0079353

SAF-RC-052
Remaining Sites Confirmation Sampling - Water
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

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

COMMENTS:

SDG K1374 **SAF-RC-052**

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 100-H-28:7

RECEIVED
NOV 24 2008
EDMC

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
Richmond, California 94804-3849
Phone (510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
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October 17, 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 R8-10-039-7716, SDG K1374

Dear Ms. Kessner:

Enclosed is the data report for one water sample designated under SAF No. RC-052 received at Eberline Services on October 3, 2008. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1374 was composed of one water sample designated under SAF No. RC-052 with a Project Designation of: Remaining Sites Confirmation Sampling-Water.

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 17, 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 Total Uranium Analysis

No problems were encountered during the course of the analyses.

2.3 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

10/17/8

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 K1374

SDG	7716
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1374

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

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

About this section	1
Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	7
Lab Control Samples	8
Duplicates	9
Data Sheets	10
Method Summaries	11
Report Guides	15
End of Section	29

Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	10/20/08

SDG 7716
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1374

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 10/20/08

SDG 7716
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1374

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

LAB SAMPLE SUMMARY

SDG 7716
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1374

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R810039-01	J17JX9	100-H28:7	WATER		RC-052	RC-052-010	10/01/08 08:45
R810039-02	Lab Control Sample		WATER		RC-052		
R810039-03	Method Blank		WATER		RC-052		
R810039-04	Duplicate (R810039-01)	100-H28:7	WATER		RC-052		10/01/08 08:45

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

QC SUMMARY

SDG 7716
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1374

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7716	RC-052-010	J17JX9	WATER		2.95 L		10/03/08	2	R810039-01	7716-001
		Method Blank	WATER						R810039-03	7716-003
		Lab Control Sample	WATER						R810039-02	7716-002
		Duplicate (R810039-01)	WATER		2.95 L		10/03/08	2	R810039-04	7716-004

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

SDG 7716
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1374

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
93A	WATER	Gross Alpha in Water	6169-140	20.6	1			1	1	1/1		
93B	WATER	Gross Beta in Water	6169-140	11.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	WATER	Gamma Emitters	6169-140	7.0	1			1	1	1/1		
Kinetic Phosphorimetry, ug												
U_T	WATER	Uranium, Total in Water	6169-140		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 10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

SDG 7716
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1374

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R810039-01	J17JX9			7716-001	93A/93		10/13/08	10/14/08	BW	Gross Alpha in Water
10/01/08	100-H28:7		WATER	7716-001	93B/93		10/13/08	10/14/08	BW	Gross Beta in Water
10/03/08	RC-052-010	RC-052		7716-001	GAM		10/10/08	10/14/08	CSS	Gamma Emitters
				7716-001	U_T		10/15/08	10/16/08	MWT	Uranium, Total in Water
R810039-02	Lab Control Sample			7716-002	93A/93		10/13/08	10/14/08	BW	Gross Alpha in Water
			WATER	7716-002	93B/93		10/13/08	10/14/08	BW	Gross Beta in Water
		RC-052		7716-002	GAM		10/10/08	10/14/08	CSS	Gamma Emitters
				7716-002	U_T		10/15/08	10/16/08	MWT	Uranium, Total in Water
R810039-03	Method Blank			7716-003	93A/93		10/13/08	10/14/08	BW	Gross Alpha in Water
			WATER	7716-003	93B/93		10/13/08	10/14/08	BW	Gross Beta in Water
		RC-052		7716-003	GAM		10/10/08	10/14/08	CSS	Gamma Emitters
				7716-003	U_T		10/15/08	10/16/08	MWT	Uranium, Total in Water
R810039-04	Duplicate (R810039-01)			7716-004	93A/93		10/13/08	10/14/08	BW	Gross Alpha in Water
10/01/08	100-H28:7		WATER	7716-004	93B/93		10/13/08	10/14/08	BW	Gross Beta in Water
10/03/08		RC-052		7716-004	GAM		10/11/08	10/14/08	CSS	Gamma Emitters
				7716-004	U_T		10/15/08	10/16/08	MWT	Uranium, Total in Water

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-052	Gross Alpha in Water	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	RC-052	Gross Beta in Water	900.0_ALPHABETA_GPC	1			1	1	1	4
GAM	RC-052	Gamma Emitters	GAMMA_GS	1			1	1	1	4
U_T	RC-052	Uranium, Total in Water	UTOT_KPA	1			1	1	1	4
TOTALS				4			4	4	4	16

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

7716-003 Method Blank

METHOD BLANK

SDG	7716	Client/Case no	Hanford	SDG K1374	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R810039-03	Client sample id	Method Blank		
Dept sample id	7716-003	Material/Matrix		WATER	
		SAF No	RC-052		

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.337	1.3	2.74	3.00	U	93A
Gross Beta	12587-47-2	-0.416	1.1	1.91	4.00	U	93B
Total Uranium (ug/L)	7440-61-1	0.001	0.016	0.038	1.00	U	U_T
Potassium 40	13966-00-2	U		149		U	GAM
Cobalt 60	10198-40-0	U		8.24	25.0	U	GAM
Cesium 137	10045-97-3	U		7.99	15.0	U	GAM
Radium 226	13982-63-3	U		15.7		U	GAM
Radium 228	15262-20-1	U		33.8		U	GAM
Europium 152	14683-23-9	U		22.9	50.0	U	GAM
Europium 154	15585-10-1	U		24.1	50.0	U	GAM
Europium 155	14391-16-3	U		23.2	50.0	U	GAM
Thorium 228	14274-82-9	U		12.7		U	GAM
Thorium 232	TH-232	U		33.8		U	GAM
Uranium 235	15117-96-1	U		34.5		U	GAM
Uranium 238	U-238	U		985		U	GAM
Americium 241	14596-10-2	U		56.3		U	GAM
Beryllium 7	13966-02-4	U		57.0		U	GAM
Ruthenium 106	13967-48-1	U		61.2		U	GAM
Antimony 125	14234-35-6	U		18.5		U	GAM
Cesium 134	13967-70-9	U		7.95		U	GAM

Remaining SitesConfirmSampling-Water

QC-BLANK #67581

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

7716-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7716

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1374

Contract No. S00W235A00

Lab sample id R810039-02

Dept sample id 7716-002

Client sample id Lab Control Sample

Material/Matrix WATER

SAF No RC-052

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	35.3	6.1	4.91	3.00		93A	34.0	1.4	104	58-142	70-130
Gross Beta	29.8	2.5	2.01	4.00		93B	30.8	1.2	97	79-121	80-120
Total Uranium (ug/L)	83.0	11	0.382	1.00		U_T	82.5	3.3	101	79-121	80-120
Cobalt 60	424	20	13.7	25.0		GAM	412	16	103	86-114	80-120
Cesium 137	492	18	13.8	15.0		GAM	464	19	106	86-114	80-120

Remaining SitesConfirmSampling-Water

QC-LCS #67580

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

7716-004 J17JX9

DUPLICATE

SDG	7716	Client/Case no	Hanford SDG K1374
Contact	Melissa C. Mannion	Contract	No. S00W235A00
DUPLICATE		ORIGINAL	
Lab sample id	R810039-04	Lab sample id	R810039-01
Dept sample id	7716-004	Dept sample id	7716-001
		Received	10/03/08
Client sample id	J17JX9		
Location/Matrix	100-H28:7		WATER
Collected/Volume	10/01/08 08:45		2.95 L
Custody/SAF No	RC-052-010		RC-052

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	0.101	0.45	0.882	3.00	U	93A	0.364	0.78	1.33	U	-		0.6
Gross Beta	1.91	1.2	1.85	4.00		93B	1.08	1.1	1.80	U	56	165	1.0
Total Uranium (ug/L)	0.078	0.020	0.038	1.00		U_T	0.092	0.020	0.038		16	50	1.0
Potassium 40	U		162		U	GAM	U		91.4	U	-		0.8
Cobalt 60	U		6.97	25.0	U	GAM	U		4.04	U	-		0.7
Cesium 137	U		7.46	15.0	U	GAM	U		4.34	U	-		0.7
Radium 226	U		17.7		U	GAM	U		10.0	U	-		0.8
Radium 228	U		37.7		U	GAM	U		20.5	U	-		0.8
Europium 152	U		23.6	50.0	U	GAM	U		12.9	U	-		0.8
Europium 154	U		21.6	50.0	U	GAM	U		12.9	U	-		0.7
Europium 155	U		29.4	50.0	U	GAM	U		16.5	U	-		0.8
Thorium 228	U		28.9		U	GAM	U		8.78	U	-		1.3
Thorium 232	U		37.7		U	GAM	U		20.5	U	-		0.8
Uranium 235	U		41.0		U	GAM	U		22.4	U	-		0.8
Uranium 238	U		855		U	GAM	U		498	U	-		0.7
Americium 241	U		31.3		U	GAM	U		17.8	U	-		0.7
Beryllium 7	U		64.7		U	GAM	U		36.1	U	-		0.8
Ruthenium 106	U		59.6		U	GAM	U		37.4	U	-		0.6
Antimony 125	U		18.5		U	GAM	U		10.4	U	-		0.8
Cesium 134	U		10.2		U	GAM	U		5.43	U	-		0.8

