0099901

SAF-RC-075
100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

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

RECEIVED
OCT 21 2011
EDMC

COMMENTS:

SDG K3671 SAF RC-075

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Waste Site: 118-D-2:1 Burial Ground – Split Samples

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

October 4, 2011

RECEIVED
OCT 2011

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

Reference: **P.O. #S00W235A01**
Eberline Analytical S1-09-082-7575-SDG K3671

Dear Ms. Kessner:

Enclosed is the data report for two soil samples designated under SAF No. RC-075. The samples were received at Eberline Analytical on September 13, 2011. The samples were 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 K3671 was composed of two soil samples designated under SAF No. RC-075 with a Project Designation of: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Prot.

The samples were 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 October 4, 2011.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis, Low Level

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analysis, Low Level

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 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.6 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.7 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

10/4/11
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 K3671

SDG	7575
Contact	Joseph Verville

Client	Hanford
Contract	No. S00W235A01
Case no	SDG_K3671

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	Hanford1
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	10/04/11

SDG 7575
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3671

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/04/11

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 K3671

SDG 7575
Contact Joseph Verville

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3671

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
S109082-01	J1KVC7	118-D-2:1BG-SPLITSAMPLES	SOIL		RC-075	RC-075-261	09/08/11 09:40
S109082-02	J1KVC8	118-D-2:1BG-SPLITSAMPLES	SOIL		RC-075	RC-075-261	09/08/11 08:15
S109082-03	Lab Control Sample		SOIL		RC-075		
S109082-04	Method Blank		SOIL		RC-075		
S109082-05	Duplicate (S109082-01)	118-D-2:1BG-SPLITSAMPLES	SOIL		RC-075		09/08/11 09:40

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

SDG 7575
Contact Joseph Verville

QC SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3671

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
7575	RC-075-261	J1KVC7	SOIL	99.4	1835 g		09/13/11	5	S109082-01	7575-001
		J1KVC8	SOIL	99.1	1690 g		09/13/11	5	S109082-02	7575-002
		Method Blank	SOIL						S109082-04	7575-004
		Lab Control Sample	SOIL						S109082-03	7575-003
		Duplicate (S109082-01)	SOIL	99.4	1835 g		09/13/11	5	S109082-05	7575-005

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

SDG 7575
Contact Joseph Verville

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3671

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
PU	SOIL	Plutonium, Isotopic in Solids	7307-146	8.0	2			1	1	1/1		
U	SOIL	Uranium, Isotopic in Solids	7307-146	8.0	2			1	1	1/1		
Beta Counting												
SR	SOIL	Total Strontium in Solids	7307-146	10.4	2			1	1	1/1		
Gamma Spectroscopy												
GAM	SOIL	Gamma Scan	7307-146	7.0	2			1	1	1/1		
Liquid Scintillation Counting												
C	SOIL	Carbon 14 in Solids	7307-146	10.0	2			1	1	1/1		
H	SOIL	Tritium in Solids	7307-146	10.0	2			1	1	1/1		
NI_L	SOIL	Nickel 63 in Solids	7307-146	11.2	2			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 Hanford1
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

SDG 7575
Contact Joseph Verville

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3671

LAB SAMPLE / COLLECTED / RECEIVED	CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
S109082-01	J1KVC7			7575-001	C		10/01/11	10/03/11	BW	Carbon 14 in Solids
09/08/11	118-D-2:1BG-SPLITSAMPLES		SOIL	7575-001	GAM		09/19/11	09/20/11	CSS	Gamma Scan
09/13/11	RC-075-261	RC-075		7575-001	H		10/02/11	10/03/11	BW	Tritium in Solids
				7575-001	NI_L		09/22/11	09/26/11	BW	Nickel 63 in Solids
				7575-001	PU		09/23/11	09/26/11	KWP	Plutonium, Isotopic in Solids
				7575-001	SR		09/27/11	09/30/11	BW	Total Strontium in Solids
				7575-001	U		09/27/11	09/28/11	KWP	Uranium, Isotopic in Solids
S109082-02	J1KVC8			7575-002	C		10/01/11	10/03/11	BW	Carbon 14 in Solids
09/08/11	118-D-2:1BG-SPLITSAMPLES		SOIL	7575-002	GAM		09/16/11	09/20/11	CSS	Gamma Scan
09/13/11	RC-075-261	RC-075		7575-002	H		10/02/11	10/03/11	BW	Tritium in Solids
				7575-002	NI_L		09/22/11	09/26/11	BW	Nickel 63 in Solids
				7575-002	PU		09/23/11	09/26/11	KWP	Plutonium, Isotopic in Solids
				7575-002	SR		09/27/11	09/30/11	BW	Total Strontium in Solids
				7575-002	U		09/27/11	09/28/11	KWP	Uranium, Isotopic in Solids
S109082-03	Lab Control Sample			7575-003	C		10/02/11	10/03/11	BW	Carbon 14 in Solids
			SOIL	7575-003	GAM		09/16/11	09/20/11	CSS	Gamma Scan
		RC-075		7575-003	H		10/03/11	10/03/11	BW	Tritium in Solids
				7575-003	NI_L		09/22/11	09/26/11	BW	Nickel 63 in Solids
				7575-003	PU		09/23/11	09/26/11	KWP	Plutonium, Isotopic in Solids
				7575-003	SR		09/27/11	09/30/11	BW	Total Strontium in Solids
				7575-003	U		09/27/11	09/28/11	KWP	Uranium, Isotopic in Solids
S109082-04	Method Blank			7575-004	C		10/01/11	10/03/11	BW	Carbon 14 in Solids
			SOIL	7575-004	GAM		09/16/11	09/20/11	CSS	Gamma Scan
		RC-075		7575-004	H		10/02/11	10/03/11	BW	Tritium in Solids
				7575-004	NI_L		09/22/11	09/26/11	BW	Nickel 63 in Solids
				7575-004	PU		09/24/11	09/26/11	KWP	Plutonium, Isotopic in Solids
				7575-004	SR		09/27/11	09/30/11	BW	Total Strontium in Solids
				7575-004	U		09/27/11	09/28/11	KWP	Uranium, Isotopic in Solids
S109082-05	Duplicate (S109082-01)			7575-005	C		10/01/11	10/03/11	BW	Carbon 14 in Solids
09/08/11	118-D-2:1BG-SPLITSAMPLES		SOIL	7575-005	GAM		09/19/11	09/20/11	CSS	Gamma Scan
09/13/11		RC-075		7575-005	H		10/02/11	10/03/11	BW	Tritium in Solids
				7575-005	NI_L		09/22/11	09/26/11	BW	Nickel 63 in Solids
				7575-005	PU		09/24/11	09/26/11	KWP	Plutonium, Isotopic in Solids
				7575-005	SR		09/27/11	09/30/11	BW	Total Strontium in Solids
				7575-005	U		09/27/11	09/28/11	KWP	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

SDG 7575
Contact Joseph Verville

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A01
Case no SDG K3671

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
C	RC-075	Carbon 14 in Solids	C14_LSC	2			1	1	1	5
GAM	RC-075	Gamma Scan	GAMMA_GS	2			1	1	1	5
H	RC-075	Tritium in Solids	TRITIUM_COX_LSC	2			1	1	1	5
NI_L	RC-075	Nickel 63 in Solids	NI63_LSC	2			1	1	1	5
PU	RC-075	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	2			1	1	1	5
SR	RC-075	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	2			1	1	1	5
U	RC-075	Uranium, Isotopic in Solids	UISO_PLATE_AEA	2			1	1	1	5
TOTALS				14			7	7	7	35

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

7575-004 Method Blank

METHOD BLANK

SDG	7575	Client/Case no	Hanford SDG K3671
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S109082-04	Client sample id	Method Blank
Dept sample id	7575-004	Material/Matrix	SOIL
		SAF No	RC-075

