG/KG	3.1	1.0
		Arsenic, Total	0.39 u	MG/KG	0.39	1.0
		Barium, Total	2.2	MG/KG	0.08	1.0
		Beryllium, Total	0.04 u	MG/KG	0.04	1.0
		Calcium, Total	76.5	MG/KG	3.1	1.0
		Cadmium, Total	0.16	MG/KG	0.04	1.0
		Cobalt, Total	0.16 u	MG/KG	0.16	1.0
		Chromium, Total	21.6	MG/KG	0.16	1.0
		Copper, Total	1.1	MG/KG	0.16	1.0
		Iron, Total	433	MG/KG	3.5	1.0
		Mercury, Total	0.03	MG/KG	0.009	1.0
		Potassium, Total	38.8 u	MG/KG	38.8	1.0
		Magnesium, Total	19.4	MG/KG	2.0	1.0
		Manganese, Total	3.8	MG/KG	0.03	1.0
		Sodium, Total	200000	MG/KG	18.9	12.0
		Nickel, Total	128	MG/KG	0.16	1.0
		Lead, Total	0.39	MG/KG	0.24	1.0
		Antimony, Total	0.24 u	MG/KG	0.24	1.0
		Selenium, Total	0.47 u	MG/KG	0.47	1.0
		Tin, Total	0.57	MG/KG	0.47	1.0
		Thallium, Total	0.47 u	MG/KG	0.47	1.0
		Vanadium, Total	0.11 u	MG/KG	0.11	1.0
		Zinc, Total	0.54	MG/KG	0.47	1.0
		Zirconium, Total	0.39 u	MG/KG	0.39	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/21/08

CLIENT: WC-HANFORD RC-088 K1371 LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0374-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	4.0 u	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.10	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	8.9	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	1.0	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	15.2	MG/KG	4.5	1.0
		Potassium, Total	49.3 u	MG/KG	49.3	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.09	MG/KG	0.04	1.0
		Sodium, Total	47.8	MG/KG	2.0	1.0
		Nickel, Total	0.49	MG/KG	0.20	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Tin, Total	1.2	MG/KG	0.60	1.0
		Thallium, Total	0.60 u	MG/KG	0.60	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.98	MG/KG	0.60	1.0
		Zirconium, Total	0.50 u	MG/KG	0.50	1.0
BLANK1	08C0183-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/21/08

CLIENT: WC-HANFORD RC-088 K1371 LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17K38	Silver, Total	40.5	0.08u	39.4	103.0	1.0
		Aluminum, Total	178	5.1	157	109.5	1.0
		Arsenic, Total	142	0.39u	157	90.1	1.0
		Barium, Total	145	2.2	157	90.7	1.0
		Beryllium, Total	3.2	0.04u	3.9	82.1	1.0
		Calcium, Total	1920	76.5	1970	93.8	1.0
		Cadmium, Total	3.6	0.16	3.9	88.3	1.0
		Cobalt, Total	35.2	0.16u	39.4	89.3	1.0
		Chromium, Total	33.5	21.6	15.7	75.8	1.0
		Copper, Total	20.2	1.1	19.7	97.0	1.0
		Iron, Total	530	433	78.7	124.1*	1.0
		Mercury, Total	0.20	0.03	0.15	111.2	1.0
		Potassium, Total	1690	38.8 u	1970	85.7	1.0
		Magnesium, Total	1800	19.4	1970	90.4	1.0
		Manganese, Total	39.9	3.8	39.4	91.6	1.0
		Sodium, Total	187000	200000	1970	-680. *	12.0
		Nickel, Total	171	128	39.4	108.6	1.0
		Lead, Total	37.0	0.39	39.4	92.9	1.0
		Antimony, Total	34.4	0.24u	39.4	87.3	1.0
		Selenium, Total	138	0.47u	157	88.0	1.0
		Tin, Total	71.3	0.57	78.7	89.9	1.0
		Thallium, Total	141	0.47u	157	89.6	1.0
		Vanadium, Total	36.5	0.11u	39.4	92.6	1.0
		Zinc, Total	36.5	0.54	39.4	91.3	1.0
		Zirconium, Total	359	0.39u	394	91.3	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/21/08

