

SAF-RC-041
300 Area D&D Waste Characterization
Sampling - Water
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Mike Stankovich H4-21

KW 9/2/08
INITIAL/DATE

COMMENTS:

SDG K1292 / SAF-RC-041

Rad only

Chem only

Rad & Chem

Complete

Partial

Sample Location/Waste Site: 3720 Sump

RECEIVED
SEP 08 2008
EDMC



EBERLINE SERVICES

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August 22, 2008

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



Reference: **P.O. #S00W235A00**
Eberline Services R8-08-060-7863, SDG K1292

Dear Ms. Kessner:

Enclosed is the data report for one water sample designated under SAF No. RC-041, received at Eberline Services on August 8, 2008. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/jag

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1292 was composed of one water sample designated under SAF No. RC-041 with a Project Designation of: 300 Area D&D Waste Characterization 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 August 21, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy

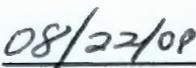
No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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



Melissa C. Mannion
Senior Program Manager



Date

EBRLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1292

SDG 7863
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1292

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

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

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JAM

Prepared by

Melissa Mannion

Reviewed by

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 08/25/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1292

SDG 7863
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1292

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/25/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1292

SDG 7863
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1292

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 2

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/25/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1292

LAB SAMPLE SUMMARY

SDG 7863
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1292

LAB							CHAIN OF	
SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CUSTODY	COLLECTED	
R808060-01	J178K6	3720 Sump	WATER		RC-041	RC-041-037	08/06/08 08:50	
R808060-02	Lab Control Sample		WATER		RC-041			
R808060-03	Method Blank		WATER		RC-041			
R808060-04	Duplicate (R808060-01)	3720 Sump	WATER		RC-041		08/06/08 08:50	

LAB SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-LS
 Version 3.06
 Report date 08/25/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1292

SDG 7863
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1292

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7863	RC-041-037	J178K6	WATER		1.0 L		08/08/08 2	R808060-01		7863-001
		Method Blank	WATER					R808060-03		7863-003
		Lab Control Sample	WATER					R808060-02		7863-002
		Duplicate (R808060-01)	WATER		1.0 L		08/08/08 2	R808060-04		7863-004

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 08/25/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1292

SDG 7863
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1292

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALIFIERS
			BATCH	2σ %	CLIENT	MORE	RE BLANK	LCS	
Gas Proportional Counting									
93A	WATER	Gross Alpha in Water	6160-067	20.6	1		1	1	1/1
93B	WATER	Gross Beta in Water	6160-067	11.0	1		1	1	1/1
Gamma Spectroscopy									
GAM	WATER	Gamma Emitters	6160-067	7.0	1		1	1	1/1

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

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-PBS
 Version 3.06
 Report date 08/25/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1292

LAB WORK SUMMARY

SDG 7863
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1292

LAB SAMPLE	CLIENT SAMPLE ID									
COLLECTED	LOCATION		MATRIX		TEST	SUF-	ANALYZED	REVIEWED	BY	METHOD
RECEIVED	CUSTODY	SAF No		PLANCHET		FIX				
R808060-01	J178K6			7863-001	93A/93		08/16/08	08/18/08	BW	Gross Alpha in Water
08/06/08	3720 Sump		WATER	7863-001	93B/93		08/16/08	08/18/08	BW	Gross Beta in Water
08/08/08	RC-041-037	RC-041		7863-001	GAM		08/15/08	08/19/08	CSS	Gamma Emitters
R808060-02	Lab Control Sample			7863-002	93A/93		08/16/08	08/18/08	BW	Gross Alpha in Water
			WATER	7863-002	93B/93		08/16/08	08/18/08	BW	Gross Beta in Water
		RC-041		7863-002	GAM		08/16/08	08/19/08	CSS	Gamma Emitters
R808060-03	Method Blank			7863-003	93A/93		08/16/08	08/18/08	BW	Gross Alpha in Water
			WATER	7863-003	93B/93		08/16/08	08/18/08	BW	Gross Beta in Water
		RC-041		7863-003	GAM		08/16/08	08/19/08	CSS	Gamma Emitters
R808060-04	Duplicate (R808060-01)			7863-004	93A/93		08/16/08	08/18/08	BW	Gross Alpha in Water
08/06/08	3720 Sump		WATER	7863-004	93B/93		08/16/08	08/18/08	BW	Gross Beta in Water
08/08/08		RC-041		7863-004	GAM		08/16/08	08/19/08	CSS	Gamma Emitters