Remaining SitesConfirmSampling-Water

QC-DUP#1 67582

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

7716-001 J17JX9

DATA SHEET

SDG	7716	Client/Case no	Hanford	SDG K1374	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R810039-01	Client sample id	J17JX9		
Dept sample id	7716-001	Location/Matrix	100-H28:7	WATER	
Received	10/03/08	Collected/Volume	10/01/08 08:45	2.95 L	
		Custody/SAF No	RC-052-010	RC-052	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.364	0.78	1.33	3.00	U	93A
Gross Beta	12587-47-2	1.08	1.1	1.80	4.00	U	93B
Total Uranium (ug/L)	7440-61-1	0.092	0.020	0.038	1.00		U_T
Potassium 40	13966-00-2	U		91.4		U	GAM
Cobalt 60	10198-40-0	U		4.04	25.0	U	GAM
Cesium 137	10045-97-3	U		4.34	15.0	U	GAM
Radium 226	13982-63-3	U		10.0		U	GAM
Radium 228	15262-20-1	U		20.5		U	GAM
Europium 152	14683-23-9	U		12.9	50.0	U	GAM
Europium 154	15585-10-1	U		12.9	50.0	U	GAM
Europium 155	14391-16-3	U		16.5	50.0	U	GAM
Thorium 228	14274-82-9	U		8.78		U	GAM
Thorium 232	TH-232	U		20.5		U	GAM
Uranium 235	15117-96-1	U		22.4		U	GAM
Uranium 238	U-238	U		498		U	GAM
Americium 241	14596-10-2	U		17.8		U	GAM
Beryllium 7	13966-02-4	U		36.1		U	GAM
Ruthenium 106	13967-48-1	U		37.4		U	GAM
Antimony 125	14234-35-6	U		10.4		U	GAM
Cesium 134	13967-70-9	U		5.43		U	GAM

Remaining SitesConfirmSampling-Water

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

Test 93A	Matrix WATER
SDG 7716	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. S00W235A00	
Contract SDG K1374	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha	
Preparation batch 6169-140						
R810039-01	93		7716-001	J17JX9	U	
R810039-02	93		7716-002	Lab Control Sample	ok	
R810039-03	93		7716-003	Method Blank	U	
R810039-04	93		7716-004	Duplicate (R810039-01)	-	U

Nominal values and limits from method RDLs (pCi/L) 3.00

Remaining SitesConfirmSampling-Water

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6169-140			2σ prep error 20.6 %	Reference Lab Notebook #6169, pg. 140												
R810039-01	93		J17JX9	1.33	0.300			15		100			12	10/13/08	10/13	GRB-109
R810039-02	93		Lab Control Sample	4.91	0.300			61		100				10/13/08	10/13	GRB-110
R810039-03	93		Method Blank	2.74	0.300			60		100				10/13/08	10/13	GRB-111
R810039-04	93		Duplicate (R810039-01)	0.882	0.300			15		100			12	10/13/08	10/13	GRB-112
Nominal values and limits from method				3.00	0.300			5-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-007	Aqueous Sample Receipt by Chemistry Laboratory, rev 0
	SPP-120	Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD	MDA	2.47	± 3.62
FOR 4 SAMPLES	RESIDUE	38	± 53

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

Test 93B Matrix WATER
SDG 7716
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1374

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 6169-140					
R810039-01	93		7716-001	J17JX9	U
R810039-02	93		7716-002	Lab Control Sample	ok
R810039-03	93		7716-003	Method Blank	U
R810039-04	93		7716-004	Duplicate (R810039-01)	ok
Nominal values and limits from method				RDLs (pCi/L)	4.00

Remaining SitesConfirmSampling-Water

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6169-140			2σ prep error 11.0 % Reference Lab Notebook #6169, pg. 140													
R810039-01	93		J17JX9	1.80	0.300			15		100			12	10/13/08	10/13	GRB-109
R810039-02	93		Lab Control Sample	2.01	0.300			61•		100				10/13/08	10/13	GRB-110
R810039-03	93		Method Blank	1.91	0.300			60		100				10/13/08	10/13	GRB-111
R810039-04	93		Duplicate (R810039-01)	1.85	0.300			15		100			12	10/13/08	10/13	GRB-112
Nominal values and limits from method				4.00	0.300			5-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-007	Aqueous Sample Receipt by Chemistry Laboratory, rev 0
	SPP-120	Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 1.89 ± 0.181
RESIDUE 38 ± 53

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

Test	GAM Matrix WATER
SDG	7716
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA EMITTERS

GAMMA SPECTROSCOPY

Client	Hanford
Contract	No. S00W235A00
Contract	SDG K1374

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 6169-140								
R810039-01			7716-001	J17JX9	U		U	
R810039-02			7716-002	Lab Control Sample	ok		ok	
R810039-03			7716-003	Method Blank	U		U	
R810039-04			7716-004	Duplicate (R810039-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/L)	25.0		15.0	
Remaining SitesConfirmSampling-Water								

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6169-140			2σ prep error 7.0 %	Reference Lab Notebook #6169, pg. 140												
R810039-01			J17JX9	28.2	0.500					940			9	10/04/08	10/10	01,02,00
R810039-02			Lab Control Sample	13.8	0.500					940				10/04/08	10/10	MB,06,00
R810039-03			Method Blank	37.7	0.500					940				10/04/08	10/10	MB,05,00
R810039-04			Duplicate (R810039-01)	50.4	0.500					303			10	10/04/08	10/11	01,02,00
Nominal values and limits from method				15.0	0.500					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	SPP-007	Aqueous Sample Receipt by Chemistry Laboratory, rev 0
	SPP-100	Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD FOR 4 SAMPLES	MDA	32.5	± 30.9
	YIELD		±

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/20/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1374

Test U T Matrix WATER
SDG 7716
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, TOTAL IN WATER

KINETIC PHOSPHORIMETRY, UG

Client Hanford
Contract No. S00W235A00
Contract SDG K1374

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Uranium
Preparation batch 6169-140					
R810039-01			7716-001	J17JX9	0.092
R810039-02			7716-002	Lab Control Sample	ok
R810039-03			7716-003	Method Blank	U
R810039-04			7716-004	Duplicate (R810039-01)	ok

Nominal values and limits from method RDLs (ug/L) 1.00
Remaining SitesConfirmSampling-Water

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA ug/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6169-140			2σ prep error		Reference Lab Notebook #6169, pg. 140											
R810039-01			J17JX9	0.038	0.0200								14	10/15/08	10/15	KPA-001
R810039-02			Lab Control Sample	0.382	0.0200									10/15/08	10/15	KPA-001
R810039-03			Method Blank	0.038	0.0200									10/15/08	10/15	KPA-001
R810039-04			Duplicate (R810039-01)	0.038	0.0200								14	10/15/08	10/15	KPA-001
Nominal values and limits from method				1.00	0.0200								180			

PROCEDURES	REFERENCE	UTOT_KPA
	CP-929	Calibration of the Kinetic Phosphorimeter, rev 9
	SPP-062	Sample Aliquoting, rev 0
	CP-928	Total Uranium by Kinetic Phosphorimetry, rev 8

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.124 ± 0.344
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/20/08

SDG 7716
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1374

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 10/20/08

SDG 7716
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1374

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 10/20/08

SDG 7716
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1374

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 10/20/08

SDG 7716
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1374

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/20/08

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 7716
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1374

DATA SHEET

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/20/08

SDG 7716
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1374

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 10/20/08

SDG 7716
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1374

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 10/20/08

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 7716
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1374

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 10/20/08

SDG 7716
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1374

MATRIX SPIKE

for the recovery.

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/20/08

SDG 7716
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1374

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/20/08

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-052-010	Page 1 of 1

Collector Welch-Koelling	Company Contact Bill Hudson	Telephone No. 372-9695 K1374	Project Coordinator KESSNER, JH	Price Code 7G	Data Turnaround 15 Days
Project Designation Remaining Sites Confirmation Sampling - Water	Sampling Location 100-H-28:7 (7716)		SAF No. RC-052		
Ice Chest No. ERC-02-405	Field Logbook No. EL-1601-2	COA C00H28A000	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES/ LIONVILLE	Offsite Property No. A090011		Bill of Lading/Air Bill No. SEE DSPL		

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	P		
No. of Container(s)	1	1 BH 10/1/08	2	1	2	3	2	1		
Volume	1000mL	~~100mL~~ 500mL	1000mL	500mL	1000mL	1000mL	1000mL	250mL		

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	Total Uranium	Gross Alpha; Gross Beta	See item (2) in Special Instructions.	PCBs - 8082	Pesticides - 8081	PAHs - 8310	See item (3) in Special Instructions.		
~~J17JX7~~	WATER												
~~J17JX8~~ BH 10/1/08	WATER												
J17JX9	WATER	10/1/08	0845	x	x	x							
~~J17JY0~~	WATER												
~~J17JY1~~ BH 10/1/08	WATER												

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: T. Wright Koelling	10/1/08 1546	Received By/Stored In: B Hudson B Hudson 10/1/08	1546
Relinquished By/Removed From: Bill Hudson Bill Hudson 10/1/08	1645	Received By/Stored In: 1060 #3C 10/1/08	1645
Relinquished By/Removed From: 1060 3C/J.E. Bernhard	10-2-08 1000	Received By/Stored In: J.E. Bernhard	10-2-08 1000
Relinquished By/Removed From: J.E. Bernhard	10-2-08 1015	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX		Received By/Stored In:	10/03/08 09:00
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

(3) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040

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

ESERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

HK 10/2/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 10/03/08 09:00 CoC No. RC-052-010

Container I.D. No. ERC-02-405 Requested TAT (Days) 15 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 1 Sample Matrix W
7. Number of containers per sample: 3 (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 [X] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date: 10/02/08 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
J17JX9	<60						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 10/01/08

LvLI
LIONVILLE LABORATORY INC.

