0078358

SAF-RC-057
118-K-1 Burial Grounds – Other Liquid Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 7/1/08
INITIAL/DATE

COMMENTS:

SDG K1241 **SAF-RC-057**

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 118-K-1

RECEIVED
JUL 07 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
www.eberlineservices.com

June 10, 2008

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

RECEIVED
JUN 2008

Reference: **P.O. #S00W235A00**
Eberline Services R8-06-046-7826, SDG K1241

Dear Ms. Kessner:

Enclosed is the data report for two liquid (other liquid) samples designated under SAF No. RC-057 received at Eberline Services on June 5, 2008. The samples were analyzed according to the accompanying chain-of-custody documents.

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 K1241 was composed of two liquid (other liquid) samples designated under SAF No. RC-057 with a Project Designation of: 118-K-1 Burial Grounds-Other Liquid Quick Turn.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on June 9, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analysis.

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 Mannion

Melissa C. Mannion
Senior Program Manager

06/10/08

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K1241

SDG	7826
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1241

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	12
Report Guides	15
End of Section	29

Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	06/09/08

SDG 7826
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

SDG 7826
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R806046-01	J16W92	118-K-1	LIQUID		RC-057	RC-057-007	05/29/08 09:07
R806046-02	J16WB8	118-K-1	LIQUID		RC-057	RC-057-008	06/04/08 08:30
R806046-03	Lab Control Sample		LIQUID		RC-057		
R806046-04	Method Blank		LIQUID		RC-057		
R806046-05	Duplicate (R806046-02)	118-K-1	LIQUID		RC-057		06/04/08 08:30

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

QC SUMMARY

SDG 7826
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

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
826	RC-057-007	J16W92	LIQUID		0.881 L		06/05/08	7	R806046-01	7826-001
	RC-057-008	J16WB8	LIQUID		0.155 L		06/05/08	1	R806046-02	7826-002
		Method Blank	LIQUID						R806046-04	7826-004
		Lab Control Sample	LIQUID						R806046-03	7826-003
		Duplicate (R806046-02)	LIQUID		0.155 L		06/05/08	1	R806046-05	7826-005

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

SDG 7826
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
93A	LIQUID	Gross Alpha in Liquid	6148-164	20.6	2			1	1	1/1		
93B	LIQUID	Gross Beta in Liquid	6148-164	11.0	2			1	1	1/1		
Gamma Spectroscopy												
GAM	LIQUID	Gamma Scan in Liquid	6148-164	7.0	2			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 Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

SDG 7826
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

LB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
106046-01	J16W92			7826-001	93A/93		06/06/08	06/09/08	MWT	Gross Alpha in Liquid
05/29/08	118-K-1		LIQUID	7826-001	93B/93		06/06/08	06/09/08	MWT	Gross Beta in Liquid
06/05/08	RC-057-007	RC-057		7826-001	GAM		06/06/08	06/09/08	CSS	Gamma Scan in Liquid
106046-02	J16WB8			7826-002	93A/93		06/06/08	06/09/08	MWT	Gross Alpha in Liquid
06/04/08	118-K-1		LIQUID	7826-002	93B/93		06/06/08	06/09/08	MWT	Gross Beta in Liquid
06/05/08	RC-057-008	RC-057		7826-002	GAM		06/06/08	06/09/08	CSS	Gamma Scan in Liquid
106046-03	Lab Control Sample			7826-003	93A/93		06/06/08	06/09/08	MWT	Gross Alpha in Liquid
			LIQUID	7826-003	93B/93		06/06/08	06/09/08	MWT	Gross Beta in Liquid
		RC-057		7826-003	GAM		06/06/08	06/09/08	CSS	Gamma Scan in Liquid
106046-04	Method Blank			7826-004	93A/93		06/06/08	06/09/08	MWT	Gross Alpha in Liquid
			LIQUID	7826-004	93B/93		06/06/08	06/09/08	MWT	Gross Beta in Liquid
		RC-057		7826-004	GAM		06/06/08	06/09/08	CSS	Gamma Scan in Liquid
106046-05	Duplicate (R806046-02)			7826-005	93A/93		06/06/08	06/09/08	MWT	Gross Alpha in Liquid
06/04/08	118-K-1		LIQUID	7826-005	93B/93		06/06/08	06/09/08	MWT	Gross Beta in Liquid
06/05/08		RC-057		7826-005	GAM		06/06/08	06/09/08	CSS	Gamma Scan in Liquid

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-057	Gross Alpha in Liquid	900.0_ALPHABETA_GPC	2			1	1	1	5
93B/93	RC-057	Gross Beta in Liquid	900.0_ALPHABETA_GPC	2			1	1	1	5
GAM	RC-057	Gamma Scan in Liquid	GAMMA_GS	2			1	1	1	5
TOTALS				6			3	3	3	15

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

7826-004 Method Blank

METHOD BLANK

SDG	7826	Client/Case no	Hanford	SDG K1241	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R806046-04	Client sample id	Method Blank		
Dept sample id	7826-004	Material/Matrix		LIQUID	
		SAF No	RC-057		

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.046	0.13	0.252	10.0	U	93A
Gross Beta	12587-47-2	0.071	0.16	0.274	15.0	U	93B
Potassium 40	13966-00-2	U		25.5		U	GAM
Cobalt 60	10198-40-0	U		0.881	0.050	U	GAM
Cesium 137	10045-97-3	U		0.905	0.050	U	GAM
Radium 226	13982-63-3	U		2.15	0.100	U	GAM
Radium 228	15262-20-1	U		4.27	0.200	U	GAM
Europium 152	14683-23-9	U		2.49	0.100	U	GAM
Europium 154	15585-10-1	U		3.05	0.100	U	GAM
Europium 155	14391-16-3	U		2.39	0.100	U	GAM
Thorium 228	14274-82-9	U		1.59		U	GAM
Thorium 232	TH-232	U		4.27		U	GAM
Uranium 235	15117-96-1	U		4.08		U	GAM
Uranium 238	U-238	U		111		U	GAM
Americium 241	14596-10-2	U		1.10		U	GAM
Silver 108m	14391-65-2	U		0.757		U	GAM

