SAF-RC-040
300 Area D4 Waste Characterization Sampling - Other Solid
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

No Distribution Required KW 5/31/12
INITIAL/DATE

COMMENTS:

SDG K3902 SAF RC-040

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Sample Location/Waste Site: 3730 Vacuum HEPAs

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

May 30, 2012

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

Reference: **P.O. #S00W235A01**
Eberline Analytical S2-05-055-7716 SDG K3902

Dear Ms. Kessner:

Enclosed is the data report for one solid (other solid) sample designated under SAF No. RC-040. The sample was received at Eberline Analytical on May 18, 2012. The sample was analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Joseph Verville
Client Services Manager

NJV/mw

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K3902 was composed of one solid (other solid) sample designated under SAF No. RC-040 with a Project Designation of: 300 Area D4 Waste Characterization Sampling – Other Solid.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist. The results were transmitted to WCH via e-mail on May 30, 2012.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

2.6 Isotopic Uranium Analysis

The relative percent difference between the original and duplicate U-235 and U-238 results were 86% and 36% respectively. The DER's for U-235 and U-238 were 1.3 and 1.9 respectively. No other problems were encountered during the course of the analyses.

2.7 Americium-241/Curium-244 Analysis

No problems were encountered during the course of the analyses.

2.8 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

Joseph Verville
Client Services Manager

5/30/12
Date

E B E R L I N E A N A L Y T I C A L / R I C H M O N D
SAMPLE DELIVERY GROUP K3902

SDG	7716
Contact	N.Joseph Verville

Client	Hanford
Contract	No. S00W235A01
Case no	SDG_K3902

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

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

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Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	05/30/12

SDG 7716
Contact N.Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

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 RC-040
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/30/12

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 ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

SDG 7716
Contact N.Joseph Verville

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
S205055-01	J1P8F1	3730 Vacuum HEPAs	SOLID		RC-040	RC-040-763	05/17/12 08:15
S205055-02	Lab Control Sample		SOLID		RC-040		
S205055-03	Method Blank		SOLID		RC-040		
S205055-04	Duplicate (S205055-01)	3730 Vacuum HEPAs	SOLID		RC-040		05/17/12 08:15

Lab id EBRLNE
Protocol RC-040
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

SDG 7716
Contact N.Joseph Verville

QC SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7716	RC-040-763	J1P8F1	SOLID	100.0	89.66 g		05/18/12	1	S205055-01	7716-001
		Method Blank	SOLID						S205055-03	7716-003
		Lab Control Sample	SOLID						S205055-02	7716-002
		Duplicate (S205055-01)	SOLID	100.0	89.66 g		05/18/12	1	S205055-04	7716-004

Lab id EBRLNE
Protocol RC-040
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

SDG 7716
Contact N.Joseph Verville

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
TP	SOLID	Americium 241/Curium in Solids	7734-036	8.0	1			1	1	1/1		
U	SOLID	Uranium, Isotopic in Solids	7734-036	8.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	7734-036	10.4	1			1	1	1/1		
TC	SOLID	Technetium 99 in Solids	7734-036	13.2	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7734-036	7.0	1			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Solids	7734-036	10.0	1			1	1	1/1		
H	SOLID	Tritium in Solids	7734-036	10.0	1			1	1	1/1		
NI_L	SOLID	Nickel 63 in Solids	7734-036	11.2	1			1	1	1/1		

Duplicates and Spikes are those with original sample in the QC Batch of some Client sample in this SDG.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol RC-040
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

SDG 7716
Contact N.Joseph Verville

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
S205055-01	J1P8F1			7716-001	C		05/22/12	05/24/12	BW	Carbon 14 in Solids
05/17/12	3730 Vacuum HEPAs		SOLID	7716-001	GAM		05/23/12	05/24/12	CSS	Gamma Scan
05/18/12	RC-040-763	RC-040		7716-001	H		05/23/12	05/24/12	BW	Tritium in Solids
				7716-001	NI_L		05/24/12	05/29/12	BW	Nickel 63 in Solids
				7716-001	SR		05/25/12	05/29/12	BW	Total Strontium in Solids
				7716-001	TC		05/26/12	05/30/12	BW	Technetium 99 in Solids
				7716-001	TP		05/25/12	05/25/12	MWT	Americium 241/Curium in Solids
				7716-001	U		05/25/12	05/29/12	BW	Uranium, Isotopic in Solids
S205055-02	Lab Control Sample			7716-002	C		05/22/12	05/24/12	BW	Carbon 14 in Solids
			SOLID	7716-002	GAM		05/24/12	05/24/12	CSS	Gamma Scan
		RC-040		7716-002	H		05/23/12	05/24/12	BW	Tritium in Solids
				7716-002	NI_L		05/24/12	05/29/12	BW	Nickel 63 in Solids
				7716-002	SR		05/25/12	05/29/12	BW	Total Strontium in Solids
				7716-002	TC		05/29/12	05/30/12	BW	Technetium 99 in Solids
				7716-002	TP		05/25/12	05/25/12	MWT	Americium 241/Curium in Solids
				7716-002	U		05/25/12	05/29/12	BW	Uranium, Isotopic in Solids
S205055-03	Method Blank			7716-003	C		05/22/12	05/24/12	BW	Carbon 14 in Solids
			SOLID	7716-003	GAM		05/23/12	05/24/12	CSS	Gamma Scan
		RC-040		7716-003	H		05/23/12	05/24/12	BW	Tritium in Solids
				7716-003	NI_L		05/24/12	05/29/12	BW	Nickel 63 in Solids
				7716-003	SR		05/25/12	05/29/12	BW	Total Strontium in Solids
				7716-003	TC		05/26/12	05/30/12	BW	Technetium 99 in Solids
				7716-003	TP		05/25/12	05/25/12	MWT	Americium 241/Curium in Solids
				7716-003	U		05/25/12	05/29/12	BW	Uranium, Isotopic in Solids
S205055-04	Duplicate (S205055-01)			7716-004	C		05/22/12	05/24/12	BW	Carbon 14 in Solids
05/17/12	3730 Vacuum HEPAs		SOLID	7716-004	GAM		05/23/12	05/24/12	CSS	Gamma Scan
05/18/12		RC-040		7716-004	H		05/23/12	05/24/12	BW	Tritium in Solids
				7716-004	NI_L		05/24/12	05/29/12	BW	Nickel 63 in Solids
				7716-004	SR		05/25/12	05/29/12	BW	Total Strontium in Solids
				7716-004	TC		05/29/12	05/30/12	BW	Technetium 99 in Solids
				7716-004	TP		05/25/12	05/25/12	MWT	Americium 241/Curium in Solids
				7716-004	U		05/25/12	05/29/12	BW	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol RC-040
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