RECEIVED
NOV 2008

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	0810L026
SDG #	K1374
SAF #	RC-052
Date Received	10/03/08
# Samples	1
Matrix	WATER
Volatiles	
Semivolatiles	
Pest/PCB	X
PAH	X
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory 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
NOV 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-052 K1374

DATE RECEIVED: 10/03/08 LVL LOT # :0810L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
J17JX9							
BROMIDE BY IC	001	W	08LICC79	10/01/08	10/13/08	10/14/08	
BROMIDE BY IC	001 REP	W	08LICC79	10/01/08	10/13/08	10/14/08	
BROMIDE BY IC	001 MS	W	08LICC79	10/01/08	10/13/08	10/14/08	
CHLORIDE BY IC	001	W	08LICA79	10/01/08	10/13/08	10/14/08	
CHLORIDE BY IC	001 REP	W	08LICA79	10/01/08	10/13/08	10/14/08	
CHLORIDE BY IC	001 MS	W	08LICA79	10/01/08	10/13/08	10/14/08	
FLUORIDE BY IC	001	W	08LIC079	10/01/08	10/13/08	10/14/08	
FLUORIDE BY IC	001 REP	W	08LIC079	10/01/08	10/13/08	10/14/08	
FLUORIDE BY IC	001 MS	W	08LIC079	10/01/08	10/13/08	10/14/08	
NITRITE BY IC	001	W	08LICB79	10/01/08	10/13/08	10/14/08	1311
NITRITE BY IC	001 REP	W	08LICB79	10/01/08	10/13/08	10/14/08	1326
NITRITE BY IC	001 MS	W	08LICB79	10/01/08	10/13/08	10/14/08	1341
NITRATE BY IC	001	W	08LICD79	10/01/08	10/13/08	10/14/08	1311
NITRATE BY IC	001 REP	W	08LICD79	10/01/08	10/13/08	10/14/08	1326
NITRATE BY IC	001 MS	W	08LICD79	10/01/08	10/13/08	10/14/08	1341
PHOSPHATE BY IC	001	W	08LICE79	10/01/08	10/13/08	10/14/08	1311
PHOSPHATE BY IC	001 REP	W	08LICE79	10/01/08	10/13/08	10/14/08	1326
PHOSPHATE BY IC	001 MS	W	08LICE79	10/01/08	10/13/08	10/14/08	1341
SULFATE BY IC	001	W	08LICF79	10/01/08	10/13/08	10/14/08	
SULFATE BY IC	001 REP	W	08LICF79	10/01/08	10/13/08	10/14/08	
SULFATE BY IC	001 MS	W	08LICF79	10/01/08	10/13/08	10/14/08	
NITRITE	001	W	08LN3030	10/01/08	10/12/08	10/12/08	1009
NITRITE	001 REP	W	08LN3030	10/01/08	10/12/08	10/12/08	⊥
NITRITE	001 MS	W	08LN3030	10/01/08	10/12/08	10/12/08	⊥
NITRATE	001	W	08LN3030	10/01/08	10/12/08	10/12/08	1649
NITRATE	001 REP	W	08LN3030	10/01/08	10/12/08	10/12/08	⊥
NITRATE	001 MS	W	08LN3030	10/01/08	10/12/08	10/12/08	⊥
PH	001	W	08LPH053	10/01/08	10/03/08	10/03/08	1352
PH	001 REP	W	08LPH053	10/01/08	10/03/08	10/03/08	1354

LAB QC:

BROMIDE BY IC	MB1	W	08LICC79	N/A	10/13/08	10/13/08
BROMIDE BY IC	MB1 BS	W	08LICC79	N/A	10/13/08	10/13/08
CHLORIDE BY IC	MB1	W	08LICA79	N/A	10/13/08	10/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-052 K1374

DATE RECEIVED: 10/03/08 LVL LOT # :0810L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	MB1 BS	W	08LICA79	N/A	10/13/08	10/13/08
FLUORIDE BY IC	MB1	W	08LIC079	N/A	10/13/08	10/13/08
FLUORIDE BY IC	MB1 BS	W	08LIC079	N/A	10/13/08	10/13/08
NITRITE BY IC	MB1	W	08LICB79	N/A	10/13/08	10/13/08
NITRITE BY IC	MB1 BS	W	08LICB79	N/A	10/13/08	10/13/08
NITRATE BY IC	MB1	W	08LICD79	N/A	10/13/08	10/13/08
NITRATE BY IC	MB1 BS	W	08LICD79	N/A	10/13/08	10/13/08
PHOSPHATE BY IC	MB1	W	08LICE79	N/A	10/13/08	10/13/08
PHOSPHATE BY IC	MB1 BS	W	08LICE79	N/A	10/13/08	10/13/08
SULFATE BY IC	MB1	W	08LICF79	N/A	10/13/08	10/13/08
SULFATE BY IC	MB1 BS	W	08LICF79	N/A	10/13/08	10/13/08
NITRITE	MB1	W	08LN3030	N/A	10/12/08	10/12/08
NITRITE	MB1 BS	W	08LN3030	N/A	10/12/08	10/12/08
NITRATE	MB1	W	08LN3030	N/A	10/12/08	10/12/08
NITRATE	MB1 BS	W	08LN3030	N/A	10/12/08	10/12/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-052 K1374
LVL#: 0810L026

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

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.

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

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

3. Sample holding times as required by the method and/or contract were met with the exception of Nitrite, Nitrate, Phosphate and pH (see the sample chronology summary for analyses times for short hold samples).

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of pH as noted on the Sample Receipt Checklist.

5. The method blanks were within the method criteria.

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

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

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

9. 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

10/28/08
Date

njp\i10-026

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 12 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	___ 305.1		
__Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chromatography:			
✓ Bromide ✓ Chloride ✓ Fluoride	✓ 300.0	___ 9056	
✓ Nitrate ✓ Nitrite ✓ Phosphate	✓ 300.0	___ 9056	
✓ Sulfate ✓ Formate ___Acetate ___Oxalate	✓ 300.0	___ 9056	
Chloride 10-2-08	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chlorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (l
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
Hardness, Calcium	___ 215.2		
Hardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	___ 425.1		
__Nitrate-Nitrite ✓ Nitrate ✓ Nitrite	✓ 353.2		
Ammonia	___ 350.3		
Total___ Kjeldahl ___ Organic Nitrogen	___ 351.3		
Total___ Organic ___ Inorganic Carbon	___ 415.1	___ 9060	
Oil & Grease	___ 413.1	___ 9070	
✓ pH ____ pH; paper	___ 150.1	✓ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
__Ortho ___Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1	___ 9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		___ Section 7.3 (__9014__9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach		___ 1312	
Total ___Dissolved __Suspended ___Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	___ 450.1	___ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
_Total __Dissolved __Suspended	___ 160.4		
Other:		Method:	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/21/08

CLIENT: WC-HANFORD RC-052 K1374 LVL LOT #: 0810L026

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17JX9	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.25 u	MG/L	0.25	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
		Nitrite, as N	0.020u	MG/L	0.020	1.0
		Nitrate, as N	0.020u	MG/L	0.020	1.0
		pH	6.6	PH UNIT	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/21/08

CLIENT: WC-HANFORD RC-052 K1374 LVL LOT #: 0810L026

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LICC79-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
BLANK10	08LICA79-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0
BLANK10	08LIC079-MB1	Fluoride by IC	0.25 u	MG/L	0.25	1.0
BLANK10	08LICB79-MB1	Nitrite by IC	0.25 u	MG/L	0.25	1.0
BLANK10	08LICD79-MB1	Nitrate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	08LICE79-MB1	Phosphate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	08LICF79-MB1	Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	08LN3030-MB1	Nitrite, as N	0.020u	MG/L	0.020	1.0
		Nitrate, as N	0.020u	MG/L	0.020	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/21/08

CLIENT: WC-HANFORD RC-052 K1374 LVL LOT #: 0810L026

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17JX9	Bromide by IC	5.2	0.00	5.0	103.5	1.0
		Chloride by IC	5.1	0.00	5.0	103.0	1.0
		Fluoride by IC	5.1	0.00	5.0	102.3	1.0
		Nitrite by IC	5.17	0.25u	5.00	103.3	1.0
		Nitrate by IC	5.21	0.25u	5.00	104.2	1.0
		Phosphate by IC	6.0	0.25u	5.0	120.0	1.0
		Sulfate by IC	5.3	0.25u	5.0	105.9	1.0
		Nitrite, as N	0.53	0.02u	0.50	106.6	1.0
		Nitrate, as N	0.53	0.02u	0.50	105.8	1.0
BLANK10	08LICC79-MB1	Bromide by IC	4.9	0.25u	5.0	97.8	1.0
BLANK10	08LICA79-MB1	Chloride by IC	4.7	0.25u	5.0	94.8	1.0
BLANK10	08LIC079-MB1	Fluoride by IC	5.0	0.25u	5.0	99.0	1.0
BLANK10	08LICB79-MB1	Nitrite by IC	5.01	0.25u	5.00	100.1	1.0
BLANK10	08LICD79-MB1	Nitrate by IC	4.98	0.25u	5.00	99.5	1.0
BLANK10	08LICE79-MB1	Phosphate by IC	5.0	0.25u	5.0	100.4	1.0
BLANK10	08LICF79-MB1	Sulfate by IC	4.7	0.25u	5.0	93.4	1.0
BLANK10	08LN3030-MB1	Nitrite, as N	0.51	0.02u	0.50	102.6	1.0
		Nitrate, as N	0.51	0.02u	0.50	101.2	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/21/08

CLIENT: WC-HANFORD RC-052 K1374 LVL LOT #: 0810L026

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17JX9	Bromide by IC	0.25u	0.25u	NC	1.0
		Chloride by IC	0.25u	0.25u	NC	1.0
		Fluoride by IC	0.25u	0.25u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	0.25u	0.25u	NC	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	0.25u	0.25u	NC	1.0
		Nitrite, as N	0.02u	0.02u	NC	1.0
		Nitrate, as N	0.02u	0.02u	NC	1.0
		pH	6.6	6.6	0.3	1.0

nville Laboratory Use Only

810L026

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt W. C. HANFORD SAF# RC-052

Final Proj. Sampling Date

ect# 60049-001-001-0001-00

ect Contact/Phone#

ville Laboratory Project Manager O JOHNSON

SW846 Del STD TAT 15 days

e Rec'd 10-3-08 Date Due 10-18-08

				AB		C-E	FG		H		I					
Refrigerator #				3		3	3		3		3					
#/Type Container	Liquid			26		36	26		1P		1P					
#/Type Container	Solid															
Volume				1000		1000	1000		500		500					
Preservatives				—		—	—		HNO3		—					
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	PCB	Herb	Pest	PAHs		Metal	CN	IC Anions					
									Lionville Laboratory Use Only							
				OPCB		0608H	0830		MetO		ICO	IPH				