CLIENT: WC-HANFORD RC-088 K1371

LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17K38	Silver, Total	0.08u	0.1	~~NC~~ * 200	1.0
		Aluminum, Total	5.1	6.5	24.1	1.0
		Arsenic, Total	0.39u	0.37u	NC	1.0
		Barium, Total	2.2	1.8	20.0	1.0
		Beryllium, Total	0.04u	0.04u	NC	1.0
		Calcium, Total	76.5	76.4	0.13	1.0
		Cadmium, Total	0.16	0.16	3.5	1.0
		Cobalt, Total	0.16u	0.15u	NC	1.0
		Chromium, Total	21.6	17.3	22.1	1.0
		Copper, Total	1.1	0.99	10.3	1.0
		Iron, Total	433	368	16.1	1.0
		Mercury, Total	0.03	0.03	0.00	1.0
		Potassium, Total	38.8 u	44.5	~~NC~~ * 200	1.0
		Magnesium, Total	19.4	17.6	9.7	1.0
		Manganese, Total	3.8	3.4	11.1	1.0
		Sodium, Total	200000	194000	3.1	12.0
		Nickel, Total	128	108	17.0	1.0
		Lead, Total	0.39	0.33	16.3	1.0
		Antimony, Total	0.24u	0.22u	NC	1.0
		Selenium, Total	0.47u	0.44u	NC	1.0
		Tin, Total	0.57	0.57	1.2	1.0
		Thallium, Total	0.47u	0.44u	NC	1.0
		Vanadium, Total	0.11u	0.10u	NC	1.0
		Zinc, Total	0.54	0.63	15.7	1.0
		Zirconium, Total	0.39u	0.37u	NC	1.0

* corrected RPD
aem 10/23/08

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/21/08

CLIENT: WC-HANFORD RC-088 K1371 LVL LOT #: 0810L042

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0374-LC1	Silver, LCS	95.2	100	MG/KG	95.2
		Aluminum, LCS	484	500	MG/KG	96.8
		Arsenic, LCS	909	1000	MG/KG	90.9
		Barium, LCS	475	500	MG/KG	94.9
		Beryllium, LCS	23.2	25.0	MG/KG	92.8
		Calcium, LCS	2380	2500	MG/KG	95.0
		Cadmium, LCS	23.1	25.0	MG/KG	92.4
		Cobalt, LCS	236	250	MG/KG	94.3
		Chromium, LCS	48.8	50.0	MG/KG	97.6
		Copper, LCS	119	125	MG/KG	94.9
		Iron, LCS	487	500	MG/KG	97.4
		Potassium, LCS	2210	2500	MG/KG	88.3
		Magnesium, LCS	2350	2500	MG/KG	93.9
		Manganese, LCS	72.3	75.0	MG/KG	96.4
		Sodium, LCS	2240	2500	MG/KG	89.7
		Nickel, LCS	190	200	MG/KG	94.8
		Lead, LCS	235	250	MG/KG	93.9
		Antimony, LCS	274	300	MG/KG	91.3
		Selenium, LCS	880	1000	MG/KG	88.0
		Tin, LCS	471	500	MG/KG	94.3
		Thallium, LCS	942	1000	MG/KG	94.2
		Vanadium, LCS	239	250	MG/KG	95.8
		Zinc, LCS	94.4	100	MG/KG	94.4
		Zirconium, LCS	469	500	MG/KG	93.8
LCS1	08C0183-LC1	Mercury, LCS	4.8	4.7	MG/KG	102.3

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0374
Date/Time Initiated: 10/13/08 1400
Date/Time Completed: ~~10/13/08~~ 10/14/08 1730
Analyst(s): MW W.E. MW 10/14/08
Matrix: (Soil) Water Other:
Instr. Type: AA (CP)
Parameters: see backlog