SDG 7716
Contact N.Joseph Verville

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	RC-040	Carbon 14 in Solids	C14_COX_LSC	1			1	1	1		4
GAM	RC-040	Gamma Scan	GAMMA_GS	1			1	1	1		4
H	RC-040	Tritium in Solids	TRITIUM_COX_LSC	1			1	1	1		4
NI_L	RC-040	Nickel 63 in Solids	NI63_LSC	1			1	1	1		4
SR	RC-040	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	1			1	1	1		4
TC	RC-040	Technetium 99 in Solids	TC99_TR_SEP_GPC	1			1	1	1		4
TP	RC-040	Americium 241/Curium in Solids	AMCMISO_IE_PLATE_AEA	1			1	1	1		4
U	RC-040	Uranium, Isotopic in Solids	UISO_PLATE_AEA	1			1	1	1		4
TOTALS				8			8	8	8		32

Lab id EBRLNE
Protocol RC-040
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

7716-003 Method Blank

METHOD BLANK

SDG	7716	Client/Case no	Hanford	SDG K3902	
Contact	N.Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S205055-03	Client sample id	Method Blank		
Dept sample id	7716-003	Material/Matrix		SOLID	
		SAF No	RC-040		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-10.0	12	21.5	400	U	H
Carbon 14	14762-75-5	-4.80	7.9	13.6	50.0	U	C
Nickel 63	13981-37-8	-0.492	1.7	3.01	30.0	U	NI_L
Total Strontium	SR-RAD	-0.098	0.14	0.307	1.00	U	SR
Americium 241	14596-10-2	-0.101	0.10	0.486	1.00	U	TP
Curium 242	15510-73-3	0.051	0.10	0.388		U	TP
Curium 243/244	CM-243/244	0.051	0.10	0.388	1.00	U	TP
Technetium 99	14133-76-7	-0.020	0.12	0.291	15.0	U	TC
Uranium 233/234	U-233/234	0.005	0.014	0.029	1.00	U	U
Uranium 235	15117-96-1	0.011	0.011	0.022	1.00	U	U
Uranium 238	U-238	0	0.005	0.023	1.00	U	U
Potassium 40	13966-00-2	U		1.20		U	GAM
Cobalt 60	10198-40-0	U		0.083	0.050	U	GAM
Cesium 137	10045-97-3	U		0.083	0.100	U	GAM
Radium 226	13982-63-3	U		0.169	0.100	U	GAM
Radium 228	15262-20-1	U		0.342	0.200	U	GAM
Europium 152	14683-23-9	U		0.203	0.100	U	GAM
Europium 154	15585-10-1	U		0.230	0.100	U	GAM
Europium 155	14391-16-3	U		0.203	0.100	U	GAM
Thorium 228	14274-82-9	U		0.111		U	GAM
Thorium 232	TH-232	U		0.342		U	GAM
Uranium 235	15117-96-1	U		0.400	0.300	U	GAM
Uranium 238	U-238	U		11.0	10.0	U	GAM
Americium 241	14596-10-2	U		0.208	0.300	U	GAM
Niobium 94	14681-63-1	U		0.082		U	GAM
Antimony 125	14234-35-6	U		0.168		U	GAM
Barium 133	13981-41-4	U		0.087		U	GAM

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

7716-003 Method Blank

BLANK, cont.

SDG	7716	Client/Case no	Hanford	SDG K3902	
Contact	N.Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S205055-03	Client sample id	Method Blank		
Dept sample id	7716-003	Material/Matrix		SOLID	
		SAF No	RC-040		

QC-BLANK #81795

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

7716-002 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7716 Client/Case no Hanford SDG K3902

Contact N.Joseph Verville Contract No. S00W235A01

Lab sample id S205055-02 Client sample id Lab Control Sample

Dept sample id 7716-002 Material/Matrix SOLID

SAF No RC-040

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
Tritium	2000	51	18.7	400		H	1930	77	104	83-117	80-120
Carbon 14	6460	65	14.7	50.0		C	6250	250	103	83-117	80-120
Nickel 63	235	6.3	3.08	30.0		NI_L	258	10	91	83-117	80-120
Total Strontium	8.90	0.48	0.198	1.00		SR	9.33	0.37	95	82-118	80-120
Americium 241	9.45	1.5	0.377	1.00		TP	10.1	0.40	94	74-126	80-120
Curium 243/244	9.25	1.4	0.377	1.00		TP	8.80	0.35	105	72-128	80-120
Technetium 99	128	4.2	0.950	15.0		TC	115	4.6	111	77-123	80-120
Uranium 233/234	10.8	0.46	0.070	1.00		U	10.7	0.43	101	85-115	80-120
Uranium 238	10.7	0.46	0.067	1.00		U	10.7	0.43	100	85-115	80-120
Cobalt 60	3.30	0.33	0.023	0.050		GAM	3.41	0.14	97	81-119	80-120
Cesium 137	3.96	0.35	0.214	0.100		GAM	3.89	0.16	102	82-118	80-120

QC-LCS #81794

Lab id EBRLNE
Protocol RC-040
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

7716-004 J1P8F1

DUPLICATE

SDG	7716			Client/Case no	Hanford SDG K3902
Contact	N.Joseph Verville			Contract	No. S00W235A01
	DUPLICATE		ORIGINAL		
Lab sample id	S205055-04	Lab sample id	S205055-01	Client sample id	J1P8F1
Dept sample id	7716-004	Dept sample id	7716-001	Location/Matrix	3730 Vacuum HEPAs SOLID
		Received	05/18/12	Collected/Weight	05/17/12 08:15 89.66 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-040-763 RC-040