RIX
ES:
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	J17JX9	✓	✓	W	10-1-08	0845			X		X	X		X		X	X			

cial Instructions:

metO = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, Ti

ICO = Br, Cl, SO4, PO4, NO2, NO3

Special Instructions:

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

elinquished by	Received by	Date	Time
D Ex	V Hernandez	10/3/08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

000000010

Collector Welch-Koelling	Company Contact Bill Hudson	Telephone No. 372-9695	Project Coordinator KESSNER, JH
Project Designation Remaining Sites Confirmation Sampling - Water	Sampling Location 100-H-28:7		SAF No. RC-052
Ice Chest No. AFS-04-124	Field Logbook No. EL-1601-2	COA C00H28A000	Method of Shipment FED EX
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A090026		Bill of Lading/Air Bill No. SEE OSPC

Price Code 7G

Data Turnaround 15 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	P		
No. of Container(s)	1	1	2	1	2	3	2	1		
Volume	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	~~250mL~~ 500mL	BH 10/1/08	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Total Uranium	Gross Alpha; Gross Beta	See item (2) in Special Instructions.	PCBs - 8082	Pesticides - 8081	PAHs - 8310	See item (3) in Special Instructions.		

Bill Hudson 10/1/08

Sample No.	Matrix *	Sample Date	Sample Time										
~~17JX7~~	WATER												
~~17JX8~~ BH 10/1/08	WATER												
17JX9	WATER	10/1/08	0845				X	X	X	X	X		
~~17JY0~~	WATER												
~~17JY1~~ BH 10/1/08	WATER												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Neal Koelling	10/1/08 1546	BHudson BHudson	10/1/08 1546
BILL HUDSON BHudson	10/1/08 1645	1060 #3C	10/1/08 1645
1060 3C/J.E. Bernhard	10-2-08 1000	J.E. Bernhard	10-2-08 1000
J.E. Bernhard welt	10-2-08 1015	FED EX	
FedEx	10-3-08 0935	Victor Hernandez	10-3-08 0935
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

(3) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040

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

Matrix *

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

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

CH-EE-011

00000011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. HANFORD

Project/SAP/SOW/Release #: RC-052

Date: 10-3-08

LvLI Batch #: 08101026

Sample Custodian: Vita Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 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 2-2°	°C	Cooler # 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 NB 10-27-08	☑ No	PH out of Hold
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 NB 10-27-08	☑ No	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A

Person Contacted O. JOHNSON Date 10-3-08

LVLI

RECEIVED
NOV 2008

Lionville Laboratory, Inc.
8310 ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-052 K1374

DATE RECEIVED: 10/03/08 LVL LOT # :0810L026

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17JX9	001	W	08LE0494	10/01/08	10/07/08	10/09/08
J17JX9	001 MS	W	08LE0494	10/01/08	10/07/08	10/09/08

LAB QC:

BLK	MB1	W	08LE0494	N/A	10/07/08	10/09/08
BLK	MB1 BS	W	08LE0494	N/A	10/07/08	10/09/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-052
LVL #: 0810L026
SDG/SAF # K1374 /RC-052

W.O. #: 60049-001-001-0001-00
Date Received: 10-03-2008

POLYAROMATIC HYDROCARBONS (PAH)

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

The sample and associated QC samples were extracted on 10-07-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 10-09-2008. The extraction procedure was based on method 3520C and the extracts were analyzed based on method 8310.

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

1. The sample shipment met the sample acceptance policy for Lionville Laboratory.
2. The samples were extracted and analyzed within hold time.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. The initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. LvL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/23/08
Date

r:\group\data\2008\8310\wc-hanford\0810-026jw1.8310.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 8 pages.

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

810L026

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

000000004

nt W. C. HANFORD SAF# RC-052

Final Proj. Sampling Date

ect# 60049-001-001-0001-00

ect Contact/Phone#

vville Laboratory Project Manager O. JOHNSON

SW846 Del STD TAT 15 days

e Rec'd 10-3-08 Date Due 10-18-08

		AB		C-E	FG		H		I					
Refrigerator #			3		3	3		3		3				
#/Type Container	Liquid		26		36	26		1P		1P				
	Solid													
Volume			1000		1000	1000		500		500				
Preservatives			—		—	—		HNO3		—				
ANALYSES REQUESTED →	ORGANIC: VOA	BNA	~~Pest/~~ PCB	Herb	Pest	PAHs		INORG: Metal Hg	CN	TC Phy W				

RIX
ES:
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	Lionville Laboratory Use Only													
									OPCB		0608H	08310		MetO		ICO	IPH			
001	J17J9	✓	✓	W	10-1-08	0845			X		X	X		X		X	X			

Special Instructions:

metO = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, Ti

ICO = Br, Cl, SO4, PO4, NO2, NO3

Special Instructions:

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

Relinquished by	Received by	Date	Time
Ex	V. Hernandez	10/3/08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

Collector: Welch-Koelling	Company Contact: Bill Hudson	Telephone No.: 372-9695	Project Coordinator: KESSNER, JH
Price Code: 7G	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Water	Sampling Location: 100-H-28:7		SAF No.: RC-052
Ice Chest No.: AFS-04-124	Field Logbook No.: EL-1601-2	COA: C00H28A000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A090026		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	P		
No. of Container(s)	1	1	2	1	2	3	2	1		
Volume	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	~~250mL~~ 500mL	BH 10/1/08	
SAMPLE ANALYSIS	See item (1) in Special Instructions	Total Uranium	Gross Alpha; Gross Beta	See item (2) in Special Instructions	PCBs - 8082	Pesticides - 8081	PAHs - 8310	See Item (3) in Special Instructions		

Sample No.	Matrix *	Sample Date	Sample Time										
~~17JX7~~	WATER												
~~17JX8~~ BH 10/1/08	WATER												
17JX9	WATER	10/1/08	0845				X	X	X	X	X		
~~17JY0~~	WATER												
~~17JY1~~ BH 10/1/08	WATER												

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Neal Koelling	Date/Time: 10/1/08 1546	Received By/Stored In: BHudson BHudson	Date/Time: 10/1/08 1546
Relinquished By/Removed From: BILL HUDSON BHudson	Date/Time: 10/1/08 1645	Received By/Stored In: 1060 #3C	Date/Time: 10/1/08 1645
Relinquished By/Removed From: 1060 3C/J.E. Bernhard	Date/Time: 10-2-08 1000	Received By/Stored In: J.E. Bernhard	Date/Time: 10-2-08 1000
Relinquished By/Removed From: J.E. Bernhard	Date/Time: 10-2-08 1015	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: FedEx	Date/Time: 10-3-08 0935	Received By/Stored In: Victor Hernandez	Date/Time: 10-3-08 0935
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

(3) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040

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
Ve=Vegetation
X=Other

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

CH-EE-011

0000000005

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. HANFORD
Project/SAP/SOW/Release #: RC-052

Date: 10-3-08

LvLI Batch #: 08101026

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 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 2.2°	°C	Cooler # 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 PH out of Hold	
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 O Johnson		Date 10-3-08	

LvLI

Lionville Laboratory, Inc.

PAH'S by HPLC / Method 8310

Report Date: 10/16/08 12:18

RFW Batch Number: 0810L026 Client: WC-HANFORD RC-052 K1374 Work Order: 60049001001 Page: 1

000000007

	Cust ID:	J17JX9	J17JX9	BLK	BLK BS
Sample Information	RFW#:	001	001 MS	08LE0494-MB1	08LE0494-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L

Triphenylene	91	%	96	%	90	%	94	%
Naphthalene	1.05	U	88	%	1.0	U	98	%
Acenaphthylene	1.05	U	89	%	1.0	U	91	%
Acenaphthene	1.05	U	98	%	1.0	U	104	%
Fluorene	0.11	U	88	%	0.10	U	91	%
Phenathrene	0.11	U	88	%	0.10	U	90	%
Anthracene	0.11	U	102	%	0.10	U	106	%
Fluoranthrene	0.11	U	86	%	0.10	U	88	%
Indeno (1,2,3-cd) pyrene	0.11	U	72	%	0.10	U	95	%
Pyrene	0.11	U	74	%	0.10	U	79	%
Benzo (a) anthracene	0.11	U	82	%	0.10	U	87	%
Chrysene	0.11	U	77	%	0.10	U	82	%
Benzo (b) fluoranthrene	0.11	U	77	%	0.10	U	84	%
Benzo (k) fluoranthrene	0.11	U	73	%	0.10	U	80	%
Benzo (a) pyrene	0.11	U	73	%	0.10	U	80	%
Dibenzo (a,h) anthracene	0.11	U	59	%	0.10	U	55	%
Benzo (ghi) perylene	0.11	U	59	%	0.10	U	59	%

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

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 10/07/08 Extraction Batch No: 08LE0494 Analyst: MF Method: CONT3520

Test: O831 Cleanup Date: Analyst: Client: WC-HANFORD RC-052 K1369

LIMS Report Date: 10/16/08 Solvent: DCM,ACN Adsorbent:

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0810L017-	WC-HANFORD RC-052 K1369										
001 0	J17JX8	7	1000	1.0		5.0		1.0	N	0.0	5.00
001 0S	J17JX8	7	1000	1.0	1.0	5.0		1.0	N	0.0	5.00
0810L026-	WC-HANFORD RC-052 K1374										
001 0	J17JX9	7	950	1.0		5.0		1.0	N	0.0	5.26
001 0S	J17JX9	7	980	1.0	1.0	5.0		1.0	N	0.0	5.10
08LE0494-MB1 0	BLK	7	1000	1.0		5.0		1.0	N	0.0	5.00
08LE0494-MB1 0S	BLK	7	1000	1.0	1.0	5.0		1.0	N	0.0	5.00