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

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

TMW

COC Batch # W.E. MW 10/13/08	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
08810L047-001		1.27gm	100ml	<2	TO	coarse	gray salt crystals	N/A	
001R		1.35gm							
001S	1.0ml	1.27gm							
0810L047-001		1.47gm					dark brown soil	rocks/grass	AA
001R		1.48gm							
001S	1.0ml	1.50gm							
0810L048-001		1.58gm						rocks	
001R		1.57gm							
001S	1.0ml	1.57gm							
002		1.50gm							
003		1.55gm							
004		1.59gm							
005		1.53gm							
08L0374-MB1		1.0gm					boiling chips	N/A	
LC1	1.0ml	1.0gm							

MW 10/13/08

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

Reagent IDs:
HNO_3 G11022
HCL G26054
H_2O_2 G15A18
1:1 HNO_3 9789-086-06
1:1 HCL

File ID#: IC037401 IC037403 IC037402 IC037404

LIMS Transfer: (Y) N updated

Data Review By/Date: MW 10/16/08

Lionville Laboratory
Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: TED
Date: 10/14/08
Start Time/Temp: 1540 | 94°
End Time/Temp: 1910 | 97°

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

Prep Batch: 08C0183
Worksheet: HG-121501
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	N60			10mL	50mL	
0.2 µg/L	303	0.100				
1.0	OLN	0.500				
2.0	3C	1.000				
5.0	3X	2.500				
10.0	e	5.000				
ICV	RZ	0.125	2.5			
CCV	40	0.250	5.0			
ICB/CCB	AB					9.50L
MB1	X0			0.30		PBS183 100.00
LC1	3	*	*	0.32		LCS5183
0810L047-001	194			0.33		
001R	GR			0.37		
001S	P0	0.500	1.0	0.33		
0810L047-001	508			0.34		R 95.93
001R	U7			0.33		
001S	2I	0.500	1.0	0.34		
0810L048-001	411			0.33		92.98
001R	3P0			0.30		
001S	PA	0.500	1.0	0.33		
002	55			0.30		92.84
003	C9			0.34		95.54
004	31			0.31		94.59
005	B			0.34		92.79
0810L052-001	CB2			0.33		97.97
001R	205			0.30		
001S	K17	0.500	1.0	0.33		

Standard:	ID	Prep Date/Time
CAL/MS	R16077-78-14B	10/14/08 1005
ICV/CCV/LCS	US6077-78-15A	

Reviewed By/Date: [signature] 10/16

see book # 9368 for std traceability information

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

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

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: TEB
Date: 10/14/08
Start Time/Temp:
End Time/Temp: see page 060

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

Prep Batch: 08C0183
Worksheet: HG-6501
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
08PL052-002	AN			0.33	50mL	98.75
003	S			0.38		98.63
004	JS			0.30		98.30
005	C7			0.34		98.42
006	UT			0.33		R 98.70
007	76			0.31		97.96
008	JB			0.32		94.92
08PL065-001	HH			0.37		100.00
001R	SE			0.33		
001S	X8	0.500	1.0	0.37		
08PL046-001	676			0.33		95.21
001R	B86			0.30		
001S	AH	0.500	1.0	0.33		
08PL051-001	A1			0.33		100.00
001R	L53			0.31		
001S	5T	0.500	1.0	0.33		
STD	Gd			0.30		100.00
	224			0.30		
	4B			0.30		
	Z			0.30		

5/10/10/14/08

Standard:	ID	Prep Date/Time
LCS/MS		
LCV/CCV/LCS	see page 060	

Reviewed By/Date: 10/16

see book # 9368 for std traceability information

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

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

Lionville Laboratory Use Only

08 10L042

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratories Inc

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

A

Client W.C. Hanford SAF# RC-088

Est. Final Proj. Sampling Date

Project# 60049-001-001-0000-00

Project Contact/Phone#

Lionville Laboratory Project Manager Arlette Johnson

QC SW846 Del STO TAT 12 Days

Date Rec'd 10-3-08 Date Due 10-15-08 WA 10-8-08

Refrigerator #			3													
#/Type Container	Liquid		1p													
#/Type Container	Solid															
Volume			500													
Preservatives			-													
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Met Metal	CN	SFD	Ign. +	IC Anions	PH		
									Lionville Laboratory Use Only							
			062514						Met①	ICNTU	ISFO	IIGN	IC①	IPH		