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	RC-041	Gross Alpha in Water	900.0_ALPHABETA_GPC		1		1	1	1		4
93B/93	RC-041	Gross Beta in Water	900.0_ALPHABETA_GPC		1		1	1	1		4
GAM	RC-041	Gamma Emitters	GAMMA_GS		1		1	1	1		4
TOTALS					3		3	3	3		12

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-LWS
 Version 3.06
 Report date 08/25/08

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1292

7863-003

Method Blank

METHOD BLANK

SDG <u>7863</u>	Client/Case no <u>Hanford</u>	SDG <u>K1292</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>S00W235A00</u>	
Lab sample id <u>R808060-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7863-003</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>RC-041</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	3.48	4.3	<u>6.40</u>	3.00	U	93A
Gross Beta	12587-47-2	0.502	3.9	<u>6.76</u>	4.00	U	93B
Potassium 40	13966-00-2	U		150		U	GAM
Cobalt 60	10198-40-0	U		6.67	25.0	U	GAM
Cesium 137	10045-97-3	U		7.52	15.0	U	GAM
Radium 226	13982-63-3	U		21.4		U	GAM
Radium 228	15262-20-1	U		36.4		U	GAM
Europium 152	14683-23-9	U		22.1	50.0	U	GAM
Europium 154	15585-10-1	U		19.9	50.0	U	GAM
Europium 155	14391-16-3	U		23.9	50.0	U	GAM
Thorium 228	14274-82-9	U		14.1		U	GAM
Thorium 232	TH-232	U		36.4		U	GAM
Uranium 235	15117-96-1	U		36.6		U	GAM
Uranium 238	U-238	U		781		U	GAM
Americium 241	14596-10-2	U		23.3		U	GAM
Antimony 125	14234-35-6	U		18.4		U	GAM
Barium 133	13981-41-4	U		8.19		U	GAM

300 Area D&D WasteChrctiznSmpl-Water

QC-BLANK #66765

Lab id <u>EBRLNE</u>
Protocol <u>Hanford1</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>08/25/08</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1292

7863-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7863</u> Contact <u>Melissa C. Mannion</u> Lab sample id <u>R808060-02</u> Dept sample id <u>7863-002</u>	Client/Case no <u>Hanford</u> <u>SDG K1292</u> Contract No. <u>S00W235A00</u> Client sample id <u>Lab Control Sample</u> Material/Matrix <u>WATER</u> SAF No <u>RC-041</u>
---	--

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 LMES (TOTAL)	PROTOCOL LIMITS
Gross Alpha	127	21	<u>8.16</u>	3.00	93A	128	5.1	99	60-140	70-130
Gross Beta	108	9.2	<u>7.84</u>	4.00	93B	116	4.6	93	80-120	80-120
Cobalt 60	440	25	<u>12.4</u>	25.0	GAM	420	17	105	85-115	80-120
Cesium 137	506	23	<u>16.6</u>	15.0	GAM	466	19	109	85-115	80-120

300 Area D&D WasteChrctiznSmpl-Water

QC-LCS 66764

Lab id <u>EBRLNE</u>
Protocol <u>Hanford1</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>08/25/08</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1292