Comments:
Surrogate: 500 UL 8310 SURR 86971909
Spike: 1.0 ML 8310 SPIKE 86971907

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
		10/9/08 1125	SZ	10/9/08 1125	GC

00000000

RECEIVED
NOV 2008

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-052 K1374

DATE RECEIVED: 10/03/08 LVL LOT # :0810L026

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17JX9	001	W	08LE0496	10/01/08	10/08/08	10/10/08
J17JX9	001 MS	W	08LE0496	10/01/08	10/08/08	10/10/08
J17JX9	001 MSD	W	08LE0496	10/01/08	10/08/08	10/10/08

LAB QC:

PBLKVY	MB1	W	08LE0496	N/A	10/08/08	10/10/08
PBLKVY	MB1 BS	W	08LE0496	N/A	10/08/08	10/10/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-052
LVL #: 0810L026
SDG/SAF # K 1374/RC-052

W.O. #: 60049-001-001-0001-00
Date Received: 10-03-2008

POLYAROMATIC HYDROCARBONS (PAH)

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5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
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8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. LvL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/23/08
Date

r:\group\data\2008\8310\wc-hanford\0810-017jw1.8310.doc
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E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
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.I	=	Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

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D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.
NPM	=	No pattern match for multi-component target analytes.

Lionville Laboratory Use Only

810L026

Custody Transfer Record/Lab Work Request

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt W. C. HANFORD SAF# RC-052

Final Proj. Sampling Date

ect# 60049-001-001-0001-00

ect Contact/Phone#

ville Laboratory Project Manager O. JOHNSON

SW846 Del STD TAT 15 days

e Rec'd 10-3-08 Date Due 10-18-08

		AB		C-E	FG		H		I					
Refrigerator #		3		3	3		3		3					
#/Type Container	Liquid	26		36	26		1P		1P					
	Solid													
Volume		1000		1000	1000		500		500					
Preservatives		—		—	—		HNO3		—					
ANALYSES REQUESTED →	ORGANIC: VOA	BNA	PCB	Herb	Pest	PAHs	INORG: Metal	Hg	CN	IC Anions				

RIX
ES:
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	Lionville Laboratory Use Only: VOA	BNA	PCB	Herb	Pest	PAHs	Metal	Hg	CN	IC Anions				
									8PCB		0608H	8310	Met①			IC①	IPH			
001	J17JX9	✓	✓	W	10-1-08	0845			X		X	X	X			X	X			

Special Instructions:

Met① = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, Tl

IC① = Br, Cl, SO4, PO4, NO2, NO3

Special Instructions:

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

Relinquished by	Received by	Date	Time
D. Ex	V. Hernandez	10/3/08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

000000004

Collector: Welch-Koelling	Company Contact: Bill Hudson	Telephone No.: 372-9695	Project Coordinator: KESSNER, JH
Price Code: 7G	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Water	Sampling Location: 100-H-28:7		SAF No.: RC-052
Ice Chest No.: AFS-04-124	Field Logbook No.: EL-1601-2	COA: C00H28A000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A090026		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	P		
No. of Container(s)	1	1	2	1	2	3	2	1		
Volume	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	~~250mL~~ 500mL BH 10/1/08		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Total Uranium	Gross Alpha; Gross Beta	See item (2) in Special Instructions.	PCBs - 8082	Pesticides - 8081	PAHs - 8310	See Item (3) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time										
~~17JX7~~	WATER												
~~17JX8~~ BH 10/1/08	WATER												
17JX9	WATER	10/1/08	0845				X	X	X	X	X		
~~17JY0~~	WATER												
~~17JY1~~ BH 10/1/08	WATER												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Neal Koenig	10/1/08 1546	BHudson	10/1/08 1546
BILL HUDSON	10/1/08 1645	1060 #3C	10/1/08 1645
1060 3C/J.E. Bernhard	10-2-08 1000	J.E. Bernhard	10-2-08 1000
J.E. Bernhard	10-2-08 1015	FED EX	
Fed Ex	10-3-08 0935	Victor Hernandez	10-3-08 0935

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

(3) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040

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
Ve=Vegetation
X=Other

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

CH-EE-011

000000005

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. HANFORD

Project/SAP/SOW/Release #: RC-052

Date: 10-3-08

LvLI Batch #: 08101026

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 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 2-2°	°C	Cooler # 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	PH out of Hold
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 O Johnson

Date 10-3-08

LvLI

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 10/14/08 14:07

RFW Batch Number: **0810L026** Client: **WC-HANFORD RC-052** Work Order: 60049001001 Page: 1

	Cust ID:	J17JX9	J17JX9	J17JX9	PBLKVY	PBLKVY BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0496-MB1	08LE0496-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate:	Tetrachloro-m-xylene	79 %	82 %	80 %	89 %	72 %
	Decachlorobiphenyl	79 %	46 %	75 %	85 %	74 %
		fl	fl	fl	fl	fl fl
Alpha-BHC		0.051 U	106 %	102 %	0.050 U	94 %
gamma-BHC (Lindane)		0.051 U	106 %	102 %	0.050 U	94 %
Beta-BHC		0.051 U	96 %	92 %	0.050 U	84 %
Heptachlor		0.051 U	96 %	92 %	0.050 U	85 %
Delta-BHC		0.051 U	84 %	81 %	0.050 U	76 %
Aldrin		0.051 U	98 %	97 %	0.050 U	90 %
Heptachlor epoxide		0.051 U	100 %	97 %	0.050 U	91 %
gamma-Chlordane		0.051 U	99 %	100 %	0.050 U	93 %
Endosulfan I		0.051 U	120 %	121 %	0.050 U	111 %
alpha-Chlordane		0.051 U	98 %	98 %	0.050 U	91 %
4,4'-DDE		0.051 U	106 %	117 %	0.050 U	103 %
Dieldrin		0.051 U	102 %	102 %	0.050 U	95 %
Endrin		0.051 U	107 %	107 %	0.050 U	94 %
4,4'-DDD		0.051 U	102 %	106 %	0.050 U	93 %
Endosulfan II		0.051 U	100 %	100 %	0.050 U	94 %
4,4'-DDT		0.051 U	99 %	107 %	0.050 U	97 %
Endrin aldehyde		0.051 U	97 %	96 %	0.050 U	91 %
Endosulfan sulfate		0.051 U	96 %	95 %	0.050 U	88 %
Methoxychlor		0.051 U	101 %	102 %	0.050 U	90 %
Endrin ketone		0.051 U	101 %	99 %	0.050 U	93 %
Toxaphene		0.51 U	NS	NS	0.50 U	NS

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

000000007

Lionville Laboratory, Inc.

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 10/08/08 Extraction Batch No: 08LE0496 Analyst: MF Method: CONT3520

Test: O608 Cleanup Date: Analyst: Client: WC-HANFORD RC-052

LIMS Report Date: 10/10/08 Solvent: DCM,HEXANE Adsorbent:

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0810L026-	WC-HANFORD RC-052										
001 H	J17JX9	7	980	1.0		10		1.0	N	0.0	10.20
001 HS	J17JX9	7	950	1.0	1.0	10		1.0	N	0.0	10.53
001 HT	J17JX9	7	950	1.0	1.0	10		1.0	N	0.0	10.53
0810L033-	LVLI										
009 T	SOIL 1	5	100	1.0		10		1.0	N	0.0	100.0
010 T	SOIL 2	5	100	1.0		10		1.0	N	0.0	100.0
011 T	SOIL 3	5	100	1.0		10		1.0	N	0.0	100.0
012 T	SOIL 4	5	100	1.0		10		1.0	N	0.0	100.0
08LE0496-MB1 H	PBLKVY	7	1000	1.0		10		1.0	N	0.0	10.00
08LE0496-MB1 HS	PBLKVY	7	1000	1.0	1.0	10		1.0	N	0.0	10.00
08LE0496-MB1 T	PBLKVY	7	1000	1.0		10		1.0	N	0.0	10.00
08LE0496-MB1 TS	PBLKVY	7	1000	1.0	1.0	10		1.0	N	0.0	10.00
08LT0100-LB1 T	LCHBLK	5	100	1.0		10		1.0	N	0.0	100.0

Comments:
Surrogate: 252 UL OLM PSURR 89916408
Spike: 250 UL FULL LIST PEST SPIKE 89916610

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
all	[illegible]	10/10/08 1433	SZ	10/10/08 14:33	GE

000000008

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-052 K1374

RECEIVED
NOV 2008

DATE RECEIVED: 10/03/08 LVL LOT # :0810L026

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17JX9	001	W	08LE0496	10/01/08	10/08/08	10/10/08
J17JX9	001 MS	W	08LE0496	10/01/08	10/08/08	10/10/08
J17JX9	001 MSD	W	08LE0496	10/01/08	10/08/08	10/10/08

LAB QC:

PBLKVY	MB1	W	08LE0496	N/A	10/08/08	10/10/08
PBLKVY	MB1 BS	W	08LE0496	N/A	10/08/08	10/10/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-052
LVL #: 0810L026
SDG/SAF # K1374/RC-052

W.O. #: 60049-001-001-0001-00
Date Received: 10-03-2008

CHLORINATED PESTICIDES

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

The sample and associated QC samples were extracted on 10-08-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 10-10-2008. The extraction procedure was based on method 3520C and the extracts were analyzed based on method 8081A.

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

1. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

r:\group\data\2008\pest-pcb\wc-hanford\0810-017jw2.pest.doc

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/23/08
Date

LIONVILLE LABORATORY INC.