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb				Met①	ICNTU	ISFO	IIGN	IC①	IPH		
001	J17K38	✓	✓	X	10-1-08	1000		X						X	X	X	X	X	X		

Special Instructions: X = other soil

I ①① = CL, FL, SO4, PO4, NO2, NO3

10-9-08 Met① = HSL + Sn, Zr

Special Instructions:

1. Relog of 08 10L021-006
2. 10-9-08 Added Metals. WA
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
L.F.	[signature]	10-8-08	0820

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

000000017

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1371

DATE RECEIVED: 10/03/08 LVL LOT # :0810L042

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17K38	001	SO	08LE0506	10/01/08	10/14/08	10/15/08
J17K38	001 MS	SO	08LE0506	10/01/08	10/14/08	10/15/08
J17K38	001 MSD	SO	08LE0506	10/01/08	10/14/08	10/15/08
LAB QC:						
SBLKYS	MB1	S	08LE0506	N/A	10/14/08	10/15/08
SBLKYS	MB1 BS	S	08LE0506	N/A	10/14/08	10/15/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-088
LVL #: 0810L042
SDG/SAF # K1371 / RC-088

W.O. #: 60049-001-001-0001
Date Received: 10-03-2008

SEMIVOLATILE

One (1) solid sample was collected on 10-01-2008.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 10-14-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 10-15-2008.

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

1. The sample was extracted and analyzed within required hold time.
2. The solid sample was reported a wet weight basis due to matrix.
3. Non-target compounds were detected in these samples.
4. All surrogate recoveries were within acceptance criteria.
5. Eight (8) of one hundred and twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. Five (5) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been 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.

k:\group\data\bna\wc-hanford\0810-042ksol1.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 15 pages.

LIONVILLE LABORATORY INC.

9. Internal standard area retention time criteria were met.

10. 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").

11. Lionville Laboratory (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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10/21/02
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08MS230

Initiator: Sharon Saylor
Date: 10-13-08
Client: WC Hanford BC 088 K1371

Batch: 0810L042
Samples: ms, msd, BS
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: SOLID
Prep Batch: 08IE0506

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)

) <10% recovery of 2,4-dinitrophenol in the ms + BS

) low recovery of several spike analytes in the ms, msd, BS

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 other spikes and surrogates within acceptance criteria

3. Discussion and Proposed Action Other Description:

narrate

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

4. Project Manager Instructions...signature/date: Alec Johnson 10/16/08

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

5. Final Action...signature/date: [illegible] 10-20-08 Other Explanation:

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

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

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

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

QA-139-A-0208

GLOSSARY

DATA QUALIFIERS

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

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Semivolatiles by GC/MS, HSL List

RFW Batch Number: 0810L042 Client: WC-HANFORD RC-088 K1371 Work Order: 60049001001 Report Date: 10/15/08 22:36 Page: 1a