7863-004

J178K6

DUPLICATE

SDG <u>7863</u> Contact <u>Melissa C. Mannion</u> DUPLICATE Lab sample id <u>R808060-04</u> Dept sample id <u>7863-004</u>	ORIGINAL Lab sample id <u>R808060-01</u> Dept sample id <u>7863-001</u> Received <u>08/08/08</u>	Client/Case no <u>Hanford</u> SDG <u>K1292</u> Contract No. <u>S00W235A00</u> Client sample id <u>J178K6</u> Location/Matrix <u>3720 Sump</u> <u>WATER</u> Collected/Volume <u>08/06/08 08:50</u> <u>1.0 L</u> Custody/SAF No <u>RC-041-037</u> <u>RC-041</u>
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ANALYTE	DUPLICATE	2σ ERR	MDA	RDL	QUALI-	TEST	ORIGINAL	2σ ERR	MDA	QUALI-	RPD	3σ	DER
	pCi/L	(COUNT)	pCi/L	pCi/L	FIERS		pCi/L	(COUNT)	pCi/L	FIERS	%	TOT	σ
Gross Alpha	-4.75	7.8	<u>18.2</u>	3.00	U	93A	0.946	9.7	<u>17.4</u>	U	-		0.9
Gross Beta	53.9	7.3	<u>7.74</u>	4.00		93B	55.3	7.3	<u>7.39</u>		3	37	0.2
Potassium 40	U		273		U	GAM	U		59.9	U	-		1.5
Cobalt 60	U		13.1	25.0	U	GAM	U		5.27	U	-		1.1
Cesium 137	U		14.6	15.0	U	GAM	U		4.08	U	-		1.4
Radium 226	U		25.7		U	GAM	U		9.54	U	-		1.2
Radium 228	U		54.9		U	GAM	U		19.1	U	-		1.2
Europium 152	U		40.7	50.0	U	GAM	U		11.0	U	-		1.4
Europium 154	U		45.0	50.0	U	GAM	U		12.6	U	-		1.4
Europium 155	U		40.7	50.0	U	GAM	U		9.89	U	-		1.5
Thorium 228	U		22.0		U	GAM	U		6.63	U	-		1.3
Thorium 232	U		54.9		U	GAM	U		19.1	U	-		1.2
Uranium 235	U		56.4		U	GAM	U		14.9	U	-		1.4
Uranium 238	U		1710		U	GAM	U		599	U	-		1.2
Americium 241	U		104		U	GAM	U		5.44	U	-		1.9
Antimony 125	U		33.7		U	GAM	U		9.70	U	-		1.4
Barium 133	U		14.3		U	GAM	U		4.46	U	-		1.3

300 Area D&D WasteChrctiznSmpl-Water

QC-DUP#1 66766

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-DUP
 Version 3.06
 Report date 08/25/08

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1292

7863-001

J178K6

DATA SHEET

SDG <u>7863</u>	Client/Case no <u>Hanford</u>	SDG <u>K1292</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>S00W235A00</u>	
Lab sample id <u>R808060-01</u>	Client sample id <u>J178K6</u>	
Dept sample id <u>7863-001</u>	Location/Matrix <u>3720 Sump</u>	<u>WATER</u>
Received <u>08/08/08</u>	Collected/Volume <u>08/06/08 08:50</u>	<u>1.0 L</u>
	Custody/SAF No <u>RC-041-037</u>	<u>RC-041</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.946	9.7	17.4	3.00	U	93A
Gross Beta	12587-47-2	55.3	7.3	7.39	4.00		93B
Potassium 40	13966-00-2	U		59.9		U	GAM
Cobalt 60	10198-40-0	U		5.27	25.0	U	GAM
Cesium 137	10045-97-3	U		4.08	15.0	U	GAM
Radium 226	13982-63-3	U		9.54		U	GAM
Radium 228	15262-20-1	U		19.1		U	GAM
Europium 152	14683-23-9	U		11.0	50.0	U	GAM
Europium 154	15585-10-1	U		12.6	50.0	U	GAM
Europium 155	14391-16-3	U		9.89	50.0	U	GAM
Thorium 228	14274-82-9	U		6.63		U	GAM
Thorium 232	TH-232	U		19.1		U	GAM
Uranium 235	15117-96-1	U		14.9		U	GAM
Uranium 238	U-238	U		599		U	GAM
Americium 241	14596-10-2	U		5.44		U	GAM
Antimony 125	14234-35-6	U		9.70		U	GAM
Barium 133	13981-41-4	U		4.46		U	GAM

300 Area D&D WasteChrctiznSmpl-Water

Lab id <u>EBRLNE</u>
Protocol <u>Hanford1</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>08/25/08</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1292

Test 93A Matrix WATER
 SDG 7863
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1292

RESULTS

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID		Gross Alpha
Preparation batch 6160-067					
R808060-01	93	7863-001	J178K6		U
R808060-02	93	7863-002	Lab Control Sample		ok
R808060-03	93	7863-003	Method Blank		<u>3.48</u> U
R808060-04	93	7863-004	Duplicate (R808060-01)		- U

Nominal values and limits from method RDLs (pCi/L) 3.00
 300 Area D&D WasteChrctiznSmpl-Water

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	mg	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6160-067 2σ prep error 20.6 % Reference Lab Notebook #6160, pg. 67															
R808060-01	93	J178K6	<u>17.4</u>	0.0800			193	100				10	08/15/08	08/16	GRB-109
R808060-02	93	Lab Control Sample	<u>8.16</u>	0.0800			62	100					08/15/08	08/16	GRB-110
R808060-03	93	Method Blank	<u>6.40</u>	0.0800			62	100					08/15/08	08/16	GRB-111
R808060-04	93	Duplicate (R808060-01)	<u>18.2</u>	0.0800			194	100				10	08/15/08	08/16	GRB-112
Nominal values and limits from method			3.00	0.0800			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 12.5 ± 12.2
 FOR 4 SAMPLES RESIDUE 128 ± 152