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
Tritium	6.31	14	23.5	400	U	H	2.52	13	22.3	U	-		0.4
Carbon 14	154	12	13.4	50.0		C	155	12	13.3		1	27	0.1
Nickel 63	-2.13	1.6	2.98	30.0	U	NI_L	-0.655	1.8	3.06	U	-		1.2
Total Strontium	-0.017	0.15	0.321	1.00	U	SR	0.044	0.10	0.191	U	-		0.7
Americium 241	-0.046	0.093	0.355	1.00	U	TP	-0.099	0.099	0.474	U	-		0.8
Curium 242	0	0.096	0.368		U	TP	0	0.10	0.392	U	-		0
Curium 243/244	0.046	0.093	0.356	1.00	U	TP	0.099	0.20	0.474	U	-		0.5
Technetium 99	0.120	0.17	0.274	15.0	U	TC	0.093	0.17	0.294	U	-		0.2
Uranium 233/234	0.193	0.046	0.039	1.00		U	0.176	0.045	0.034		9	55	0.5
Uranium 235	0.012	0.018	0.029	1.00	U	U	0.030	0.020	0.026		86	193	1.3
Uranium 238	0.152	0.041	0.028	1.00		U	0.218	0.051	0.034		36	56	1.9
Potassium 40	18.8	1.7	0.717			GAM	18.7	1.6	0.648		1	24	0.1
Cobalt 60	U		0.086	0.050	U	GAM	U		0.084	U	-		0
Cesium 137	U		0.062	0.100	U	GAM	U		0.086	U	-		0.5
Radium 226	0.219	0.17	0.180	0.100		GAM	0.306	0.19	0.208		33	146	0.7
Radium 228	U		0.426	0.200	U	GAM	U		0.468	U	-		0.1
Europium 152	U		0.201	0.100	U	GAM	U		0.265	U	-		0.4
Europium 154	U		0.256	0.100	U	GAM	U		0.272	U	-		0.1
Europium 155	U		0.230	0.100	U	GAM	U		0.263	U	-		0.2
Thorium 228	0.420	0.14	0.156			GAM	0.572	0.16	0.159		31	66	1.4
Thorium 232	U		0.426		U	GAM	U		0.468	U	-		0.1
Uranium 235	U		0.408	0.300	U	GAM	U		0.532	U	-		0.4
Uranium 238	U		9.86	10.0	U	GAM	U		10.2	U	-		0
Americium 241	U		0.479	0.300	U	GAM	U		0.322	U	-		0.5
Niobium 94	U		0.074		U	GAM	U		0.086	U	-		0.2
Antimony 125	U		0.175		U	GAM	U		0.228	U	-		0.4
Barium 133	U		0.076		U	GAM	U		0.095	U	-		0.3

Lab id EBRLNE
Protocol RC-040
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

7716-004 J1P8F1

DUPLICATE, cont.

SDG	7716			Client/Case no	Hanford SDG K3902
Contact	N.Joseph Verville			Contract	No. S00W235A01
	DUPLICATE		ORIGINAL		
Lab sample id	S205055-04	Lab sample id	S205055-01	Client sample id	J1P8F1
Dept sample id	7716-004	Dept sample id	7716-001	Location/Matrix	3730 Vacuum HEPAs SOLID
		Received	05/18/12	Collected/Weight	05/17/12 08:15 89.66 g
% solids	100.0	% solids	100.0	Custody/SAF No	RC-040-763 RC-040

QC-DUP#1 81796

300 Area D4 Waste Characterization Sampling - Other Solid

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

7716-001 J1P8F1

DATA SHEET

SDG	7716	Client/Case no	Hanford	SDG K3902	
Contact	N.Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S205055-01	Client sample id	J1P8F1		
Dept sample id	7716-001	Location/Matrix	3730 Vacuum HEPAs	SOLID	
Received	05/18/12	Collected/Weight	05/17/12 08:15	89.66 g	
% solids	100.0	Custody/SAF No	RC-040-763	RC-040	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	2.52	13	22.3	400	U	H
Carbon 14	14762-75-5	155	12	13.3	50.0		C
Nickel 63	13981-37-8	-0.655	1.8	3.06	30.0	U	NI_L
Total Strontium	SR-RAD	0.044	0.10	0.191	1.00	U	SR
Americium 241	14596-10-2	-0.099	0.099	0.474	1.00	U	TP
Curium 242	15510-73-3	0	0.10	0.392		U	TP
Curium 243/244	CM-243/244	0.099	0.20	0.474	1.00	U	TP
Technetium 99	14133-76-7	0.093	0.17	0.294	15.0	U	TC
Uranium 233/234	U-233/234	0.176	0.045	0.034	1.00		U
Uranium 235	15117-96-1	0.030	0.020	0.026	1.00		U
Uranium 238	U-238	0.218	0.051	0.034	1.00		U
Potassium 40	13966-00-2	18.7	1.6	0.648			GAM
Cobalt 60	10198-40-0	U		0.084	0.050	U	GAM
Cesium 137	10045-97-3	U		0.086	0.100	U	GAM
Radium 226	13982-63-3	0.306	0.19	0.208	0.100		GAM
Radium 228	15262-20-1	U		0.468	0.200	U	GAM
Europium 152	14683-23-9	U		0.265	0.100	U	GAM
Europium 154	15585-10-1	U		0.272	0.100	U	GAM
Europium 155	14391-16-3	U		0.263	0.100	U	GAM
Thorium 228	14274-82-9	0.572	0.16	0.159			GAM
Thorium 232	TH-232	U		0.468		U	GAM
Uranium 235	15117-96-1	U		0.532	0.300	U	GAM
Uranium 238	U-238	U		10.2	10.0	U	GAM
Americium 241	14596-10-2	U		0.322	0.300	U	GAM
Niobium 94	14681-63-1	U		0.086		U	GAM
Antimony 125	14234-35-6	U		0.228		U	GAM
Barium 133	13981-41-4	U		0.095		U	GAM

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/30/12

DATA SHEET, cont

SDG	7716	Client/Case no	Hanford	SDG K3902
Contact	N.Joseph Verville	Contract	No. S00W235A01	
Lab sample id	S205055-01	Client sample id	J1P8F1	
Dept sample id	7716-001	Location/Matrix	3730 Vacuum HEPAs	SOLID
Received	05/18/12	Collected/Weight	05/17/12 08:15	89.66 g
% solids	100.0	Custody/SAF No	RC-040-763	RC-040

300 Area D4 Waste Characterization Sampling - Other Solid

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

Test TP Matrix SOLID	Client Hanford
SDG 7716	Contract No. S00W235A01
Contact N.Joseph Verville	Contract SDG K3902

LAB METHOD SUMMARY

AMERICIUM 241/CURIUM IN SOLIDS

ALPHA SPECTROSCOPY

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Americium 241		Curium 242		Curium 243/244	
Preparation batch 7734-036										
S205055-01			7716-001	J1P8F1	U		U		U	
S205055-02			7716-002	Lab Control Sample	ok				ok	
S205055-03			7716-003	Method Blank	U		U		U	
S205055-04			7716-004	Duplicate (S205055-01)	-	U	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.00				1.00	

METHOD 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
Preparation batch 7734-036			2σ prep error 8.0 %	Reference Lab Notebook 7323 pg. 142												
S205055-01			J1P8F1	0.474	0.500			53		103			8	05/25/12	05/25	SS-036
S205055-02			Lab Control Sample	0.377	0.500			68		103				05/25/12	05/25	SS-037
S205055-03			Method Blank	0.486	0.500			42		103				05/25/12	05/25	SS-044
S205055-04			Duplicate (S205055-01)	0.356	0.500			49		103			8	05/25/12	05/25	SS-046
Nominal values and limits from method				1.00	0.500			30-110		100			180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 1
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 6
	CP-008	Heavy Element Electroplating, rev 13

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.423	±	0.133
	YIELD	53	±	22

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

Test	U
Matrix	SOLID
SDG	7716
Contact	N.Joseph Verville

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. S00W235A01
Contract	SDG K3902