	Cust ID:	J17K38		J17K38		J17K38		SBLKYS		SBLKYS BS	
Sample Information	RFW#:	001		001 MS		001 MSD		08LE0506-MB1		08LE0506-MB1	
	Matrix:	SOLID		SOLID		SOLID		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	60	%	63	%	59	%	61	%	60	%
	2-Fluorobiphenyl	56	%	77	%	71	%	61	%	73	%
	Terphenyl-d14	80	%	87	%	86	%	112	%	98	%
	Phenol-d5	64	%	84	%	79	%	62	%	75	%
	2-Fluorophenol	63	%	81	%	75	%	65	%	71	%
	2,4,6-Tribromophenol	68	%	91	%	92	%	39	%	90	%
			fl		fl		fl		fl		fl
Phenol		330	U	82	%	80	%	330	U	72	%
bis(2-Chloroethyl)ether		330	U	86	%	82	%	330	U	78	%
2-Chlorophenol		330	U	74	%	73	%	330	U	66	%
1,3-Dichlorobenzene		330	U	63	%	61	%	330	U	61	%
1,4-Dichlorobenzene		330	U	64	%	60	%	330	U	59	%
1,2-Dichlorobenzene		330	U	67	%	63	%	330	U	64	%
2-Methylphenol		330	U	76	%	75	%	330	U	70	%
2,2'-oxybis(1-Chloropropane)		330	U	92	%	86	%	330	U	79	%
3/4 Methylphenol		330	U	78	%	75	%	330	U	69	%
N-Nitroso-di-n-propylamine		330	U	84	%	84	%	330	U	78	%
Hexachloroethane		330	U	66	%	61	%	330	U	61	%
Nitrobenzene		330	U	57	%	56	%	330	U	53	%
Isophorone		330	U	56 *	%	58 *	%	330	U	56 *	%
2-Nitrophenol		330	U	57	%	57	%	330	U	53	%
2,4-Dimethylphenol		330	U	59	%	56	%	330	U	54	%
bis(2-Chloroethoxy)methane		330	U	71	%	70	%	330	U	68	%
2,4-Dichlorophenol		330	U	56	%	60	%	330	U	54	%
1,2,4-Trichlorobenzene		330	U	54 *	%	52 *	%	330	U	52 *	%
Naphthalene		330	U	54	%	53	%	330	U	54	%
4-Chloroaniline		330	U	62	%	62	%	330	U	61	%
Hexachlorobutadiene		330	U	57	%	53	%	330	U	54	%
4-Chloro-3-methylphenol		330	U	62	%	66	%	330	U	63	%
2-Methylnaphthalene		330	U	58 *	%	56 *	%	330	U	58 *	%
Hexachlorocyclopentadiene		330	U	61	%	60	%	330	U	61	%
2,4,6-Trichlorophenol		330	U	78	%	80	%	330	U	73	%
2,4,5-Trichlorophenol		830	U	82	%	87	%	830	U	78	%

*= Outside of EPA CLP QC limits.

0000000008

Cust ID:	J17K38		J17K38		J17K38		SBLKYS		SBLKYS BS	
RFW#:	001		001 MS		001 MSD		08LE0506-MB1		08LE0506-MB1	
2-Chloronaphthalene	330	U	70	%	71	%	330	U	69	%
2-Nitroaniline	830	U	84	%	90	%	830	U	81	%
Dimethylphthalate	330	U	86	%	92	%	330	U	91	%
Acenaphthylene	330	U	76	%	76	%	330	U	74	%
2,6-Dinitrotoluene	330	U	72	%	77	%	330	U	78	%
3-Nitroaniline	830	U	94	%	95	%	830	U	93	%
Acenaphthene	330	U	74	%	74	%	330	U	73	%
2,4-Dinitrophenol	830	U	9 *	%	12 *	%	830	U	3 *	%
4-Nitrophenol	830	U	77	%	83	%	830	U	79	%
Dibenzofuran	330	U	77	%	78	%	330	U	74	%
2,4-Dinitrotoluene	330	U	79	%	82	%	330	U	85	%
Diethylphthalate	330	U	89	%	95	%	330	U	99	%
4-Chlorophenyl-phenylether	330	U	84	%	86	%	330	U	86	%
Fluorene	330	U	77	%	78	%	330	U	78	%
4-Nitroaniline	830	U	84	%	95	%	830	U	91	%
4,6-Dinitro-2-methylphenol	830	U	57	%	68	%	830	U	31 *	%
N-Nitrosodiphenylamine (1)	330	U	75	%	79	%	330	U	79	%
4-Bromophenyl-phenylether	330	U	80	%	82	%	330	U	80	%
Hexachlorobenzene	330	U	82	%	84	%	330	U	85	%
Pentachlorophenol	830	U	72	%	77	%	830	U	46	%
Phenanthrene	330	U	79	%	81	%	330	U	80	%
Anthracene	330	U	81	%	83	%	330	U	82	%
Carbazole	330	U	79	%	75	%	330	U	86	%
Di-n-butylphthalate	47	JB	95	%	99	%	30	J	102	%
Fluoranthene	330	U	87	%	89	%	330	U	90	%
Pyrene	330	U	77	%	78	%	330	U	85	%
Butylbenzylphthalate	330	U	93	%	98	%	330	U	107	%
3,3'-Dichlorobenzidine	330	U	78	%	78	%	330	U	87	%
Benzo(a)anthracene	330	U	77	%	80	%	330	U	85	%
Chrysene	330	U	79	%	82	%	330	U	86	%
bis(2-Ethylhexyl)phthalate	110	JB	92	%	105	%	180	J	104	%
Di-n-octyl phthalate	330	U	87	%	91	%	330	U	99	%
Benzo(b)fluoranthene	330	U	77	%	78	%	330	U	85	%
Benzo(k)fluoranthene	330	U	73	%	74	%	330	U	81	%
Benzo(a)pyrene	330	U	72	%	75	%	330	U	80	%
Indeno(1,2,3-cd)pyrene	330	U	73	%	78	%	330	U	80	%
Dibenz(a,h)anthracene	330	U	75	%	81	%	330	U	84	%
Benzo(g,h,i)perylene	330	U	75	%	80	%	330	U	84	%