Lab id EBRLNE
 Protocol Hanford1
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 08/25/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1292

LAB METHOD SUMMARY

GAMMA EMITTERS
GAMMA SPECTROSCOPY

Test GAM Matrix WATER
SDG 7863
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Contract SDG K1292

RESULTS

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

Preparation batch 6160-067

R808060-01	7863-001	J178K6		U	U
R808060-02	7863-002	Lab Control Sample		ok	ok
R808060-03	7863-003	Method Blank		U	U
R808060-04	7863-004	Duplicate (R808060-01)		- U	- U

Nominal values and limits from method RDLs (pCi/L) 25.0 15.0
300 Area D&D WasteChrctiznSmpl-Water

METHOD PERFORMANCE

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

Preparation batch 6160-067 2σ prep error 7.0 % Reference Lab Notebook #6160, pg. 67

R808060-01	J178K6	<u>17.9</u>	0.500			1001		9	08/14/08	08/15	MB,01,00
R808060-02	Lab Control Sample	<u>16.6</u>	0.500			303			08/14/08	08/16	MB,01,00
R808060-03	Method Blank	<u>41.7</u>	0.500			303			08/14/08	08/16	MB,02,00
R808060-04	Duplicate (R808060-01)	<u>71.4</u>	0.500			303		10	08/14/08	08/16	MB,05,00

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 MDA 36.9 ± 51.5
FOR 4 SAMPLES YIELD _____ ± _____

METHOD SUMMARIES

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Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/25/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1292

SDG 7863
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1292

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

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

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

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/25/08

SDG 7863
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1292

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

These qualifiers should be reviewed as follows:

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

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

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Client Hanford
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WORK SUMMARY

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

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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EBERLINE SERVICES / RICHMOND

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Client Hanford
 Contract No. S00W235A00
 Case no SDG_K1292

DATA SHEET

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

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

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

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

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

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GUIDE, cont.

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1292

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.

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DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

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

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

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

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

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

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DUPLICATE

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

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

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

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

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

- * The first, computed limits for the recovery reflect:

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

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

2. The error of ADDED.

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

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

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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.

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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'

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

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- * Aliquots are underlined if less than the nominal value specified for the method.
- * Preparation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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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

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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.

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Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-041-037		Page 1 of 1	
Collector <i>manley</i>		Company Contact MT Stankovich		Telephone No. 509-430-7142		Project Coordinator KESSNER, JH		Price Code 7K	
Project Designation 300 Area D&D Waste Characterization Sampling - Water		Sampling Location 3720 Sump		<i>K1292 (7863)</i>		SAF No. RC-041		Data Turnaround 15 Days	
Ice Chest No. <i>SML-191</i>		Field Logbook No. EL-1518-10		COA RD4MXX2F00		Method of Shipment FED EX			
Shipped To <u>EBERLINE SERVICES</u> LIONVILLE		Offsite Property No. <i>A080325</i>				Bill of Lading/Air Bill No. See OSCP			
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Rad</i>					Preservation	HNO3 to pH <i>2</i>			
Special Handling and/or Storage <i>NONE</i>					Type of Container	G/P	<i>P</i>	<i>P</i>	
					No. of Container(s)	<i>1</i>	<i>1</i>	<i>0</i>	
					Volume	1000mL	<i>1000ml</i>	<i>1000ml</i>	
SAMPLE ANALYSIS					See item (1) in Special Instructions.	<i>Rad Glycol Screen</i>			
						<i>2018</i>			
Sample No.	Matrix *	Sample Date	Sample Time						
J178K6	WATER	<i>8/6/08</i>	<i>0850</i>	<i>X</i>	<i>20305</i>	<i>X</i>			
CHAIN OF POSSESSION					SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Shipping COA RD4MXX2F00	
<i>Tony Manley</i>		<i>8-6-08 9:00</i>		<i>MT Stankovich</i>		<i>AUG 06 2008</i>		(1) Americium-241/Curium-244 (Americium-241, Curium-240/244); Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Antimony-125, Barium-133, Radium-226, Radium-228); Nickel-63; Technetium-99; Neptunium-237; Isotopic Plutonium; Strontium-89,90 - Total Sr; Isotopic Thorium; Isotopic Uranium	
<i>MT Stankovich</i>		<i>AUG 06 2008</i>		<i>W. Eliason/Kim</i>		<i>8-6-08 09:30</i>		Transship to Lionville after Rad analysis. Call J. Kessner	
<i>MT Stankovich</i>		<i>8/6/08 1330</i>		<i>MT Stankovich</i>		<i>AUG 06 2008</i>		Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.	
<i>MT Stankovich</i>		<i>1340</i>		<i>1060/115</i>		<i>AUG 06 2008</i>			
<i>J.E. Bernhard</i>		<i>8-7-08</i>		<i>J.E. Bernhard</i>		<i>8-7-08</i>			
<i>J.E. Bernhard</i>		<i>8-7-08</i>		<i>FED EX</i>		<i>8/8/08</i>			
LABORATORY SECTION	Received By	<i>FED EX</i>		<i>MT</i>		<i>08/08/08 09:00</i>		Title	
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By				Date/Time	