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Uranium 233/234	Uranium 235	Uranium 238
Preparation batch 7734-036							
S205055-01			7716-001	J1P8F1	0.176	0.030	0.218
S205055-02			7716-002	Lab Control Sample	ok		ok
S205055-03			7716-003	Method Blank	U	U	U
S205055-04			7716-004	Duplicate (S205055-01)	ok	ok U	ok
Nominal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00

METHOD 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
Preparation batch 7734-036			2σ prep error 8.0 %	Reference Lab Notebook 7323 pg. 142												
S205055-01			J1P8F1	0.034	0.500			94		1067			8	05/25/12	05/25	SS-037
S205055-02			Lab Control Sample	0.070	0.500			97		1067				05/25/12	05/25	SS-038
S205055-03			Method Blank	0.029	0.500			90		1067				05/25/12	05/25	SS-040
S205055-04			Duplicate (S205055-01)	0.039	0.500			96		1068			8	05/25/12	05/25	SS-042
Nominal values and limits from method				1.00	0.500			30-110		100			180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 1
	CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 5
	CP-008	Heavy Element Electroplating, rev 13

AVERAGES ± 2 SD	MDA	0.043	± 0.037
FOR 4 SAMPLES	YIELD	94	± 6

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

Test	SR
Matrix	SOLID
SDG	7716
Contact	N.Joseph Verville

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client	Hanford
Contract No.	S00W235A01
Contract	SDG K3902

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
Preparation batch 7734-036					
S205055-01			7716-001	J1P8F1	U
S205055-02			7716-002	Lab Control Sample	ok
S205055-03			7716-003	Method Blank	U
S205055-04			7716-004	Duplicate (S205055-01)	- U
Nominal values and limits from method				RDLs (pCi/g)	1.00

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 7734-036			2σ prep error 10.4 % Reference Lab Notebook 7323 pg. 142													
S205055-01			J1P8F1	0.191	1.00			97		100			8	05/25/12	05/25	GRB-227
S205055-02			Lab Control Sample	0.198	1.00			87		100				05/25/12	05/25	GRB-228
S205055-03			Method Blank	0.307	1.00			87		100				05/25/12	05/25	GRB-227
S205055-04			Duplicate (S205055-01)	0.321	1.00			78		100			8	05/25/12	05/25	GRB-228
Nominal values and limits from method				1.00	1.00			40-110		100			180			

PROCEDURES	REFERENCE	
		SRTOT_SEP_PRECIP_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 1
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot, rev 4

AVERAGES ± 2 SD FOR 4 SAMPLES	MDA	0.254	± 0.139
	YIELD	87	± 16

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

Test TC Matrix SOLID
SDG 7716
Contact N.Joseph Verville

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. S00W235A01
Contract SDG K3902

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99	
Preparation batch 7734-036						
S205055-01			7716-001	J1P8F1	U	
S205055-02			7716-002	Lab Control Sample	ok	
S205055-03			7716-003	Method Blank	U	
S205055-04			7716-004	Duplicate (S205055-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	15.0	

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 7734-036			2σ prep error 13.2 % Reference Lab Notebook 7323 pg. 142													
S205055-01			J1P8F1	0.294	1.04			83		200			9	05/22/12	05/26	GRB-204
S205055-02			Lab Control Sample	0.950	1.04			92		20				05/22/12	05/29	GRB-221
S205055-03			Method Blank	0.291	1.04			83		200				05/22/12	05/26	GRB-221
S205055-04			Duplicate (S205055-01)	0.274	1.14			76		200			12	05/22/12	05/29	GRB-228
Nominal values and limits from method				15.0	1.04			30-110		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_GPC
	CP-021	Preparation of Tc-99m Tracer, rev 6
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 8

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.452 ± 0.664
YIELD 84 ± 13

Lab id EBRLNE
Protocol RC-040
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

Test	GAM
Matrix	SOLID
SDG	7716
Contact	N.Joseph Verville

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client	Hanford
Contract	No. S00W235A01
Contract	SDG K3902

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 7734-036								
S205055-01			7716-001	J1P8F1	U		U	
S205055-02			7716-002	Lab Control Sample	ok		ok	
S205055-03			7716-003	Method Blank	U		U	
S205055-04			7716-004	Duplicate (S205055-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.100	

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 7734-036			2σ prep error 7.0 %	Reference Lab Notebook 7323 pg. 142												
S205055-01			J1P8F1	0.195	62.8					205			6	05/22/12	05/23	02,02,00
S205055-02			Lab Control Sample	0.023	62.8					102				05/22/12	05/24	01,04,00
S205055-03			Method Blank	0.157	62.8					206				05/22/12	05/23	01,04,00
S205055-04			Duplicate (S205055-01)	0.175	62.8					228			6	05/22/12	05/23	MB,08,00
Nominal values and limits from method				0.050	62.8					100			180			

PROCEDURES	REFERENCE	
	GAMMA_GS	
	SPP-060	Soil Preparation, rev 0
	SPP-100	Preparation of Sample for Gamma Spectroscopy, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES	MDA	0.138	± 0.156
	YIELD		±

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

Test C	Matrix SOLID
SDG 7716	
Contact N.Joseph Verville	

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract No. S00W235A01	
Contract SDG K3902	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14
Preparation batch 7734-036					
S205055-01			7716-001	J1P8F1	155
S205055-02			7716-002	Lab Control Sample	ok
S205055-03			7716-003	Method Blank	U
S205055-04			7716-004	Duplicate (S205055-01)	ok
Nominal values and limits from method				RDLs (pCi/g)	50.0

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 7734-036			2σ prep error 10.0 %	Reference Lab Notebook 7323 pg. 142												
S205055-01			J1P8F1	13.3	0.104			100		50			5	05/22/12	05/22	LSC-006
S205055-02			Lab Control Sample	14.7	0.102			100		38				05/22/12	05/22	LSC-006
S205055-03			Method Blank	13.6	0.102			100		50				05/22/12	05/22	LSC-006
S205055-04			Duplicate (S205055-01)	13.4	0.102			100		50			5	05/22/12	05/22	LSC-006
Nominal values and limits from method				50.0	0.102					50			180			

PROCEDURES	REFERENCE	C14_COX_LSC
	SPP-060	Soil Preparation, rev 0
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 1
	CP-251	Tritium/Carbon-14 Oxidation, rev 11

AVERAGES ± 2 SD	MDA 13.8 ± 1.29
FOR 4 SAMPLES	YIELD 100 ± 0

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

Test	H
Matrix	SOLID
SDG	7716
Contact	N.Joseph Verville

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. S00W235A01
Contract	SDG K3902