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.712	1.7	3.00	10.0	U	H
Carbon 14	14762-75-5	-0.296	0.41	0.694	1.00	U	C
Nickel 63	13981-37-8	-0.192	1.7	3.00	30.0	U	NI_L
Total Strontium	SR-RAD	-0.019	0.13	0.273	1.00	U	SR
Uranium 233/234	U-233/234	0	0.063	0.240	1.00	U	U
Uranium 235	15117-96-1	0	0.076	0.291	1.00	U	U
Uranium 238	U-238	0.031	0.063	0.240	1.00	U	U
Plutonium 238	13981-16-3	0	0.057	0.217	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.057	0.217	1.00	U	PU
Potassium 40	13966-00-2	U		0.262		U	GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Cesium 134	13967-70-9	U		0.015		U	GAM
Cesium 137	10045-97-3	U		0.012	0.100	U	GAM
Europium 152	14683-23-9	U		0.031	0.100	U	GAM
Europium 154	15585-10-1	U		0.044	0.100	U	GAM
Europium 155	14391-16-3	U		0.038	0.100	U	GAM
Radium 226	13982-63-3	U		0.023	0.100	U	GAM
Radium 228	15262-20-1	U		0.054	0.200	U	GAM
Thorium 228	14274-82-9	U		0.021		U	GAM
Thorium 232	TH-232	U		0.054		U	GAM
Uranium 235	15117-96-1	U		0.072	0.300	U	GAM
Uranium-238	U-238	U		1.38	10.0	U	GAM
Americium 241	14596-10-2	U		0.100	0.300	U	GAM
Bismuth 214	14733-03-0	U		0.023		U	GAM
Lead 212	15092-94-1	U		0.022		U	GAM

QC-BLANK #79895

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

7575-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7575

Contact Joseph Verville

Client/Case no Hanford SDG K3671

Contract No. S00W235A01

Lab sample id S109082-03

Dept sample id 7575-003

Client sample id Lab Control Sample

Material/Matrix SOIL

SAF No RC-075

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	127	5.3	2.84	10.0		H	127	5.1	100	83-117	80-120
Carbon 14	999	20	4.72	1.00		C	997	40	100	84-116	80-120
Nickel 63	232	6.3	3.03	30.0		NI_L	258	10	90	83-117	80-120
Total Strontium	9.77	0.55	0.235	1.00		SR	8.61	0.34	114	79-121	80-120
Uranium 233/234	11.8	1.8	0.425	1.00		U	11.8	0.47	100	73-127	80-120
Uranium 238	11.1	1.7	0.425	1.00		U	11.8	0.47	94	75-125	80-120
Plutonium 238	13.1	1.5	0.199	1.00		PU	13.7	0.55	96	79-121	80-120
Plutonium 239/240	15.6	1.7	0.199	1.00		PU	15.8	0.63	99	79-121	80-120
Cobalt 60	0.315	0.028	0.016	0.050		GAM	0.335	0.013	94	83-117	80-120
Cesium 137	0.352	0.026	0.019	0.100		GAM	0.355	0.014	99	84-116	80-120

QC-LCS #79894

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

7575-005 J1KVC7

DUPLICATE

SDG	7575			Client/Case no	Hanford SDG K3671
Contact	Joseph Verville			Contract	No. S00W235A01
	DUPLICATE		ORIGINAL		
Lab sample id	S109082-05	Lab sample id	S109082-01	Client sample id	J1KVC7
Dept sample id	7575-005	Dept sample id	7575-001	Location/Matrix	118-D-2:1BG-SPLITSAMPLES SOIL
		Received	09/13/11	Collected/Weight	09/08/11 09:40 1835 g
% solids	99.4	% solids	99.4	Custody/SAF No	RC-075-261 RC-075

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	1.27	2.0	3.41	10.0	U	H	0.791	2.0	3.33	U	-		0.3
Carbon 14	0.583	0.43	0.695	1.00	U	C	0.748	0.42	0.675		25	137	0.5
Nickel 63	0.348	1.8	3.03	30.0	U	NI_L	-0.709	1.9	3.27	U	-		0.8
Total Strontium	0.391	0.17	0.256	1.00		SR	0.211	0.16	0.264	U	60	119	1.5
Uranium 233/234	0.674	0.30	0.224	1.00		U	0.563	0.27	0.205		18	99	0.5
Uranium 235	0	0.071	0.271	1.00	U	U	0	0.065	0.248	U	-		0
Uranium 238	0.732	0.30	0.224	1.00		U	0.563	0.27	0.205		26	95	0.8
Plutonium 238	0.098	0.13	0.250	1.00	U	PU	-0.050	0.050	0.241	U	-		2.1
Plutonium 239/240	0	0.065	0.250	1.00	U	PU	0.025	0.050	0.192	U	-		0.6
Potassium 40	11.0	0.48	0.199			GAM	11.0	0.50	0.182		0	18	0
Cobalt 60	U		0.020	0.050	U	GAM	U		0.023	U	-		0.2
Cesium 134	U		0.028		U	GAM	U		0.031	U	-		0.1
Cesium 137	U		0.020	0.100	U	GAM	U		0.021	U	-		0.1
Europium 152	U		0.048	0.100	U	GAM	U		0.049	U	-		0
Europium 154	U		0.078	0.100	U	GAM	U		0.078	U	-		0
Europium 155	U		0.053	0.100	U	GAM	U		0.099	U	-		0.8
Radium 226	0.443	0.044	0.039	0.100		GAM	0.428	0.049	0.045		3	27	0.4
Radium 228	0.555	0.10	0.099	0.200		GAM	0.668	0.10	0.095		18	38	1.5
Thorium 228	0.521	0.027	0.023			GAM	0.515	0.028	0.025		1	19	0.2
Thorium 232	0.555	0.10	0.099			GAM	0.668	0.10	0.095		18	38	1.5
Uranium 235	U		0.114	0.300	U	GAM	U		0.121	U	-		0.1
Uranium-238	U		2.52	10.0	U	GAM	U		2.50	U	-		0
Americium 241	U		0.034	0.300	U	GAM	U		0.035	U	-		0
Bismuth 214	0.456	0.045	0.040			GAM	0.441	0.051	0.047		3	27	0.4
Lead 212	0.535	0.028	0.024			GAM	0.529	0.029	0.026		1	19	0.2

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

7575-005 J1KVC7

DUPLICATE, cont.

SDG	7575			Client/Case no	Hanford SDG K3671
Contact	Joseph Verville			Contract	No. S00W235A01
	DUPLICATE		ORIGINAL		
Lab sample id	S109082-05	Lab sample id	S109082-01	Client sample id	J1KVC7
Dept sample id	7575-005	Dept sample id	7575-001	Location/Matrix	118-D-2:1BG-SPLITSAMPLES SOIL
		Received	09/13/11	Collected/Weight	09/08/11 09:40 1835 g
% solids	99.4	% solids	99.4	Custody/SAF No	RC-075-261 RC-075

QC-DUP#1 79896

100-D/DR BURIAL GROUNDS & REMAINING SITES - SOIL FULL PROT

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

7575-001 J1KVC7

DATA SHEET

SDG	7575	Client/Case no	Hanford	SDG K3671	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S109082-01	Client sample id	J1KVC7		
Dept sample id	7575-001	Location/Matrix	118-D-2:1BG-SPLITSAMPLES	SOIL	
Received	09/13/11	Collected/Weight	09/08/11 09:40	1835 g	
% solids	99.4	Custody/SAF No	RC-075-261	RC-075	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.791	2.0	3.33	10.0	U	H
Carbon 14	14762-75-5	0.748	0.42	0.675	1.00		C
Nickel 63	13981-37-8	-0.709	1.9	3.27	30.0	U	NI_L
Total Strontium	SR-RAD	0.211	0.16	0.264	1.00	U	SR
Uranium 233/234	U-233/234	0.563	0.27	0.205	1.00		U
Uranium 235	15117-96-1	0	0.065	0.248	1.00	U	U
Uranium 238	U-238	0.563	0.27	0.205	1.00		U
Plutonium 238	13981-16-3	-0.050	0.050	0.241	1.00	U	PU
Plutonium 239/240	PU-239/240	0.025	0.050	0.192	1.00	U	PU
Potassium 40	13966-00-2	11.0	0.50	0.182			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 134	13967-70-9	U		0.031		U	GAM
Cesium 137	10045-97-3	U		0.021	0.100	U	GAM
Europium 152	14683-23-9	U		0.049	0.100	U	GAM
Europium 154	15585-10-1	U		0.078	0.100	U	GAM
Europium 155	14391-16-3	U		0.099	0.100	U	GAM
Radium 226	13982-63-3	0.428	0.049	0.045	0.100		GAM
Radium 228	15262-20-1	0.668	0.10	0.095	0.200		GAM
Thorium 228	14274-82-9	0.515	0.028	0.025			GAM
Thorium 232	TH-232	0.668	0.10	0.095			GAM
Uranium 235	15117-96-1	U		0.121	0.300	U	GAM
Uranium-238	U-238	U		2.50	10.0	U	GAM
Americium 241	14596-10-2	U		0.035	0.300	U	GAM
Bismuth 214	14733-03-0	0.441	0.051	0.047			GAM
Lead 212	15092-94-1	0.529	0.029	0.026			GAM