pk 8/8/08

Client: W.C. HANFORD City MECLAND State WA
 Date/Time received 08/08/08 09:00 CoC No. RC-041-037
 Container I.D. No. SML-191 Requested TAT (Days) 15 P.O. Received Yes [] No []

INSPECTION

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

14. Was P.M. notified of any anomalies? Yes [] No [] Date _____
 15. Inspected by [Signature] Date: 08/08/08 Time: 10:15

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
<u>J178K6</u>	<u>660</u>						

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

29 August 2008



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

Subject: Analytical Data Package

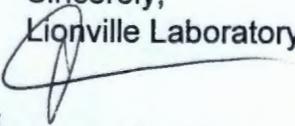
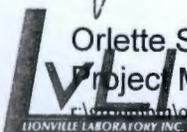
Dear Ms. Kessner:

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

LvLI Batch #	0808L039
SDG #	K1292
SAF #	RC-041
Date Received	8/9/08
# Samples	1
Matrix	OTHER
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	X
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	
Inorganics	

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

Sincerely,
Lionville Laboratory Incorporated


Orlette S. Johnson
Project Manager
 Lionville Laboratory Inc.
C:\Documents\Orlette\tnu-hanford\data\b_ltrs.doc



Lionville Laboratory, Inc.
8015 ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-041 K1292

DATE RECEIVED: 08/09/08

LVL LOT # :0808L039

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J178K6	001	W	08GCX026	08/06/08	08/12/08	08/13/08

LAB QC:

BLK	MB1	W	08GCX026	N/A	08/12/08	08/12/08
BLK	MB1 BS	W	08GCX026	N/A	08/12/08	08/12/08
BLK	MB1 BSD	W	08GCX026	N/A	08/12/08	08/12/08



Case Narrative

Client: WC-HANFORD RC-041
LVL #: 0808L039
SDG/SAF # K1292 / RC-042

W.O. #: 60049-001-001-0001-00
Date Received: 08-09-2008

GC SCAN

One (1) water sample was collected on 08-06-2008.

The sample and its associated QC samples were analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 08-12,13-2008. The sample was prepared and analyzed based on method 8015B for Propylene Glycol and Ethylene Glycol.

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

1. Discrepancies from the Sample acceptance policy have been recorded on the Sample Receipt Checklist.
2. The sample was analyzed within required holding time.
3. The method blank was below the reporting limits for the target compounds.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. Due to high concentrations of target analytes, sample J178K6 required a 20-fold instrument dilution.
7. The initial calibrations associated with this data set were within acceptance criteria.
8. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. LvLI is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

r:\group\data\2008\8015\tau\0808-039cw1.e-p-glycol.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.



