0078708

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

COMPLETE COPY OF DATA PACKAGE TO:

Rick Kerkow	L6-06	KW 9/2/08 Initials/Date
Kathy Wendt	H4-21	KW 9/2/08 Initials/Date

COMMENTS:

SDG K1288 **SAF-RC-088**

Rad only Chem only X Rad & Chem

X Complete Partial

WASTE SITE: 618-7 Burial Ground (drums)

RECEIVED
SEP 08 2008
EDMC

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
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Toll Free (800) 841-5487
www.eberlineservices.com

August 13, 2008

RECEIVED AUG 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-08-016-7857, SDG K1288

Dear Ms. Kessner:

Enclosed is the data report for liquid (other liquid) sample designated under SAF No. RC-088 received at Eberline Services on August 4, 2008. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1288 was composed of one liquid (other liquid) sample designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Ground-Other liquids.

Note: the sample was a mixture of oil and metal chips. The metal chips were separated from the oil and the oil analyzed alone.

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 13, 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 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.3 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.4 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.6 Americium-241 Analysis

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 — 08/13/08

Melissa C. Mannion
Senior Program Manager

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 K1288

SDG	7857
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1288

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

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

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Prepared by

Melissa Mannion

Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	08/13/08

SDG 7857
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1288

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/13/08

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 K1288

SDG 7857
ontact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

B MPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
08016-01	J177M1-B	618-7 BurialGrnd(drums)	LIQUID		RC-088	RC-088-055	07/29/08 12:55
08016-02	Lab Control Sample		LIQUID		RC-088		
08016-03	Method Blank		LIQUID		RC-088		
08016-04	Duplicate (R808016-01)	618-7 BurialGrnd(drums)	LIQUID		RC-088		07/29/08 12:55

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

SDG 7857
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

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
	RC-088-055	J177M1-B	LIQUID		512 mL		08/04/08	6	R808016-01	7857-001
		Method Blank	LIQUID						R808016-03	7857-003
		Lab Control Sample	LIQUID						R808016-02	7857-002
		Duplicate (R808016-01)	LIQUID		512 mL		08/04/08	6	R808016-04	7857-004

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

SDG 7857
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	LIQUID	Americium 241 in Liquid	6160-050	8.0	1			1	1	1/1		
PU	LIQUID	Plutonium-238,239/240, Liquid	6160-050	8.0	1			1	1	1/1		
TH	LIQUID	Thorium, Isotopic in Liquid	6160-050	8.0	1			1	1	1/1		
U	LIQUID	Uranium in Liquid	6160-050	8.0	1			1	1	1/1		
Beta Counting												
SR	LIQUID	Total Strontium in Liquids	6160-050	10.4	1			1	1	1/1		
Gas Proportional Counting												
93A	LIQUID	Gross Alpha in Liquid	6160-050	20.6	1			1	1	1/1		
93B	LIQUID	Gross Beta in Liquid	6160-050	11.0	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 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

SDG 7857
'ontact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

SAMPLE ':LLECTED :ECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
016-01	J177M1-B			7857-001	93A/93		08/07/08	08/08/08	BW	Gross Alpha in Liquid
7/29/08	618-7 BurialGrnd(drums)		LIQUID	7857-001	93B/93		08/07/08	08/08/08	BW	Gross Beta in Liquid
8/04/08	RC-088-055	RC-088		7857-001	AM		08/08/08	08/08/08	BW	Americium 241 in Liquid
				7857-001	PU		08/08/08	08/12/08	BW	Plutonium-238,239/240, Liquid
				7857-001	SR		08/07/08	08/11/08	BW	Total Strontium in Liquids
				7857-001	TH		08/09/08	08/11/08	BW	Thorium, Isotopic in Liquid
				7857-001	U		08/08/08	08/08/08	BW	Uranium in Liquid
016-02	Lab Control Sample			7857-002	93A/93		08/07/08	08/08/08	BW	Gross Alpha in Liquid
			LIQUID	7857-002	93B/93		08/07/08	08/08/08	BW	Gross Beta in Liquid
		RC-088		7857-002	AM		08/08/08	08/08/08	BW	Americium 241 in Liquid
				7857-002	PU		08/08/08	08/12/08	BW	Plutonium-238,239/240, Liquid
				7857-002	SR		08/07/08	08/11/08	BW	Total Strontium in Liquids
				7857-002	TH		08/09/08	08/11/08	BW	Thorium, Isotopic in Liquid
				7857-002	U		08/08/08	08/08/08	BW	Uranium in Liquid
016-03	Method Blank			7857-003	93A/93		08/07/08	08/08/08	BW	Gross Alpha in Liquid
			LIQUID	7857-003	93B/93		08/07/08	08/08/08	BW	Gross Beta in Liquid
		RC-088		7857-003	AM		08/08/08	08/08/08	BW	Americium 241 in Liquid
				7857-003	PU		08/12/08	08/12/08	BW	Plutonium-238,239/240, Liquid
				7857-003	SR		08/07/08	08/11/08	BW	Total Strontium in Liquids
				7857-003	TH		08/12/08	08/12/08	BW	Thorium, Isotopic in Liquid
				7857-003	U		08/08/08	08/08/08	BW	Uranium in Liquid
:016-04	Duplicate (R808016-01)			7857-004	93A/93		08/07/08	08/08/08	BW	Gross Alpha in Liquid
'7/29/08	618-7 BurialGrnd(drums)		LIQUID	7857-004	93B/93		08/07/08	08/08/08	BW	Gross Beta in Liquid
'8/04/08		RC-088		7857-004	AM		08/08/08	08/08/08	BW	Americium 241 in Liquid
				7857-004	PU		08/09/08	08/12/08	BW	Plutonium-238,239/240, Liquid
				7857-004	SR		08/07/08	08/11/08	BW	Total Strontium in Liquids
				7857-004	TH		08/09/08	08/11/08	BW	Thorium, Isotopic in Liquid
				7857-004	U		08/08/08	08/08/08	BW	Uranium in Liquid

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

SDG 7857
ontact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

COUNTS OF TESTS BY SAMPLE TYPE

ST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
A/93	RC-088	Gross Alpha in Liquid	900.0_ALPHABETA_GPC	1			1	1	1	4
B/93	RC-088	Gross Beta in Liquid	900.0_ALPHABETA_GPC	1			1	1	1	4
	RC-088	Americium 241 in Liquid	AMCMISO_IE_PLATE_AEA	1			1	1	1	4
	RC-088	Plutonium-238,239/240, Liquid	PUISO_PLATE_AEA	1			1	1	1	4
	RC-088	Total Strontium in Liquids	SRTOT_SEP_PRECIP_GPC	1			1	1	1	4
	RC-088	Thorium, Isotopic in Liquid	THISO_IE_PLATE_AEA	1			1	1	1	4
	RC-088	Uranium in Liquid	UISO_PLATE_AEA	1			1	1	1	4
TALS				7			7	7	7	28

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

7857-003 Method Blank

METHOD BLANK

SDG	7857	Client/Case no	Hanford	SDG K1288	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808016-03	Client sample id	Method Blank		
Dept sample id	7857-003	Material/Matrix		LIQUID	
		SAF No	RC-088		

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.029	0.039	0.061	10.0	U	93A
Gross Beta	12587-47-2	-0.020	0.033	0.060	15.0	U	93B
Total Strontium	SR-RAD	-0.001	0.006	0.013	1.00	U	SR
Americium 241	14596-10-2	-0.002	0.004	0.015	1.00	U	AM
Thorium 228	14274-82-9	0.002	0.005	0.007	1.00	U	TH
Thorium 230	14269-63-7	-0.002	0.003	0.006	1.00	U	TH
Thorium 232	TH-232	-0.002	0.002	0.006	1.00	U	TH
Uranium 233/234	U-233/234	0.001	0.002	0.006	1.00	U	U
Uranium 235	15117-96-1	0	0.002	0.007	1.00	U	U
Uranium 238	U-238	0.001	0.002	0.006	1.00	U	U
Plutonium 238	13981-16-3	-0.003	0.006	0.017	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.003	0.012	1.00	U	PU

618-7 Burial Ground - Other Liquids

QC-BLANK #66731

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

7857-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7857

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1288

Contract No. S00W235A00

Lab sample id R808016-02

Dept sample id 7857-002

Client sample id Lab Control Sample

Material/Matrix LIQUID

SAF No RC-088

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	1.21	0.19	0.067	10.0		93A	1.13	0.045	107	58-142	70-130
Gross Beta	1.13	0.087	0.070	15.0		93B	1.03	0.041	110	77-123	70-130
Total Strontium	0.559	0.031	0.012	1.00		SR	0.516	0.021	108	80-120	80-120
Americium 241	1.14	0.11	0.021	1.00		AM	1.13	0.045	101	80-120	80-120
Thorium 230	1.02	0.12	0.011	1.00		TH	1.05	0.042	97	78-122	80-120
Uranium 233/234	1.00	0.086	0.038	1.00		U	1.03	0.041	97	82-118	80-120
Uranium 235	0.802	0.074	0.008	1.00		U	0.839	0.034	96	81-119	80-120
Uranium 238	1.05	0.090	0.037	1.00		U	1.12	0.045	94	82-118	80-120
Plutonium 238	1.26	0.046	0.003	1.00		PU	1.30	0.052	97	86-114	80-120
Plutonium 239/240	1.46	0.051	0.002	1.00		PU	1.47	0.059	99	86-114	80-120

618-7 Burial Ground - Other Liquids

QC-LCS #66730

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

7857-004 J177M1-B

DUPLICATE

SDG	7857			Client/Case no	Hanford SDG K1288
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R808016-04	Lab sample id	R808016-01	Client sample id	J177M1-B
Dept sample id	7857-004	Dept sample id	7857-001	Location/Matrix	618-7 BurialGrnd(drums) LIQUID
		Received	08/04/08	Collected/Volume	07/29/08 12:55 512 mL
				Custody/SAF No	RC-088-055 RC-088

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	5.04	0.22	0.025	10.0		93A	5.02	0.22	0.022		0	45	0
Gross Beta	2.36	0.12	0.054	15.0		93B	2.38	0.12	0.052		1	26	0.1
Total Strontium	-0.001	0.006	0.014	1.00	U	SR	-0.004	0.006	0.013	U	-		0.7
Americium 241	0.002	0.006	0.012	1.00	U	AM	0.002	0.012	0.021	U	-		0
Thorium 228	0.002	0.005	0.010	1.00	U	TH	0	0.004	0.008	U	-		0.6
Thorium 230	0.004	0.005	0.007	1.00	U	TH	0.011	0.009	0.008		93	207	1.4
Thorium 232	-0.001	0.002	0.007	1.00	U	TH	-0.002	0.002	0.007	U	-		0.7
Uranium 233/234	2.62	0.18	0.023	1.00		U	2.51	0.17	0.021		4	22	0.6
Uranium 235	0.283	0.037	0.007	1.00		U	0.282	0.035	0.006		0	32	0
Uranium 238	1.95	0.14	0.022	1.00		U	1.84	0.13	0.021		6	23	0.8
Plutonium 238	0	0.005	0.012	1.00	U	PU	0	0.002	0.004	U	-		0
Plutonium 239/240	0.003	0.005	0.010	1.00	U	PU	0.001	0.001	0.002	U	-		0.8

618-7 Burial Ground - Other Liquids

QC-DUP#1 66732

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

7857-001 J177M1-B

DATA SHEET

SDG	7857	Client/Case no	Hanford SDG_K1288
Contact	Melissa C. Mannion	Contract	No. S00W235A00
Lab sample id	R808016-01	Client sample id	J177M1-B
Dept sample id	7857-001	Location/Matrix	618-7 BurialGrnd(drums) LIQUID
Received	08/04/08	Collected/Volume	07/29/08 12:55 512 mL
		Custody/SAF No	RC-088-055 RC-088

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	5.02	0.22	0.022	10.0		93A
Gross Beta	12587-47-2	2.38	0.12	0.052	15.0		93B
Total Strontium	SR-RAD	-0.004	0.006	0.013	1.00	U	SR
Americium 241	14596-10-2	0.002	0.012	0.021	1.00	U	AM
Thorium 228	14274-82-9	0	0.004	0.008	1.00	U	TH
Thorium 230	14269-63-7	0.011	0.009	0.008	1.00		TH
Thorium 232	TH-232	-0.002	0.002	0.007	1.00	U	TH
Uranium 233/234	U-233/234	2.51	0.17	0.021	1.00		U
Uranium 235	15117-96-1	0.282	0.035	0.006	1.00		U
Uranium 238	U-238	1.84	0.13	0.021	1.00		U
Plutonium 238	13981-16-3	0	0.002	0.004	1.00	U	PU
Plutonium 239/240	PU-239/240	0.001	0.001	0.002	1.00	U	PU