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 7734-036						
S205055-01			7716-001	J1P8F1	U	
S205055-02			7716-002	Lab Control Sample	ok	
S205055-03			7716-003	Method Blank	U	
S205055-04			7716-004	Duplicate (S205055-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	400	

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 7734-036			2σ prep error 10.0 % Reference Lab Notebook 7323 pg. 142													
S205055-01			J1P8F1	22.3	0.104			100		50			6	05/22/12	05/23	LSC-006
S205055-02			Lab Control Sample	18.7	0.102			100		50				05/22/12	05/23	LSC-006
S205055-03			Method Blank	21.5	0.102			100		50				05/22/12	05/23	LSC-006
S205055-04			Duplicate (S205055-01)	23.5	0.102			100		50			6	05/22/12	05/23	LSC-006
Nominal values and limits from method				400	0.102					50			180			

PROCEDURES	REFERENCE	TRITIUM_COX_LSC
	SPP-060	Soil Preparation, rev 0
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 1
	CP-251	Tritium/Carbon-14 Oxidation, rev 11

AVERAGES ± 2 SD	MDA	21.5	± 4.08
FOR 4 SAMPLES	YIELD	100	± 0

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	05/30/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3902

Test NI_L Matrix SOLID	Client Hanford
SDG 7716	Contract No. S00W235A01
Contact N.Joseph Verville	Contract SDG K3902

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63
Preparation batch 7734-036					
S205055-01			7716-001	J1P8F1	U
S205055-02			7716-002	Lab Control Sample	ok
S205055-03			7716-003	Method Blank	U
S205055-04			7716-004	Duplicate (S205055-01)	- U
Nominal values and limits from method				RDLs (pCi/g)	30.0

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 7734-036			2σ prep error 11.2 % Reference Lab Notebook 7323 pg. 142													
S205055-01			J1P8F1	3.06	0.500			97		50			7	05/24/12	05/24	LSC-007
S205055-02			Lab Control Sample	3.08	0.500			97		50				05/24/12	05/24	LSC-007
S205055-03			Method Blank	3.01	0.500			98		50				05/24/12	05/24	LSC-007
S205055-04			Duplicate (S205055-01)	2.98	0.500			99		50			7	05/24/12	05/24	LSC-007
Nominal values and limits from method				30.0	0.500			40-110		50			180			

PROCEDURES	REFERENCE	NI63_LSC
	SPP-060	Soil Preparation, rev 0
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 1
	CP-281	Nickel-63 Purification By Extraction Chromatography, rev 5

AVERAGES ± 2 SD	MDA	3.03	± 0.091
FOR 4 SAMPLES	YIELD	98	± 2

Lab id	EBRLNE
Protocol	RC-040
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	05/30/12

SDG 7716
Contact N.Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

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 RC-040
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/30/12

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.

SDG 7716
Contact N.Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3902

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 RC-040
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/30/12

SDG 7716
Contact N.Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

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 RC-040
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/30/12

DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

SDG 7716
Contact N.Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

DATA SHEET

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

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

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

SDG 7716
Contact N.Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

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 RC-040
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/30/12

SDG 7716
Contact N.Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

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 RC-040
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/30/12

DUPLICATE

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

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

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

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

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

SDG 7716
Contact N.Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id EBRLNE
Protocol RC-040
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/30/12

SDG 7716
Contact N.Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

MATRIX SPIKE

for the recovery.

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

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

SDG 7716
Contact N.Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3902

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

Lab id EBRLNE
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Version 3.06
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METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-040-763	Page 1 of 1

Collector: RL STRICKLAND	Company Contact: Tom Edmundson; Telephone No.: 509.947.5192	Project Coordinator: KESSNER, JH	Price Code: 9K; Data Turnaround: 15 Days
Project Designation: 300 Area D4 Waste Characterization Sampling - Other Solid	Sampling Location: 3730 Vacuum HEPAs K3902 (7716)	SAF No.: RC-040	
Ice Chest No.: SML 004	Field Logbook No.: EL-1518-25; COA: RD4MXX2F00	Method of Shipment: FEDEX	
Shipped To: EBERLINE SERVICES / LIONVILLE / RCF	Offsite Property No.: A110299	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Rad < DOT LIMITS RS 5/17/12

Special Handling and/or Storage

N/A RS 5/17/12

Preservation	Cool 4C	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	G/P	G/P	aG	G/P		
No. of Container(s)	1	1	0	0	0	0	0	0		
Volume	1000mL	1000mL	60mL	60mL	60mL	60mL	60mL	1000mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions. SMS 5-17-12	See item (2) in Special Instructions.	Isotopic Uranium	Americium-241/Curium-244 {Americium-241, Curium-243/244}	Nickel-63; Strontium-89,90 -- Total Sr	Technetium-99	Tritium - H3; Carbon-14	RCF GEA Shipping Screen JRE 5-17-12		

Sample No.	Matrix *	Sample Date	Sample Time									RCF	
J1P8F1	OTHER SOLID	05/17/12	0815		✓	✓	✓	✓	✓	✓	✓	33152	90g

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RL STRICKLAND WCH RL Strickland	05/17/12 0900	RCF Mike Rook [signature]	5-17-12 0900
RCF Michael Rook [signature]	5-17-12 1245	RL STRICKLAND WCH RL Strickland	05/17/12 1245
RL STRICKLAND WCH RL Strickland	05/17/12 1300	FED EX [signature]	
FED EX		M. MATAWAMAN	05/18/12 0920

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(2) Gamma Spec (Client List) {Americium-241, Antimony-125, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228}

*Please run all the selected analytes from the material provided TRE 5-17-12

REVIEWED BY JRE DATE 5/17/12

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

WCH-EE-011

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: W. C. HANFORD City RICHLAND State WA

Date/Time received 05/18/12 0930 CoC No. RC-040-763

Container I.D. No. SML-004 Requested TAT (Days) 15 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 1 Sample Matrix SOLID
7. Number of containers per sample: 1 (Or see CoC _____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [X] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH N/A Preservative _____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date: 05/18/12 Time: 1030

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J1P8F1	<80						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 06DEC11

"over 55 years of quality nuclear services"

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

25 May 2012

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
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 #	1205060
SDG #	K3902
SAF #	RC-040
Date Received	05/18/12
# Samples	1
Matrix	OTHER SOLID
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	X
Inorganics	

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

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

CHAIN OF CUSTODY

Lionville Laboratory Use Only: 1205060

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Lionville Laboratory
A Division of Eberline Analytical Corporation

Client: WC Hanford SAF# RC-040
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: O. Johnson
QC: SW Del: SW TAT: 15 days
Date Rec'd: 5-18-12 Date Due: 6-02-12

Refrigerator #									A							
#/Type Container	Liquid								2							
	Solid								18							
Volume	Liquid															
	Solid								1000							
Preservatives									–							
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
		Lionville Laboratory Use Only														
									Met							