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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/20/08
Date



GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Collector Mailey	Company Contact MT Stankovich	Telephone No. 509-430-7142	Project Coordinator KESSNER, Jill	Price Code 7K	Data Turnaround 15 Days
Project Designation 300 Area D&D Waste Characterization Sampling - Water	Sampling Location 3720 Sump	Field Logbook No. EL-1518-10	SAF No. RC-041		
Ice Chest No. SML-191	Offsite Property No. A080325	COA RD4MXX2F00	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES LIONVILLE			Bill of Lading/Air Bill No. See OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS Rad Special Handling and/or Storage NONE	Preservation	HNO3 to pH 2																		
	Type of Container	G/P	P	P																
	No. of Container(s)	1	1	0																
	Volume	1000mL	1000ml	1000ml																

SAMPLE ANALYSIS					See item (1) in Special Instructions.	Rad Screen solub	Coyle													
Sample No.	Matrix *	Sample Date	Sample Time																	
J178K6	WATER	8/6/08	0850	X	20305	X														

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From <i>Mailey</i>	Date/Time 8-6-08 9:00	Received By/Stored In <i>MT Stankovich</i>	Date/Time AUG 06 2008	Shipping COA RD4MXX2F00		S=Soil SE=Soil/Sludge SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Time WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>MT Stankovich</i>	Date/Time AUG 06 2008	Received By/Stored In <i>W. Elmer/Kin</i>	Date/Time 8-6-08 0935	(1) Americium-241/Curium-244 (Americium-241, Curium-243/244); Gross Alpha; Gross Beta; Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Antimony-125, Barium-133, Radium-226, Radium-228); Nickel-63; Technetium-99; Neptunium-237; Isotopic Plutonium, Strontium-89,90; Total Sr; Isotopic Plutonium; Isotopic Uranium		
Relinquished By/Removed From <i>MT Stankovich</i>	Date/Time 8/6/08 1330	Received By/Stored In <i>MT Stankovich</i>	Date/Time AUG 06 2008	Transship to Lionville after Rad analysis. Call J. Kessner		
Relinquished By/Removed From <i>MT Stankovich</i>	Date/Time AUG 06 2008	Received By/Stored In <i>1060/113</i>	Date/Time AUG 06 2008	[Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.]		
Relinquished By/Removed From <i>J.E. Bernhard</i>	Date/Time 8-7-08	Received By/Stored In <i>J.E. Bernhard</i>	Date/Time 8-7-08			
Relinquished By/Removed From <i>J.E. Bernhard</i>	Date/Time 8-7-08	Received By/Stored In <i>FED EX</i>	Date/Time			
LABORATORY SECTION	Received By <i>FED EX</i>	Date/Time 8/8/08	Title <i>ITM</i>	Date/Time 8/8/08		
FINAL SAMPLE DISPOSITION	Disposal Method <i>FED EX</i>	Disposed By <i>J. Kessner</i>		Date/Time 8/8/08		

Relinquished by: *Fed Ex 8.9.08/11:30* Received by: *J. Smith 8.9.08/11:30*

000000006

Lionville Laboratory Incorporated
 SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: Washington Closure Hartford
 Project/SAF/SOW/Release #: RC-041

Date: 8.9.08

LvLI Batch #: 0809L039

Sample Custodian: [Signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped? Carried Ex Airbill # 7970 4993 14
2. Custody Seals on coolers or shipping containers intact, signed & dated? Yes No No Seals
3. Outside of coolers or shipping containers are free from damage? Yes No *Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible? Yes No
5. Samples received cooled or ambient? Temp 20.3°C Cooler # SML-191
 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 No sample no# on label
11. Samples properly preserved? (If #5 is no, then this is no.) Yes No
12. Samples received within hold times? Yes No
 Short holds taken to wet lab? Yes No N/A
13. VOA, TOC, TOX free of headspace? Yes No N/A
14. QC stickers placed on bottles designated by client? Yes No N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.) Yes No See above
16. Project Manager contacted concerning any discrepancies? Yes No N/A
 Person Contacted [Signature] Date 8.9.08



SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 08/12/08

Extraction Batch No: 08GCX026

Analyst: SZ

Method: N/A

Test: 0801

Cleanup Date:

Analyst:

Client: ACCUTEST

LIMS Report Date: 08/12/08

Solvent: H2O

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
0808L016-	ACCUTEST										
001 5	J97202-2	7	2.0	1.0		2.0		1.0	N	0.0	1.0
0808L039-	WC-HANFORD RC-041 K1292										
001 5	J178K6	5	2.0	1.0		2.0		1.0	N	0.0	1.0
08GCX026-MB1 5	BLK	7	2.0	1.0		2.0		1.0	N	0.0	1.0
08GCX026-MB1 5S	BLK	7	2.0	1.0	1.0	2.0		1.0	N	0.0	1.0
08GCX026-MB1 5T	BLK	7	2.0	1.0	1.0	2.0		1.0	N	0.0	1.0

Comments:

Surrogate: 20 UL 90533801

Spike: 20 UL EACH 90533802,04

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

00000009