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

7575-001 J1KVC7

DATA SHEET, cont

SDG	7575	Client/Case no	Hanford	SDG K3671
Contact	Joseph Verville	Contract	No. S00W235A01	
Lab sample id	S109082-01	Client sample id	J1KVC7	
Dept sample id	7575-001	Location/Matrix	118-D-2:1BG-SPLITSAMPLES	SOIL
Received	09/13/11	Collected/Weight	09/08/11 09:40	1835 g
% solids	99.4	Custody/SAF No	RC-075-261	RC-075

100-D/DR BURIAL GROUNDS & REMAINING SITES - SOIL FULL PROT

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

7575-002 J1KVC8

DATA SHEET

SDG	7575	Client/Case no	Hanford	SDG_K3671	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S109082-02	Client sample id	J1KVC8		
Dept sample id	7575-002	Location/Matrix	118-D-2:1BG-SPLITSAMPLES	SOIL	
Received	09/13/11	Collected/Weight	09/08/11 08:15	1690 g	
% solids	99.1	Custody/SAF No	RC-075-261	RC-075	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.302	2.0	3.56	10.0	U	H
Carbon 14	14762-75-5	0.451	0.43	0.705	1.00	U	C
Nickel 63	13981-37-8	0.472	1.8	3.09	30.0	U	NI_L
Total Strontium	SR-RAD	0.796	0.19	0.231	1.00		SR
Uranium 233/234	U-233/234	0.452	0.24	0.230	1.00		U
Uranium 235	15117-96-1	0.036	0.073	0.279	1.00	U	U
Uranium 238	U-238	0.662	0.31	0.230	1.00		U
Plutonium 238	13981-16-3	0.079	0.11	0.202	1.00	U	PU
Plutonium 239/240	PU-239/240	0.026	0.11	0.201	1.00	U	PU
Potassium 40	13966-00-2	11.3	0.70	0.306			GAM
Cobalt 60	10198-40-0	U		0.037	0.050	U	GAM
Cesium 134	13967-70-9	U		0.058		U	GAM
Cesium 137	10045-97-3	U		0.034	0.100	U	GAM
Europium 152	14683-23-9	U		0.081	0.100	U	GAM
Europium 154	15585-10-1	U		0.124	0.100	U	GAM
Europium 155	14391-16-3	U		0.104	0.100	U	GAM
Radium 226	13982-63-3	0.532	0.066	0.057	0.100		GAM
Radium 228	15262-20-1	0.626	0.15	0.152	0.200		GAM
Thorium 228	14274-82-9	0.642	0.042	0.040			GAM
Thorium 232	TH-232	0.626	0.15	0.152			GAM
Uranium 235	15117-96-1	U		0.189	0.300	U	GAM
Uranium-238	U-238	U		4.08	10.0	U	GAM
Americium 241	14596-10-2	U		0.271	0.300	U	GAM
Bismuth 214	14733-03-0	0.548	0.067	0.059			GAM
Lead 212	15092-94-1	0.662	0.043	0.041			GAM

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

7575-002 J1KVC8

DATA SHEET, cont

SDG	7575	Client/Case no	Hanford	SDG K3671
Contact	Joseph Verville	Contract	No. S00W235A01	
Lab sample id	S109082-02	Client sample id	J1KVC8	
Dept sample id	7575-002	Location/Matrix	118-D-2:1BG-SPLITSAMPLES	SOIL
Received	09/13/11	Collected/Weight	09/08/11 08:15	1690 g
% solids	99.1	Custody/SAF No	RC-075-261	RC-075

100-D/DR BURIAL GROUNDS & REMAINING SITES - SOIL FULL PROT

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

Test PU	Matrix SOIL
SDG 7575	
Contact Joseph Verville	

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. S00W235A01	
Contract SDG K3671	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238		Plutonium 239/240	
Preparation batch 7307-146								
S109082-01			7575-001	J1KVC7	U		U	
S109082-02			7575-002	J1KVC8	U		U	
S109082-03			7575-003	Lab Control Sample	ok		ok	
S109082-04			7575-004	Method Blank	U		U	
S109082-05			7575-005	Duplicate (S109082-01)	-	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 7307-146			2σ prep error 8.0 %	Reference Lab Notebook 7305 pg. 108												
S109082-01			J1KVC7	0.241	0.500			64		138			15	09/23/11	09/23	SS-065
S109082-02			J1KVC8	0.202	0.500			76		118			15	09/23/11	09/23	SS-039
S109082-03			Lab Control Sample	0.199	0.500			70		118				09/23/11	09/23	SS-040
S109082-04			Method Blank	0.217	0.500			79		109				09/24/11	09/24	SS-052
S109082-05			Duplicate (S109082-01)	0.250	0.500			76		109			16	09/24/11	09/24	SS-053
Nominal values and limits from method				1.00	0.500			30-110		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 1
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 12
	CP-008	Heavy Element Electroplating, rev 13

AVERAGES ± 2 SD	MDA	0.222	± 0.046
FOR 5 SAMPLES	YIELD	73	± 12

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

Test U	Matrix SOIL
SDG 7575	
Contact Joseph Verville	

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. S00W235A01	
Contract SDG K3671	

RESULTS

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
Preparation batch 7307-146											
S109082-01			7575-001	J1KVC7	0.563	U	0.563	100	68	0	12
S109082-02			7575-002	J1KVC8	0.452	U	0.662	68	48	5	11
S109082-03			7575-003	Lab Control Sample	ok		ok				
S109082-04			7575-004	Method Blank	U	U	U				
S109082-05			7575-005	Duplicate (S109082-01)	ok	- U	ok	92	56	0	10
Nominal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00	100		4	
							Averages	87		2	

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 7307-146			2σ prep error 8.0 %	Reference Lab Notebook 7305 pg. 108												
S109082-01			J1KVC7	0.248	0.500			90		101			19	09/27/11	09/27	SS-011
S109082-02			J1KVC8	0.279	0.500			92		100			19	09/27/11	09/27	SS-031
S109082-03			Lab Control Sample	0.425	0.500			70		101				09/27/11	09/27	SS-032
S109082-04			Method Blank	0.291	0.500			90		101				09/27/11	09/27	SS-033
S109082-05			Duplicate (S109082-01)	0.271	0.500			98		101			19	09/27/11	09/27	SS-034
Nominal values and limits from method				1.00	0.500			30-110		100	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	0.303	± 0.140
FOR 5 SAMPLES	YIELD	88	± 21

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

Test SR	Matrix SOIL
SDG 7575	
Contact Joseph Verville	

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford	
Contract No. S00W235A01	
Contract SDG K3671	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
Preparation batch 7307-146					
S109082-01			7575-001	J1KVC7	U
S109082-02			7575-002	J1KVC8	0.796
S109082-03			7575-003	Lab Control Sample	ok
S109082-04			7575-004	Method Blank	U
S109082-05			7575-005	Duplicate (S109082-01)	ok
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 7307-146			2σ prep error 10.4 % Reference Lab Notebook 7305 pg. 108													
S109082-01			J1KVC7	0.264	1.00			92		100			19	09/27/11	09/27	GRB-201
S109082-02			J1KVC8	0.231	1.00			92		100			19	09/27/11	09/27	GRB-202
S109082-03			Lab Control Sample	0.235	1.00			90		100				09/27/11	09/27	GRB-203
S109082-04			Method Blank	0.273	1.00			85		100				09/27/11	09/27	GRB-222
S109082-05			Duplicate (S109082-01)	0.256	1.00			93		100			19	09/27/11	09/27	GRB-223
Nominal values and limits from method				1.00	1.00			40-110		100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-061	Determination of Moisture Content in Solid Samples rev 0
	SPP-060	Soil Preparation, rev 0
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 1
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot, rev 4

AVERAGES ± 2 SD	MDA	0.252	±	0.036
FOR 5 SAMPLES	YIELD	90	±	6

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

Test GAM Matrix SOIL
SDG 7575
Contact Joseph Verville

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A01
Contract SDG K3671

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 7307-146								
S109082-01			7575-001	J1KVC7	U		U	
S109082-02			7575-002	J1KVC8	U		U	
S109082-03			7575-003	Lab Control Sample	ok		ok	
S109082-04			7575-004	Method Blank	U		U	
S109082-05			7575-005	Duplicate (S109082-01)	-	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 7307-146			2σ prep error 7.0 %	Reference Lab Notebook 7305 pg. 108												
S109082-01			J1KVC7	0.159	858					101			11	09/15/11	09/19	02,01,00
S109082-02			J1KVC8	0.282	840					113			8	09/15/11	09/16	MB,05,00
S109082-03			Lab Control Sample	0.016	840					112				09/15/11	09/16	MB,06,00
S109082-04			Method Blank	0.107	840					123				09/15/11	09/16	MB,05,00
S109082-05			Duplicate (S109082-01)	0.149	858					113			11	09/15/11	09/19	02,01,00
Nominal values and limits from method				0.050	840					100			180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.143 ± 0.192
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