118-K-1 Burial Grounds-Other Liquid

QC-BLANK #65948

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

7826-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7826

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1241

Contract No. S00W235A00

Lab sample id R806046-03

Dept sample id 7826-003

Client sample id Lab Control Sample

Material/Matrix LIQUID

SAF No RC-057

ANALYTE	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST	ADDED pCi/mL	2σ ERR pCi/mL	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	5.15	0.77	0.263	10.0		93A	4.43	0.18	116	55-145	70-130
Gross Beta	4.42	0.33	0.239	15.0		93B	4.05	0.16	109	77-123	70-130
Cobalt 60	23.7	2.1	1.24	0.050		GAM	22.7	0.91	104	81-119	80-120
Cesium 137	25.5	1.9	1.44	0.050		GAM	25.3	1.0	101	83-117	80-120

118-K-1 Burial Grounds-Other Liquid

QC-LCS #65947

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

7826-005 J16WB8

DUPLICATE

SDG	7826			Client/Case no	Hanford SDG K1241
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R806046-05	Lab sample id	R806046-02	Client sample id	J16WB8
Dept sample id	7826-005	Dept sample id	7826-002	Location/Matrix	118-K-1 LIQUID
		Received	06/05/08	Collected/Volume	06/04/08 08:30 0.155 L
				Custody/SAF No	RC-057-008 RC-057

ANALYTE	DUPLICATE pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST	ORIGINAL pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	0.034	0.059	0.098	10.0	U	93A	0.009	0.041	0.081	U	-		0.7
Gross Beta	0.248	0.15	0.225	15.0		93B	0.163	0.23	0.373	U	41	202	0.6
Potassium 40	U		2.06		U	GAM	U		3.06	U	-		0.5
Cobalt 60	U		0.183	0.050	U	GAM	U		0.269	U	-		0.5
Cesium 137	U		0.168	0.050	U	GAM	U		0.258	U	-		0.6
Radium 226	U		0.351	0.100	U	GAM	U		0.524	U	-		0.5
Radium 228	U		0.755	0.200	U	GAM	U		1.16	U	-		0.6
Europium 152	U		0.417	0.100	U	GAM	U		0.595	U	-		0.5
Europium 154	U		0.514	0.100	U	GAM	U		0.753	U	-		0.5
Europium 155	U		0.251	0.100	U	GAM	U		0.394	U	-		0.6
Thorium 228	U		0.220		U	GAM	U		0.329	U	-		0.5
Thorium 232	U		0.755		U	GAM	U		1.16	U	-		0.6
Uranium 235	U		0.440		U	GAM	U		0.598	U	-		0.4
Uranium 238	U		19.8		U	GAM	U		31.0	U	-		0.6
Americium 241	U		0.130		U	GAM	U		0.191	U	-		0.5
Silver 108m	U		0.116		U	GAM	U		0.173	U	-		0.5

118-K-1 Burial Grounds-Other Liquid

QC-DUP#2 65949

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

7826-001 J16W92

DATA SHEET

SDG	7826	Client/Case no	Hanford	SDG K1241	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R806046-01	Client sample id	J16W92		
Dept sample id	7826-001	Location/Matrix	118-K-1	LIQUID	
Received	06/05/08	Collected/Volume	05/29/08 09:07	0.881 L	
		Custody/SAF No	RC-057-007	RC-057	

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.65	0.050	0.002	10.0		93A
Gross Beta	12587-47-2	54.9	0.091	0.002	15.0		93B
Potassium 40	13966-00-2	U		0.186		U	GAM
Cobalt 60	10198-40-0	0.301	0.022	0.011	0.050		GAM
Cesium 137	10045-97-3	28.0	0.15	0.036	0.050		GAM
Radium 226	13982-63-3	U		0.051	0.100	U	GAM
Radium 228	15262-20-1	U		0.053	0.200	U	GAM
Europium 152	14683-23-9	U		0.127	0.100	U	GAM
Europium 154	15585-10-1	U		0.031	0.100	U	GAM
Europium 155	14391-16-3	U		0.112	0.100	U	GAM
Thorium 228	14274-82-9	U		0.064		U	GAM
Thorium 232	TH-232	U		0.053		U	GAM
Uranium 235	15117-96-1	U		0.170		U	GAM
Uranium 238	U-238	U		1.44		U	GAM
Americium 241	14596-10-2	0.955	0.14	0.177			GAM
Silver 108m	14391-65-2	U		0.045		U	GAM

118-K-1 Burial Grounds-Other Liquid

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

7826-002 J16WB8

DATA SHEET

SDG	7826	Client/Case no	Hanford	SDG K1241	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R806046-02	Client sample id	J16WB8		
Dept sample id	7826-002	Location/Matrix	118-K-1	LIQUID	
Received	06/05/08	Collected/Volume	06/04/08 08:30	0.155 L	
		Custody/SAF No	RC-057-008	RC-057	

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.009	0.041	0.081	10.0	U	93A
Gross Beta	12587-47-2	0.163	0.23	0.373	15.0	U	93B
Potassium 40	13966-00-2	U		3.06		U	GAM
Cobalt 60	10198-40-0	U		0.269	0.050	U	GAM
Cesium 137	10045-97-3	U		0.258	0.050	U	GAM
Radium 226	13982-63-3	U		0.524	0.100	U	GAM
Radium 228	15262-20-1	U		1.16	0.200	U	GAM
Europium 152	14683-23-9	U		0.595	0.100	U	GAM
Europium 154	15585-10-1	U		0.753	0.100	U	GAM
Europium 155	14391-16-3	U		0.394	0.100	U	GAM
Thorium 228	14274-82-9	U		0.329		U	GAM
Thorium 232	TH-232	U		1.16		U	GAM
Uranium 235	15117-96-1	U		0.598		U	GAM
Uranium 238	U-238	U		31.0		U	GAM
Americium 241	14596-10-2	U		0.191		U	GAM
Silver 108m	14391-65-2	U		0.173		U	GAM

118-K-1 Burial Grounds-Other Liquid

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

Test 93A Matrix LIQUID
SDG 7826
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN LIQUID
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1241

.ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
:eparation batch 6148-164					
306046-01	93		7826-001	J16W92	1.65
306046-02	93		7826-002	J16WB8	U
306046-03	93		7826-003	LCS (QC ID=65947)	ok
306046-04	93		7826-004	BLK (QC ID=65948)	U
306046-05	93		7826-005	Duplicate (R806046-02)	- U

>minal values and limits from method RDLs (pCi/mL) 10.0
18-K-1 Burial Grounds-Other Liquid

:ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
:eparation batch 6148-164			2σ prep error 20.6 % Reference Lab Notebook #6148, pg. 164													
306046-01	93		J16W92	0.002	300			47		100			8	06/06/08	06/06	GRB-105
306046-02	93		J16WB8	0.081	2.30			1		100			2	06/06/08	06/06	GRB-107
306046-03	93		LCS (QC ID=65947)	0.263	2.30			60		100				06/06/08	06/06	GRB-109
306046-04	93		BLK (QC ID=65948)	0.252	2.30			60		100				06/06/08	06/06	GRB-110
306046-05	93		Duplicate (R806046-02) (QC ID=65949)	0.098	2.30			1		100			2	06/06/08	06/06	GRB-111
>minal values and limits from method				10.0	2.30			5-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	SPP-120	Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.139 ± 0.228
RESIDUE 34 ± 61

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

Test 93B Matrix LIQUID
SDG 7826
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN LIQUID
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1241

!ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
reparation batch 6148-164					
806046-01	93		7826-001	J16W92	54.9
806046-02	93		7826-002	J16WB8	U
806046-03	93		7826-003	LCS (QC ID=65947)	ok
806046-04	93		7826-004	BLK (QC ID=65948)	U
806046-05	93		7826-005	Duplicate (R806046-02)	ok

ominal values and limits from method RDLs (pCi/mL) 15.0
18-K-1 Burial Grounds-Other Liquid

IETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
reparation batch 6148-164			2σ prep error 11.0 % Reference Lab Notebook #6148, pg. 164													
806046-01	93		J16W92	0.002	300			47		100			8	06/06/08	06/06	GRB-105
806046-02	93		J16WB8	0.373	2.30			1		100			2	06/06/08	06/06	GRB-107
806046-03	93		LCS (QC ID=65947)	0.239	2.30			60		100				06/06/08	06/06	GRB-109
806046-04	93		BLK (QC ID=65948)	0.274	2.30			60		100				06/06/08	06/06	GRB-110
806046-05	93		Duplicate (R806046-02) (QC ID=65949)	0.225	2.30			1		100			2	06/06/08	06/06	GRB-111
ominal values and limits from method				15.0	2.30			5-250		100			180			

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	SPP-120	Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD FOR 5 SAMPLES				
	MDA	0.223	±	0.272
	RESIDUE	34	±	61

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/09/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1241

Test GAM Matrix LIQUID
SDG 7826
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN IN LIQUID

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1241

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137
Preparation batch 6148-164						
806046-01			7826-001	J16W92	0.301	28.0
806046-02			7826-002	J16WB8	U	U
806046-03			7826-003	LCS (QC ID=65947)	ok	ok
806046-04			7826-004	BLK (QC ID=65948)	U	U
806046-05			7826-005	Duplicate (R806046-02)	- U	- U
Nominal values and limits from method				RDLs (pCi/mL)	0.050	0.050
18-K-1 Burial Grounds-Other Liquid						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6148-164			2σ prep error 7.0 % Reference Lab Notebook #6148, pg. 164													
806046-01			J16W92	0.045	501					228			8	06/06/08	06/06	01,02,00
806046-02			J16WB8	0.269	11.1					411			2	06/06/08	06/06	SP,01,00
806046-03			LCS (QC ID=65947)	1.44	11.1					228				06/06/08	06/06	MB,05,00
806046-04			BLK (QC ID=65948)	0.905	11.1					228				06/06/08	06/06	MB,06,00
806046-05			Duplicate (R806046-02) (QC ID=65949)	0.183	11.1					876			2	06/06/08	06/06	SP,01,00
Nominal values and limits from method				0.050	11.1					100			180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.568 ± 1.18
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 06/09/08

SDG 7826
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

SDG 7826
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

SDG 7826
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

SDG 7826
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

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 7826
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

SDG 7826
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

SDG 7826
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

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 7826
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

SDG 7826
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

SDG 7826
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1241

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 Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/09/08

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-057-007	Page 1 of 1

Collector	Company Contact	Telephone No.	Project Coordinator	Price Code	Data Turnaround
Rob Tiler	Doug Bowers	521-0707	KESSNER, JH	3C	3 day

Project Designation	Sampling Location	SAF No.
118 K-1 Burial Grounds - Other Liquid Quick Turn	118-K-1 K1241 (7826)	RC-057

Ice Chest No.	Field Logbook No.	COA	Method of Shipment
AFS-06-001	EL 1602-4	R118K12600	~~Gov vehicle~~ Fed Ex

Shipped To	Offsite Property No.	Bill of Lading/Air Bill No.
EBERLINE SERVICES / LIONVILLE	A080262	See OSCP

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None								
Type of Container	P	G	P								
No. of Container(s)	1	1	1								
Volume	1000mL	20mL	1000mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions.	~~Carbon-14; Tritium - H3~~ pH RD 5-29-08	See item (2) in Special Instructions.								
Sample No. / Matrix * / Sample Date / Sample Time											
J16W92 / OTHER LIQUID / 5-29-08 / 0907	X										

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: RZ Steffler R.Z. Steffler	Received By/Stored In: Doug Bowers Doug Bowers	5-29-08 1030
Relinquished By/Removed From: Doug Bowers / Doug Bowers	Received By/Stored In: 118K sample trailer RMA	5-29-08 1500
Relinquished By/Removed From: 118K1 sample RMA	Received By/Stored In: Doug Bowers / Doug Bowers	5-30-08 1500
Relinquished By/Removed From: Doug Bowers / Doug Bowers	Received By/Stored In: 1060 RMA/A	5-30-08 1600
Relinquished By/Removed From: 1060 1A	Received By/Stored In: JR DeBrigne JR DeBrigne	6-4-08 0800
Relinquished By/Removed From: JR DeBrigne JR DeBrigne	Received By/Stored In: Fed EX	6-4-08 0800