618-7 Burial Ground - Other Liquids

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test AM Matrix LIQUID
SDG 7857
'ontact Melissa C. Mannion

LAB METHOD SUMMARY

AMERICIUM 241 IN LIQUID

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

SULTS

'LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241
aration batch 6160-050					
016-01			7857-001	J177M1-B	U
016-02			7857-002	Lab Control Sample	ok
016-03			7857-003	Method Blank	U
016-04			7857-004	Duplicate (R808016-01)	- U

nal values and limits from method RDLs (pCi/mL) 1.00
7 Burial Ground - Other Liquids

THOD PERFORMANCE

'LE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
aration batch 6160-050			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 050													
.016-01			J177M1-B	0.021	9.90			46		163			10	08/07/08	08/08	SS-034
.016-02			Lab Control Sample	0.021	9.00			56		162				08/07/08	08/08	SS-035
.016-03			Method Blank	0.015	9.00			54		163				08/07/08	08/08	SS-040
.016-04			Duplicate (R808016-01)	0.012	9.90			53		163			10	08/07/08	08/08	SS-042
nal values and limits from method				1.00	9.00			20-105		50	100		180			

OCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	SPP-040	Environmetnal Water Dissolution, rev 0
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 6
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.017 ± 0.009
YIELD 52 ± 9

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test PU Matrix LIQUID
SDG 7857
ontact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM-238,239/240, LIQUID

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

SULTS

LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238		Plutonium 239/240	
aration batch 6160-050								
016-01			7857-001	J177M1-B	U		U	
016-02			7857-002	Lab Control Sample	ok		ok	
016-03			7857-003	Method Blank	U		U	
016-04			7857-004	Duplicate (R808016-01)	-	U	-	U
nal values and limits from method				RDLs (pCi/mL)	1.00		1.00	

7 Burial Ground - Other Liquids

THOD PERFORMANCE

LE 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
aration batch 6160-050			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 050													
016-01			J177M1-B	0.004	9.90			63		1004			10	08/08/08	08/08	SS-064
016-02			Lab Control Sample	0.003	9.00			74		1004				08/08/08	08/08	SS-065
016-03			Method Blank	0.017	9.00			60		156				08/08/08	08/12	SS-028
016-04			Duplicate (R808016-01)	0.012	9.90			63		164			11	08/08/08	08/09	SS-032
nal values and limits from method				1.00	9.00			20-105		50			180			

OCEDURES	REFERENCE	PUISO_PLATE_AEA
	SPP-040	Environmetnal Water Dissolution, rev 0
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.009 ± 0.013
YIELD 65 ± 12

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test TH Matrix LIQUID
SDG 7857
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN LIQUID

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

SULTS

'LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230	
aration batch 6160-050						
.016-01			7857-001	J177M1-B	0.011	
.016-02			7857-002	Lab Control Sample	ok	
.016-03			7857-003	Method Blank	U	
:016-04			7857-004	Duplicate (R808016-01)	ok	U

.nal values and limits from method RDLs (pCi/mL) 1.00
·7 Burial Ground - Other Liquids

THOD PERFORMANCE

'LE 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
aration batch 6160-050			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 050													
.016-01			J177M1-B	0.008	9.90			82		165			11	08/08/08	08/09	SS-037
:016-02			Lab Control Sample	0.011	9.00			74		165				08/08/08	08/09	SS-040
:016-03			Method Blank	0.007	9.00			80		249				08/08/08	08/12	SS-031
.016-04			Duplicate (R808016-01)	0.010	9.90			80		165			11	08/08/08	08/09	SS-061
.nal values and limits from method				1.00	9.00			20-110		100	100		180			

:OCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	SPP-040	Environmetnal Water Dissolution, rev 0
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.009 ± 0.004
YIELD 79 ± 7

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test U Matrix LIQUID
SDG 7857
:ontact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM IN LIQUID

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

SULTS

'LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
aration batch 6160-050											
:016-01			7857-001	J177M1-B	2.51	0.282	1.84	136	13	15	2
:016-02			7857-002	Lab Control Sample	ok	ok	ok				
:016-03			7857-003	Method Blank	U	U	U				
:016-04			7857-004	Duplicate (R808016-01)	ok	ok	ok	134	13	15	2
.nal values and limits from method				RDLs (pCi/mL)	1.00	1.00	1.00				
·7 Burial Ground - Other Liquids								Averages 135		15	

THOD PERFORMANCE

'LE 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
aration batch 6160-050			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 050													
:016-01			J177M1-B	0.021	9.90			105		162			10	08/06/08	08/08	SS-036
:016-02			Lab Control Sample	0.038	9.00			98		162				08/06/08	08/08	SS-037
:016-03			Method Blank	0.007	9.00			111		162				08/06/08	08/08	SS-038
:016-04			Duplicate (R808016-01)	0.023	9.90			97		166			10	08/06/08	08/08	SS-061
.nal values and limits from method				1.00	9.00					100			180			

:OCEDURES

REFERENCE	UISO_PLATE_AEA
SPP-040	Environmetnal Water Dissolution, rev 0
CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1
CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.022 ± 0.025
YIELD 103 ± 13

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test SR Matrix LIQUID
SDG 7857
ontact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN LIQUIDS

BETA COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

SULTS

LE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium	
aration batch 6160-050						
016-01			7857-001	J177M1-B	U	
016-02			7857-002	Lab Control Sample	ok	
016-03			7857-003	Method Blank	U	
016-04			7857-004	Duplicate (R808016-01)	-	U
nal values and limits from method				RDLs (pCi/mL)	1.00	
7 Burial Ground - Other Liquids						

THOD PERFORMANCE

LE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/mL	ALIQ mL	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
aration batch 6160-050			2σ prep error 10.4 % Reference Lab Notebook #6160, pg. 050													
016-01			J177M1-B	0.013	19.8			94		100			9	08/07/08	08/07	GRB-223
016-02			Lab Control Sample	0.012	19.0			97		100				08/07/08	08/07	GRB-202
016-03			Method Blank	0.013	19.0			96		100				08/07/08	08/07	GRB-203
016-04			Duplicate (R808016-01)	0.014	19.8			87		100			9	08/07/08	08/07	GRB-224
nal values and limits from method				1.00	19.0					100			180			

OCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-040	Environmetnal Water Dissolution, rev 0
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.013 ± 0.002
YIELD 94 ± 9

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/13/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test 93A Matrix LIQUID
SDG 7857
ontact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN LIQUID

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

SULTS

LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
aration batch 6160-050					
016-01	93		7857-001	J177M1-B	5.02
016-02	93		7857-002	Lab Control Sample	ok
016-03	93		7857-003	Method Blank	U
016-04	93		7857-004	Duplicate (R808016-01)	ok

nal values and limits from method RDLs (pCi/mL) 10.0
7 Burial Ground - Other Liquids

THOD PERFORMANCE

LE 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
aration batch 6160-050			2σ prep error 20.6 % Reference Lab Notebook #6160, pg. 050													
016-01	93		J177M1-B	0.022	9.90			6		100			9	08/06/08	08/07	GRB-109
016-02	93		Lab Control Sample	0.067	9.00			60		100				08/06/08	08/07	GRB-110
016-03	93		Method Blank	0.061	9.00			61		100				08/06/08	08/07	GRB-111
016-04	93		Duplicate (R808016-01)	0.025	9.90			5		100			9	08/06/08	08/07	GRB-112
nal values and limits from method				10.0	9.00			5-250		100			180			

OCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-040	Environmetnal Water Dissolution, rev 0
	SPP-120	Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.044 ± 0.047
RESIDUE 33 ± 64

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Protocol Hanford1
Version Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test 93B Matrix LIQUID
SDG 7857
ontact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN LIQUID

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

SULTS

LE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
aration batch 6160-050					
016-01	93		7857-001	J177M1-B	2.38
016-02	93		7857-002	Lab Control Sample	ok
016-03	93		7857-003	Method Blank	U
016-04	93		7857-004	Duplicate (R808016-01)	ok

nal values and limits from method RDLs (pCi/mL) 15.0
7 Burial Ground - Other Liquids

THOD PERFORMANCE

LE 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
aration batch 6160-050			2σ prep error 11.0 % Reference Lab Notebook #6160, pg. 050													
016-01	93		J177M1-B	0.052	9.90			6		100			9	08/06/08	08/07	GRB-109
016-02	93		Lab Control Sample	0.070	9.00			60		100				08/06/08	08/07	GRB-110
016-03	93		Method Blank	0.060	9.00			61		100				08/06/08	08/07	GRB-111
016-04	93		Duplicate (R808016-01)	0.054	9.90			5		100			9	08/06/08	08/07	GRB-112
nal values and limits from method				15.0	9.00			5-250		100			180			

OCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-040	Environmetnal Water Dissolution, rev 0
	SPP-120	Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.059 ± 0.016
RESIDUE 33 ± 64

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
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Version 3.06
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Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
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Case no SDG K1288

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.

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Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/13/08

SDG 7857
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
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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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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1288

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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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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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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GUIDE, cont.

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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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REPORT GUIDE

Client Hanford
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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.

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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REPORT GUIDE

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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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Contact Melissa C. Mannion

REPORT GUIDE

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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'

Lab id EBRLNE
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METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-055	Page 1 of 1

Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: 9F	Data Turnaround: ~~15~~ 7 Days RTC 7/29/08		
Project Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums) K1288 (7857)		SAF No.: RC-088
Ice Chest No.: Fiberboard Box	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: Ground.
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: see HSMR		Bill of Lading/Air Bill No.: see HSMR

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None					
Type of Container	aG	aG	P	P	P					
No. of Container(s)	1	1	1	1	1					
Volume	250mL	125mL	125mL	60mL	500mL					
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions	Ignitability - 1010	See item (2) in Special Instructions					

mcm 8/4/8

RTC 7/29/08

Sample No.	Matrix *	Sample Date	Sample Time										
~~J177M0~~	~~OTHER LIQUID~~												
J177M1 - B	OTHER LIQUID	7/29/08	1255					X				PIN #	3757
~~J177M2~~	~~OTHER LIQUID~~												
~~J177M3~~	~~OTHER LIQUID~~												

A 7/29/08

RC 7/29/08

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
B Lawrence	1500 7-29-08	RT Coffman / RT Coffman	1500 7/29/08
RT Coffman / RT Coffman	1200 7/31/08	MS Stankovich / MS Stankovich	1200 7/31/08
MS Stankovich / MS Stankovich	1300 7/31/08	Ground.	
FED EX		Mul 08/04/08	10:30

SPECIAL INSTRUCTIONS

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

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

NOTE: GEA ON COMBINED LIQUID & SOLID PHASES. ISOTOPIC ANALYSES ON EACH PHASE SEPARATELY. RK 7/29/08

Matrix *

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

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

WCH-EE-011

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

AK 8/4/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 08/04/08 10:30 CoC No. RC-088-055

Container I.D. No. HAZMATBOX Requested TAT (Days) 7 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 1 Sample Matrix X SOLID, 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 [X] pH ____ Preservative ____
13. Describe any anomalies:
    ACTUAL MATRIX IS COMBINATION OF SOLID AND LIQUID
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date ____
15. Inspected by [signature] Date: 08/04/08 Time: 10:45

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe
J177MJ	250						

Ion Chamber Ser. No. ____ Calibration date ____

Alpha Meter Ser. No. ____ Calibration date ____

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

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

August 12, 2008

RECEIVED
AUG 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-08-015-7856, SDG K1288

Dear Ms. Kessner:

Enclosed is the data report for one solid (other solid) sample designated under SAF No. RC-088 received at Eberline Services on August 4, 2008. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1288 was composed of one solid (other solid) sample designated under SAF No. RC-088 with a Project Designation of: 618-7 Burial Grounds-Other Solids.

Note: the sample was a mixture of oil and metal chips. The metal chips were separated from the oil and analyzed as an other solid. Results are reported in pCi/g. Due to the activity of sample small aliquots were taken for the analyses, which resulted in high MDA's.