Test C	Matrix SOIL
SDG 7575	
Contact Joseph Verville	

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract No. S00W235A01	
Contract SDG K3671	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14	
Preparation batch 7307-146						
S109082-01			7575-001	J1KVC7	0.748	
S109082-02			7575-002	J1KVC8	U	
S109082-03			7575-003	Lab Control Sample	ok	
S109082-04			7575-004	Method Blank	U	
S109082-05			7575-005	Duplicate (S109082-01)	ok	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 7307-146			2σ prep error 10.0 % Reference Lab Notebook 7305 pg. 108													
S109082-01			J1KVC7	0.675	0.651			100		400			23	09/30/11	10/01	LSC-006
S109082-02			J1KVC8	0.705	0.640			100		400			23	09/30/11	10/01	LSC-006
S109082-03			Lab Control Sample	4.72	0.640			100		9				09/30/11	10/02	LSC-006
S109082-04			Method Blank	0.694	0.640			100		400				09/30/11	10/01	LSC-006
S109082-05			Duplicate (S109082-01)	0.695	0.648			100		400			23	09/30/11	10/01	LSC-006
Nominal values and limits from method				1.00	0.640					50			180			

PROCEDURES	REFERENCE	C14_LSC
	CP-251	Tritium/Carbon-14 Oxidation, rev 11

AVERAGES ± 2 SD	MDA	1.50	± 3.60
FOR 5 SAMPLES	YIELD	100	± 0

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

Test H	Matrix SOIL
SDG 7575	
Contact Joseph Verville	

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract No. S00W235A01	
Contract SDG K3671	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 7307-146						
S109082-01			7575-001	J1KVC7	U	
S109082-02			7575-002	J1KVC8	U	
S109082-03			7575-003	Lab Control Sample	ok	
S109082-04			7575-004	Method Blank	U	
S109082-05			7575-005	Duplicate (S109082-01)	-	U
Nominal values and limits from method				RDLs (pCi/g)	10.0	

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 7307-146			2σ prep error 10.0 % Reference Lab Notebook 7305 pg. 108													
S109082-01			J1KVC7	3.33	0.651			100		50			24	09/30/11	10/02	LSC-006
S109082-02			J1KVC8	3.56	0.640			100		50			24	09/30/11	10/02	LSC-006
S109082-03			Lab Control Sample	2.84	0.640			100		50				09/30/11	10/03	LSC-006
S109082-04			Method Blank	3.00	0.640			100		50				09/30/11	10/02	LSC-006
S109082-05			Duplicate (S109082-01)	3.41	0.648			100		50			24	09/30/11	10/02	LSC-006
Nominal values and limits from method				10.0	0.640					50			180			

PROCEDURES	REFERENCE	TRITIUM_COX_LSC
	CP-251	Tritium/Carbon-14 Oxidation, rev 11

AVERAGES ± 2 SD	MDA	3.23	± 0.597
FOR 5 SAMPLES	YIELD	100	± 0

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

Test	NI L Matrix SOIL
SDG	7575
Contact	Joseph Verville

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. S00W235A01
Contract	SDG K3671

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
Preparation batch 7307-146						
S109082-01			7575-001	J1KVC7	U	
S109082-02			7575-002	J1KVC8	U	
S109082-03			7575-003	Lab Control Sample	ok	
S109082-04			7575-004	Method Blank	U	
S109082-05			7575-005	Duplicate (S109082-01)	-	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 7307-146			2σ prep error 11.2 % Reference Lab Notebook 7305 pg. 108													
S109082-01			J1KVC7	3.27	0.500			94		50			14	09/22/11	09/22	LSC-006
S109082-02			J1KVC8	3.09	0.500			98		50			14	09/22/11	09/22	LSC-006
S109082-03			Lab Control Sample	3.03	0.500			99		50				09/22/11	09/22	LSC-006
S109082-04			Method Blank	3.00	0.500			100		50				09/22/11	09/22	LSC-006
S109082-05			Duplicate (S109082-01)	3.03	0.500			100		50			14	09/22/11	09/22	LSC-006
Nominal values and limits from method				30.0	0.500			40-110		25			180			

PROCEDURES	REFERENCE	NI63_LSC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 1
	CP-281	Nickel-63 Purification By Extraction Chromatography, rev 5

AVERAGES ± 2 SD FOR 5 SAMPLES	MDA	3.08	± 0.218
	YIELD	98	± 5

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/04/11

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3671

SDG	7575
Contact	Joseph Verville

REPORT GUIDE

Client	Hanford
Contract	No. S00W235A01
Case no	SDG_K3671

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-RG
Version	3.06
Report date	10/04/11

SDG	7575
Contact	Joseph Verville

REPORT GUIDE

Client	Hanford
Contract	No. S00W235A01
Case no	SDG K3671

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-RG
Version	3.06
Report date	10/04/11

SDG 7575
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3671

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/04/11

SDG 7575	Client Hanford
Contact Joseph Verville	Contract No. S00W235A01
	Case no SDG_K3671

REPORT GUIDE

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-RG
Version	3.06
Report date	10/04/11

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	7575
Contact	Joseph Verville

GUIDE, cont.

Client	Hanford
Contract	No. S00W235A01
Case no	SDG K3671

DATA SHEET

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

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

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

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-RG
Version	3.06
Report date	10/04/11

SDG 7575
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3671

LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/04/11

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.

SDG	7575
Contact	Joseph Verville

REPORT GUIDE

Client	Hanford
Contract	No. S00W235A01
Case no	SDG_K3671

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
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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.

SDG	7575
Contact	Joseph Verville

REPORT GUIDE

Client	Hanford
Contract	No. S00W235A01
Case no	SDG_K3671

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-RG
Version	3.06
Report date	10/04/11

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-075-261	Page 1 of 2

Collector: K. Lucas	Company Contact: Joan Kessner K3671 — Telephone No.: 509-375-4688 (7575)	Project Coordinator: KESSNER, JH	Price Code: 8L — Data Turnaround: 21 Days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 118-D-2:1 Burial Ground- Split Samples	SAF No.: RC-075	
Ice Chest No.: WCH-11-067	Field Logbook No.: EL-1607-12 — COA: R118D22000	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: A100811	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Rad < DOT

Special Handling and/or Storage

Cool 4 Deg C None
9/8/11

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None
Type of Container	G/P	G/P	G	aG	aG	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	0	0	0
Volume	60mL	60mL	125mL	120mL	120mL	125mL	1000mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	TPH-Diesel Range - WTPH-D+	PAHs - 8310	PCBs - 8082	Chloro-Herbicides - EPA8151	See item (2) in Special Instructions.	Carbon-14 Low Level; Tritium - H3 Low Level Soil	Nickel-63, Strontium-89,90 -- Total Sr	Isotopic Plutonium

Sample No.	Matrix *	Sample Date	Sample Time										
J1KVC5 9/8/11	SOIL								RCF 27384				
J1KVC6 9/8/11	SOIL												
J1KVC7	SOIL	9/8/11	0940							X	X	X	X
J1KVC8	SOIL	9/8/11	0815							X	X	X	X

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: K. Lucas Kevin Lucas	9-8-11 1510	D. Newman Dan Newman	9/8/11 1510
Relinquished By/Removed From: D. Newman Dan Newman	1650 9-8-11	Received By/Stored In: A. Freier A. Freier (1060 #2)	1650 9-8-11
Relinquished By/Removed From: A. Freier A. Freier (1060 #2)	WCH 0820 9-12-11	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: FED EX		Received By/Stored In: [illegible]	09/13/11 0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out 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) (Mercury)

(2) Gamma Spec (Client List) (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

REVIEWED BY CMB DATE 9/12/11

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-261	Page 2 of 2
Collector: K. Lucas	Company Contact: Joan Kessner (K3671) Telephone No.: 509-375-4688 (7575)	Project Coordinator: KESSNER, JH	Price Code: 8L — Data Turnaround: 21 Days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 118-D-2:1 Burial Ground- Split Samples	SAF No.: RC-075	
Ice Chest No.: WCH-11-067	Field Logbook No.: EL-1607-12 — COA: R118D22000	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: A100811	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Rad < DOT