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Silver-108 metastable) Gross Alpha/Beta
(2) ~~ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury - 7470 - (CV) (Mercury)~~ RD 6-3-08

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

W of H

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: FED EX	Title: PEW 06/05/06 09:30	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-057-008	Page 1 of 1

Collector: Mike Stankovich / Rad Con	Company Contact: Doug Bowers	Telephone No.: 521-0707	Project Coordinator: KESSNER, JH
Price Code: 3C	Data Turnaround: 3 day		
Project Designation: 118-K-1 Burial Grounds - Other Liquid Quick Turn	Sampling Location: 118-K-1 K1241 (7826)		SAF No.: RC-057
Ice Chest No.: 06-001 ~~AFS-04-122~~ MS 6/4/08	Field Logbook No.: EL 1602-4	COA: R118K12600	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: ~~A080289~~ MS 6/4/08 A080262		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE ~~SAMPLE~~ HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None											
Type of Container	P											
No. of Container(s)	1											
Volume	125mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											
Sample No. / Matrix * / Sample Date / Sample Time							RCF					
J16WB8 / OTHER LIQUID / 6/4/08 / 0830	X						19732					

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: RCF D. Miller	0830 6-4-08	Received By/Stored In: MZW M Stankovich	0830 6/4/08
Relinquished By/Removed From: WCH MZW M Stankovich	6/4/08 0830	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: FED EX		Received By/Stored In:	06/05/08 09:30
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

Sample was origionally an RCF sample, waste mgt wants more than RCF analysis. Assign HEIS # and ship. Sample date and time will reflect when AFS personal picked up sample from RCF.

(1) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}, gross α/β mcm 6/6/8

Matrix *

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

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

WCH-EE-011

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

JK 6/5/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 06/05/08 09:30 CoC No. RC-057-007, 008

Container I.D. No. AFS-06-001 Requested TAT (Days) 3 P.O. Received Yes [ ] No [ ]

INSPECTION

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

    NO CUSTODY SEALS ON SHIPPING CONTAINER

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by MFuy Date: 06/05/08 Time: 10:00

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J16W92	<60						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 99574 Calibration date 08 MAY 09

LvLI
LIONVILLE LABORATORY INC.

RECEIVED
JUN 2008

1 July 2008

Joan Kessner
WC-Hanford
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 #	0806L247
SDG #	K1241
SAF #	RC-057
Date Received	6/5/08
# Samples	1
Matrix	OTHER LIQUID
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\b_ltrs doc

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

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-057 K1241

RECEIVED JUN 2008

DATE RECEIVED: 06/05/08 LVL LOT # :0806L247

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J16W92						
SILVER, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
SILVER, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
SILVER, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
ALUMINUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/12/08
ALUMINUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/12/08
ALUMINUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/12/08
ARSENIC, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
ARSENIC, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
ARSENIC, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
BARIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
BARIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
BARIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
BERYLLIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
BERYLLIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
BERYLLIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
CALCIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
CALCIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
CALCIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
CADMIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
CADMIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
CADMIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
COBALT, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
COBALT, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
COBALT, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
CHROMIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
CHROMIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
CHROMIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
COPPER, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
COPPER, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
COPPER, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
IRON, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
IRON, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
IRON, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
POTASSIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/12/08
POTASSIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/12/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-057

DATE RECEIVED: 06/05/08 LVL LOT # :0806L247

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
POTASSIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/12/08
MAGNESIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
MAGNESIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
MAGNESIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
MANGANESE, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
MANGANESE, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
MANGANESE, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
SODIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/12/08
SODIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/12/08
SODIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/12/08
NICKEL, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
NICKEL, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
NICKEL, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
LEAD, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
LEAD, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
LEAD, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
ANTIMONY, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
ANTIMONY, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
ANTIMONY, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
SELENIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
SELENIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
SELENIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
THALLIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
THALLIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
THALLIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
VANADIUM, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
VANADIUM, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
VANADIUM, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08
ZINC, TOTAL	001	W	08L0225	05/29/08	06/09/08	06/10/08
ZINC, TOTAL	001 REP	W	08L0225	05/29/08	06/09/08	06/10/08
ZINC, TOTAL	001 MS	W	08L0225	05/29/08	06/09/08	06/10/08

AB QC:

SILVER LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
SILVER, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
ALUMINUM LABORTORY	LC1 BS	W	08L0225	N/A	06/09/08	06/12/08
ALUMINUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/12/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-057

DATE RECEIVED: 06/05/08 LVL LOT # :0806L247

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
ARSENIC, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
BARIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
BARIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
BERYLLIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
BERYLLIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
CALCIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
CALCIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
CADMIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
CADMIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
COBALT LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
COBALT, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
CHROMIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
CHROMIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
COPPER LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
COPPER, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
IRON LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
IRON, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
POTASSIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/12/08
POTASSIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/12/08
MAGNESIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
MAGNESIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
MANGANESE LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
MANGANESE, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
SODIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/12/08
SODIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/12/08
NICKEL LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
NICKEL, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
LEAD LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
LEAD, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
ANTIMONY LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
ANTIMONY, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
SELENIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
SELENIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
THALLIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
THALLIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08
VANADIUM LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
VANADIUM, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-057

DATE RECEIVED: 06/05/08 LVL LOT # :0806L247

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC LABORATORY	LC1 BS	W	08L0225	N/A	06/09/08	06/10/08
ZINC, TOTAL	MB1	W	08L0225	N/A	06/09/08	06/10/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-057
LVL#: 0806L247
SDG/SAF#: /RC-057 K1241

W.O.#: 11343-606-001-9999-00
Date Received: 06-05-08

METALS CASE NARRATIVE

The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvLI) 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 for Aluminum, Potassium, and Sodium, on a different instrument. Potassium, and Sodium were rerun in file PS0612A due to CCVs that were outside the 90-110% control limits. Aluminum was also rerun in file PS0612A due to sample matrix.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% for all data contained within this report.