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

nville Laboratory Use Only

810L026

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI Lionville Laboratory Inc

000000005

nt W. C. HANFORD SAF# RC-052

Final Proj. Sampling Date

ect# 60049-001-001-0001-00

ect Contact/Phone#

ville Laboratory Project Manager O. JOHNSON

SW846 Del STD TAT 15 days

e Rec'd 10-3-08 Date Due 10-18-08

Refrigerator #				AB		C-E	FG		H		I					
#/Type Container	Liquid			3		3	3		3		3					
	Solid			26		36	26		1P		1P					
Volume				1000		1000	1000		500		500					
Preservatives				—		—	—		HNO3		—					
ANALYSES REQUESTED →				ORGANIC					INORG							
				VOA	BNA	PCB	Herb	Pest	PAHs		Metal	CN	IC Anions			
				Lionville Laboratory Use Only												
						OPCB		0608 H	0831 O		Met O		IC O	IPH		

RIX ES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J17JX9	✓	✓	W	10-1-08	0845			X		X	X		X		X	X		

ecial Instructions:

met O = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, Ti

IC O = Br, Cl, SO4, PO4, NO2, NO3

Special Instructions:

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

Relinquished by	Received by	Date	Time
D. Ex	V. Hernandez	10/3/08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

CHAIN OF COSTODY/ANALYSIS REQUEST

Collector: Welch-Koelling	Company Contact: Bill Hudson	Telephone No.: 372-9695	Project Coordinator: KESSNER, JH
Price Code: 7G	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Water	Sampling Location: 100-H-28:7		SAF No.: RC-052
Ice Chest No.: AFS-04-124	Field Logbook No.: EL-1601-2	COA: C00H28A000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A090026		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	P		
No. of Container(s)	1	1	2	1	2	3	2	1		
Volume	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	~~250mL~~ 500mL	BH 10/1/08	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Total Uranium	Gross Alpha; Gross Beta	See item (2) in Special Instructions.	PCBs - 8082	Pesticides - 8081	PAHs - 8310	See item (3) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time										
~~17JX7~~	WATER												
~~17JX8~~ BH 10/1/08	WATER												
17JX9	WATER	10/1/08	0845				X	X	X	X	X		
~~17JY0~~	WATER												
~~17JY1~~ BH 10/1/08	WATER												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Neal Koelling	10/1/08 1546	BHudson BHudson 10/1/08	1546
BILL HUDSON BHudson 10/1/08	1645	1060 #3C 10/1/08	1645
1060 3C/J.E. Bernhard	10-2-08 1000	J.E. Bernhard	10-2-08 1000
J.E. Bernhard	10-2-08 1015	FED EX	
FedEx	10-3-08 0935	Victor Hernandez	10-3-08 0935

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) {Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238}

(2) ICP Metals - 6010 (Full List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc}; Mercury - 7470 - (CV)

(3) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040

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

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

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

FCH-EE-011

000000006

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. HANFORD
Project/SAP/SOW/Release #: RC-052

Date: 10-3-08

LvLI Batch #: 08101026

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 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 2-2°	°C	Cooler # 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 PH out of Hold	
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 O JOHNSON		Date 10-3-08	

LvLI

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 10/14/08 14:55

RFW Batch Number: 0810L026 Client: WC-HANFORD RC-052 Work Order: 60049001001 Page: 1

000000008

	Cust ID:	J17JX9	J17JX9	J17JX9	PBLKVY	PBLKVY BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0496-MB1	08LE0496-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate:	Tetrachloro-m-xylene	83 %	89 %	87 %	86 %	83 %
	Decachlorobiphenyl	90 %	92 %	84 %	92 %	81 %
		fl	fl	fl	fl	fl fl
Aroclor-1016		0.41 U	92 %	86 %	0.40 U	94 %
Aroclor-1221		0.41 U	0.41 U	0.41 U	0.40 U	0.40 U
Aroclor-1232		0.41 U	0.41 U	0.41 U	0.40 U	0.40 U
Aroclor-1242		0.41 U	0.41 U	0.41 U	0.40 U	0.40 U
Aroclor-1248		0.41 U	0.41 U	0.41 U	0.40 U	0.40 U
Aroclor-1254		0.41 U	0.41 U	0.41 U	0.40 U	0.40 U
Aroclor-1260		0.41 U	110 %	103 %	0.40 U	115 %

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

Lionville Laboratory, Inc.

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 10/08/08 Extraction Batch No: 08LE0496 Analyst: MF Method: CONT3520

Test: OPCB Cleanup Date: 10/10/08 Analyst: MF Client: WC-HANFORD RC-052

LIMS Report Date: 10/10/08 Solvent: DCM,HEXANE Adsorbent: H2SO4

Sample No:	Client Name Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0810L026-	WC-HANFORD RC-052										
001	J17JX9	7	980	1.0		10		1.0	N	0.0	10.20
001 -S	J17JX9	7	980	1.0	1.0	10		1.0	N	0.0	10.20
001 -T	J17JX9	7	980	1.0	1.0	10		1.0	N	0.0	10.20
08LE0496-MB1	PBLKVY	7	1000	1.0		10		1.0	N	0.0	10.00
08LE0496-MB1 -S	PBLKVY	7	1000	1.0	1.0	10		1.0	N	0.0	10.00

Comments:
Surrogate: 250 UL OLM PSURR 89916408
Spike: 250 UL AR1660 89916604

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
all	[signature]	10/10/08 1433	SZ	10/10/08 14:32	Ce

000000009

RECEIVED
NOV 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-052 K1374

DATE RECEIVED: 10/03/08 LVL LOT # :0810L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17JX9						
SILVER, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
SILVER, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
SILVER, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
ALUMINUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
ALUMINUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
ALUMINUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
ARSENIC, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
ARSENIC, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
ARSENIC, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
BORON, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
BORON, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
BORON, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
BARIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
BARIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
BARIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
BERYLLIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
BERYLLIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
BERYLLIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
BISMUTH, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
BISMUTH, TOTAL REP	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
BISMUTH, TOTAL SPIKE	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
CALCIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
CALCIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
CALCIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
CADMIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
CADMIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
CADMIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
COBALT, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
COBALT, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
COBALT, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
CHROMIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
CHROMIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
CHROMIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
COPPER, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
COPPER, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-Q52 K1374

DATE RECEIVED: 10/03/08 LVL LOT # :0810L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
IRON, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
IRON, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
IRON, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
MERCURY, TOTAL	001	W	08C0182	10/01/08	10/13/08	10/14/08
MERCURY, TOTAL	001 REP	W	08C0182	10/01/08	10/13/08	10/14/08
MERCURY, TOTAL	001 MS	W	08C0182	10/01/08	10/13/08	10/14/08
POTASSIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
POTASSIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
POTASSIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
LITHIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
LITHIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
LITHIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
MAGNESIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
MAGNESIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
MAGNESIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
MANGANESE, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
MANGANESE, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
MANGANESE, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
MOLYBDENUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
MOLYBDENUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
MOLYBDENUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
SODIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
SODIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
SODIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
NICKEL, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
NICKEL, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
NICKEL, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
PHOSPHORUS, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
PHOSPHORUS, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
PHOSPHORUS, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
LEAD, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
LEAD, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
LEAD, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
ANTIMONY, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
ANTIMONY, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
ANTIMONY, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
SELENIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-052 K1374

DATE RECEIVED: 10/03/08 LVL LOT # :0810L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
SELENIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
SILICON, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
SILICON, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
SILICON, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
TIN, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
TIN, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
TIN, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
STRONTIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
STRONTIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
STRONTIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
THALLIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
THALLIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
THALLIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
URANIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
URANIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
URANIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
VANADIUM, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
VANADIUM, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
VANADIUM, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08
ZINC, TOTAL	001	W	08L0377	10/01/08	10/15/08	10/21/08
ZINC, TOTAL	001 REP	W	08L0377	10/01/08	10/15/08	10/21/08
ZINC, TOTAL	001 MS	W	08L0377	10/01/08	10/15/08	10/21/08

LAB QC:

SILVER LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
SILVER, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
ALUMINUM LABORTORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
ALUMINUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
ARSENIC LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
ARSENIC, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
BORON LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
BORON, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
BARIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
BARIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
BERYLLIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
BERYLLIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-052 K1374

DATE RECEIVED: 10/03/08 LVL LOT # :0810L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BISMUTH, LCS	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
BISMUTH, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
CALCIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
CALCIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
CADMIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
CADMIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
COBALT LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
COBALT, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
CHROMIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
CHROMIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
COPPER LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
COPPER, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
IRON LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
IRON, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
MERCURY LABORATORY	LC1 BS	W	08C0182	N/A	10/13/08	10/14/08
MERCURY, TOTAL	MB1	W	08C0182	N/A	10/13/08	10/14/08
POTASSIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
POTASSIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
LITHIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
LITHIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
MAGNESIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
MAGNESIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
MANGANESE LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
MANGANESE, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
MOLYBDENUM LABORATOR	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
MOLYBDENUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
SODIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
SODIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
NICKEL LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
NICKEL, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
PHOSPHORUS LCS	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
PHOSPHORUS, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
LEAD LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
LEAD, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
ANTIMONY LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
ANTIMONY, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
SELENIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
SELENIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-052 K1374

DATE RECEIVED: 10/03/08 LVL LOT # :0810L026

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILICON LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
SILICON, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
TIN LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
TIN, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
STRONTIUM LCS STANDA	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
STRONTIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
THALLIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
THALLIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
URANIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
URANIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
VANADIUM LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
VANADIUM, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08
ZINC LABORATORY	LC1 BS	W	08L0377	N/A	10/15/08	10/21/08
ZINC, TOTAL	MB1	W	08L0377	N/A	10/15/08	10/21/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-052
LVL#: 0810L026
SDG/SAF#: K1374/RC-052

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.

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

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

   The sample was rerun on a different instrument for Aluminum due to sample matrix.