Special Handling and/or Storage

~~Cool + Deg. C~~ none
aw 9/8/11

Preservation	None										
Type of Container	G/P										
No. of Container(s)	0										
Volume	1000mL										
SAMPLE ANALYSIS	Isotopic Uranium										

Sample No.	Matrix *	Sample Date	Sample Time						RCF				
~~J1KVC5~~ ~~aw 9/8/11~~	~~SOIL~~								27384				
~~J1KVC6~~ ~~aw 9/8/11~~	~~SOIL~~												
J1KVC7	SOIL	9/8/11	0940	X									
J1KVC8	SOIL	9/8/11	0815	X									

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: K. Lucas Kenneth Lucas — Date/Time: 9-8-11 1510	Received By/Stored In: D. Newman Dan Newman — Date/Time: 9/8/11 1510	
Relinquished By/Removed From: D. Newman Dan Newman — Date/Time: 1650 9/8/11	Received By/Stored In: 1060 #2 A. Freier A. Freier — Date/Time: 1650 9-8-11	
Relinquished By/Removed From: WCH 1060 #2 A. Freier A. Freier — Date/Time: 0820 9-12-11	Received By/Stored In: Fed Ex — Date/Time:	
Relinquished By/Removed From: FED EX — Date/Time:	Received By/Stored In: [illegible] — Date/Time: 09/13/11 0930	
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time:	
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time:	

REVIEWED BY CMB DATE 9/12/11

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 SERVICE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

7575 - K3671

Client: W.C. HANFORD City: RICHLAND State: WA

Date/Time received: 09/13/11 0930 CoC No. RC-075-261

Container I.D. No. WCH-11-067 Requested TAT (Days) 21 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: 2 Sample Matrix: S
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: 09/13/11 Time: 1115

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
AW Sheepless	<50						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100485 Calibration date 24 SEP 10

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

6 October 2011

RECEIVED
OCT 2011

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 #	1109058
SDG #	K3671
SAF #	RC-075
Date Received	09/14/11
# Samples	2
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	X
Glycols	
DRO/KRO/GRO	X
PAHs	X
Herbicides	X
Metals	X
Inorganics	X

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

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

RECEIVED
OCT 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 09/24/2011 09:57

Analytical Report for Polychlorinated Biphenyls by SW846 8082

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1KVC7	1109058-01	Soil	09/08/2011 09:40	09/13/2011 10:15
J1KVC8	1109058-02	Soil	09/08/2011 08:15	09/13/2011 10:15

001

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-075 K3671
LVL #: 1109058

W.O. #: 60049-001-001-0001-00
Received: 09-13-2011

PCBs

Four (2) soil samples were collected on 09-08-2011.

The samples and associated QC samples were extracted 09-19-2011 and analyzed 09-20,21-2011 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8082. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on SW846 methods 3660A and 3665A.

Lionville Laboratory (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. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements:

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limits for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. The samples are reported on a dry weight basis.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
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 hardcopy data package has been authorized by the laboratory manager or a designee as verified by the following signature.

Iain Daniels
LvL Laboratory Manager

9/27/11
Date

r:\group\data\2011\pcb\wc hanford\1109058jes.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.

002
~~000000011~~
LLO 0-27-11

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.
P	=	This flag is used for a dual column analysis (i.e. pesticides/PCB/herbicides) when there is greater than 40% difference for detected concentrations between the two GC columns; the lower of the two values is reported on Form 1 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.

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.
NPM	=	No pattern match for multi-component target analytes.

LIONVILLE LABORATORY
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Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/24/2011 09:57

J1KVC7

1109058-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082								
Aroclor 1016	13.2 U	13.2	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1221	13.2 U	13.2	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1232	13.2 U	13.2	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1242	13.2 U	13.2	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1248	13.2 U	13.2	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1254	13.2 U	13.2	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1260	13.2 U	13.2	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1262	13.2 U	13.2	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1268	13.2 U	13.2	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Surrogate: Decachlorobiphenyl	*78 %*	*43-144*			*L109275*	*09/19/2011*	*09/21/2011*	*8082*
Surrogate: Tetrachloro-meta-xylene	*94 %*	*52-141*			*L109275*	*09/19/2011*	*09/21/2011*	*8082*

LIONVILLE LABORATORY
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Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/24/2011 09:57

J1KVC8
1109058-02 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082								
Aroclor 1016	13.3 U	13.3	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1221	13.3 U	13.3	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1232	13.3 U	13.3	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1242	13.3 U	13.3	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1248	13.3 U	13.3	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1254	13.3 U	13.3	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1260	13.3 U	13.3	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1262	13.3 U	13.3	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Aroclor 1268	13.3 U	13.3	ug/kg dry	1	L109275	09/19/2011	09/21/2011	8082
Surrogate: Decachlorobiphenyl	*84 %*	*43-144*			*L109275*	*09/19/2011*	*09/21/2011*	*8082*
Surrogate: Tetrachloro-meta-xylene	*93 %*	*52-141*			*L109275*	*09/19/2011*	*09/21/2011*	*8082*

005

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/24/2011 09:57

Polychlorinated Biphenyls by SW846 8082 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109275 - SW 3540C									
Blank (L109275-BLK1)			Prepared: 09/19/2011 Analyzed: 09/20/2011						
Aroclor 1016	13.3 U	13.3	ug/kg wet						
Aroclor 1221	13.3 U	13.3	ug/kg wet						
Aroclor 1232	13.3 U	13.3	ug/kg wet						
Aroclor 1242	13.3 U	13.3	ug/kg wet						
Aroclor 1248	13.3 U	13.3	ug/kg wet						
Aroclor 1254	13.3 U	13.3	ug/kg wet						
Aroclor 1260	13.3 U	13.3	ug/kg wet						
Aroclor 1262	13.3 U	13.3	ug/kg wet						
Aroclor 1268	13.3 U	13.3	ug/kg wet						
Surrogate: Decachlorobiphenyl	*26.3*		*ug/kg wet*	*33.333*		*79*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*32.3*		*ug/kg wet*	*33.337*		*97*	*52-141*		
LCS (L109275-BS1)			Prepared: 09/19/2011 Analyzed: 09/20/2011						
Aroclor 1016	165	13.3	ug/kg wet	166.67		99	50-138		40
Aroclor 1260	147	13.3	ug/kg wet	166.67		88	50-148		40
Surrogate: Decachlorobiphenyl	*28.0*		*ug/kg wet*	*33.333*		*84*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*34.0*		*ug/kg wet*	*33.337*		*102*	*52-141*		
Matrix Spike (L109275-MS1)		**Source: 1109058-01**	Prepared: 09/19/2011 Analyzed: 09/21/2011						
Aroclor 1016	122	13.4	ug/kg dry	167.49	13.2 U	73	50-138		40
Aroclor 1260	137	13.4	ug/kg dry	167.49	13.2 U	82	50-148		40
Surrogate: Decachlorobiphenyl	*28.2*		*ug/kg dry*	*33.498*		*84*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*31.1*		*ug/kg dry*	*33.502*		*93*	*52-141*		
Matrix Spike Dup (L109275-MSD1)		**Source: 1109058-01**	Prepared: 09/19/2011 Analyzed: 09/21/2011						
Aroclor 1016	118	13.3	ug/kg dry	166.11	13.2 U	71	50-138	2	40
Aroclor 1260	133	13.3	ug/kg dry	166.11	13.2 U	80	50-148	2	40
Surrogate: Decachlorobiphenyl	*27.0*		*ug/kg dry*	*33.222*		*81*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*29.1*		*ug/kg dry*	*33.225*		*87*	*52-141*		