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 11, 2008.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.3 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.4 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.6 Americium-241 Analysis

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

08/12/08

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 K1288

SDG	7856
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1288

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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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	08/11/08

SDG 7856
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/11/08

SDG 7856
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1288

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

LAB SAMPLE SUMMARY

SDG 7856
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R808015-01	J177M1-A	618-7 Burial Ground-drum	SOLID		RC-088	RC-088-055	07/29/08 12:55
R808015-02	Lab Control Sample		SOLID		RC-088		
R808015-03	Method Blank		SOLID		RC-088		
R808015-04	Duplicate (R808015-01)	618-7 Burial Ground-drum	SOLID		RC-088		07/29/08 12:55

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

SDG 7856
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

C BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
356	RC-088-055	J177M1-A	SOLID	100.0	13.81 g		08/04/08	6	R808015-01	7856-001
		Method Blank	SOLID						R808015-03	7856-003
		Lab Control Sample	SOLID						R808015-02	7856-002
		Duplicate (R808015-01)	SOLID	100.0	13.81 g		08/04/08	6	R808015-04	7856-004

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

SDG 7856
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Solids	6160-046	8.0	1			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6160-046	8.0	1			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Solids	6160-046	8.0	1			1	1	1/1		
U	SOLID	Uranium, Isotopic in Solids	6160-046	8.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	6160-046	10.4	1			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Solids	6160-046	20.6	1			1	1	1/1		
93B	SOLID	Gross Beta in Solids	6160-046	11.0	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 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

SDG 7856
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

AB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
308015-01	J177M1-A			7856-001	93A/93		08/07/08	08/08/08	BW	Gross Alpha in Solids
07/29/08	618-7 Burial Ground-drum		SOLID	7856-001	93B/93		08/07/08	08/08/08	BW	Gross Beta in Solids
08/04/08	RC-088-055	RC-088		7856-001	AM		08/08/08	08/08/08	BW	Americium 241 in Solids
				7856-001	PU		08/08/08	08/11/08	BW	Plutonium, Isotopic in Solids
				7856-001	SR		08/07/08	08/11/08	BW	Total Strontium in Solids
				7856-001	TH		08/09/08	08/11/08	BW	Thorium, Isotopic in Solids
				7856-001	U		08/07/08	08/08/08	BW	Uranium, Isotopic in Solids
308015-02	Lab Control Sample			7856-002	93A/93		08/08/08	08/08/08	BW	Gross Alpha in Solids
			SOLID	7856-002	93B/93		08/08/08	08/08/08	BW	Gross Beta in Solids
		RC-088		7856-002	AM		08/08/08	08/08/08	BW	Americium 241 in Solids
				7856-002	PU		08/08/08	08/11/08	BW	Plutonium, Isotopic in Solids
				7856-002	SR		08/07/08	08/11/08	BW	Total Strontium in Solids
				7856-002	TH		08/09/08	08/11/08	BW	Thorium, Isotopic in Solids
				7856-002	U		08/08/08	08/08/08	BW	Uranium, Isotopic in Solids
308015-03	Method Blank			7856-003	93A/93		08/07/08	08/07/08	BW	Gross Alpha in Solids
			SOLID	7856-003	93B/93		08/07/08	08/07/08	BW	Gross Beta in Solids
		RC-088		7856-003	AM		08/08/08	08/08/08	BW	Americium 241 in Solids
				7856-003	PU		08/08/08	08/11/08	BW	Plutonium, Isotopic in Solids
				7856-003	SR		08/07/08	08/11/08	BW	Total Strontium in Solids
				7856-003	TH		08/09/08	08/11/08	BW	Thorium, Isotopic in Solids
				7856-003	U		08/07/08	08/08/08	BW	Uranium, Isotopic in Solids
308015-04	Duplicate (R808015-01)			7856-004	93A/93		08/07/08	08/07/08	BW	Gross Alpha in Solids
07/29/08	618-7 Burial Ground-drum		SOLID	7856-004	93B/93		08/07/08	08/07/08	BW	Gross Beta in Solids
08/04/08		RC-088		7856-004	AM		08/08/08	08/08/08	BW	Americium 241 in Solids
				7856-004	PU		08/08/08	08/11/08	BW	Plutonium, Isotopic in Solids
				7856-004	SR		08/07/08	08/11/08	BW	Total Strontium in Solids
				7856-004	TH		08/09/08	08/11/08	BW	Thorium, Isotopic in Solids
				7856-004	U		08/07/08	08/08/08	BW	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

SDG 7856
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-088	Gross Alpha in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	RC-088	Gross Beta in Solids	900.0_ALPHABETA_GPC	1			1	1	1	4
AM	RC-088	Americium 241 in Solids	AMCMISO_IE_PLATE_AEA	1			1	1	1	4
PU	RC-088	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	1			1	1	1	4
SR	RC-088	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	1			1	1	1	4
TH	RC-088	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	1			1	1	1	4
U	RC-088	Uranium, Isotopic in Solids	UISO_PLATE_AEA	1			1	1	1	4
TOTALS				7			7	7	7	28

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

7856-003 Method Blank

METHOD BLANK

SDG	7856	Client/Case no	Hanford	SDG K1288	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808015-03	Client sample id	Method Blank		
Dept sample id	7856-003	Material/Matrix		SOLID	
		SAF No	RC-088		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.354	15	32.8	10.0	U	93A
Gross Beta	12587-47-2	1.49	17	29.7	15.0	U	93B
Total Strontium	SR-RAD	2.41	2.8	5.17	1.00	U	SR
Americium 241	14596-10-2	2.94	4.4	5.63	1.00	U	AM
Thorium 228	14274-82-9	1.46	2.2	4.03	1.00	U	TH
Thorium 230	14269-63-7	-1.45	1.5	3.48	1.00	U	TH
Thorium 232	TH-232	0.364	0.73	2.78	1.00	U	TH
Uranium 233/234	U-233/234	-0.467	0.93	3.57	1.00	U	U
Uranium 235	15117-96-1	0	1.1	4.32	1.00	U	U
Uranium 238	U-238	-0.467	0.93	3.57	1.00	U	U
Plutonium 238	13981-16-3	-0.213	0.85	1.69	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.28	0.680	1.00	U	PU

618-7 Burial Ground - Other Solid

QC-BLANK #66728

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

7856-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7856

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1288

Contract No. S00W235A00

Lab sample id R808015-02

Dept sample id 7856-002

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-088

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	560	86	27.5	10.0		93A	560	22	100	61-139	70-130
Gross Beta	536	39	27.0	15.0		93B	555	22	97	80-120	80-120
Total Strontium	194	11	4.50	1.00		SR	204	8.2	95	82-118	80-120
Americium 241	405	45	6.42	1.00		AM	373	15	109	77-123	80-120
Thorium 230	298	31	2.84	1.00		TH	347	14	86	82-118	80-120
Uranium 233/234	872	73	32.2	1.00		U	966	39	90	83-117	80-120
Uranium 235	673	61	6.36	1.00		U	785	31	86	83-117	80-120
Uranium 238	870	73	31.0	1.00		U	1050	42	83	84-116	80-120
Plutonium 238	484	16	0.767	1.00		PU	430	17	113	84-116	80-120
Plutonium 239/240	417	14	1.13	1.00		PU	483	19	86	87-113	80-120

618-7 Burial Ground - Other Solid

QC-LCS #66727

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

7856-004 J177M1-A

DUPLICATE

SDG	7856			Client/Case no	Hanford SDG K1288
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R808015-04	Lab sample id	R808015-01	Client sample id	J177M1-A
Dept sample id	7856-004	Dept sample id	7856-001	Location/Matrix	618-7 Burial Ground-drum SOLID
		Received	08/04/08	Collected/Weight	07/29/08 12:55 13.81 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-088-055 RC-088

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	5980	170	11.3	10.0		93A	6670	120	9.60		11	44	0.7
Gross Beta	4020	110	42.7	15.0		93B	3930	73	29.0		2	24	0.3
Total Strontium	0.650	2.4	4.83	1.00	U	SR	0.878	2.6	4.94	U	-		0.1
Americium 241	0	2.5	5.90	1.00	U	AM	-0.485	1.9	5.36	U	-		0.3
Thorium 228	-0.261	2.1	4.21	1.00	U	TH	0.884	1.8	3.38	U	-		0.8
Thorium 230	0	1.6	2.49	1.00	U	TH	0.441	1.8	3.37	U	-		0.4
Thorium 232	-0.260	0.52	1.99	1.00	U	TH	-0.441	0.88	3.37	U	-		0.4
Uranium 233/234	2620	140	17.6	1.00		U	2730	140	16.3		4	20	0.6
Uranium 235	297	29	4.20	1.00		U	303	27	3.58		2	26	0.2
Uranium 238	1890	110	16.9	1.00		U	1950	100	15.7		3	21	0.5
Plutonium 238	0	0.80	1.46	1.00	U	PU	0.058	0.58	1.14	U	-		0.1
Plutonium 239/240	1.03	0.64	0.878	1.00		PU	0.288	0.46	0.710	U	113	180	1.9

618-7 Burial Ground - Other Solid

QC-DUP#1 66729

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

7856-001 J177M1-A

DATA SHEET

SDG	7856	Client/Case no	Hanford	SDG K1288	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R808015-01	Client sample id	J177M1-A		
Dept sample id	7856-001	Location/Matrix	618-7 Burial Ground-drum	SOLID	
Received	08/04/08	Collected/Weight	07/29/08 12:55	13.81 g	
% solids	100.0	Custody/SAF No	RC-088-055	RC-088	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	6670	120	9.60	10.0		93A
Gross Beta	12587-47-2	3930	73	29.0	15.0		93B
Total Strontium	SR-RAD	0.878	2.6	4.94	1.00	U	SR
Americium 241	14596-10-2	-0.485	1.9	5.36	1.00	U	AM
Thorium 228	14274-82-9	0.884	1.8	3.38	1.00	U	TH
Thorium 230	14269-63-7	0.441	1.8	3.37	1.00	U	TH
Thorium 232	TH-232	-0.441	0.88	3.37	1.00	U	TH
Uranium 233/234	U-233/234	2730	140	16.3	1.00		U
Uranium 235	15117-96-1	303	27	3.58	1.00		U
Uranium 238	U-238	1950	100	15.7	1.00		U
Plutonium 238	13981-16-3	0.058	0.58	1.14	1.00	U	PU
Plutonium 239/240	PU-239/240	0.288	0.46	0.710	1.00	U	PU

618-7 Burial Ground - Other Solid

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test AM Matrix SOLID
SDG 7856
Contact Melissa C. Mannion

LAB METHOD SUMMARY

AMERICIUM 241 IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

.ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241
:eparation batch 6160-046					
308015-01			7856-001	J177M1-A	U
308015-02			7856-002	LCS (QC ID=66727)	ok
308015-03			7856-003	BLK (QC ID=66728)	2.94 U
308015-04			7856-004	Duplicate (R808015-01)	- U

>minal values and limits from method RDLs (pCi/g) 1.00
18-7 Burial Ground - Other Solid

:ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
:eparation batch 6160-046 2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 46																
308015-01			J177M1-A	5.36	0.0300			47		162			10	08/07/08	08/08	SS-027
308015-02			LCS (QC ID=66727)	6.42	0.0300			46		162				08/07/08	08/08	SS-028
308015-03			BLK (QC ID=66728)	5.63	0.0300			39		162				08/07/08	08/08	SS-031
308015-04			Duplicate (R808015-01) (QC ID=66729)	5.90	0.0300			44		163			10	08/07/08	08/08	SS-032
>minal values and limits from method				1.00	0.0300			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 6
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 5.83 ± 0.905
YIELD 44 ± 7

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test PU Matrix SOLID
SDG 7856
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238	Plutonium 239/240
eparation batch 6160-046						
808015-01			7856-001	J177M1-A	U	U
808015-02			7856-002	LCS (QC ID=66727)	ok	LOW
808015-03			7856-003	BLK (QC ID=66728)	U	U
808015-04			7856-004	Duplicate (R808015-01)	- U	ok
minal values and limits from method				RDLs (pCi/g)	1.00	1.00
.8-7 Burial Ground - Other Solid						

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
eparation batch 6160-046			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 46													
808015-01			J177M1-A	1.14	0.0300			77		1001			10	08/08/08	08/08	SS-032
808015-02			LCS (QC ID=66727)	1.13	0.0300			68		1015				08/08/08	08/08	SS-061
808015-03			BLK (QC ID=66728)	1.69	0.0300			61		1014				08/08/08	08/08	SS-062
808015-04			Duplicate (R808015-01) (QC ID=66729)	1.46	0.0300			62		1004			10	08/08/08	08/08	SS-063
minal values and limits from method				1.00	0.0300			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 1.36 ± 0.542
YIELD 67 ± 15