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

000000009

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J17K38

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

Client: WC-HANFORD RC-088 K1371

Matrix: (soil/water) SOLID

Lab Sample ID: 0810L042-001

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

Lab File ID: D101511

Level: (low/med) LOW

Date Received: 10/03/08

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

Date Extracted: 10/14/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/15/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	24.630	70	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKYS

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

Client: WC-HANFORD RC-088 K1371

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0506-MB1

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

Lab File ID: D101510

Level: (low/med) LOW

Date Received: 10/14/08

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

Date Extracted: 10/14/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/15/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

Lionville Laboratory Use Only

08 10L042

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

000000012

Client W.C. Hanford SAF# RC-088

est. Final Proj. Sampling Date

Project# 60049-001-001-0000-00

Project Contact/Phone#

Lionville Laboratory Project Manager Arlette Johnson

QC SW846 Del STD TAT 12 Days

Date Rec'd 10-3-08 Date Due 10-15-08 wk 10-8-08

Refrigerator #			A	3														
#/Type Container	Liquid			1p														
	Solid																	
Volume				500														
Preservatives				-														
ANALYSES REQUESTED →			ORGANIC							INORG								
			VOA	BNA	Pest/PCB	Herb				Metal	CN	SFD	Ignit	Anions	PH			
			Lionville Laboratory Use Only															
				062514						Met(1)	ICAT0	ISED	IIGN	ICD	IPH			

MATRIX CODES: S- Soil, E- Sediment, O- Solid, L- Sludge, W- Water, - Oil, - Air, DS- Drum Solids, DL- Drum Liquids, - EP/TCLP, - Leachate, W- Wipe, - Other, - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb				Met(1)	ICAT0	ISED	IIGN	ICD	IPH		
001	J17K38	✓	✓	X	10-1-08	1000		X						X	X	X	X	X	X		

Special Instructions: X = other soil

I CD = CL, FL, SO4, PO4, NO2, NO3

10-9-08 Met(1) = HSL + Sn, Zr

Special Instructions:

1. Relog of 08 10L021-006
2. 10-9-08 Added Metals. wk
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
L.F.	[signature]	10-8-08	0820

Relinquished by	Received by	Date	Time

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

Laboratory Use Only

710L 021

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

000000013

W.C. HANFORD SAF# RC-088

Proj. Sampling Date 60049-001-001-0001-00

Contact/Phone#

Laboratory Project Manager O. JOHNSON

J846 Del STD TAT 2 DAY

Rec'd 10-3-08 Date Due 10-10-08

		A	B									C				
Refrigerator #		6	3									3				
#/Type Container	Liquid															
	Solid	1G	1G									1P				
Volume		40	250									500				
Preservatives																
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest PCB	Herb				TCP Metal	Hg	TOC	FILTER	IC ANIONS	PH	ELEC	