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

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

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

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

9. The matrix spike (MS) recoveries for 2 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 18 pages.

LvLI
LIONVILLE LABORATORY INC.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J16W92	Iron	10,000	94.4
	Lead	1,000	80.8

11. The duplicate analysis for 1 analyte was 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. 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.

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 Incorporated

6/18/08
Date

alm/m06-247

METALS METHOD GLOSSARY

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

ot#: 08061247

eaching Procedure: __1310 __1311 __1312 __Other:_____

LP 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
luminum	✓6010B		__200.7				__99
ntimony	✓6010B	__7041 [5]	__200.7	__204.2			__99
rsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
arium	✓6010B		__200.7				__99
eryllium	✓6010B		__200.7				__99
ismuth	__6010B [1]		__200.7 [1]			__1620	__99
oron	__6010B		__200.7				__99
admium	✓6010B	__7131A [5]	__200.7	__213.2			__99
alcium	✓6010B		__200.7				__99
hromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
obalt	✓6010B		__200.7				__99
opper	✓6010B	__7211 [5]	__200.7	__220.2			__99
ron	✓6010B		__200.7				__99
ead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
ithium	__6010B	__7430 [4]	__200.7			__1620	__99
agnesium	✓6010B		__200.7				__99
anganese	✓6010B		__200.7				__99
ercury	__7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
olybdenum	__6010B		__200.7				__99
ickel	✓6010B		__200.7				__99
otassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
are Earths	__6010B [1]		__200.7 [1]			__1620	__99
elenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
ilicon	__6010B [1]		__200.7			__1620	__99
ilica	__6010B		__200.7			__1620	__99
ilver	✓6010B	__7761 [5]	__200.7	__272.2			__99
odium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
trontium	__6010B		__200.7				__99
hallium	✓6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
in	__6010B		__200.7				__99
itanium	__6010B		__200.7				__99
ranium	__6010B [1]		__200.7 [1]			__1620	__99
anadium	✓6010B		__200.7				__99
inc	✓6010B		__200.7				__99
irconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-W1-033/M-03/01
000000007

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 06/12/08

CLIENT: TNU-HANFORD RC-057 LVL LOT #: 0806L247

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16W92	Silver, Total	1.0	u	UG/L	1.0	1.0
		Aluminum, Total	217		UG/L	40.0	1.0
		Arsenic, Total	5.0		UG/L	5.0	1.0
		Barium, Total	5.9		UG/L	1.0	1.0
		Beryllium, Total	0.50	u	UG/L	0.50	1.0
		Calcium, Total	3710		UG/L	40.0	1.0
		Cadmium, Total	2.2		UG/L	0.50	1.0
		Cobalt, Total	2.3		UG/L	2.0	1.0
		Chromium, Total	2.7		UG/L	2.0	1.0
		Copper, Total	9.4		UG/L	2.0	1.0
		Iron, Total	13700		UG/L	45.0	1.0
		Potassium, Total	7820		UG/L	493	1.0
		Magnesium, Total	10500		UG/L	25.0	1.0
		Manganese, Total	203		UG/L	0.40	1.0
		Sodium, Total	10400		UG/L	20.0	1.0
		Nickel, Total	11.6		UG/L	2.0	1.0
		Lead, Total	7270		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
		Thallium, Total	6.0	u	UG/L	6.0	1.0
		Vanadium, Total	1.4	u	UG/L	1.4	1.0
		Zinc, Total	108		UG/L	6.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/12/08

CLIENT: TNU-HANFORD RC-057 LVL LOT #: 0806L247

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0225-MB1	Silver, Total	1.0	u	UG/L	1.0	1.0
		Aluminum, Total	50.5		UG/L	40.0	1.0
		Arsenic, Total	5.0	u	UG/L	5.0	1.0
		Barium, Total	1.5		UG/L	1.0	1.0
		Beryllium, Total	0.50	u	UG/L	0.50	1.0
		Calcium, Total	92.5		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	45.0	u	UG/L	45.0	1.0
		Potassium, Total	493	u	UG/L	493	1.0
		Magnesium, Total	65.7		UG/L	25.0	1.0
		Manganese, Total	0.40	u	UG/L	0.40	1.0
		Sodium, Total	232		UG/L	20.0	1.0
		Nickel, Total	2.0	u	UG/L	2.0	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
		Thallium, Total	6.0	u	UG/L	6.0	1.0
		Vanadium, Total	1.4	u	UG/L	1.4	1.0
		Zinc, Total	6.0	u	UG/L	6.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 06/12/08

CLIENT: TNU-HANFORD RC-057 LVL LOT #: 0806L247

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J16W92	Silver, Total	48.6	1.0 u	50.0	97.2	1.0
		Aluminum, Total	2450	217	2000	111.8	1.0
		Arsenic, Total	2020	5.0	2000	100.8	1.0
		Barium, Total	1980	5.9	2000	98.5	1.0
		Beryllium, Total	50.4	0.50u	50.0	100.8	1.0
		Calcium, Total	29800	3710	25000	104.2	1.0
		Cadmium, Total	53.0	2.2	50.0	101.6	1.0
		Cobalt, Total	504	2.3	500	100.4	1.0
		Chromium, Total	206	2.7	200	101.8	1.0
		Copper, Total	258	9.4	250	99.3	1.0
		Iron, Total	15000	13700	1000	131.2*	1.0
		Potassium, Total	32300	7820	25000	97.7	1.0
		Magnesium, Total	36200	10500	25000	102.6	1.0
		Manganese, Total	715	203	500	102.4	1.0
		Sodium, Total	34700	10400	25000	97.1	1.0
		Nickel, Total	516	11.6	500	101.0	1.0
		Lead, Total	8000	7270	500	145.3*	1.0
		Antimony, Total	494	3.0 u	500	98.7	1.0
		Selenium, Total	1800	6.0 u	2000	89.8	1.0
		Thallium, Total	1960	6.0 u	2000	97.8	1.0
		Vanadium, Total	490	1.4 u	500	97.9	1.0
		Zinc, Total	605	108	500	99.4	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 06/12/08