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test TH Matrix SOLID
SDG 7856
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

:ESULTS

AB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
reparation batch 6160-046					
308015-01			7856-001	J177M1-A	U
308015-02			7856-002	LCS (QC ID=66727)	ok
308015-03			7856-003	BLK (QC ID=66728)	U
308015-04			7856-004	Duplicate (R808015-01)	- U

ominal values and limits from method RDLs (pCi/g) 1.00
18-7 Burial Ground - Other Solid

[ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
reparation batch 6160-046			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 46													
308015-01			J177M1-A	3.38	0.0300			64		164			11	08/08/08	08/09	SS-031
308015-02			LCS (QC ID=66727)	2.84	0.0300			81		164				08/08/08	08/09	SS-033
308015-03			BLK (QC ID=66728)	4.03	0.0300			80		165				08/08/08	08/09	SS-034
308015-04			Duplicate (R808015-01) (QC ID=66729)	4.21	0.0300			92		164			11	08/08/08	08/09	SS-035
ominal values and limits from method				1.00	0.0300			20-105		150			180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 3.62 ± 1.26
YIELD 79 ± 23

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test	U
Matrix	SOLID
SDG	7856
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. S00W235A00
Contract	SDG K1288

ESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
eparation batch 6160-046											
308015-01			7856-001	J177M1-A	2730	303	1950	140	10	16	2
308015-02			7856-002	LCS (QC ID=66727)	ok	ok	LOW				
308015-03			7856-003	BLK (QC ID=66728)	U	U	U				
308015-04			7856-004	Duplicate (R808015-01)	ok	ok	ok	139	11	16	2
ominal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00	100		4	
L8-7 Burial Ground - Other Solid								Averages 139		16	

ETHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
eparation batch 6160-046			2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 46													
308015-01			J177M1-A	16.3	0.0100			99		308			9	08/06/08	08/07	SS-061
308015-02			LCS (QC ID=66727)	32.2	0.0100			106		163				08/06/08	08/08	SS-033
308015-03			BLK (QC ID=66728)	4.32	0.0100			92		306				08/06/08	08/07	SS-065
308015-04			Duplicate (R808015-01) (QC ID=66729)	17.6	0.0100			100		306			9	08/06/08	08/07	SS-066
ominal values and limits from method				1.00	0.0100			20-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	17.6	±	22.8	
YIELD	99	±	11	

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test SR Matrix SOLID
SDG 7856
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

.ESULTS

ıB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium	
:eparation batch 6160-046						
308015-01			7856-001	J177M1-A	U	
308015-02			7856-002	LCS (QC ID=66727)	ok	
308015-03			7856-003	BLK (QC ID=66728)	2.41	U
308015-04			7856-004	Duplicate (R808015-01)	-	U

ɔminal values and limits from method RDLs (pCi/g) 1.00
18-7 Burial Ground - Other Solid

:ETHOD PERFORMANCE

ıB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
:eparation batch 6160-046 2σ prep error 10.4 % Reference Lab Notebook #6160, pg. 46																
308015-01			J177M1-A	4.94	0.0500			94		100			9	08/07/08	08/07	GRB-229
308015-02			LCS (QC ID=66727)	4.50	0.0500			95		93				08/07/08	08/07	GRB-218
308015-03			BLK (QC ID=66728)	5.17	0.0500			92		100				08/07/08	08/07	GRB-221
308015-04			Duplicate (R808015-01) (QC ID=66729)	4.83	0.0500			96		100			9	08/07/08	08/07	GRB-222
ɔminal values and limits from method				1.00	0.0500			30-105		100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-073	Soil Leaching 10-200 g Aliquot, rev 0
	CP-381	Strontium in Solids, rev 1

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	4.86	±	0.557
	YIELD	94	±	3

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test 93A Matrix SOLID
SDG 7856
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

.ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
:eparation batch 6160-046					
308015-01	93		7856-001	J177M1-A	6670
308015-02	93		7856-002	LCS (QC ID=66727)	ok
308015-03	93		7856-003	BLK (QC ID=66728)	U
308015-04	93		7856-004	Duplicate (R808015-01)	ok

>minal values and limits from method RDLs (pCi/g) 10.0
18-7 Burial Ground - Other Solid

:ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
:eparation batch 6160-046 2σ prep error 20.6 % Reference Lab Notebook #6160, pg. 46																
308015-01	93		J177M1-A	9.60	0.0200			3		200			9	08/06/08	08/07	GRB-214
308015-02	93		LCS (QC ID=66727)	27.5	0.0200			60		100				08/06/08	08/08	GRB-111
308015-03	93		BLK (QC ID=66728)	32.8	0.0200			60		100				08/06/08	08/07	GRB-105
308015-04	93		Duplicate (R808015-01) (QC ID=66729)	11.3	0.0200			4		100			9	08/06/08	08/07	GRB-107
>minal values and limits from method				10.0	0.0200			5-250		100			180			

PROCEDURES
REFERENCE 900.0_ALPHABETA_GPC
SPP-073 Soil Leaching 10-200 g Aliquot, rev 0
SPP-125 Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 20.3 ± 23.2
RESIDUE 32 ± 65

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/11/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1288

Test 93B Matrix SOLID
SDG 7856
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1288

.ESULTS

ıB AMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
:eparation batch 6160-046					
308015-01	93		7856-001	J177M1-A	3930
308015-02	93		7856-002	LCS (QC ID=66727)	ok
308015-03	93		7856-003	BLK (QC ID=66728)	U
308015-04	93		7856-004	Duplicate (R808015-01)	ok

›minal values and limits from method RDLs (pCi/g) 15.0
18-7 Burial Ground - Other Solid

:ETHOD PERFORMANCE

ıB AMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
:eparation batch 6160-046 2σ prep error 11.0 % Reference Lab Notebook #6160, pg. 46																
308015-01	93		J177M1-A	29.0	0.0200			3		200			9	08/06/08	08/07	GRB-214
308015-02	93		LCS (QC ID=66727)	27.0	0.0200			60		100				08/06/08	08/08	GRB-111
308015-03	93		BLK (QC ID=66728)	29.7	0.0200			60		100				08/06/08	08/07	GRB-105
308015-04	93		Duplicate (R808015-01) (QC ID=66729)	42.7	0.0200			4		100			9	08/06/08	08/07	GRB-107
›minal values and limits from method				15.0	0.0200			5-250		100			180			

PROCEDURES
REFERENCE 900.0_ALPHABETA_GPC
SPP-073 Soil Leaching 10-200 g Aliquot, rev 0
SPP-125 Gross Alpha and Gross Beta in Dissolved Solids, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 32.1 ± 14.3
RESIDUE 32 ± 65

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/11/08

SDG 7856
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/11/08

SDG 7856
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/11/08

SDG 7856
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/11/08

SDG 7856
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/11/08

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 7856
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1288

DATA SHEET

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/11/08

SDG 7856
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1288

LAB CONTROL SAMPLE

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

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

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

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

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

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

  2. The error of ADDED.

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

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/11/08

SDG 7856
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1288

DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/11/08

SDG 7856
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

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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Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/11/08

SDG 7856
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1288

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
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Form DVD-RG
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Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1288

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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SDG 7856
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1288

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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METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford | **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** | **RC-088-055** | Page 1 of 1

Collector B. Lawrence / E. Harries	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH
Price Code 9F	**Data Turnaround** ~~15~~ 7 Days RTC		
Project Designation 618-7 Burial Ground - Other Liquids	**Sampling Location** 618-7 Burial Ground (drums) K1288 (7856)		**SAF No.** RC-088
Ice Chest No. Fiberboard Box	**Field Logbook No.** EL-1395-12	**COA** RG61878500	**Method of Shipment** Ground.
Shipped To EBERLINE SERVICES LIONVILLE	**Offsite Property No.** see HSMK		**Bill of Lading/Air Bill No.** see HSMK

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None	
Type of Container	aG	aG	P	P	P	
No. of Container(s)	1	1	1	1	1	
Volume	250mL	125mL	125mL	60mL	500mL	
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions	Ignitability - 1010	See item (2) in Special Instructions	

solid. MCM 8/4/08

BTN 7/29/08

Sample No.	Matrix *	Sample Date	Sample Time									
~~J177M0~~	~~OTHER LIQUID~~											
J177M1 - A	OTHER ~~LIQUID~~	7/29/08	1255				X				PIN #	3757
~~J177M2~~	~~OTHER LIQUID~~											
~~J177M3~~	~~OTHER LIQUID~~											

VR 8/4/08

JC 8/4/08

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: B Lawrence	1500 7-29-08	Received By/Stored In: RT Coffman/RT Coffman	1500 7/29/08
Relinquished By/Removed From: RT Coffman/RT Coffman	7/31/08 1200	Received By/Stored In: MS Markovich	1200 7/31/08
Relinquished By/Removed From: MS Markovich	7/31/08 1300	Received By/Stored In: Ground.	
Relinquished By/Removed From: FED EX		Received By/Stored In: MM	08/04/08 10:30
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

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

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

NOTE: GEA ON COMBINED LIQUID & SOLID PHASES. ISOTOPIC ANALYSES ON EACH PHASE SEPARATELY. RK 7/29/08

Matrix *

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

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

WCH-EE-011

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Ik 8/4/08

Client: W C. HANFORD City RICHLAND State WA

Date/Time received 08/04/08 10:30 CoC No. RC-088-055

Container I.D. No. HAZMATBOX Requested TAT (Days) 7 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 1 Sample Matrix X SOLID, 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 [X] pH ____ Preservative ____
13. Describe any anomalies:
    ACTUAL MATRIX IS COMBINATION OF SOLID AND LIQUID
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date ____
15. Inspected by [signature] Date: 08/04/08 Time: 10:45

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J177MJ	250						

Ion Chamber Ser. No. ____ Calibration date ____

Alpha Meter Ser. No. ____ Calibration date ____

Beta/Gamma Meter Ser. No. 100482 Calibration date 10JUL08

RECEIVED
2008

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 #	0808L011
SDG #	K1288
SAF #	RC-088
Date Received	8/5/08
# Samples	2
Matrix	OTHER
Volatiles	
Semivolatiles	X
Pest/PCB	X
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
LIONVILLE LABORATORY INC.
orlette\tnu-hanford\data\b_ltrs.doc

RECEIVED
AUG 2008

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1288

DATE RECEIVED: 08/05/08 LVL LOT # :0808L011

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J177M1-B	001	OI	08LE0378	07/29/08	08/11/08	08/12/08
J177M1-B	001 MS	OI	08LE0378	07/29/08	08/11/08	08/12/08
J177M1-B	001 MSD	OI	08LE0378	07/29/08	08/11/08	08/12/08
LAB QC:						
SBLKWU	MB1	OI	08LE0378	N/A	08/11/08	08/12/08
SBLKWU	MB1 BS	OI	08LE0378	N/A	08/11/08	08/12/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-088
LVL #: 0808L011
SDG/SAF # K1288/RC-088

W.O. #: 11343-606-001-9999-00
Date Received: 08-05-2008

SEMIVOLATILE

One (1) oil sample was collected on 07-29-2008.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3580A (Waste Dilution Protocol, 1g into 10mL DCM) on 08-11-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 08-12-2008.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

2. The sample was extracted and analyzed within holding times.

3. Non-target compounds were detected in these samples.

4. All obtainable surrogate recoveries were within acceptance criteria.

5. Three (3) of one hundred and twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08MS177) has been enclosed.

6. All blank spike recoveries were within acceptance criteria.

7. The method blank was below the reporting limits for all target compounds.

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

r:\group\data\2008\bna\tnu\0808-011coil.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 14 pages.

LIONVILLE LABORATORY INC.