PREPARATION BENCH SHEET

L109275

Lionville Laboratory

Printed: 9/20/2011 1:44:33PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1101071**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1109058-01	8082 PCBs	09/19/2011 15:08	30.39	10				250	WC-Hanford, Inc.	
1109058-02	8082 PCBs	09/19/2011 15:08	30.07	10				250	WC-Hanford, Inc.	
1109064-01	8082 PCBs	09/19/2011 15:08	0.526	10				250	Fluor-B&W Portsmouth	fish
1109066-01	8082 PCBs	09/19/2011 15:08	0.53	10				250	WC-Hanford, Inc.	paint
1109067-01	8082 PCBs	09/19/2011 15:08	30.42	10				250	WC-Hanford, Inc.	
1109067-02	8082 PCBs	09/19/2011 15:08	30.9	10				250	WC-Hanford, Inc.	
1109076-01	8082 PCBs	09/19/2011 15:08	0.5239	10				250	URS/CH2M Oak Ridge (UCOR)	
1109079-01	8082 PCBs	09/19/2011 15:08	0.562	10				250	Fluor-B&W Portsmouth	fish
L109275-BLK1	QC	09/19/2011 15:08	30	10				250		
L109275-BS1	QC	09/19/2011 15:08	30	10	1100908		250	250		
L109275-MS1	QC	09/19/2011 15:08	30.01	10	1100908	1109058-01	250	250		
L109275-MS2	QC	09/19/2011 15:08	0.534	10	1100908	1109064-01	250	250		fish
L109275-MS3	QC	09/19/2011 15:08	0.548	10	1100908	1109066-01	250	250		paint
L109275-MS4	QC	09/19/2011 15:08	30.56	10	1100908	1109067-01	250	250		
L109275-MS5	QC	09/19/2011 15:08	0.554	10	1100908	1109076-01	250	250		paint chip
L109275-MSD1	QC	09/19/2011 15:08	30.26	10	1100908	1109058-01	250	250		
L109275-MSD2	QC	09/19/2011 15:08	0.418	10	1100908	1109064-01	250	250		fish
L109275-MSD3	QC	09/19/2011 15:08	0.504	10	1100908	1109066-01	250	250		paint
L109275-MSD4	QC	09/19/2011 15:08	30.94	10	1100908	1109067-01	250	250		
L109275-MSD5	QC	09/19/2011 15:08	0.541	10	1100908	1109076-01	250	250		paint chip

Cw changed 9/20/11

9/20/11 1350 9/20/11 13:51

Extracts Relinquished By Date Extracts Received By Date

PREPARATION BENCH SHEET

L109275

Lionville Laboratory

Printed: 9/20/2011 1:44:33PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1101071**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
										Cu cleaned 9/20/11 [illegible]

Extracts Relinquished By 9/20/11 1350 Date

Extracts Received By 9/20/11 13:57 Date

Lionville Laboratory Use Only: 1109058

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WC. Hanford SAF# RC.075
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: Arlette Johnson
QC: SW Del: STD TAT: 21 days
Date Rec'd: 9-13-11 Date Due: 10-4-11

		A	B	C	D	E	F
Refrigerator #		1	1	1	1	1	1
#/Type Container	Liquid						
	Solid	1aq1	1aq1	1aq1	1aq1	1aq1	1aq1
Volume	Liquid						
	Solid	120	120	125	120	60	60
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED		ORGANIC: VOA, BNA, Pest/PCB	Herb	TPH-D	PAHs	INORG: Cr, Metal, CN.	Cr6
Lionville Laboratory Use Only			8082	8151A	ORO	8015 PAH	Met(1)	ER6

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8082	8151A	ORO	8015 PAH	Met(1)	ER6
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	01	J1KVC7			S	9-8-11	0940	X	X	X	X	X	X
	02	J1KVC8			↓	↓	0815	X	X	X	X	X	X

Special Instructions: Run matrix QC

Met(1) = HSL + B, Mo, Si (no TL)

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

See SRG

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9-13-11	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-261	Page 1 of 1

Collector: Lucas	Company Contact: Joan Kessner Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH	Price Code: 8L Data Turnaround: 21 Days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 118-D-2:1 Burial Ground- Split Samples	SAF No.: RC-075	
Ice Chest No.: WCH-11-068	Field Logbook No.: EL-1607-12 COA: R118D22000	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A100857	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Rad < DOT

Special Handling and/or Storage

Cool 4 Deg. C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None
Type of Container	G/P	G/P	G	aG	aG	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	0	0	0
Volume	60mL	60mL	125mL	120mL	120mL	125mL	1000mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	TPH-Diesel Range - WTPH-D+	PAHs - 8310	PCBs - 8082	Chloro-Herbicides - EPA8151	See item (2) in Special Instructions.	Carbon-14 Low Level; Tritium - H3 Low Level Soil	Nickel-63, Strontium-89,90 -- Total Sr	Isotopic Plutonium

Sample No.	Matrix *	Sample Date	Sample Time										
J1KVC5	~~SOIL~~	~~9/8/11~~											
J1KVC6	~~SOIL~~	~~9/8/11~~											
J1KVC7	SOIL	9/8/11	0940	X	X	X	X	X	X				
J1KVC8	SOIL	9/8/11	0815	X	X	X	X	X	X				

RCF 27384

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Klucas Kenon Lucas	9-8-11 1510	D. Newman Dem Newm	9/8/11 1510
D. Newman Dem Newm	1650 9/8/11	A. Freier A. Freier (1060 #2)	1650 9-8-11
A. Freier A. Freier (1060 #2)	WCH 0900 9-12-11	Fed Ex	
Fed Ex	9-13-11 1015	[illegible]	9-13-11 1015

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out 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) {Mercury}

(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

REVIEWED BY CMB DATE 9/12/11

Matrix *: S=Soil, SE=Sediment, SO=Solid, SJ=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

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC. Hanford

Project/SAF/SOW/Release #: RC-075

Date: 9.13.11

LvL Batch #: 1109058

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7951 7600 3771
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.0	°C	Cooler # WCH-11-068
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 _____

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

RECEIVED
OCT 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 09/18/2011 10:20

Analytical Report for Extractable Petroleum Hydrocarbons by SW846 8015

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1KVC7	1109058-01	Soil	09/08/2011 09:40	09/13/2011 10:15
J1KVC8	1109058-02	Soil	09/08/2011 08:15	09/13/2011 10:15

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-075 K3671
LVL #: 1109058

W.O. #: 60049-001-001-0001-00
Date Received: 09-13-2011

DIESEL RANGE ORGANICS

Two (2) soil samples were collected on 09-08-2011.

The samples and associated QC samples were extracted 09-13-2011 and analyzed 09-17,18-2011 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8015B for Diesel Range Organics.

Lionville Laboratory (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. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements:

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3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limits for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. The samples were reported on a dry weight basis.
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 hardcopy data package has been authorized by the laboratory manager or a designee as verified by the following signature.

Iain Daniels
LvL Laboratory Manager

9/22/11
Date

r:\group\data\2011\dro\wc hanford\1109058jes.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 10 pages.

GLOSSARY OF DATA

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.
. I	=	Indicates an interference on one analytical column only. Result is reported from remaining analytical column.
P	=	This flag is used for a dual column analysis (i.e. pesticides/PCB/herbicides) when there is greater than 40% difference for detected concentrations between the two GC columns; the lower of the two values is reported on Form 1 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.

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.
NPM	=	No pattern match for multi-component target analytes.

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	09/18/2011 10:20

Extractable Petroleum Hydrocarbons by SW846 8015
Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J1KVC7 (1109058-01) Soil								
Surrogate: p-Terphenyl	*80 %*	*39-129*			*L109185*	*09/13/2011*	*09/18/2011*	*8015M*
Diesel Range Organics	3270 U	3270	ug/kg dry	1	L109185	09/13/2011	09/18/2011	8015M
Motor Oil	9800 U	9800	ug/kg dry	1	L109185	09/13/2011	09/18/2011	8015M
J1KVC8 (1109058-02) Soil								
Surrogate: p-Terphenyl	*73 %*	*39-129*			*L109185*	*09/13/2011*	*09/18/2011*	*8015M*
Diesel Range Organics	913 J	3210	ug/kg dry	1	L109185	09/13/2011	09/18/2011	8015M
Motor Oil	9640 U	9640	ug/kg dry	1	L109185	09/13/2011	09/18/2011	8015M

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/18/2011 10:20

Extractable Petroleum Hydrocarbons by SW846 8015 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109185 - SW 3540C									
Blank (L109185-BLK1)			Prepared: 09/13/2011 Analyzed: 09/17/2011						
Diesel Range Organics	3330 U	3330	ug/kg wet						
Motor Oil	10000 U	10000	ug/kg wet						
Surrogate: p-Terphenyl	*5010*		*ug/kg wet*	*6666.7*		*75*	*39-129*		
LCS (L109185-BS1)			Prepared: 09/13/2011 Analyzed: 09/17/2011						
Diesel Range Organics	56500	3330	ug/kg wet	66667		85	42-133		40
Surrogate: p-Terphenyl	*6020*		*ug/kg wet*	*6666.7*		*90*	*39-129*		
Matrix Spike (L109185-MS3)		**Source: 1109058-01**	Prepared: 09/13/2011 Analyzed: 09/18/2011						
Diesel Range Organics	53300	3340	ug/kg dry	66841	3270 U	80	42-133		40
Surrogate: p-Terphenyl	*5380*		*ug/kg dry*	*6684.1*		*80*	*39-129*		
Matrix Spike Dup (L109185-MSD3)		**Source: 1109058-01**	Prepared: 09/13/2011 Analyzed: 09/18/2011						
Diesel Range Organics	48300	3320	ug/kg dry	66378	3270 U	73	42-133	9	40
Surrogate: p-Terphenyl	*5190*		*ug/kg dry*	*6637.8*		*78*	*39-129*		