MATRIX CODES:
W Water
WW Waste Water
GW Groundwater
WST Waste
WI Wipe
SO Solid
S Soil
SL Sludge
SE Sediment
PC Paint Chips
O Oil
NAL Non-Aqueous Liquid
L Leachate
A Air
T Tissue
F Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
01	J1P8F1	✓	✓	OTHER SOLID	5/17/12	0815							X							

Special Instructions: OTHER SOLID = HEPA FILTER

Met = HSL+B, MO, Si(no TL)

Special Instructions:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	5/18/12	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

1205060

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-040-763	Page 1 of 1

Collector: RL STRICKLAND	Company Contact: Tom Edmundson	Telephone No.: 509.947.5192	Project Coordinator: KESSNER, JH
Price Code: 9K	Data Turnaround: 15 Days		
Project Designation: 300 Area D4 Waste Characterization Sampling - Other Solid	Sampling Location: 3730 Vacuum HEPAs		SAF No.: RC-040
Ice Chest No.: WCH-11-092	Field Logbook No.: EL-1518-25	COA: RD4MXX2F00	Method of Shipment: FEDEX
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A110205		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Rad < DOT LIMITS RJ 5/17/12

Special Handling and/or Storage

N/A RJ 5/17/12

Preservation	Cool 4C	None	None	None	None	None	None	None	None		
Type of Container	G/P	G/P	G/P	G/P	G/P	G/P	aG	G/P			
No. of Container(s)	1	1	0	0	0	0	0	0			
Volume	1000mL	1000mL	60mL	60mL	60mL	60mL	60mL	1000mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Isotopic Uranium	Americium-241/Curium-244 {Americium-241, Curium-243/244}	Nickel-63; Strontium-89,90 -- Total Sr	Technetium-99	Tritium - H3; Carbon-14	RCF GEA Shipping Screen			
Sample No.	Matrix *	Sample Date	Sample Time								
J1P8F1	OTHER SOLID	05/17/12	0815	✓							

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RL Strickland WCH	05/17/12 0850	RL Strickland MD767 FRIDGE	05/17/12 0850
RL Strickland WCH MD767 FRIDGE	05/17/12 1300	FED EX	
Fed Ex	5-18-12 0950	VICTOR HERNANDEZ	5/18/12 0950

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(2) Gamma Spec (Client List) {Americium-241, Antimony-125, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228}

REVIEWED BY JRE DATE 5/17/12

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

WCH-EE-011

000000004

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford
Project/SAF/SOW/Release #: RC-040

Date: 5/18/12

LvL Batch #: 1205060

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier [illegible]		Airbill # 7935 7993 5632
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** 19.5	°C	Cooler # WCH-11-092
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 & LvL) 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 LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

SR-002-B.doc

METALS

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-040	
2620 Fermi Avenue	Project Number: K3902	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	05/25/2012 11:42

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1P8F1	1205060-01	Other Solid	05/17/2012 08:15	05/18/2012 09:50

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-040
LVL#: 1205060
SDG/SAF#: K3902/RC-040

W.O.#: 60049-001-001-0001-00
Date Received: 05-18-12

METALS

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

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

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

2. The sample was prepared and analyzed in accordance with methods listed on the data report forms. The sample was reported on a wet weight, 'as-received' basis.

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

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

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

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

7. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation, samples were greater than 20X MB value}.

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

9. All Standard Reference Material (SRM) analytes were within the Prediction Interval control limits supplied by the manufacturer.

10. The matrix spike (MS) recoveries for 15 analytes were outside the 75-125% control limits.

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

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 pages.

following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J1P8F1	Aluminum	12,000	88.1
	Antimony	100	33.6
	Boron	100	-697*
	Calcium	20,800	83.9
	Chromium	100	12.9
	Copper	100	-156*
	Iron	12,000	63.9
	Lead	100	25.7
	Magnesium	21,600	91.6
	Manganese	1,000	95.0
	Nickel	100	47.0
	Potassium	12,000	41.0
	Silicon	1,100	-367*
	Sodium	12,000	-480*
	Zinc	1,000	-172*

*PDS values were too low compared to indigenous concentrations.

12. The duplicate analyses for 15 analytes were outside the 20% Relative Percent Difference (RPD) control limits. The ± 20% RPD control limit applies to sample results greater than ten times the MDL. The results for Arsenic, Cadmium, Molybdenum, and Selenium were less than ten times the MDL.

13. For the purposes of this report, the data have 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.

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

15. 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

5/25/12
Date

alm/05-060

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-040	
2620 Fermi Avenue	Project Number: K3902	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	05/25/2012 11:42

Notes and Definitions

U	Analyte included in the analysis, but not detected
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
B	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag)
*	Value outside QC acceptance criteria
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference

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WC-Hanford, Inc.	Project: RC-040	
2620 Fermi Avenue	Project Number: K3902	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	05/25/2012 11:42

J1P8F1
1205060-01 (Other Solid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**239**		18.5	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Antimony	**14.2**		0.926	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Arsenic	**0.844**	B	0.926	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Barium	**645**		0.463	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Beryllium	0.185	U	0.185	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Boron	**311**		1.85	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Cadmium	**0.289**		0.231	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Calcium	**408**		18.5	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Chromium	**15.6**		0.926	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Cobalt	2.78	U	2.78	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Copper	**46.8**		1.85	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Iron	**721**		18.5	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Lead	**16.2**		0.926	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Magnesium	**110**		4.63	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Manganese	**10.7**		0.926	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Molybdenum	**0.675**	B	0.926	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Nickel	**10.5**		2.31	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Potassium	**1160**		92.6	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Selenium	**0.453**	B	0.926	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Silicon	**906**		5.56	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Silver	0.926	U	0.926	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Sodium	**11600**		46.3	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Vanadium	**2.55**		0.926	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Zinc	**542**		2.78	mg/kg wet	1	L205182	05/22/2012	05/24/2012	6010B
Mercury	**0.0105**	B	0.0290	mg/kg	1	L205172	05/21/2012	05/22/2012	7471A

264 Welsh Pool Road
Exton, PA 19341
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Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-040	
2620 Fermi Avenue	Project Number: K3902	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	05/25/2012 11:42