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

10. Internal standard area and retention time criteria were met.

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

12. 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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/13/18
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08MS177

Initiator: Sharon Saylor
Date: 8-13-08
Client: Thru Hanford RC080 K12880

Batch: 08OFL011
Samples: MS
Method: (SW846)/MCAWW/CLP/

Parameter: 8270
Matrix: Oil
Prep Batch: 08FE0378

1. Reason for SDR

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

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

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

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

low recovery of 4-nitrophenol in the ms but msd & ds are ok (38% - (40-14%))

2. Known or Probable Causes(s) acidic phenols are subject to erratic chromatographic behavior especially if the GC system is contaminated with high boiling material. All other spikes/surrogates within criteria

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

remake

4. Project Manager Instructions...signature/date: 8/13/08
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: 8/13/08 Other Explanation:
__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

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

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

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

GLOSSARY

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

A = Indicates that a TIC is a suspected aldol-condensation product.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

RFW Batch Number: **0808L011** Client: **WC-HANFORD RC-088 K1288** Work Order: 60049001001 Report Date: 08/13/08 14:04 Page: 1a

	Cust ID:	J177M1-B	J177M1-B	J177M1-B	SBLKWU	SBLKWU BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0378-MB1	08LE0378-MB1
	Matrix:	OIL	OIL	OIL	OIL	OIL
	D.F.:	21.0	21.0	21.0	21.0	21.0
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	82 %	97 %	101 %	89 %	94 %
	2-Fluorobiphenyl	101 %	107 %	114 %	98 %	106 %
	Terphenyl-d14	94 %	133 %	126 %	93 %	112 %
	Phenol-d5	84 %	77 %	86 %	85 %	80 %
	2-Fluorophenol	85 %	64 %	80 %	95 %	69 %
	2,4,6-Tribromophenol	83 %	87 %	93 %	88 %	96 %
Phenol		210000 U	60 %	78 %	210000 U	77 %
bis(2-Chloroethyl)ether		210000 U	92 %	96 %	210000 U	100 %
2-Chlorophenol		210000 U	76 %	85 %	210000 U	82 %
1,3-Dichlorobenzene		210000 U	96 %	101 %	210000 U	97 %
1,4-Dichlorobenzene		210000 U	96 %	103 %	210000 U	102 %
1,2-Dichlorobenzene		210000 U	98 %	112 * %	210000 U	103 %
2-Methylphenol		210000 U	62 %	80 %	210000 U	76 %
2,2'-oxybis(1-Chloropropane)		210000 U	96 %	105 %	210000 U	103 %
3/4 Methylphenol		210000 U	61 %	75 %	210000 U	77 %
N-Nitroso-di-n-propylamine		210000 U	82 %	96 %	210000 U	90 %
Hexachloroethane		210000 U	94 %	97 %	210000 U	96 %
Nitrobenzene		210000 U	91 %	91 %	210000 U	90 %
Isophorone		210000 U	87 %	89 %	210000 U	90 %
2-Nitrophenol		210000 U	89 %	95 %	210000 U	92 %
2,4-Dimethylphenol		210000 U	62 %	70 %	210000 U	65 %
bis(2-Chloroethoxy)methane		210000 U	96 %	100 %	210000 U	96 %
2,4-Dichlorophenol		210000 U	91 %	92 %	210000 U	95 %
1,2,4-Trichlorobenzene		210000 U	90 %	95 %	210000 U	92 %
Naphthalene		210000 U	94 %	99 %	210000 U	93 %
4-Chloroaniline		210000 U	86 %	90 %	210000 U	89 %
Hexachlorobutadiene		210000 U	96 %	96 %	210000 U	96 %
4-Chloro-3-methylphenol		210000 U	66 %	69 %	210000 U	64 %
2-Methylnaphthalene		210000 U	100 %	103 * %	210000 U	99 %
Hexachlorocyclopentadiene		210000 U	86 %	94 %	210000 U	93 %
2,4,6-Trichlorophenol		210000 U	84 %	99 %	210000 U	100 %
2,4,5-Trichlorophenol		520000 U	76 %	71 %	520000 U	76 %

*= Outside of EPA CLP QC limits.

0000000008

Cust ID:	J177M1-B		J177M1-B		J177M1-B		SBLKWU		SBLKWU BS	
RFW#:	001		001 MS		001 MSD		08LE0378-MB1		08LE0378-MB1	
2-Chloronaphthalene	210000	U	96	%	107	%	210000	U	103	%
2-Nitroaniline	520000	U	89	%	102	%	520000	U	98	%
Dimethylphthalate	210000	U	96	%	102	%	210000	U	101	%
Acenaphthylene	210000	U	101	%	106	%	210000	U	107	%
2,6-Dinitrotoluene	210000	U	97	%	102	%	210000	U	103	%
3-Nitroaniline	520000	U	84	%	91	%	520000	U	98	%
Acenaphthene	210000	U	99	%	111	%	210000	U	106	%
2,4-Dinitrophenol	520000	U	71	%	79	%	520000	U	70	%
4-Nitrophenol	520000	U	38 *	%	48	%	520000	U	67	%
Dibenzofuran	210000	U	104	%	110	%	210000	U	110	%
2,4-Dinitrotoluene	210000	U	104	%	108	%	210000	U	110	%
Diethylphthalate	210000	U	99	%	108	%	210000	U	104	%
4-Chlorophenyl-phenylether	210000	U	95	%	108	%	210000	U	109	%
Fluorene	210000	U	111	%	117	%	210000	U	115	%
4-Nitroaniline	520000	U	78	%	78	%	520000	U	90	%
4,6-Dinitro-2-methylphenol	520000	U	68	%	84	%	520000	U	81	%
N-Nitrosodiphenylamine (1)	210000	U	81	%	89	%	210000	U	87	%
4-Bromophenyl-phenylether	210000	U	87	%	96	%	210000	U	90	%
Hexachlorobenzene	210000	U	95	%	105	%	210000	U	104	%
Pentachlorophenol	520000	U	67	%	74	%	520000	U	83	%
Phenanthrene	210000	U	98	%	103	%	210000	U	102	%
Anthracene	210000	U	101	%	105	%	210000	U	102	%
Carbazole	210000	U	95	%	97	%	210000	U	96	%
Di-n-butylphthalate	210000	U	100	%	100	%	210000	U	104	%
Fluoranthene	210000	U	103	%	109	%	210000	U	109	%
Pyrene	210000	U	112	%	105	%	210000	U	101	%
Butylbenzylphthalate	210000	U	107	%	111	%	210000	U	104	%
3,3'-Dichlorobenzidine	210000	U	55	%	71	%	210000	U	81	%
Benzo(a)anthracene	210000	U	95	%	102	%	210000	U	99	%
Chrysene	210000	U	96	%	104	%	210000	U	102	%
bis(2-Ethylhexyl)phthalate	210000	U	97	%	102	%	210000	U	100	%
Di-n-octyl phthalate	210000	U	84	%	98	%	210000	U	93	%
Benzo(b)fluoranthene	210000	U	96	%	104	%	210000	U	109	%
Benzo(k)fluoranthene	210000	U	93	%	109	%	210000	U	101	%
Benzo(a)pyrene	210000	U	91	%	104	%	210000	U	102	%
Indeno(1,2,3-cd)pyrene	210000	U	94	%	103	%	210000	U	102	%
Dibenz(a,h)anthracene	210000	U	96	%	107	%	210000	U	104	%
Benzo(g,h,i)perylene	210000	U	91	%	101	%	210000	U	100	%

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

000000009

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J177M1-B

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

Client: WC-HANFORD RC-088 K1288

Matrix: (soil/water) OIL

Lab Sample ID: 0808L011-001

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: C081213

Level: (low/med) LOW

Date Received: 08/05/08

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

Date Extracted: 08/11/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 08/12/08

Injection Volume: 2.0(uL)

Dilution Factor: 21.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	4.296	100000	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKWU

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

Client: WC-HANFORD RC-088 K1288

Matrix: (soil/water) OIL

Lab Sample ID: 08LE0378-MB1

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: C081209

Level: (low/med) LOW

Date Received: 08/11/08

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

Date Extracted: 08/11/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 08/12/08

Injection Volume: 2.0(uL)

Dilution Factor: 21.0

GPC Cleanup: (Y/N) N pH: ____

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	4.275	200000	J

FORM 1 SV-TIC RFW (v3.3)

Lionville Laboratory Use Only

18081011

Custody Transfer Record/Lab Work Request

Page 1 of See SRC

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TNU HANFORD SAFE RCOTS

Int. Final Proj. Sampling Date

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

Project Contact/Phone#

Lionville Laboratory Project Manager: O. JOHNSON

Spec: SW846 Del: STD TAT: 7 Day

Date Rec'd: 8/5/08 Date Due: 8/12/08

Refrigerator #			A 2															
#/Type Container	Liquid		1G															
	Solid																	
Volume			250															
Preservatives																		
ANALYSES REQUESTED			ORGANIC							INORG								
			VOA	BNA	Pest/PCB	Herb				Tot Metal Hg	CN	TIN/TRS						

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only												
									8625H	OPCB				MET①		IIGN		IMSC		
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other Fish	001	J177M1	✓	✓	W*	7/27*	1055		*	*				*		*		✓		
	002	J177M1 (solid portion)	✓	✓	S	↓	↓							✓						

Special Instructions:

* matrix = other liquid

MET① = HSL + Sn, Zr

Special Instructions: IMSC = filter

1. 001 needs to be filtered to create 002 (solids that remain from filtering).
2.
3. 8/5/08 Samples on HOLD per OJ
4. 8-8-08 All OFF HOLD mk per OJ.
5.
6.

Relinquished by	Received by	Date	Time
Jodi Luby	[signature]	8/5/08	1230

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL	COMPOSITE		

000000012

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-055 | Page 1 of 1

ollector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: 9F	Data Turnaround: ~~15~~ 7 Days RL 7/29/08		
roject Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
:e Chest No.: Fiberboard Box	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: Ground
hipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: See HSMR		Bill of Lading/Air Bill No.: See HSMR

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None						
Type of Container	aG	aG JRD 7-10-08	P	P	P						
No. of Container(s)	1	~~1~~ 0	~~1~~ 0	~~1~~ 0	1						
Volume	250mL	125mL	125mL	60mL	500mL						
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions	Ignitability - 1010	See item (2) in Special Instructions RTC 7/29/08						
Sample No.	Matrix *	Sample Date	Sample Time								
~~177M0~~	~~OTHER LIQUID~~										
177M1	OTHER LIQUID	7/29/08	1255	X	X	X	X				PIN# 3757
~~177M2~~	~~OTHER LIQUID~~										
~~177M3~~	~~OTHER LIQUID~~										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1500 7-29-08	Received By/Stored In RTCoffman / RT Coffman	Date/Time 1500 7/29/08
Relinquished By/Removed From RTCOFFMAN / RTCoffman	Date/Time 1200 7/31/08	Received By/Stored In MTStankovich	Date/Time 1200 7/31/08
Relinquished By/Removed From MTStankovich	Date/Time 1300 7/31/08	Received By/Stored In Ground	Date/Time
Relinquished By/Removed From ROADWAY	Date/Time 8/5/08 1230	Received By/Stored In	Date/Time 8/5/08 1230
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

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

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

NOTE: SOLIDS PHASE - ICP METALS ONLY RL 7/29/08
LIQUID PHASE - ICP METALS, SVOA, PCB, IGNITABILITY. RL 7/29/08

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

ABORATORY SECTION	Received By	Title	Date/Time
INAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

CH-EE-011

000000013

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 8/5/08

LvLI Batch #: 08081011

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Roadway		Airbill # 868-043430-X
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 12.9 °C		Cooler #
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A
Person Contacted OJ.		Date 8/5/08	

LVLI LIONVILLE LABORATORY INC.

RECEIVED
2008

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1288

DATE RECEIVED: 08/05/08 LVL LOT # :0808L011

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J177M1-B	001	OI	08LE0379	07/29/08	08/11/08	08/11/08
J177M1-B	001 MS	OI	08LE0379	07/29/08	08/11/08	08/11/08
J177M1-B	001 MSD	OI	08LE0379	07/29/08	08/11/08	08/11/08

LAB QC:

PBLKTK	MB1	S	08LE0379	N/A	08/11/08	08/11/08
PBLKTK	MB1 BS	S	08LE0379	N/A	08/11/08	08/11/08

LIONVILLE LABORATORY INC.

Case Narrative *REVISION*

Client: WC-HANFORD RC-088
LVL #: 0808L011
SDG/SAF # K1288 / RC-088

W.O. #: 11343-606-001-9999-00
Date Received: 08-05-2008

PCB

One (1) oil sample was collected on 07-29-2008.

The sample and its associated QC samples were extracted on 08-11-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 08-11-2008. The extraction procedure was based on method 3580A (waste dilution 1g into 10 mLs of Hexane) and the extracts were analyzed based on method 8082.