CLIENT: TNU-HANFORD RC-057 LVL LOT #: 0806L247

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16W92	Silver, Total	1.0 u	1.8	NC	1.0
		Aluminum, Total	217	243	11.3	1.0
		Arsenic, Total	5.0	5.0 u	NC	1.0
		Barium, Total	5.9	7.5	23.9	1.0
		Beryllium, Total	0.50u	0.50u	NC	1.0
		Calcium, Total	3710	3790	2.2	1.0
		Cadmium, Total	2.2	2.4	8.7	1.0
		Cobalt, Total	2.3	2.2	4.4	1.0
		Chromium, Total	2.7	2.9	7.1	1.0
		Copper, Total	9.4	8.4	11.2	1.0
		Iron, Total	13700	13900	1.1	1.0
		Potassium, Total	7820	8060	3.0	1.0
		Magnesium, Total	10500	10600	0.95	1.0
		Manganese, Total	203	204	0.15	1.0
		Sodium, Total	10400	10500	0.41	1.0
		Nickel, Total	11.6	10.6	9.0	1.0
		Lead, Total	7270	7370	1.3	1.0
		Antimony, Total	3.0 u	3.0 u	NC	1.0
		Selenium, Total	6.0 u	6.0 u	NC	1.0
		Thallium, Total	6.0 u	6.0 u	NC	1.0
		Vanadium, Total	1.4 u	1.4 u	NC	1.0
		Zinc, Total	108	108	0.56	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 06/12/08

CLIENT: TNU-HANFORD RC-057 LVL LOT #: 0806L247

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0225-LC1	Silver, LCS	501	500	UG/L	100.2
		Aluminum, LCS	5230	5000	UG/L	104.6
		Arsenic, LCS	9990	10000	UG/L	99.9
		Barium, LCS	5040	5000	UG/L	100.7
		Beryllium, LCS	253	250	UG/L	101.2
		Calcium, LCS	25900	25000	UG/L	103.8
		Cadmium, LCS	251	250	UG/L	100.3
		Cobalt, LCS	2520	2500	UG/L	100.6
		Chromium, LCS	512	500	UG/L	102.4
		Copper, LCS	1250	1250	UG/L	100
		Iron, LCS	5020	5000	UG/L	100.5
		Potassium, LCS	24800	25000	UG/L	99.1
		Magnesium, LCS	25500	25000	UG/L	102.0
		Manganese, LCS	761	750	UG/L	101.4
		Sodium, LCS	26000	25000	UG/L	103.9
		Nickel, LCS	2020	2000	UG/L	101.1
		Lead, LCS	2510	2500	UG/L	100.4
		Antimony, LCS	2950	3000	UG/L	98.3
		Selenium, LCS	10000	10000	UG/L	100.1
		Thallium, LCS	9950	10000	UG/L	99.5
		Vanadium, LCS	2470	2500	UG/L	98.8
		Zinc, LCS	1010	1000	UG/L	100.8

SAMPLE DIGESTION RECORD

Digestion Batch #: 08L0224 5 I.E. MW 6/9/08
Date/Time Initiated: 6/9/08 1045
Date/Time Completed: 6/9/08 1630
Analyst(s): MW
Matrix: Soil Water Other:
Instr. Type: AA CP
Parameters: HSL

Digested / Undigested (circle one)
Balance #: N/A
Balance Cal Verif: Y NA
Hot Plate Temp: 93°

SOP: L-SPI-3020 Rev. 00

Method: SW (circle)
3005A
3010A
3015
3020A
7060A (As/Se)
7760A (Ag)
3050B
3051
CLP ILMO3.0
ILMO4.0

DW 200.7 (1994)
200.9
3113B
MCAWW 200.7 (1982)
200 (AA)
206.2 (As/Se)
SM 3030C (NC)
Other Teflon

TMW

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
08061247-001		100ml	100ml	~7	TO	N/A	stained brown H_2O		
001R		↓	↓	↓	↓	↓	↓		
001S	1.0ml	↓	↓	↓	↓	↓	↓		
08061248-001		2.0ml	↓	↓	↓	↓	↓		
001R		↓	↓	↓	↓	↓	↓		
001S	1.0ml	↓	↓	↓	↓	↓	↓		
08L0224-MB1		100ml	↓	↓	↓	↓	clear/colorless		
LC1	1.0ml	↓	↓			↓	↓		

MW 6/9/08

Spiking IDs:
MS #: 8100-04-01
02
03
6072-78-07
LCS #: 08
09
10
11

Reagent IDs:
HNO_3 E46025
HCL G05039
H_2O_2
1:1 HNO_3
1:1 HCL

File ID#: IC022501
LIMS Transfer: Y N updated
Data Review By/Date: PMP, 06/10/08

ville Laboratory Use Only

806L247

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

000000015

it TNU HANFORD RC-059

Final Proj. Sampling Date

ct# 11343-606-001-9999-00

ct Contact/Phone#

ville Laboratory Project Manager O Johnson

SW846 Del STD TAT 3day

Rec'd 6-5-08 Date Due 6-8-08

Refrigerator #									A 2		B 2					
#/Type Container	Liquid								1P	1	1G					
	Solid															
Volume									1000	1	2L					
Preservatives									—	1	—					
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				TCL Metal	CN	PH					
		Lionville Laboratory Use Only														
									Metal	CN	IPH					
										6-5-08						

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
001	J16W92	✓	✓	W	5-27-08	0907															

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

cial Instructions:

met①: RCRA

IC①: Br, CL, F1, SO4, PO4, NO2, NO3

Special Instructions:

1. Cancel Cyanide, Sulfides, IC per Client
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	6/5/08	1005

Relinquished by	Received by	Date	Time

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-057-007 | Page 1 of 1

Collector: Ro[illegible]ler	Company Contact: Doug Bowers	Telephone No.: 521-0707	Project Coordinator: KESSNER, JH
Price Code: 3C	Data Turnaround: 3 day		
Project Designation: 118 K-1 Burial Grounds - Other Liquid Quick Turn	Sampling Location: 118-K-1		SAF No.: RC-057
Ice Chest No.: AFS-04-~~122~~ 122 JRD 6-4-08	Field Logbook No.: EL 1602-4	COA: R118K12600	Method of Shipment: JRD 6-4-08 ~~Gov vehicle~~ Fed Ex
Shipped To: EBERLINE SERVICES / HONVILLE	Offsite Property No.: A080289		Bill of Lading/Air Bill No.: See OSDC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None								
Type of Container	P	G	P								
No. of Container(s)	1	1	1								
Volume	1000mL	20mL	1000mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions.	~~Carbon-14, Tritium - H3~~ pH	See item (2) in Special Instructions.								
Sample No.	Matrix *	Sample Date	Sample Time								
16W92	OTHER LIQUID	5-29-08	0907		X	X					

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: E Steffler R.J. Steffler — Date/Time: 5-29-08 1030	Received By/Stored In: Doug Doug Bowers Bowers — Date/Time: 5-29-08/1030	(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Silver-108 metastable)	S=Soil
Relinquished By/Removed From: Doug Bowers/Doug Bowers 5-29-08/1500	Received By/Stored In: 118K sample trailer RMA 5-29-08/1500	(2) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury - 7470 - (CV) (Mercury), Antons, Cn, sulfides	SE=Sediment
Relinquished By/Removed From: 118K sample RMA 5-30-08/1500	Received By/Stored In: Doug Doug Bowers/Bowers 5-30-08/1500	Reroute RCF sample to Lionville for pH	SO=Solid
Relinquished By/Removed From: Doug Bowers/Doug Bowers 5-30-08/1600	Received By/Stored In: 1066 RMA 1A 5-30-08/1600		Sl=Sludge
Relinquished By/Removed From: 1066 1A 6-4-08 0800	Received By/Stored In: JP DeBrigue JRD 6-4-08 0800	Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.	W=Water
Relinquished By/Removed From: JP DeBrigue JRD 6-4-08 0800	Received By/Stored In: Fed Ex		O=Oil
			A=Air
			DS=Drum Solids
			DL=Drum Liquids
			T=Tissue
			Wi=Wipe
			L=Liquid
			V=Vegetation
			X=Other

LABORATORY SECTION	Received By: [signature]	Title	Date/Time: 6-5-08 1005
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

H-EE-011

000000016

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-057-007 | Page 1 of 1 5-29-08

ollector: Rory Seffler	Company Contact: Doug Bowers	Telephone No.: 521-0707	Project Coordinator: KESSNER, JH
Price Code: 3C	Data Turnaround: 3 day		
roject Designation: 118-K-1 Burial Grounds - Other Liquid Quick Turn	Sampling Location: 118-K-1		SAF No.: RC-057
ce Chest No.: ERC-97-077	Field Logbook No.: EL 1602-4	COA: R118K12600	Method of Shipment: Gov vehicle
hipped To: ~~EBERLINE SERVICES / LIONVILLE~~ RCF	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None								
Type of Container	P	G	P								
No. of Container(s)	1	1	1								
Volume	1000mL	20mL	1000mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions.	~~Carbon-14;~~ Tritium - H3 Rad Screen	See item (2) in Special Instructions.								

Sample No.	Matrix *	Sample Date	Sample Time										
16W92	OTHER LIQUID	5-29-08	0907		X		197Hel6		20ml				

CHAIN OF POSSESSION	Sign/Print Names	
elinquished By/Removed From: RZ Seffler RZ Seffler	Date/Time: 1030 5-29-08	Received By/Stored In: DougBowers/DougBowers
elinquished By/Removed From: DougBowers/DougBowers	Date/Time: 5-29-08/1500	Received By/Stored In: 118K sample trailer RMA
elinquished By/Removed From: 118K1 sample RMA	Date/Time: 5-30-08/1500	Received By/Stored In: DougBowers/Doug Bowers
elinquished By/Removed From: DougBowers/DougBowers	Date/Time: 5-30-08/1600	Received By/Stored In: 1060 RMA JA
elinquished By/Removed From: 1060/JA	Date/Time: 6/2/08 0910 JUN 02 2008	Received By/Stored In: MStankovich
elinquished By/Removed From: MStankovich	Date/Time: 0910 1000 JUN 02 2008	Received By/Stored In: DMiller RCF

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Silver-108 metastable)
(2) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury - 7470 - (CV) (Mercury)

Rad screen
Forward material to Eberline

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
=Other

LABORATORY SECTION: Received By: 6/2/08 6-3-08/1350 MStankovich Date/Time: 3/08 1350

FINAL SAMPLE DISPOSITION: Disposal Method: Transhipped to Lionville using COC 1 of 2 Disposed By: MStankovich Date/Time: 1500 JUN 03 2008

VCH-EE-011

000000017

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAF/SOW/Release #: RC-057

Date: 1/5/08

LvLI Batch #: 08061247

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7989 5488 4122
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 3.5	°C	Cooler # AFS-04422
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	
Short holds taken to wet lab?	☐ Yes	☐ No	☐ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD RC-057 K1241

RECEIVED JUN 2008

DATE RECEIVED: 06/05/08 LVL LOT # :0806L247

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
J16W92							
PH	001	W	08LPH028	05/29/08	06/10/08	06/10/08	0842
PH	001 REP	W	08LPH028	05/29/08	06/10/08	06/10/08	0844

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-057 K1241
LVL#: 0806L247

W.O.#: 11343-606-001-9999-00
Date Received: 06-05-08

INORGANIC NARRATIVE

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

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

   LvLI 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. LvLI certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

3. Sample holding time as required by the method and/or contract was not met as the sample was received past hold (see the sample chronology summary for analyses times for short hold samples).

4. The results presented in this report are derived from a sample that did not meet LvLI's sample acceptance policy as noted on the Sample Receipt Checklist.