PREPARATION BENCH SHEET

L109185

Lionville Laboratory

Printed: 9/16/2011 3:36:45PM

000000006

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1101236**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1109046-01	8015M DRO	09/13/2011 15:02	30.01	1				1000	WC-Hanford, Inc.	
1109046-01	8015M KRO	09/13/2011 15:02	30.01	1				1000	WC-Hanford, Inc.	
1109046-02	8015M DRO	09/13/2011 15:02	30.46	1				1000	WC-Hanford, Inc.	
1109046-02	8015M KRO	09/13/2011 15:02	30.46	1				1000	WC-Hanford, Inc.	
1109046-03	8015M DRO	09/13/2011 15:02	31.28	1				1000	WC-Hanford, Inc.	
1109046-03	8015M KRO	09/13/2011 15:02	31.28	1				1000	WC-Hanford, Inc.	
1109058-01	8015M DRO	09/13/2011 15:02	30.76	1				1000	WC-Hanford, Inc.	
1109058-01	8015M KRO	09/13/2011 15:02	30.76	1				1000	WC-Hanford, Inc.	Added for BatchQC in: L109185
1109058-02	8015M DRO	09/13/2011 15:02	31.2	1				1000	WC-Hanford, Inc.	
1109061-01	8015M DRO	09/13/2011 15:02	31.81	1				1000	WC-Hanford, Inc.	
1109061-01	8015M KRO	09/13/2011 15:02	31.81	1				1000	WC-Hanford, Inc.	
1109061-02	8015M DRO	09/13/2011 15:02	30.12	1				1000	WC-Hanford, Inc.	
1109061-02	8015M KRO	09/13/2011 15:02	30.12	1				1000	WC-Hanford, Inc.	
L109185-BLK1	QC	09/13/2011 15:02	30	1				1000		ODRO
L109185-BLK2	QC	09/13/2011 15:02	30	1				1000		KERO
L109185-BS1	QC	09/13/2011 15:02	30	1				1000		ODRO
L109185-BS2	QC	09/13/2011 15:02	30	1	1101309		500	1000		KERO
L109185-MS1	QC	09/13/2011 15:02	30.38	1	1101004	1109046-01	1000	1000		ODRO
L109185-MS2	QC	09/13/2011 15:02	31.52	1	1101309	1109046-02	500	1000		KERO
L109185-MS3	QC	09/13/2011 15:02	30.08	1	1101004	1109058-01	1000	1000		ODRO

Extracts Relinquished By 15:36 Date 9/16/11

Extracts Received By Date

PREPARATION BENCH SHEET

L109185

Lionville Laboratory

Printed: 9/16/2011 3:36:45PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1101236**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L109185-MS4	QC	09/13/2011 15:02	30.56	1	1101004	1109061-01	1000	1000		ODRO
L109185-MS5	QC	09/13/2011 15:02	30.13	1	1101309	1109061-01	500	1000		KERO
L109185-MSD1	QC	09/13/2011 15:02	30.46	1	1101004	1109046-01	1000	1000		ODRO
L109185-MSD2	QC	09/13/2011 15:02	31.2	1	1101309	1109046-02	500	1000		KERO
L109185-MSD3	QC	09/13/2011 15:02	30.29	1	1101004	1109058-01	1000	1000		ODRO
L109185-MSD4	QC	09/13/2011 15:02	30.34	1	1101004	1109061-01	1000	1000		ODRO
L109185-MSD5	QC	09/13/2011 15:02	30.24	1	1101309	1109061-01	500	1000		KERO

CD. A. 15:36 9/16/11

Extracts Relinquished By Date

Extracts Received By Date

Lionville Laboratory Use Only: 1109058

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WC. Hanford SAF# RC.075
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: Arlette Johnson
QC: SW Del: STD TAT: 21 days
Date Rec'd: 9-13-11 Date Due: 10-4-11

		A	B	C	D	E	F
Refrigerator #		1	1	1	1	1	1
#/Type Container	Liquid						
	Solid	1 qt	1 qt	1 qt	1 qt	1 qt	1 qt
Volume	Liquid						
	Solid	120	120	125	120	60	60
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED →		ORGANIC: VOA, BNA, ~~Pesticide~~ PCB	Herb	TPH-D	PAHS	INORG: Cr, Metal Hg, CN	Cr+6
Lionville Laboratory Use Only		8082	8151A	ORO	8015 PAH	Met①	CR6

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	VOA	BNA	PCB	Herb	TPH-D	PAHS	Cr	Metal Hg	CN	Cr+6
01	JIKVC7			S	9-8-11	0940			X	X	X	X		X		X
02	JIKVC8			↓	↓	0815			X	X	X	X		X		X

Special Instructions: Run matrix QC

Met① = HSL + B, Mo, S; (no TL)

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

See SRQ

Relinquished by	Received by	Date	Time
FX		9-13-11	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

9/8/11

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-261	Page 1 of 1

Collector: Lucas	Company Contact: Joan Kessner; Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 118-D-2:1 Burial Ground- Split Samples	SAF No.: RC-075	
Ice Chest No.: WCH-11-068	Field Logbook No.: EL-1607-12; COA: R118D22000	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A100857	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Rad < DOT

Special Handling and/or Storage

Cool 4 Deg. C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None
Type of Container	G/P	G/P	G	aG	aG	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	0	0	0
Volume	60mL	60mL	125mL	120mL	120mL	125mL	1000mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	TPH-Diesel Range - WTPH-D+	PAHs - 8310	PCBs - 8082	Chloro-Herbicides - EPA8151	See item (2) in Special Instructions.	Carbon-14 Low Level; Tritium - H3 Low Level Soil	Nickel-63, Strontium-89,90 -- Total Sr	Isotopic Plutonium

Sample No.	Matrix *	Sample Date	Sample Time							RCF	27384		
~~J1KVC5~~	~~SOIL~~												
~~J1KVC6~~	~~SOIL~~												
J1KVC7	SOIL	9/8/11	0940	X	X	X	X	X	X				
J1KVC8	SOIL	9/8/11	0815	X	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: Klucas Kamon Lucas	Received By/Stored In: D. Newman Dem Newm	9-8-11 1510
Relinquished By/Removed From: D. Newman Dem Newm	Received By/Stored In: A. Freier A. Freier 1060 #2	9/8/11 1650 9-8-11
Relinquished By/Removed From: A. Freier A. Freier 1060 #2	Received By/Stored In: Fed Ex	WCH 0900 9-12-11
Relinquished By/Removed From: Fed Ex	Received By/Stored In: [illegible]	9.13.11 1015 9.13.11 1015
Relinquished By/Removed From	Received By/Stored In	
Relinquished By/Removed From	Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out 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) {Mercury}

(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

REVIEWED BY CMB DATE 9/12/11

Matrix *

S=Soil
SE=Sediment
SO=Solid
SJ=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

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC. Hanford

Project/SAF/SOW/Release #: RC-075

Date: 9.13.11

LvL Batch #: 1109058

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7951 7600 3771
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.0	°C	Cooler # WCH-11-068
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 _____	

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

RECEIVED
OCT 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 09/24/2011 09:24

Analytical Report for Polynuclear Aromatic Compounds by SW846 8310

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1KVC7	1109058-01	Soil	09/08/2011 09:40	09/13/2011 10:15
J1KVC8	1109058-02	Soil	09/08/2011 08:15	09/13/2011 10:15

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-075 K3671
LVL #: 1109058

W.O. #: 60049-001-001-0001-00
Date Received: 09-13-2011

POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)

Two (2) soil samples were collected on 09-08-2011.

The samples and associated QC samples were extracted 09-13-2011 and analyzed 09-21-2011 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8310.

Lionville Laboratory (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. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements:

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank contained Acenaphthene at a level above the reporting limit. Acenapthene was detected in both samples processed with this blank at levels at or above the reporting limit. A copy of the Sample Discrepancy Report (SDR#11GC204) has been enclosed.
5. All blank spike recoveries were within acceptance criteria.
6. One (1) of thirty-two (32) matrix spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#11GC205) has been enclosed.
7. The initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. The samples were reported on a dry weight basis.