The following is a summary of the 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. All required holding times for extraction and analysis have been met.
2. The sample and its associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
3. The method blank was below the reporting limits for all target compounds.
4. Three (3) of ten (10) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08GC096) has been enclosed.
5. All blank spike recoveries were within acceptance criteria.
6. Two (2) of four (4) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 08GC096) has been enclosed.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

r:\group\data\2008\pest\tnu\0808-011coil1.pcbrev.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 11 pages.

LIONVILLE LABORATORY INC.

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.

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.

11. The data package has been revised to correct the sample ID.

12 Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8-20-05
Date

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08GC096

Initiator: CAL
Date: 8/12/08
Client: TNU

Batch: 08084011
Samples: 001 +SIT
Method: SW846/MCAWW/CLP/

Parameter: PCB
Matrix:
Prep Batch: 08LE0379

1. Reason for SDR

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

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

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

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

PCB + Aroclor 1260 recoveries are low

2. Known or Probable Causes(s) oil coating column/detector

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

Other Description:
This is a common problem when analyzing oil samples.
JD.

4. Project Manager Instructions...signature/date: 8/14/08
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

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

Other Explanation:

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

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

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

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 08/19/08 16:07

RFW Batch Number: **0808L011** Client: **WC-HANFORD RC-088 K1288** Work Order: 60049001001 Page: 1

	Cust ID:	J177M1-B	J177M1-B	J177M1-B	PBLKTK	PBLKTK BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0379-MB1	08LE0379-MB1
	Matrix:	OIL	OIL	OIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	105 %	84 %	86 %	118 %	118 %
	Decachlorobiphenyl	20 * %	42 * %	34 * %	120 %	114 %
Aroclor-1016		400 U	92 %	90 %	400 U	99 %
Aroclor-1221		400 U	400 U	400 U	400 U	400 U
Aroclor-1232		400 U	400 U	400 U	400 U	400 U
Aroclor-1242		400 U	400 U	400 U	400 U	400 U
Aroclor-1248		400 U	400 U	400 U	400 U	400 U
Aroclor-1254		400 U	400 U	400 U	400 U	400 U
Aroclor-1260		400 U	39 * %	31 * %	400 U	112 %

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

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 08/11/08 Extraction Batch No: 08LE0379 Analyst: MF Method: **** WD3580

Test: OPCB Cleanup Date: 08/11/08 Analyst: MF Client: WC-HANFORD RC-088 K1288

LIMS Report Date: 08/12/08 Solvent: HEXANE Adsorbent: H2SO4

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0808L011-	WC-HANFORD RC-088 K1288										
001	J177M1		1.0	1.0		10		1.0	N	0.00	10000
001 -S	J177M1		1.0	1.0	1.0	10		1.0	N	0.00	10000
001 -T	J177M1		1.0	1.0	1.0	10		1.0	N	0.00	10000
08LE0379-MB1	PBLKTK		1.0	1.0		10		1.0	N	100.00	10000
08LE0379-MB1 -S	PBLKTK		1.0	1.0	1.0	10		1.0	N	100.00	10000

Comments:
Surrogate: 250 UL OLM PSURR 89916407
Spike: 250 UL AR1660 89916603

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
cc	MV	8/11/08 1440	SZ	8/11/08 13:45	GC

Lionville Laboratory, Inc.

SAMPLE EXTRACTION RECORD

Sheet no.: 1

74

Extract. Date: 08/11/08 Extraction Batch No: 08LE0379 Analyst: MF Method: ****

Test: OPCB Cleanup Date: 08/11/08 Analyst: MF Client: WC-HANFORD RC-088 K1288

LIMS Report Date: 08/19/08 Solvent: HEXANE Adsorbent: H2SO4

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0808L011-	WC-HANFORD RC-088 K1288										
001	J177M1-B		1.0	1.0		10		1.0	N	0.00	10000
001 -S	J177M1-B		1.0	1.0	1.0	10		1.0	N	0.00	10000
001 -T	J177M1-B		1.0	1.0	1.0	10		1.0	N	0.00	10000
08LE0379-MB1	PBLKTK		1.0	1.0		10		1.0	N	100.00	10000
08LE0379-MB1 -S	PBLKTK		1.0	1.0	1.0	10		1.0	N	100.00	10000

Comments:
Surrogate: 250 UL OLM PSURR 89916407
Spike: 250 UL AR1660 89916603

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

Revision SZ 8/19/08

Lionville Laboratory Use Only

J808L011

Custody Transfer Record/Lab Work Request

Page 1 of 900 SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD SAFH RCORR

Est. Final Proj. Sampling Date:

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

QC: Spec SW846 Del: Std TAT: 7 Day

Date Rec'd: 8/5/08 Date Due: 8/12/08

Refrigerator #			A 2													
#/Type Container	Liquid		1G													
	Solid															
Volume			250													
Preservatives																
ANALYSES REQUESTED			ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Hg Metal	Hg	CN				

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected		8625H	OPCB				METO		IIGN		IMSC		
001	J177M1-B	✓	✓	W*	7/29/08	1155		X	X				X		X		X		
002	J177M1-A (solid portion)	✓	✓	S	⊥	⊥							✓						

Special Instructions:

* matrix = other liquid

METO① = HSL + Sn, Zr

Special Instructions: IMSC = filter

1. 001 needs to be filtered to create 002 (solids that remain from filtering).
2.
3. 8/5/08 Samples on HOLD per OJ
4. 8-8-08 All OFF HOLD ink per OJ
5. 8-12-08 per client change ID's -001-J177M1-B, 002-J177M1-A ink
6.

Relinquished by	Received by	Date	Time
Fedex	[signature]	8/5/08	1230

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL	COMPLETE		

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-055

Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: 9F	Data Turnaround: ~~15~~ 7 Days		
Project Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: Fiberboard Box	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: Ground
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: See HSMR		Bill of Lading/Air Bill No.: See HSMR

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None	
Type of Container	aG	aG	P	P	P	
No. of Container(s)	1	1	1	1	1	
Volume	250mL	125mL	125mL	60mL	500mL	
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions	

JRD 7-10-08

RTC 7/29/08

Sample No.	Matrix *	Sample Date	Sample Time									
~~177M0~~	~~OTHER LIQUID~~											
177M1	OTHER LIQUID	7/29/08	1255	X	X	X	X				PIN#	3757
~~177M2~~	~~OTHER LIQUID~~											
~~177M3~~	~~OTHER LIQUID~~											

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	1500 7-29-08	RTCoffman / RT Coffman	1500 7/29/08
J COFFMAN / RT Coffman	1200 7/31/08	[signature] MTStankovich	1200 7/31/08
[signature] MTStankovich	1300 7/31/08	Ground	
ROADWAY	8/5/08 1230	[signature]	8/5/08 1230

SPECIAL INSTRUCTIONS

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

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

NOTE: SOLIDS PHASE - ICP METALS ONLY RK 7/29/08
LIQUID PHASE - ICP METALS, SVOA, PCB, IGNITABILITY. RK 7/29/08

Matrix *

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

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

FCH-EE-011

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 8/5/08

LvLI Batch #: 0808L011

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Roadway		Airbill # 868-043430-X
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 12.9	°C	Cooler #
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☐ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A
Person Contacted OJ		Date 8/5/08	

LvLI LIONVILLE LABORATORY INC.

RECEIVED
AUG 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1288

DATE RECEIVED: 08/05/08 LVL LOT # :0808L011

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J177M1-B						
SILVER, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
SILVER, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
SILVER, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
ALUMINUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
ALUMINUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
ALUMINUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
ARSENIC, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
ARSENIC, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
ARSENIC, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
BARIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
BARIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
BARIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
BERYLLIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
BERYLLIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
BERYLLIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
CALCIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
CALCIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
CALCIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
CADMIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
CADMIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
CADMIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
COBALT, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
COBALT, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
COBALT, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
CHROMIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
CHROMIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
CHROMIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
COPPER, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
COPPER, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
COPPER, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
IRON, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
IRON, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
IRON, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
MERCURY, TOTAL	001	OI	08C0143	07/29/08	08/15/08	08/15/08
MERCURY, TOTAL	001 REP	OI	08C0143	07/29/08	08/15/08	08/15/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1288

DATE RECEIVED: 08/05/08 LVL LOT # :0808L011

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 MS	OI	08C0143	07/29/08	08/15/08	08/15/08
POTASSIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
POTASSIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
POTASSIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
MAGNESIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
MAGNESIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
MAGNESIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
MANGANESE, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
MANGANESE, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
MANGANESE, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
SODIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
SODIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
SODIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
NICKEL, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
NICKEL, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
NICKEL, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
LEAD, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
LEAD, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
LEAD, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
ANTIMONY, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
ANTIMONY, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
ANTIMONY, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
SELENIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
SELENIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
SELENIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
TIN, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
TIN, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
TIN, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
THALLIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
THALLIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
THALLIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
VANADIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
VANADIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
VANADIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
ZINC, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08
ZINC, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
ZINC, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
ZIRCONIUM, TOTAL	001	OI	08L0301	07/29/08	08/13/08	08/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1288

DATE RECEIVED: 08/05/08 LVL LOT # :0808L011

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZIRCONIUM, TOTAL	001 REP	OI	08L0301	07/29/08	08/13/08	08/13/08
ZIRCONIUM, TOTAL	001 MS	OI	08L0301	07/29/08	08/13/08	08/13/08
J177M1-A						
SILVER, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
ALUMINUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
ARSENIC, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
BARIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
BERYLLIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
CALCIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
CADMIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
COBALT, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
CHROMIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
COPPER, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
IRON, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
MERCURY, TOTAL	002	SO	08C0143	07/29/08	08/15/08	08/15/08
MERCURY, TOTAL	002 REP	SO	08C0143	07/29/08	08/15/08	08/15/08
MERCURY, TOTAL	002 MS	SO	08C0143	07/29/08	08/15/08	08/15/08
POTASSIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
MAGNESIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
MANGANESE, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
SODIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
NICKEL, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
LEAD, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
ANTIMONY, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
SELENIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
TIN, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
THALLIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
VANADIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
ZINC, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08
ZIRCONIUM, TOTAL	002	SO	08L0301	07/29/08	08/13/08	08/14/08

AB QC:

SILVER LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
SILVER, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
ALUMINUM LABORTORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1288

DATE RECEIVED: 08/05/08 LVL LOT # :0808L011

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
ARSENIC LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
ARSENIC, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
BARIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
BARIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
BERYLLIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
CALCIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
CALCIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
CADMIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
CADMIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
COBALT LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
COBALT, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
CHROMIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
CHROMIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
COPPER LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
COPPER, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
IRON LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
IRON, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
MERCURY LABORATORY	LC1 BS	S	08C0143	N/A	08/15/08	08/15/08
MERCURY, TOTAL	MB1	S	08C0143	N/A	08/15/08	08/15/08
POTASSIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
POTASSIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
MAGNESIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
MANGANESE LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
MANGANESE, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
SODIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
SODIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
NICKEL LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
NICKEL, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
LEAD LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
LEAD, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
ANTIMONY LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
ANTIMONY, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
SELENIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
SELENIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
TIN LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1288

DATE RECEIVED: 08/05/08 LVL LOT # :0808L011

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TIN, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
THALLIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
THALLIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
VANADIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
VANADIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
ZINC LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
ZINC, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08
ZIRCONIUM LABORATORY	LC1 BS	S	08L0301	N/A	08/13/08	08/13/08
ZIRCONIUM, TOTAL	MB1	S	08L0301	N/A	08/13/08	08/13/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-088
LVL#: 0808L011
SDG/SAF#: K1288/RC-088

W.O.#: 60049-001-001-0001-00
Date Received: 08-05-08

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.

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

1. This narrative covers the analyses of 1 solid sample and 1 oil sample.

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

   Sample J177M1-A was run with a 24-fold dilution for all ICP metals with the exception of Potassium and Sodium with a 3-fold dilution and Zirconium with a 100-fold dilution. Mercury was run with a 5-fold dilution. All dilutions were due to sample matrix and/or high concentration.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury) with the exception of CCV4 for Potassium, Sodium, Calcium, and Cadmium in file TA0813A. All data reported is surrounded by in control CCVs.

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), or samples were greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

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 24 pages.