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L205172 - SW 7471A Prep										
Blank (L205172-BLK1)				Prepared: 05/21/2012 Analyzed: 05/22/2012						
Mercury	0.0281	U	0.0281	mg/kg						
Duplicate (L205172-DUP2)		**Source: 1205060-01**		Prepared: 05/21/2012 Analyzed: 05/22/2012						
Mercury	0.0116	B	0.0290	mg/kg		0.0105			10.2	20
Matrix Spike (L205172-MS2)		**Source: 1205060-01**		Prepared: 05/21/2012 Analyzed: 05/22/2012						
Mercury	0.195		0.0290	mg/kg	0.16129	0.0105	114	75-125		20
Reference (L205172-SRM1)				Prepared: 05/21/2012 Analyzed: 05/22/2012						
Mercury	1.27		0.0281	mg/kg	1.2900		98.7	62.6-138		
Batch L205182 - SW 3050B										
Blank (L205182-BLK1)				Prepared: 05/22/2012 Analyzed: 05/24/2012						
Aluminum	13.7	U	13.7	mg/kg wet						
Antimony	0.685	U	0.685	mg/kg wet						
Arsenic	0.685	U	0.685	mg/kg wet						
Barium	0.342	U	0.342	mg/kg wet						
Beryllium	0.137	U	0.137	mg/kg wet						
Boron	1.37	U	1.37	mg/kg wet						
Cadmium	0.171	U	0.171	mg/kg wet						
Calcium	5.87	B	13.7	mg/kg wet						
Chromium	0.685	U	0.685	mg/kg wet						
Cobalt	2.05	U	2.05	mg/kg wet						
Copper	1.37	U	1.37	mg/kg wet						
Iron	13.7	U	13.7	mg/kg wet						
Lead	0.685	U	0.685	mg/kg wet						
Magnesium	3.42	U	3.42	mg/kg wet						
Manganese	0.685	U	0.685	mg/kg wet						
Molybdenum	0.685	U	0.685	mg/kg wet						
Nickel	1.71	U	1.71	mg/kg wet						
Potassium	68.5	U	68.5	mg/kg wet						
Selenium	0.685	U	0.685	mg/kg wet						
Silicon	4.11	U	4.11	mg/kg wet						
Silver	0.685	U	0.685	mg/kg wet						
Sodium	34.2	U	34.2	mg/kg wet						
Vanadium	0.685	U	0.685	mg/kg wet						
Zinc	2.05	U	2.05	mg/kg wet						

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-040	
2620 Fermi Avenue	Project Number: K3902	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	05/25/2012 11:42

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L205182 - SW 3050B										
Duplicate (L205182-DUP2)		**Source: 1205060-01**		Prepared: 05/22/2012 Analyzed: 05/24/2012						
Aluminum	138		16.1	mg/kg wet		239			53.5*	20
Antimony	7.15		0.806	mg/kg wet		14.2			65.9*	20
Arsenic	0.508	B	0.806	mg/kg wet		0.844			49.6*	20
Barium	392		0.403	mg/kg wet		645			48.8*	20
Beryllium	0.161	U	0.161	mg/kg wet		0.185 U				20
Boron	187		1.61	mg/kg wet		311			49.5*	20
Cadmium	0.197	B	0.202	mg/kg wet		0.289			37.7*	20
Calcium	248		16.1	mg/kg wet		408			48.8*	20
Chromium	8.52		0.806	mg/kg wet		15.6			59.0*	20
Cobalt	2.42	U	2.42	mg/kg wet		2.78 U				20
Copper	89.4		1.61	mg/kg wet		46.8			62.5*	20
Iron	620		16.1	mg/kg wet		721			15.1	20
Lead	14.9		0.806	mg/kg wet		16.2			7.81	20
Magnesium	67.9		4.03	mg/kg wet		110			47.4*	20
Manganese	7.38		0.806	mg/kg wet		10.7			36.9*	20
Molybdenum	0.402	B	0.806	mg/kg wet		0.675			50.8*	20
Nickel	6.52		2.02	mg/kg wet		10.5			46.5*	20
Potassium	665		80.6	mg/kg wet		1160			54.5*	20
Selenium	0.354	B	0.806	mg/kg wet		0.453			24.5*	20
Silicon	525		4.84	mg/kg wet		906			53.1*	20
Silver	0.806	U	0.806	mg/kg wet		0.926 U				20
Sodium	7100		40.3	mg/kg wet		11600			48.0*	20
Vanadium	1.93		0.806	mg/kg wet		2.55			27.6*	20
Zinc	356		2.42	mg/kg wet		542			41.3*	20
Matrix Spike (L205182-MS2)		**Source: 1205060-01**		Prepared: 05/22/2012 Analyzed: 05/24/2012						
Aluminum	362		19.2	mg/kg wet	192.31	239	64.3*	75-125		20
Antimony	41.5		0.962	mg/kg wet	48.077	14.2	56.9*	75-125		20
Arsenic	160		0.962	mg/kg wet	192.31	0.844	82.6	75-125		20
Barium	814		0.481	mg/kg wet	192.31	645	87.8	75-125		20
Beryllium	3.70		0.192	mg/kg wet	4.8077	0.185 U	76.9	75-125		20
Boron	512		1.92	mg/kg wet	96.154	311	210*	75-125		20
Cadmium	5.14		0.240	mg/kg wet	4.8077	0.289	101	75-125		20
Calcium	2190		19.2	mg/kg wet	2403.8	408	74.0*	75-125		20
Chromium	21.8		0.962	mg/kg wet	19.231	15.6	32.1*	75-125		20
Cobalt	37.2		2.88	mg/kg wet	48.077	2.78 U	77.5	75-125		20
Copper	41.5		1.92	mg/kg wet	24.038	46.8	-22.2*	75-125		20

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-040	
2620 Fermi Avenue	Project Number: K3902	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	05/25/2012 11:42