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

4. Please refer to the Sample Receipt Check List for sample discrepancies in LvLI's sample acceptance policy.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of the ending CCV for various analytes in file TA1021A. All sample results contained in this report were surrounded by QC within control.

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

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

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

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 20 pages.

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

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

10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/23/08
Date

alm/m10-026

LvLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

Lot#: 08101026

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: ✓3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	✓6010B		__200.7				__99
Antimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010B		__200.7				__99
Beryllium	✓6010B		__200.7				__99
Bismuth	✓6010B [1]		__200.7 [1]			__1620	__99
Boron	✓6010B		__200.7				__99
Cadmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	✓6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	✓6010B		__200.7				__99
Copper	✓6010B	__7211 [5]	__200.7	__220.2			__99
Iron	✓6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	✓6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	✓6010B		__200.7				__99
Manganese	✓6010B		__200.7				__99
Mercury	✓7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	✓6010B		__200.7				__99
Nickel	✓6010B		__200.7				__99
Potassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	✓6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	✓6010B		__200.7				__99
Thallium	✓6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	✓6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	✓6010B [1]		__200.7 [1]			__1620	__99
Vanadium	✓6010B		__200.7				__99
Zinc	✓6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other: Phosphorous

Method: 6010B

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/22/08

CLIENT: WC-HANFORD RC-052 K1374 LVL LOT #: 0810L026

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17JX9	Silver, Total	1.0	u	UG/L	1.0	1.0
		Aluminum, Total	58.5		UG/L	40.0	1.0
		Arsenic, Total	5.0	u	UG/L	5.0	1.0
		Boron, Total	49.5		UG/L	5.0	1.0
		Barium, Total	4.7		UG/L	1.0	1.0
		Beryllium, Total	0.50	u	UG/L	0.50	1.0
		Bismuth, Total	6.0	u	UG/L	6.0	1.0
		Calcium, Total	4400		UG/L	40.0	1.0
		Cadmium, Total	0.50	u	UG/L	0.50	1.0
		Cobalt, Total	2.0	u	UG/L	2.0	1.0
		Chromium, Total	2.0	u	UG/L	2.0	1.0
		Copper, Total	13.3		UG/L	2.0	1.0
		Iron, Total	3900		UG/L	45.0	1.0
		Mercury, Total	0.09		UG/L	0.06	1.0
		Potassium, Total	1720		UG/L	40.0	1.0
		Lithium, Total	0.90		UG/L	0.40	1.0
		Magnesium, Total	321		UG/L	25.0	1.0
		Manganese, Total	99.3		UG/L	0.40	1.0
		Molybdenum, Total	3.0	u	UG/L	3.0	1.0
		Sodium, Total	3040		UG/L	20.0	1.0
		Nickel, Total	9.3		UG/L	2.0	1.0
		Phosphorus, Total	50.0	u	UG/L	50.0	1.0
		Lead, Total	3.4		UG/L	3.0	1.0
		Antimony, Total	3.0	u	UG/L	3.0	1.0
		Selenium, Total	6.0	u	UG/L	6.0	1.0
		Silicon, Total	1190		UG/L	40.0	1.0
		Tin, Total	6.0	u	UG/L	6.0	1.0
		Strontium, Total	13.4		UG/L	0.30	1.0
		Thallium, Total	6.0	u	UG/L	6.0	1.0
		Uranium, Total	20.0	u	UG/L	20.0	1.0
		Vanadium, Total	1.8		UG/L	1.4	1.0
		Zinc, Total	6.0	u	UG/L	6.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/22/08

CLIENT: WC-HANFORD RC-052 K1374 LVL LOT #: 0810L026

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0377-MB1	Silver, Total	1.0	u	UG/L	1.0	1.0
		Aluminum, Total	40.0	u	UG/L	40.0	1.0
		Arsenic, Total	5.0	u	UG/L	5.0	1.0
		Boron, Total	5.0	u	UG/L	5.0	1.0
		Barium, Total	3.2		UG/L	1.0	1.0
		Beryllium, Total	0.50	u	UG/L	0.50	1.0
		Bismuth, Total	6.0	u	UG/L	6.0	1.0
		Calcium, Total	156		UG/L	40.0	1.0
		Cadmium, Total	0.50	u	UG/L	0.50	1.0
		Cobalt, Total	2.0	u	UG/L	2.0	1.0
		Chromium, Total	2.0	u	UG/L	2.0	1.0
		Copper, Total	2.0	u	UG/L	2.0	1.0
		Iron, Total	50.4		UG/L	45.0	1.0
		Potassium, Total	40.0	u	UG/L	40.0	1.0
		Lithium, Total	0.81		UG/L	0.40	1.0
		Magnesium, Total	114		UG/L	25.0	1.0
		Manganese, Total	1.1		UG/L	0.40	1.0
		Molybdenum, Total	3.0	u	UG/L	3.0	1.0
		Sodium, Total	149		UG/L	20.0	1.0
		Nickel, Total	2.0	u	UG/L	2.0	1.0
		Phosphorus, Total	50.0	u	UG/L	50.0	1.0
		Lead, Total	3.0	u	UG/L	3.0	1.0
		Antimony, Total	3.0	u	UG/L	3.0	1.0
		Selenium, Total	6.0	u	UG/L	6.0	1.0
		Silicon, Total	40.0	u	UG/L	40.0	1.0
		Tin, Total	6.0	u	UG/L	6.0	1.0
		Strontium, Total	2.6		UG/L	0.30	1.0
		Thallium, Total	6.0	u	UG/L	6.0	1.0
		Uranium, Total	20.0	u	UG/L	20.0	1.0
		Vanadium, Total	1.4	u	UG/L	1.4	1.0
		Zinc, Total	6.0	u	UG/L	6.0	1.0
BLANK1	08C0182-MB1	Mercury, Total	0.06	u	UG/L	0.06	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/22/08

CLIENT: WC-HANFORD RC-052 K1374

LVL LOT #: 0810L026

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17JX9	Silver, Total	49.2	1.0 u	50.0	98.4	1.0
		Aluminum, Total	1980	58.5	2000	96.3	1.0
		Arsenic, Total	2000	5.0 u	2000	99.8	1.0
		Boron, Total	1030	49.5	1000	98.0	1.0
		Barium, Total	2000	4.7	2000	99.8	1.0
		Beryllium, Total	50.0	0.50u	50.0	100	1.0
		Bismuth, Total	4970	6.0 u	5000	99.4	1.0
		Calcium, Total	29500	4400	25000	100.4	1.0
		Cadmium, Total	49.1	0.50u	50.0	98.2	1.0
		Cobalt, Total	489	2.0 u	500	97.9	1.0
		Chromium, Total	201	2.0 u	200	100.7	1.0
		Copper, Total	263	13.3	250	100.0	1.0
		Iron, Total	4870	3900	1000	97.0	1.0
		Mercury, Total	1.1	0.09	1.0	101.8	1.0
		Potassium, Total	26900	1720	25000	100.6	1.0
		Lithium, Total	1050	0.90	1000	104.5	1.0
		Magnesium, Total	24700	321	25000	97.4	1.0
		Manganese, Total	607	99.3	500	101.5	1.0
		Molybdenum, Total	987	3.0 u	1000	98.7	1.0
		Sodium, Total	25900	3040	25000	91.4	1.0
		Nickel, Total	502	9.3	500	98.6	1.0
		Phosphorus, Total	4990	50.0 u	5000	99.8	1.0
		Lead, Total	504	3.4	500	100.0	1.0
		Antimony, Total	502	3.0 u	500	100.3	1.0
		Selenium, Total	1980	6.0 u	2000	99.2	1.0
		Silicon, Total	2190	1190	1000	100.8	1.0
		Tin, Total	967	6.0 u	1000	96.7	1.0
		Strontium, Total	1020	13.4	1000	100.2	1.0
		Thallium, Total	1950	6.0 u	2000	97.7	1.0
		Uranium, Total	5180	20.0 u	5000	103.6	1.0
		Vanadium, Total	495	1.8	500	98.7	1.0
		Zinc, Total	506	6.0 u	500	101.2	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/22/08

CLIENT: WC-HANFORD RC-052 K1374 LVL LOT #: 0810L026

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17JX9	Silver, Total	1.0 u	1.0 u	NC	1.0
		Aluminum, Total	58.5	83.5	35.2	1.0
		Arsenic, Total	5.0 u	5.0 u	NC	1.0
		Boron, Total	49.5	49.9	0.80	1.0
		Barium, Total	4.7	5.6	17.5	1.0
		Beryllium, Total	0.50u	0.50u	NC	1.0
		Bismuth, Total	6.0 u	6.0 u	NC	1.0
		Calcium, Total	4400	4480	1.9	1.0
		Cadmium, Total	0.50u	0.50u	NC	1.0
		Cobalt, Total	2.0 u	2.0 u	NC	1.0
		Chromium, Total	2.0 u	2.0 u	NC	1.0
		Copper, Total	13.3	13.0	2.3	1.0
		Iron, Total	3900	3860	0.89	1.0
		Mercury, Total	0.09	0.08	13.7	1.0
		Potassium, Total	1720	1690	1.6	1.0
		Lithium, Total	0.90	0.86	4.5	1.0
		Magnesium, Total	321	396	21.0	1.0
		Manganese, Total	99.3	97.9	1.4	1.0
		Molybdenum, Total	3.0 u	3.0 u	NC	1.0
		Sodium, Total	3040	3080	1.6	1.0
		Nickel, Total	9.3	7.7	18.8	1.0
		Phosphorus, Total	50.0 u	50.0 u	NC *	1.0
		Lead, Total	3.4	3.0 u	~~NC~~ 200	1.0
		Antimony, Total	3.0 u	3.0 u	NC	1.0
		Selenium, Total	6.0 u	6.0 u	NC	1.0
		Silicon, Total	1190	1160	1.9	1.0
		Tin, Total	6.0 u	6.0 u	NC	1.0
		Strontium, Total	13.4	14.7	9.3	1.0
		Thallium, Total	6.0 u	6.0 u	NC	1.0
		Uranium, Total	20.0 u	20.0 u	NC	1.0
		Vanadium, Total	1.8	1.8	0.00	1.0
		Zinc, Total	6.0 u	6.0 u	NC	1.0