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260	8270	OPCS				MetO		FILTER	IC	IPH	ISFO		
001	J17HN3			OTHER	9-24-08	0925	X	X	X				X		X					
002	J17HN4					0950	X	X	X				X		X					
003	J17HN5					1030	X	X	X				X		X					
004	J17HN6					1300	X	X	X				X		X					
005	J17HN7					1320	X	X	X				X		X					
006	J17K38			OTHER	10-1-08	1000		X					X	X	X	X	X	X		

Instructions: OTHER = SOIL

MetO = HSL+Sn, Zr

IC O = CL, FL, SO4, PO4, NO2, NO3

Special Instructions:

#006C 1. ALL TEST FROM BOTTLE C.

2.

3.

4.

5.

6.

Run matrix QC

Relinquished by	Received by	Date	Time
EC	[signature]	10/3/08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

Vashington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-091

ctor
Stephens

Company Contact: Joan Kessner
Telephone No.: 509-375-4688
Project Coordinator: KESSNER, JH
Price Code:
Data Turnaround: ~~15~~ 7 Days RJC 10/1/08

ct Designation
3-7 Burial Ground - Other

Sampling Location: 618-7 Burial Ground (Tank w/hinged lid)
SAF No.: RC-088

hest No.: AFS-04-124
Field Logbook No.: EL-1395-13
COA: RG61878500
Method of Shipment: FED EX

ed To
ERLINE SERVICES / ~~LIONVILLE~~
Offsite Property No.: A090026
Bill of Lading/Air Bill No.: SEE OSPC

SIBLE SAMPLE ~~HAZARDS/REMARKS~~
ntial Radioactive contamination.

cial Handling and/or Storage

Preservation	Cool 4C	None	Cool 4C	None	Cool 4C	None	None			
Type of Container	P	P	P	P	P	P	P			
No. of Container(s)	0	1	0	0	0	0	1			
Volume	125mL	500mL	60mL	60mL	100mL	60mL	100mL			
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	See item (1) in Special Instructions.	Cyanide (Total) - 335.2; Sulfides - 9030	Ignitability - 1010	IC Anions - 300.0	pH (Soil) - 9045	See item (2) in Special Instructions. RJC 10/1/08			

Sample No.	Matrix *	Sample Date	Sample Time									
38	OTHER	10/1/08	1000	X	X	X	X	X	X		3S TANK W/ HINGED LID.	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Stephens TCBS/SAD	10/1/08 1410	RT Coffman / RT Coffman	10/1/08 1410
Coffman / RT Coffman	10/1/08 1500	Refer #1B, 1060	10/1/08 1500
Refer 1B / J.E. Bernhard	10-2-08 1000	J.E. Bernhard	10-2-08 1000
J.E. Bernhard WEA	10-2-08 1015	FED EX	
FED EX	10-3-08 0935	[illegible] Hernandez	10-3-08 0935

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) (Aluminum, Antimony, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc); ICP Metals - 6010A (Add-on) (Arsenic, Lead, Selenium, Thallium, Tin, Zirconium); Mercury - 7471 - (CV)
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Uranium; Isotopic Thorium; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr

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

ORATORY CTION	Received By	Title	Date/Time
L SAMPLE POSITION	Disposal Method	Disposed By	Date/Time

EE-011

000000014

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. HANFORD
Project/SAP/SOW/Release #: RC-088

Date: 10/3/08

LvLI Batch #: 08101L021

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered ~~or Shipped?~~	Carrier Fed Ex		Airbill # 791153750427 791963095404
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 2-7° 2-2°	°C	Cooler # ERC-99-056 AFS-04-124
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☑ Yes	☐ No	☐ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LVLI