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L205182 - SW 3050B									
Matrix Spike (L205182-MS2)	**Source: 1205060-01**		Prepared: 05/22/2012 Analyzed: 05/24/2012						
Iron	354	19.2	mg/kg wet	96.154	721	-382*	75-125		20
Lead	49.6	0.962	mg/kg wet	48.077	16.2	69.6*	75-125		20
Magnesium	1830	4.81	mg/kg wet	2403.8	110	71.7*	75-125		20
Manganese	41.6	0.962	mg/kg wet	48.077	10.7	64.2*	75-125		20
Molybdenum	81.2	0.962	mg/kg wet	96.154	0.675	83.7	75-125		20
Nickel	40.8	2.40	mg/kg wet	48.077	10.5	63.1*	75-125		20
Potassium	2500	96.2	mg/kg wet	2403.8	1160	55.8*	75-125		20
Selenium	153	0.962	mg/kg wet	192.31	0.453	79.6	75-125		20
Silicon	621	5.77	mg/kg wet	96.154	906	-296*	75-125		20
Silver	4.80	0.962	mg/kg wet	4.8077	0.926 U	99.7	75-125		20
Sodium	7810	48.1	mg/kg wet	2403.8	11600	-157*	75-125		20
Vanadium	41.7	0.962	mg/kg wet	48.077	2.55	81.5	75-125		20
Zinc	660	2.88	mg/kg wet	48.077	542	247*	75-125		20
Reference (L205182-SRM1)			Prepared: 05/22/2012 Analyzed: 05/24/2012						
Aluminum	9410	42.3	mg/kg wet	6670.0		141	0-200.89		
Antimony	36.8	2.11	mg/kg wet	53.000		69.4	0-235.8		
Arsenic	111	2.11	mg/kg wet	114.00		97.1	82.8-117.54		
Barium	307	1.06	mg/kg wet	307.00		100	79.8-120.2		
Beryllium	103	0.423	mg/kg wet	108.00		95.7	82.8-117.6		
Boron	74.6	4.23	mg/kg wet	85.100		87.7	67.5-132.8		
Cadmium	216	0.528	mg/kg wet	225.00		96.2	83.6-116.4		
Calcium	3190	42.3	mg/kg wet	3360.0		94.9	83.3-116.9		
Chromium	78.3	2.11	mg/kg wet	77.200		101	73.3-126.4		
Cobalt	156	6.34	mg/kg wet	166.00		94.2	80.7-118.7		
Copper	255	4.23	mg/kg wet	271.00		94.0	80.8-119.2		
Iron	8200	42.3	mg/kg wet	8420.0		97.4	78.6-121.1		
Lead	180	2.11	mg/kg wet	190.00		94.6	81.6-118.4		
Magnesium	8170	10.6	mg/kg wet	8570.0		95.4	83.2-116.7		
Manganese	953	2.11	mg/kg wet	965.00		98.7	69.3-130.5		
Molybdenum	223	2.11	mg/kg wet	235.00		94.8	76.2-123.8		
Nickel	211	5.28	mg/kg wet	221.00		95.4	79.6-120.8		
Potassium	14100	211	mg/kg wet	14400		97.6	81.9-118.1		
Selenium	179	2.11	mg/kg wet	187.00		96.0	75.9-124.6		
Silicon	370	12.7	mg/kg wet	807.00		45.9	0-219.3		
Silver	81.4	2.11	mg/kg wet	83.500		97.5	82.7-117.1		
Sodium	9040	106	mg/kg wet	9730.0		92.9	82.5-117.2		

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WC-Hanford, Inc.	Project: RC-040	
2620 Fermi Avenue	Project Number: K3902	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	05/25/2012 11:42

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L205182 - SW 3050B									
Reference (L205182-SRM1)			Prepared: 05/22/2012 Analyzed: 05/24/2012						
Vanadium	103	2.11	mg/kg wet	98.700		104	75.9-123.6		
Zinc	189	6.34	mg/kg wet	199.00		95.2	78.4-121.6		

Lionville Laboratory

Logbook #: 1111

SAMPLE DIGESTION RECORD

Digestion Batch #: L205182
Date/Time Initiated: 5/22/12 1215
Date/Time Completed: 5/22/12 1720
Analyst: JJS
Matrix (circle): Soil Water Other
Method (circle one): 3005A 3010A 3050 200.7 (1994)
pH/Turbidity: N/A for Solids.
NOTE: All temperatures are recorded as corrected temperatures

Digested / Undigested (circle one)
Balance #: B14
Balance Cal Verification: Y NA
Temp: 95
BLOCK 1 2 3 (circle one)

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/ TC	Texture	Color / Appearance	Artifact	Turb
1205094-01		0.59	50		TO	coarse	white	N/A	N/A
L205182 Dup1		0.69	50						
-MS1	0.5	0.59	50						
1205060-01		0.54	50			coarse	white		
L205182 Dup2		0.62	50						
MS2	0.5	0.52	50						
-BLK1		0.73	50			coarse	Boiling chips		
-SRM1		0.71	50			fine	pink sand		

JJS 5/22/12

Spiking IDs / Expiration Date:
MS#: 12ex457
LCS#: 1101357

Reagent IDs:
HNO_3 K99023
HCl L01031
H_2O_2 K99103
1:1 HNO_3 637-06602
1:1 HCl

File ID#:

Data Review By/Date: 5/23/12

R:\group\QA\SOP\
Signed\SPI\Metals Digestion log.doc

Page #:

PREPARATION BENCH SHEET

L205182

Lionville Laboratory

Printed: 5/22/2012 1:18:25PM

00000017

Matrix: Solid **Prepared using: METALS - SW 3050B** **(No Surrogate)**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1205044-01	6010B HSL Metals	05/22/2012 11:49	0.59	50					WC-Hanford, Inc.	HSL + B, Mo, Si (no TL)
1205060-01	6010B HSL Metals	05/22/2012 11:49	0.54	50					WC-Hanford, Inc.	HSL + B, Mo, Si (no TL)
L205182-BLK1	QC	05/22/2012 11:49	0.73	50						
L205182-DUP1	QC	05/22/2012 11:49	0.69	50		1205044-01				
L205182-DUP2	QC	05/22/2012 11:49	0.62	50		1205060-01				
L205182-MS1	QC	05/22/2012 11:49	0.59	50	1200457	1205044-01	500			
L205182-MS2	QC	05/22/2012 11:49	0.52	50	1200457	1205060-01	500			
L205182-SRM1	QC	05/22/2012 11:49	0.71	50	1101357		710			

JJS 5/23/12

Extracts Relinquished By Date

Preetel 05/23/12

Extracts Received By Date

Lionville Laboratory

MERCURY PREPARATION

Logbook # 1123

Analyst: [illegible]
Date 5/21/12
Start Time/Temp: 2030/95°
End Time/Temp: 2110/97°

Instrument ID: HG3.4
Balance # B29 /NA
Pipette Calibration (Daily) (Y)

Prep Batch: L205172
Worksheet: HG052204
SOP No. ME-HgCVAA
BLOCK 1 (3) 2 (circle one)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
blank				10ml	50	
0.2ug/l		0.100		10ml	50	
1.0ug/l		0.500		10ml	50	
2.0ug/l		1.000		10ml	50	
5.0ug/l		2.500		10ml	50	
10.0ug/l		5.000		10ml	50	
ICV		0.125	2.5	10ml	50	
CCV		0.250	5.0	10ml	50	
ICB/CCB				10ml	50	
L205172-BLK1				0.32	50	
SRM1				0.32	50	
1205037-02				0.30	50	
05				0.30	50	
1205044-01				0.30	50	
L205172-DUP1				0.30	50	
MS1		0.500	1.0	0.31	50	
1205060-01				0.31	50	
L205172-DUP2				0.31	50	
MS2		0.500	1.0	0.31	50	

MW 5/21/12

Standard:	ID	Prep Date/Time
ICAL/MS	RI 1200588	5/21/12 1100
ICV/CCV/LCS	IV 1101427	1

Reviewed By/Date: [illegible] 5/23/12

se book # 9368 for std traceability information

Soil LCS True Value = 1.29 mg/Kg
Standard # 1101357

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

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ME-HgCVAA-Prep0910

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