5. The replicate analysis was within the 20% Relative Percent Difference (RPD) control limit.

6. 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 Incorporated

6/30/08
Date

njp\i06-247

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 10 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	___ 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 (b)
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:**

L-WI-034/A-01/01

000000003

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 06/13/08

CLIENT: TNU-HANFORD RC-057 K1241

LVL LOT #: 0806L247

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J16W92	pH	8.1	PH UNIT	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 06/13/08

CLIENT: TNU-HANFORD RC-057 K12HH

WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0806L247

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J16W92	pH	8.1	8.0	0.2	1.0

See SRC

Lionville Laboratory Use Only: 08061247

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TNU HANFORD RC-057

Est. Final Proj. Sampling Date:

Project#: 11343-606-001-9999-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: O Johnson

QC: SW846 Del: STD TAT: 3day

Date Rec'd: 6-5-08 Date Due: 6-8-08

Refrigerator #										A 2		B 2						
#/Type Container	Liquid									1P	1	1G						
	Solid																	
Volume										1000	1	2L						
Preservatives											1							
ANALYSES REQUESTED		ORGANIC								INORG								
		VOA	BNA	Pest/PCB	Herb					TCLP Metal	CN	PH	Cyanide	Sulfide				
Lionville Laboratory Use Only										Metals	ICNTO	IPH	IFSFD	IFSD				

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
S- Soil SE- Sediment SO- Solid SL- Sludge W- Water O- Oil A- Air DS- Drum Solids DL- Drum Liquids L- EP/TCLP Leachate WI- Wipe X- Other F- Fish	001	J16W92	/	/	W	5-29-08	0907								x	x	x	x	x		

Special Instructions:

met①: RCRA

IC①: Br, Cl, Fl, SO4, PO4, NO2, NO3

Special Instructions:

1. Cancel Cyanide, Sulfides, IC per Client
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	6/5/08	1005

Relinquished by	Received by	Date	Time

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

000000007

08U6L241

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-057-007	Page 1 of 1

Collector: Ron Tiller	Company Contact: Doug Bowers	Telephone No.: 521-0707	Project Coordinator: KESSNER, JH
Price Code: 3C	Data Turnaround: 3 day		
Project Designation: 118 K-1 Burial Grounds - Other Liquid Quick Turn	Sampling Location: 118-K-1		SAF No.: RC-057
Ice Chest No.: AFS-04-122 JRD 6-4-08	Field Logbook No.: EL 1602-4	COA: R118K12600	Method of Shipment: JRD 6-4-08 ~~Gov vehicle~~ Fed Ex
Shipped To: EBERLINE SERVICES / HONVILLE	Offsite Property No.: A080289		Bill of Lading/Air Bill No.: See OSDC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None									
Type of Container	P	G	P									
No. of Container(s)	1	1	1									
Volume	1000mL	20mL	1000mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	~~Carbon-14, Tritium - H3~~ pH 5-29-09	See item (2) in Special Instructions.									
Sample No.	Matrix *	Sample Date	Sample Time									
J16W92	OTHER LIQUID	5-29-09	0907		X	X						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RZ Steffler R.Z. Steffler	1030 5-29-08	Doug Bowers Doug Bowers	5-29-08/1030
Doug Bowers/Doug Bowers	5-29-08/1500	118K sample tray for RMA	5-29-08/1500
118K1 sample RMA	5-30-08/1500	Doug Bowers/Doug Bowers	5-30-08/1500
Doug Bowers/Doug Bowers	5-30-08/1600	1060 RMA 1A	5-30-08/1600
1060 1A	6-4-08 0800	JR DeBrigue JRD	6-4-08 0800
JR DeBrigue JRD	6-4-08 0800	Fed Ex	

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Silver-108 metastable)
(2) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury - 7470 - (CV) (Mercury) Anions, Cn, sulfides

Reroute RCF sample to Lionville for pH

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

Water

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: 6-5-08 1005
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-057-007	Page 1 of 1 5-29-08
Collector: Rory Seffler	Company Contact: Doug Bowers; Telephone No.: 521-0707	Project Coordinator: KESSNER, JH	Price Code: 3C; Data Turnaround: 3 day
Project Designation: 118-K-1 Burial Grounds - Other Liquid Quick Turn	Sampling Location: 118-K-1	SAF No.: RC-057	
Ice Chest No.: ERC-97-077	Field Logbook No.: EL 1602-4; COA: R118K12600	Method of Shipment: Gov vehicle	
Shipped To: ~~EBERLINE SERVICES / LIONVILLE~~ ACF	Offsite Property No.: NA	Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None								
Type of Container	P	G	P								
No. of Container(s)	1	1	1								
Volume	1000mL	20mL	1000mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions.	~~Carbon-14; Tritium - H3~~ Rad Screen	See item (2) in Special Instructions.								

Sample No.	Matrix *	Sample Date	Sample Time										
J16W92	OTHER LIQUID	5-29-08	0907		X		197616		20ml				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RZ Seffler RZ Seffler	1030 5-29-08	DougBowers/DougBowers	5-29-08/1030
DougBowers/DougBowers	5-29-08/1500	118K sample trailer RMA	5-29-08/1500
118K1 sample RMA	5-30-08/1500	DougBowers/Doug Bowers	5-30-08/1500
DougBowers/DougBowers	5-30-08/1600	1060 RMA JA	5-30-08/1600
1060/JA	6/2/08 0910 JUN 0 2 2008	MStankovich	0910 JUN 0 2 2008
MStankovich	6-2-08 0900 1000 JUN 0 2 2008	DMiller	RCF 6-2-08 1000
MStankovich	6/2/08 6-3-08/1350	MStankovich	6/3/08 1350

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}
(2) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7470 - (CV) {Mercury}

Rad screen
Forward material to Eberline

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

Water

Matrix *: SoSoil; SESediment; SOSolid; SlSludge; W = Water; OOil; AirAir; DSDrum Solids; DLDrum Liquids; TTissue; WIWipe; LLiquid; VaVegetation; =Other

LABORATORY SECTION	Received By: MStankovich 6-3-08/1350	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method: Transhipped to Lionville using COC 1 of 2	Disposed By: MStankovich 1500 Date: JUN 0 3 2008

WCH-EE-011

000000009

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

Project/SAF/SOW/Release #: RC-057

Date: 6/5/08

LvLI Batch #: 08061247

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7989 5488 4122
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 3.5	°C	Cooler # AFS-04122
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	
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 MC 6-30-08	☑ No See #12	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

000000010