* corrected RPD
aem 10/22/08

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/22/08

CLIENT: WC-HANFORD RC-052 K1374 LVL LOT #: 0810L026

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0377-LC1	Silver, LCS	522	500	UG/L	104.4
		Aluminum, LCS	5290	5000	UG/L	105.8
		Arsenic, LCS	10200	10000	UG/L	102.0
		Boron, LCS	5100	5000	UG/L	101.9
		Barium, LCS	5250	5000	UG/L	105.0
		Beryllium, LCS	262	250	UG/L	104.8
		Bismuth, LCS	5150	5000	UG/L	102.9
		Calcium, LCS	26500	25000	UG/L	105.9
		Cadmium, LCS	254	250	UG/L	101.6
		Cobalt, LCS	2560	2500	UG/L	102.3
		Chromium, LCS	527	500	UG/L	105.5
		Copper, LCS	1320	1250	UG/L	105.5
		Iron, LCS	5130	5000	UG/L	102.5
		Potassium, LCS	26700	25000	UG/L	106.9
		Lithium, LCS	5380	5000	UG/L	107.5
		Magnesium, LCS	25900	25000	UG/L	103.5
		Manganese, LCS	801	750	UG/L	106.8
		Molybdenum, LCS	5130	5000	UG/L	102.6
		Sodium, LCS	24600	25000	UG/L	98.3
		Nickel, LCS	2080	2000	UG/L	104.1
		Phosphorus, LCS	5100	5000	UG/L	102.1
		Lead, LCS	2610	2500	UG/L	104.2
		Antimony, LCS	3150	3000	UG/L	105.0
		Selenium, LCS	10200	10000	UG/L	101.7
		Silicon, LCS	5010	5000	UG/L	100.2
		Tin, LCS	5070	5000	UG/L	101.4
		Strontium, LCS	5230	5000	UG/L	104.5
		Thallium, LCS	10200	10000	UG/L	101.6
		Uranium, LCS	5370	5000	UG/L	107.5
		Vanadium, LCS	2590	2500	UG/L	103.5
		Zinc, LCS	1050	1000	UG/L	105.4
LCS1	08C0182-LC1	Mercury, LCS	5.3	5.0	UG/L	105.8

Lionville Laboratory Incorporated

Logbook #: 318

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0377
Date/Time Initiated: 10/15/08 1150
Date/Time Completed: 10/15/08
Analyst(s): MW
Matrix: Soil Water Other:
Instr. Type: AA ICP
Parameters: see backlog

Digested / Undigested (circle one)
Balance #: N/A
Balance Cal Verif: Y NA
Hot Plate Temp:

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

TNW/Elm. Utah

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
08L0L026-001		100 ml	100 ml	<2	TO	N/A	yellow stain		
001R									
001S	1.0 ml *								
08092L176-001							clear/colorless		
001R									
001S	1.0 ml								
08091L202-001									
08L0377-MB1									
LC1	1.0 ml								

MW 10/15/08

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
1:1 HNO_3
1:1 HCL

File ID#: IC037701 IC037702

LIMS Transfer: Y N updated

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

* also 0.5 ml 6072-080-10 (Bi)
0.5 ml 6072-079-14 (P-)
0.5 ml 6072-078-01 (U-)

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: TEB
Date: 10/13/08
Start Time/Temp: 1530 | 99°
End Time/Temp: 1730 | 95°

Instrument ID: Hg-3.1
Balance #: (NA)
Pipette Calibration (Daily) Y ✓

Prep Batch: 08L0182
Worksheet: HG-121401
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? __ Yes ✓ 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	1C			33mL	33mL	
0.2 µg/L	NJ	0.0667				
1.0	6J	0.334				
2.0	X5	0.667				
5.0	Q2	1.667				
10.0	92	3.334				
ICV	5H	0.0834	2.5			
CCV	X3	0.167	5.0			
ICB/CCB	ET					
MB1	C4D					DPW182
LCI	194	0.167	5.0			LCSW182
08L0057-001	P3			3.3mL		dil. due to limit'd vol
limit'd vol TEB 10/13/08 W1R	~~AB~~					
~~W1S~~	R2					
08091176-001	KC			33mL		
W1R	C48					
W1S	35	0.334	1.0			~~dil due to matrix~~ TEB 10/13/08
* 08L0016-001	HR			16.5mL		dil due to matrix
* W1R	C8					
* W1S	2V	0.334	1.0			
08L0017-001	AP					dil due to limit'd vol.
W1R	C					
W1S	191	0.334	1.0			
08L0026-001	A7			33mL		
W1R	L6					
W1S	925	0.334	1.0			
08091202-001	F2					

Standard:	ID	Prep Date/Time
CAL/MS	R1 6077-78-14A	10/13/08 0920
CV/CCV/LCS	US 6077-78-15A	

Reviewed By/Date: [signature] 10/16/08

see book # 9368 for std traceability information

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

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

HgCVAA-Prep1007

* pH ~ 7. diluted & brought pH to <2 in tube TEB 10/13/08

Page #:

Monville Laboratory
Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: GA
Date: 10/13/08
Start Time/Temp: see page 058
End Time/Temp:

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

Prep Batch: 08C0182
Worksheet: HG-101401
SOP No. ME-HgCVAA, Rev. 02

pH < 2 for Liquids? ✓ Yes __ 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.
0810L010-001	K			33mL	33mL	
001R	PF					
001S	LV	0.334	1.0			
002	G12					
003	500					
004	C15					
0810L015-001	711					
001R	SPRT					
001S	8	0.334	1.0			
002	B2					
003	E7					
004	NR					
005	P18					
006	WN					
007	224					
008	G7					
009	818					
010	BB					

GA 10/13/08

Standard:	ID	Prep Date/Time
ICAL/MS	~~CCV~~ 10/13/08 R	
ICV/CCV/LCS	see page 058	

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

nville Laboratory Use Only

810L026

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

nt W. C. HANFORD SAF# RC-052

Final Proj. Sampling Date

ect# 60049-001-001-0001-00

ect Contact/Phone#

ville Laboratory Project Manager O JOHNSON

SW846 Del STD TAT 15 days

Rec'd 10-3-08 Date Due 10-18-08

		AB		C-E	FG		H		I					
Refrigerator #		3		3	3		3		3					
#/Type Container	Liquid	26		36	26		1P		1P					
	Solid													
Volume		1000		1000	1000		500		500					
Preservatives		—		—	—		HNO3		—					
ANALYSES REQUESTED →	ORGANIC: VOA	BNA	~~Pesticide~~/PCB	Herb	Pest	PAHs		INORG: Metal	CN	IC Br, Cl, SO4				

Lionville Laboratory Use Only

MX ES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected			OPC3		0608H	0831O		Metal		ICO	IPH				
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J17JX9	✓	✓	W	10-1-08	0845			X		X	X		X		X	X				

cial Instructions:

metO = HSL + B, Bi, Li, Mo, P, Si, Sr, Sn, Ti

ICO = Br, Cl, SO4, PO4, NO2, NO3

Special Instructions:

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

linquished by	Received by	Date	Time
Ex	V Hernandez	10/1/08	0935

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

COMPOSITE WASTE

000000018

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-052-010 | Page 1 of 1

Collector: Welch-Koelling	Company Contact: Bill Hudson	Telephone No.: 372-9695	Project Coordinator: KESSNER, JH
Price Code: 7G	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Water	Sampling Location: 100-H-28:7		SAF No.: RC-052
Ice Chest No.: AFS-04-124	Field Logbook No.: EL-1601-2	COA: C00H28A000	Method of Shipment: FED EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A090026		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
Type of Container	G/P	G/P	G/P	G/P	aG	aG	aG	P		
No. of Container(s)	1	1	2	1	2	3	2	1		
Volume	1000mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	~~250mL~~ 500mL BH 10/1/08		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Total Uranium	Gross Alpha; Gross Beta	See item (2) in Special Instructions.	PCBs - 8082	Pesticides - 8081	PAHs - 8310	See item (3) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time									
~~17JX7~~	WATER											
~~17JX8~~ BH 10/1/08	WATER											
17JX9	WATER	10/1/08	0845				X	X	X	X	X	
~~17JY0~~	WATER											
~~17JY1~~ BH 10/1/08	WATER											

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Neil Koelling	Date/Time: 10/1/08 1546	Received By/Stored In: BHUDSON	Date/Time: 10/1/08 1546
Relinquished By/Removed From: BILL HUDSON	Date/Time: 10/1/08 1645	Received By/Stored In: 1060 #3C	Date/Time: 10/1/08 1645
Relinquished By/Removed From: 1060 3C/J.E. Bernhard	Date/Time: 10-2-08 1000	Received By/Stored In: J.E. Bernhard	Date/Time: 10-2-08 1000
Relinquished By/Removed From: J.E. Bernhard	Date/Time: 10-2-08 1015	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 10-3-08 0935	Received By/Stored In: Victor Hernandez	Date/Time: 10-3-08 0935
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spec - (Full List) (Americium-241, Antimony-125, Beryllium-7, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Potassium-40, Ruthenium-106, Uranium-235, Uranium-238)
(2) ICP Metals - 6010 (Full List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Uranium, Vanadium, Zinc); Mercury - 7470 - (CV)
(3) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040

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

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

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

CH-EE-011

000000019

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. HANFORD

Project/SAP/SOW/Release #: RC-052

Date: 10-3-08

LvLI Batch #: 08101026

Sample Custodian: Vita Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 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 2-2°	°C	Cooler # 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 PH out of Hold	
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 O Johnson		Date 10-3-08	

LvLI

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