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

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

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

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

12. 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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

8/18/08
Date

alm/m08-011

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

e following methods are used as reference for the digestion and analysis of samples contained within thi

t#: 0808L011

aching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
uminum	✓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
smuth	__6010B [1]		__200.7 [1]			__1620	__99
oron	__6010B		__200.7				__99
admium	✓6010B	__7131A [5]	__200.7	__213.2			__99
alcium	✓6010B		__200.7				__99
hromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
obalt	✓6010B		__200.7				__99
opper	✓6010B	__7211 [5]	__200.7	__220.2			__99
on	✓6010B		__200.7				__99
ead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
ithium	__6010B	__7430 [4]	__200.7			__1620	__99
lagnesium	✓6010B		__200.7				__99
langanese	✓6010B		__200.7				__99
lercury	__7470A [3]	✓__7471A [3]	__245.1 [2]	__245.5 [2]			__99
lolybdenum	__6010B		__200.7				__99
ickel	✓6010B		__200.7				__99
otassium	✓6010B	__7610 [4]	__200.7	__258.1 [4]			__99
are Earths	__6010B [1]		__200.7 [1]			__1620	__99
elenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
ilicon	__6010B [1]		__200.7			__1620	__99
ilica	__6010B		__200.7			__1620	__99
ilver	✓6010B	__7761 [5]	__200.7	__272.2			__99
odium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
trontium	__6010B		__200.7				__99
hallium	✓6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
in	✓6010B		__200.7				__99
itanium	__6010B		__200.7				__99
Jranium	__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

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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 08/18/08

CLIENT: WC-HANFORD RC-088 K1288 LVL LOT #: 0808L011

WORK ORDER: 60049-001-001-0001-0D

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J177M1-B	Silver, Total	0.06 u	MG/KG	0.06	1.0
		Aluminum, Total	2.5 u	MG/KG	2.5	1.0
		Arsenic, Total	0.31 u	MG/KG	0.31	1.0
		Barium, Total	0.13	MG/KG	0.06	1.0
		Beryllium, Total	0.03 u	MG/KG	0.03	1.0
		Calcium, Total	4.6	MG/KG	2.5	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Cobalt, Total	0.12 u	MG/KG	0.12	1.0
		Chromium, Total	0.12 u	MG/KG	0.12	1.0
		Copper, Total	0.74	MG/KG	0.12	1.0
		Iron, Total	2.8 u	MG/KG	2.8	1.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	7.2	MG/KG	2.5	1.0
		Magnesium, Total	4.9	MG/KG	1.5	1.0
		Manganese, Total	0.09	MG/KG	0.02	1.0
		Sodium, Total	118	MG/KG	12.3	1.0
		Nickel, Total	0.12 u	MG/KG	0.12	1.0
		Lead, Total	0.19 u	MG/KG	0.19	1.0
		Antimony, Total	0.19 u	MG/KG	0.19	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Tin, Total	0.37 u	MG/KG	0.37	1.0
		Thallium, Total	0.37 u	MG/KG	0.37	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.0
		Zinc, Total	0.37 u	MG/KG	0.37	1.0
		Zirconium, Total	3.1 u	MG/KG	3.1	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/18/08

CLIENT: WC-HANFORD RC-088 K1288

LVL LOT #: 0808L011

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J177M1-A	Silver, Total	18.5		MG/KG	2.4	24.0
		Aluminum, Total	194		MG/KG	96.0	24.0
		Arsenic, Total	14.8		MG/KG	12.0	24.0
		Barium, Total	21.5		MG/KG	2.4	24.0
		Beryllium, Total	4.8		MG/KG	1.2	24.0
		Calcium, Total	96.0	u	MG/KG	96.0	24.0
		Cadmium, Total	1.2	u	MG/KG	1.2	24.0
		Cobalt, Total	73.3		MG/KG	4.8	24.0
		Chromium, Total	5720		MG/KG	4.8	24.0
		Copper, Total	235000		MG/KG	4.8	24.0
		Iron, Total	34300		MG/KG	108	24.0
		Mercury, Total	0.05	u	MG/KG	0.05	5.0
		Potassium, Total	12.0	u	MG/KG	12.0	3.0
		Magnesium, Total	60.0	u	MG/KG	60.0	24.0
		Manganese, Total	2710		MG/KG	0.96	24.0
		Sodium, Total	60.0	u	MG/KG	60.0	3.0
		Nickel, Total	3620		MG/KG	4.8	24.0
		Lead, Total	7.2	u	MG/KG	7.2	24.0
		Antimony, Total	7.2	u	MG/KG	7.2	24.0
		Selenium, Total	14.4	u	MG/KG	14.4	24.0
		Tin, Total	1550		MG/KG	14.4	24.0
		Thallium, Total	14.4	u	MG/KG	14.4	24.0
		Vanadium, Total	74.0		MG/KG	3.4	24.0
		Zinc, Total	218		MG/KG	14.4	24.0
		Zirconium, Total	97600		MG/KG	500	100

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/18/08

CLIENT: WC-HANFORD RC-088 K1288 LVL LOT #: 0808L011

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0301-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	4.0 u	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.15	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	6.0	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.90	MG/KG	0.20	1.0
		Iron, Total	4.5 u	MG/KG	4.5	1.0
		Potassium, Total	4.0 u	MG/KG	4.0	1.0
		Magnesium, Total	3.3	MG/KG	2.5	1.0
		Manganese, Total	0.04 u	MG/KG	0.04	1.0
		Sodium, Total	20.0 u	MG/KG	20.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Tin, Total	0.60 u	MG/KG	0.60	1.0
		Thallium, Total	0.60 u	MG/KG	0.60	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	0.60 u	MG/KG	0.60	1.0
		Zirconium, Total	5.0 u	MG/KG	5.0	1.0
BLANK1	08C0143-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/18/08

CLIENT: WC-HANFORD RC-088 K1288 LVL LOT #: 0808L011

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J177M1-B	Silver, Total	2.6	0.06u	3.1	83.9	1.0
		Aluminum, Total	108	2.5 u	123	87.5	1.0
		Arsenic, Total	107	0.31u	123	86.6	1.0
		Barium, Total	109	0.13	123	88.1	1.0
		Beryllium, Total	2.7	0.03u	3.1	87.1	1.0
		Calcium, Total	1390	4.6	1540	89.7	1.0
		Cadmium, Total	2.7	0.03u	3.1	87.1	1.0
		Cobalt, Total	27.3	0.12u	30.9	88.3	1.0
		Chromium, Total	11.0	0.12u	12.3	89.4	1.0
		Copper, Total	14.2	0.74	15.4	87.4	1.0
		Iron, Total	56.4	2.8 u	61.7	91.4	1.0
		Mercury, Total	0.14	0.00u	0.15	97.3	1.0
		Potassium, Total	1290	7.2	1540	83.4	1.0
		Magnesium, Total	1340	4.9	1540	86.3	1.0
		Manganese, Total	27.7	0.09	30.9	89.3	1.0
		Sodium, Total	1410	118	1540	83.7	1.0
		Nickel, Total	27.0	0.12u	30.9	87.4	1.0
		Lead, Total	27.1	0.19u	30.9	87.7	1.0
		Antimony, Total	26.6	0.19u	30.9	86.1	1.0
		Selenium, Total	92.9	0.37u	123	75.3	1.0
		Tin, Total	54.0	0.37u	61.7	87.5	1.0
		Thallium, Total	108	0.37u	123	87.4	1.0
		Vanadium, Total	27.0	0.09u	30.9	87.4	1.0
		Zinc, Total	27.1	0.37u	30.9	87.7	1.0
		Zirconium, Total	279	3.1 u	308	90.3	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/18/08

CLIENT: WC-HANFORD RC-088 K1288

LVL LOT #: 0808L011

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	J177M1-A	Mercury, Total	1.8	0.05u	1.7	105.5	5.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/18/08

CLIENT: WC-HANFORD RC-088 K1288 LVL LOT #: 0808L011

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J177M1-B	Silver, Total	0.06u	0.06u	NC	1.0
		Aluminum, Total	2.5 u	2.5 u	NC	1.0
		Arsenic, Total	0.31u	0.31u	NC	1.0
		Barium, Total	0.13	0.07	64.6	1.0
		Beryllium, Total	0.03u	0.03u	NC	1.0
		Calcium, Total	4.6	4.3	6.7	1.0
		Cadmium, Total	0.03u	0.03u	NC	1.0
		Cobalt, Total	0.12u	0.12u	NC	1.0
		Chromium, Total	0.12u	0.12u	NC	1.0
		Copper, Total	0.74	0.51	35.7	1.0
		Iron, Total	2.8 u	2.8 u	NC	1.0
		Mercury, Total	0.00u	0.00u	NC	1.0
		Potassium, Total	7.2	5.4	28.6	1.0
		Magnesium, Total	4.9	3.7	27.9	1.0
		Manganese, Total	0.09	0.11	14.2	1.0
		Sodium, Total	118	116	1.4	1.0
		Nickel, Total	0.12u	0.12u	NC	1.0
		Lead, Total	0.19u	0.19u	NC	1.0
		Antimony, Total	0.19u	0.19u	NC	1.0
		Selenium, Total	0.37u	0.37u	NC	1.0
		Tin, Total	0.37u	0.37u	NC	1.0
		Thallium, Total	0.37u	0.37u	NC	1.0
		Vanadium, Total	0.09u	0.09u	NC	1.0
		Zinc, Total	0.37u	0.38	NC	1.0
		Zirconium, Total	3.1 u	3.1 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/18/08

CLIENT: WC-HANFORD RC-088 K1288 LVL LOT #: 0808L011

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	J177M1-A	Mercury, Total	0.05u	0.05u	NC	5.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 08/18/08

CLIENT: WC-HANFORD RC-088 K1288 LVL LOT #: 0808L011

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0301-LC1	Silver, LCS	44.3	50.0	MG/KG	88.6
		Aluminum, LCS	449	500	MG/KG	89.9
		Arsenic, LCS	860	1000	MG/KG	86.0
		Barium, LCS	443	500	MG/KG	88.7
		Beryllium, LCS	21.9	25.0	MG/KG	87.6
		Calcium, LCS	2220	2500	MG/KG	88.9
		Cadmium, LCS	21.6	25.0	MG/KG	86.4
		Cobalt, LCS	220	250	MG/KG	88.0
		Chromium, LCS	44.3	50.0	MG/KG	88.6
		Copper, LCS	112	125	MG/KG	89.4
		Iron, LCS	442	500	MG/KG	88.4
		Potassium, LCS	2110	2500	MG/KG	84.5
		Magnesium, LCS	2160	2500	MG/KG	86.4
		Manganese, LCS	66.6	75.0	MG/KG	88.8
		Sodium, LCS	2110	2500	MG/KG	84.4
		Nickel, LCS	176	200	MG/KG	87.8
		Lead, LCS	219	250	MG/KG	87.5
		Antimony, LCS	260	300	MG/KG	86.8
		Selenium, LCS	847	1000	MG/KG	84.7
		Tin, LCS	440	500	MG/KG	88.1
		Thallium, LCS	881	1000	MG/KG	88.1
		Vanadium, LCS	219	250	MG/KG	87.7
		Zinc, LCS	87.6	100	MG/KG	87.6
		Zirconium, LCS	442	500	MG/KG	88.5
LCS1	08C0143-LC1	Mercury, LCS	4.6	4.7	MG/KG	98.1

Lionville Laboratory Incorporated Logbook #: 422

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0301
Date/Time Initiated: 08/13/08, 1:30
Date/Time Completed: 08/13/08,
Analyst(s): RMP
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: HSL+ Sn, Zr
(Digested) / Undigested (circle one)
Balance #: B-20
Balance Cal Verif: (Y) NA
Hot Plate Temp: 91°

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

(WC-Hanford)

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
08081007-002		1.09	100	N/A	TO	fine	Black soil	NONE	N/A
-002R		1.10							
-002S	1.0 ●	1.13							
08081015-002		1.11					metal shavings		
-002R		1.19							
-002S	1.0 ●	1.12							
-003		1.08							
08081011-001		1.62					oil		
-001R		1.62							
-001S	1.0 ●	1.62							
-002		1.0 ●				fine	metal shavings		
08L0301-MB1		1.00					Boiling chips		
-LC1	1.0 ●	1.00							

Preweigh
08-13-08

Spiking IDs:
MS #: 8100-04-01
-02
-03
6072-78-07
LCS #: 6072-078-08
-09
-10
-11

Reagent IDs:
HNO_3 G07057
HCL G15040
H_2O_2 G15A18
1:1 HNO_3 9789-81-03
1:1 HCL

File ID#: IC030101
LIMS Transfer: (Y) N Update
Data Review By/Date: Opm 8/15/08

● Also spike with 0.5 ml Zr (6072-079-13)

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: TLP
Date 8/15/08
Start Time/Temp: 1045 | 93°
End Time/Temp: 1115 | 98°

Instrument ID Hg3.1
Balance #: B29 /NA
Pipette Calibration (Daily) Y ✓

Prep Batch: 08C0143
Worksheet: Hg081501
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	ET			10mL	50mL	
0.2 µg/L	B2	0.100				
1.0	508	0.500				
2.0	154	1.000				
5.0	N2	2.500				
10.0	A901	5.000				
ICV	L53	0.125				
CCV	857	0.250				
ICB/CCB	L15/Z4					9.501
MB1	AB			0.30		PBS143 100.0
LC1	CB	*	*	0.32		LCSS143
0808L007-002	SPRT			0.40		R
002R	R			0.33		
002S	CR	0.500	1.0	0.40		
0808L011-001	HS			0.34		
001R	JB			0.40		
001S	3	0.500	1.0	0.34		
002	B32			0.30		
002R	N4			0.32		
002S	B14	0.050	10.0	0.30		
0808L015-002	P3			0.31		
002R	5H			0.34		
002S	M1	0.050	10.0	0.31		
003	31			0.32		
0807L511-007	M8			0.21		Amt'd Sample
009	WN			0.33		
009S	K17	0.050	10.0	0.33		

Standard:	ID	Prep Date/Time
ICAL/MS	RI 6072-78-14B	8/15/08 0930
ICV/CCV/LCS	US 6072-78-15A	

Reviewed By/Date [signature] 8/18/08

see book # 9368 for std traceability informatior

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

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

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 455

Analyst: TEO
Date 8/15/08
Start Time/Temp: See page 094
End Time/Temp:

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

Prep Batch: 08C0143
Worksheet: HG081501
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
08074511 009T	461	0.050	10.0	0.32	50mL	100.00
0808L030-001	H			0.38		R 99.89
001R	C15			0.33		
001S	27	0.500	1.0	0.38		
0808L001-001	C7			0.39		97.20
001R	A94			0.35		
001S	P1	0.500	1.0	0.39		
002	S			0.36		84.10
0808L038-002	C4D			0.31		100.00
002S	8T	0.0500	10.0	0.31		
002T	L2	0.0500	10.0	0.32		
0808L033-001	OLN			0.30		R 98.18
001R	PA			0.38		
001S	514	0.500	1.0	0.32		

TEO 8/15/08

Standard:	ID	Prep Date/Time
ICAL/MS	See page 094	
ICV/CCV/LCS		

Reviewed By/Date: [signature] 8/18/08

see book # 9368 for std traceability information

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

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

Lionville Laboratory Use Only

08081011

Custody Transfer Record/Lab Work Request

Page 1 of See SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD SAFE RCOR8

Est. Final Proj. Sampling Date:

Project#: 11343-606-A01-9999-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

QC: Spec SW846 Del: Std TAT: 7 Day

Date Rec'd: 8/5/08 Date Due: 8/12/08

Refrigerator #		A														
#/Type Container	Liquid	1G														
#/Type Container	Solid															
Volume		250														
Preservatives																
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	PEST/PCB	Herb				Ig Metal	Hg	CN	TOTAL				
		Lionville Laboratory Use Only														
			8625SH	OPCB					METO		IIGN			IMSC		

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected		8625SH	OPCB				METO		IIGN		IMSC		
001	J177M1	✓	✓	W*	7-29-08	1255		X	X				X		X		✓		
002	J177M1 (solid portion)	✓	✓	S	↓	↓							✓						

Special Instructions:
* matrix = other liquid
METO = HSL + Sn, Zr

Special Instructions:
IMSC = filter
1. 001 needs to be filtered to create 002 (solids that remain from filtering).
2.
3. 8/5/08 Samples on HOLD per OJ
4. 8-8-08 All OFF HOLD ink per OJ.
5.
6.

Relinquished by	Received by	Date	Time
Ron Duby	[signature]	8/5/08	1230

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL	COMPLETE		

000000021

Lionville Laboratory Use Only

18081011

Custody Transfer Record/Lab Work Request

Page 1 of 9 SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

000000022

Client: TNU HANFORD SAFE RC-08

Est. Final Proj. Sampling Date:

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

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

QC: Spec SW846 Del: Std TAT: 7 Day

Date Rec'd: 8/5/08 Date Due: 8/12/08

Refrigerator #		A												
#/Type Container	Liquid	1G												
	Solid													
Volume		250												
Preservatives														
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Ig Metal	Hg	CN	TSS/TDS		
Lionville Laboratory Use Only			8625H	8082					MET①		IIGN		TMSC	

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8625H	8082	MET①	IIGN	TMSC
001	J177M1	✓	✓	W*	7/29/08	1155	*	*	*	*	✓
002	J177M1 (solid portion)	✓	✓	S	↓	↓			✓		

Special Instructions:

* matrix = other liquid

MET① = HSL + Sn, Zr

Special Instructions:

1. TMSC = filter
2. 001 needs to be filtered to create 002 (solids that remain from filtering).
3. 8/5/08 Samples on HOLD per OJ
4.
5.
6.

Relinquished by	Received by	Date	Time
Fedex	[signature]	8/5/08	1230

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL	COMPOSITE		

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-088-055	Page 1 of 1

Collector B. Lawrence / E. Harries	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 9F	Data Turnaround ~~15~~ 7 Days RL 7/29/08		
Project Designation 618-7 Burial Ground - Other Liquids	Sampling Location 618-7 Burial Ground (drums)		SAF No. RC-088
Ice Chest No. Fiberboard Box	Field Logbook No. EL-1395-12	COA RG61878500	Method of Shipment Ground
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. See HSMR		Bill of Lading/Air Bill No. See HSMR

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None	
Type of Container	aG	aG JRD 7-10-08	P	P	P	
No. of Container(s)	1	~~1~~ 0	~~1~~ 0	~~1~~ 0	1	
Volume	250mL	125mL	125mL	60mL	500mL	
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions	Ignitability - 1010	See item (2) in Special Instructions RTC 7/29/08	

Sample No.	Matrix *	Sample Date	Sample Time									
~~J177M0~~	~~OTHER LIQUID~~											
J177M1	OTHER LIQUID	7/29/08	1255	X	X	X	X				PIN#	3757
~~J177M2~~	~~OTHER LIQUID~~											
~~J177M3~~	~~OTHER LIQUID~~											

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From B. Lawrence	1500 7-29-08	Received By/Stored In RT Coffman / RT Coffman	1500 7/29/08
Relinquished By/Removed From RT Coffman / RT Coffman	1200 7/31/08	Received By/Stored In MTS Stankovich	1200 7/31/08
Relinquished By/Removed From MTS Stankovich	1300 7/31/08	Received By/Stored In Ground	
Relinquished By/Removed From ROADWAY	8/5/08 1230	Received By/Stored In	8/5/08 1230
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

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

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

NOTE: SOLIDS PHASE - ICP Metals ONLY RL 7/29/08
LIQUID PHASE - ICP METALS, SVOA, PCB, IGNITABILITY.
RL 7/29/08

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

000000023

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 8/5/08

LvLI Batch #: D8081011

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Roadway		Airbill # 868-043430-X
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 12.9	°C	Cooler #
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☐ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A
Person Contacted OJ.		Date 8/5/08	

LvLI LIONVILLE LABORATORY INC.

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-088 K1288

RECEIVED
AUG 2008

DATE RECEIVED: 08/05/08 LVL LOT # :0808L011

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J177M1-B						
IGNITABILITY	001	OI	08LFP022	07/29/08	08/15/08	08/15/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-088 K1288
LVL#: 0808L011

W.O.#: 60049-001-001-0001-00
Date Received: 08-05-08

INORGANIC NARRATIVE

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

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

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

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

5. The Laboratory Control Sample (LCS) was within the method criteria.

6. Insufficient sample volume was provided so as to perform replicate analysis.

7. 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

8/20/08
Date

njp\i08-011

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 8 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

Other: **Method:**

Other: **Method**

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Inorganic Data Summary Report
Physical Testing Observation

Client: WC-HANFORD RC-088 K1288
LVL#: 0808L011

W.O.#: 60049-001-001-0001-00
Date Received: 08-05-08

Analyte:	**Observation:**
Ignitability	Sample J177M1-B did not ignite. The sample was heated to approximately 210°F. p-Xylene was used to determined the accuracy of the ignitability apparatus. The p-Xylene will ignite at 81°F +/- 1°F. For this test, the p-Xylene ignited at 82°F.

njp\i08-011.pt2

LVLI
LIONVILLE LABORATORY INC.

nville Laboratory Use Only

8081011

Custody Transfer Record/Lab Work Request

Page 1 of 9 SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

→ WC-Hanford

nt ~~TNU HANFORD~~ SAFH RC088 K1280

Final Proj. Sampling Date 60049.001.001.0001-00 8-25-08

ect# ~~11343 606 001 9999 00288~~ 8-25-08

ect Contact/Phone#

vville Laboratory Project Manager O. JOHNSON

Spec SW846 Del Std TAT 7 Day

WC 8-5-08

Rec'd 8/5/08 Date Due 8/12/08

Refrigerator #			A														
#/Type Container	Liquid		2														
	Solid		1G														
Volume			250														
Preservatives																	
ANALYSES REQUESTED →			ORGANIC						INORG								
			VOA	BNA	PEST/PCB	Herb			Ig Metal	Hg	CN						

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected		Lionville Laboratory Use Only: 8625SH	8082PCB				METO		HGN		TMSC		
001	J177M1-B	✓	✓	W	7-29-08	1155		X	X				X		X		✓		
002	J177M1-A (solid portion)	✓	✓	S	↓	↓							✓						

cial Instructions:

matrix = other liquid

TO① = HSL+Sn, Zr

Special Instructions: TMSC = filter

1. 001 needs to be filtered to create 002 (solids that remain from filtering).
2.
3. 8/5/08 Samples on Hold per OJ
4. 8-8-08 All off Hold wk per OJ.
5. 8-12-08 per client change ID's - 001-J177M1-B, 002-J177M1-A wk
6.

Relinquished by	Received by	Date	Time
Dickey	[signature]	8/5/08	1230

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL	COMPLETE		

80

000000006

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-088-055 | Page 1 of 1

Collector: B. Lawrence / E. Harries	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: 9F	Data Turnaround: ~~15~~ 7 Days (LL 7/29/08)		
Project Designation: 618-7 Burial Ground - Other Liquids	Sampling Location: 618-7 Burial Ground (drums)		SAF No.: RC-088
Ice Chest No.: Fiberboard Box	Field Logbook No.: EL-1395-12	COA: RG61878500	Method of Shipment: Ground
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: See HSMR		Bill of Lading/Air Bill No.: See HSMR

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive contamination, potential beryllium contamination

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	None	None	None	
Type of Container	aG	aG JRD 7-10-08	P	P	P	
No. of Container(s)	1	~~1~~ 0	~~1~~ 0	~~1~~ 0	1	
Volume	250mL	125mL	125mL	60mL	500mL	
SAMPLE ANALYSIS	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (1) in Special Instructions.	Ignitability - 1010	See item (2) in Special Instructions	

Sample No.	Matrix *	Sample Date	Sample Time										
~~177M0~~	~~OTHER LIQUID~~												
177M1	OTHER LIQUID	7/29/08	1255	X	X	X	X					PIN#	3757
~~177M2~~	~~OTHER LIQUID~~												
~~177M3~~	~~OTHER LIQUID~~												

RTC 7/29/08

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	1500 7-29-08	RTCoffman / RT Coffman	1500 7/29/08
JCOFFMAN / RTCoffman	1200 7/31/08	[signature] MTStankovich	1200 7/31/08
[signature] MStankovich	1300 7/31/08	Ground	
ROADWAY	8/5/08 1230	[signature]	8/5/08 1230

SPECIAL INSTRUCTIONS

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

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

NOTE: SOLIDS PHASE - ICP Metals ONLY LL 7/29/08
LIQUID PHASE - ICP METALS, SVOA, PCB, IGNITABILITY. LL 7/29/08

Matrix *

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

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

CH-EE-011

000000007

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD

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

Date: 8/5/08

LvLI Batch #: D8081011

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Roadway		Airbill # 868-043430-X
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 12.9	°C	Cooler #
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☐ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A
Person Contacted OJ		Date 8/5/08	

LvLI LIONVILLE LABORATORY INC.