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.

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

Iain Daniels
LvL Laboratory Manager

9/27/17
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 11GC204

Initiator: Catherine Carey
Date: 09/24/11
Client: LIC Hanford

Batch: 1109046, 058, 061
Samples: All
Method: SW846/MCAWW/CLP/

Parameter: PAH
Matrix: SOIL
Prep Batch: L109186

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)

Acenaphthene hit in blank

2. Known or Probable Causes(s)

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:

Blank level is 1/5 of client required detection limit

Narrate

JD

4. Project Manager Instructions...signature/date: [signature] 9/26/11

✓ 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: [signature] 9-27-11

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
__ 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: _____

QA-139-A-0208

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 11GC205

Initiator: Catherine Carey
Date: 09/25/11
Client: WC Hanford

Batch: 1109058
Samples: MSD2
Method: SW846/MCAWW/CLP/

Parameter: PAH
Matrix: SOIL
Prep Batch: L109186

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)

Acenapthene recovery is low in MSD2

okay in MS2 / BS

2. Known or Probable Causes(s) Possibly non homogeneous sample.

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)

Narrate ID

4. Project Manager Instructions...signature/date: 9/27/11

✓ 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: 9-27-11 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
__ 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: _____

QA-139-A-0208

00000005

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.
P	=	This flag is used for a dual column analysis (i.e. pesticides/PCB/herbicides) when there is greater than 40% difference for detected concentrations between the two GC columns; the lower of the two values is reported on Form 1 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.

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.
NPM	=	No pattern match for multi-component target analytes.

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/24/2011 09:24

J1KVC7

1109058-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Polynuclear Aromatic Compounds by SW846 8310								
Naphthalene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Acenaphthylene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Acenaphthene	**115**	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Fluorene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Phenanthrene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Anthracene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Fluoranthene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Indeno[1,2,3-cd]pyrene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Pyrene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Benz[a]anthracene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Chrysene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Benzo[b] fluoranthene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Benzo[k] fluoranthene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Benzo[a] pyrene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Dibenz[a,h]anthracene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Benzo[g,h,i] perylene	3.33 U	3.33	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Surrogate: Triphenylene	*89 %*	*68-129*			*L109186*	*09/13/2011*	*09/21/2011*	*8310*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 09/24/2011 09:24

J1KVC8
1109058-02 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Polynuclear Aromatic Compounds by SW846 8310								
Naphthalene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Acenaphthylene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Acenaphthene	**21.0**	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Fluorene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Phenanthrene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Anthracene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Fluoranthene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Indeno[1,2,3-cd]pyrene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Pyrene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Benz[a]anthracene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Chrysene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Benzo[b] fluoranthene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Benzo[k] fluoranthene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Benzo[a] pyrene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Dibenz[a,h]anthracene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Benzo[g,h,i] perylene	3.24 U	3.24	ug/kg dry	1	L109186	09/13/2011	09/21/2011	8310
Surrogate: Triphenylene	*98 %*	*68-129*			*L109186*	*09/13/2011*	*09/21/2011*	*8310*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/24/2011 09:24

Polynuclear Aromatic Compounds by SW846 8310 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109186 - SW 3540C									
Blank (L109186-BLK1)			Prepared: 09/13/2011 Analyzed: 09/21/2011						
Naphthalene	3.33 U	3.33	ug/kg wet						
Acenaphthylene	3.33 U	3.33	ug/kg wet						
Acenaphthene	24.5	3.33	ug/kg wet						
Fluorene	3.33 U	3.33	ug/kg wet						
Phenanthrene	3.33 U	3.33	ug/kg wet						
Anthracene	3.33 U	3.33	ug/kg wet						
Fluoranthene	3.33 U	3.33	ug/kg wet						
Indeno[1,2,3-cd]pyrene	3.33 U	3.33	ug/kg wet						
Pyrene	3.33 U	3.33	ug/kg wet						
Benz[a]anthracene	3.33 U	3.33	ug/kg wet						
Chrysene	3.33 U	3.33	ug/kg wet						
Benzo[b] fluoranthene	3.33 U	3.33	ug/kg wet						
Benzo[k] fluoranthene	3.33 U	3.33	ug/kg wet						
Benzo[a] pyrene	3.33 U	3.33	ug/kg wet						
Dibenz[a,h]anthracene	3.33 U	3.33	ug/kg wet						
Benzo[g,h,i] perylene	3.33 U	3.33	ug/kg wet						
Surrogate: Triphenylene	*152*		*ug/kg wet*	*166.67*		*91*	*68-129*		
LCS (L109186-BS1)			Prepared: 09/13/2011 Analyzed: 09/21/2011						
Naphthalene	127	3.33	ug/kg wet	166.67		76	0-127		
Acenaphthylene	130	3.33	ug/kg wet	166.67		78	50-140		
Acenaphthene	175	3.33	ug/kg wet	166.67		105	17-139		
Fluorene	138	3.33	ug/kg wet	166.67		82	28-145		
Phenanthrene	137	3.33	ug/kg wet	166.67		82	30-152		
Anthracene	159	3.33	ug/kg wet	166.67		95	19-171		
Fluoranthene	142	3.33	ug/kg wet	166.67		85	34-159		
Indeno[1,2,3-cd]pyrene	143	3.33	ug/kg wet	166.67		86	31-156		
Pyrene	134	3.33	ug/kg wet	166.67		81	33-152		
Benz[a]anthracene	144	3.33	ug/kg wet	166.67		87	32-157		
Chrysene	142	3.33	ug/kg wet	166.67		85	31-159		
Benzo[b] fluoranthene	138	3.33	ug/kg wet	166.67		83	33-164		
Benzo[k] fluoranthene	141	3.33	ug/kg wet	166.67		85	28-161		
Benzo[a] pyrene	145	3.33	ug/kg wet	166.67		87	29-149		
Dibenz[a,h]anthracene	142	3.33	ug/kg wet	166.67		85	27-153		
Benzo[g,h,i] perylene	137	3.33	ug/kg wet	166.67		82	32-157		
Surrogate: Triphenylene	*167*		*ug/kg wet*	*166.67*		*100*	*68-129*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 09/24/2011 09:24

Polynuclear Aromatic Compounds by SW846 8310 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109186 - SW 3540C									
Matrix Spike (L109186-MS2)		**Source: 1109058-01**	Prepared: 09/13/2011 Analyzed: 09/21/2011						
Naphthalene	122	3.34	ug/kg dry	167.21	3.33 U	73	0-127		
Acenaphthylene	142	3.34	ug/kg dry	167.21	3.33 U	85	50-140		
Acenaphthene	332	3.34	ug/kg dry	167.21	115	130	17-139		
Fluorene	136	3.34	ug/kg dry	167.21	3.33 U	81	28-145		
Phenanthrene	137	3.34	ug/kg dry	167.21	3.33 U	82	30-152		
Anthracene	157	3.34	ug/kg dry	167.21	3.33 U	94	19-171		
Fluoranthene	147	3.34	ug/kg dry	167.21	3.33 U	88	34-159		
Indeno[1,2,3-cd]pyrene	148	3.34	ug/kg dry	167.21	3.33 U	89	31-156		
Pyrene	129	3.34	ug/kg dry	167.21	3.33 U	77	33-152		
Benz[a]anthracene	157	3.34	ug/kg dry	167.21	3.33 U	94	32-157		
Chrysene	143	3.34	ug/kg dry	167.21	3.33 U	85	31-159		
Benzo[b] fluoranthene	140	3.34	ug/kg dry	167.21	3.33 U	84	33-164		
Benzo[k] fluoranthene	143	3.34	ug/kg dry	167.21	3.33 U	86	28-161		
Benzo[a] pyrene	144	3.34	ug/kg dry	167.21	3.33 U	86	29-149		
Dibenz[a,h]anthracene	140	3.34	ug/kg dry	167.21	3.33 U	83	27-153		
Benzo[g,h,i] perylene	137	3.34	ug/kg dry	167.21	3.33 U	82	32-157		
Surrogate: Triphenylene	*171*		*ug/kg dry*	*167.21*		*102*	*68-129*		
Matrix Spike Dup (L109186-MSD2)		**Source: 1109058-01**	Prepared: 09/13/2011 Analyzed: 09/21/2011						
Naphthalene	114	3.22	ug/kg dry	161.05	3.33 U	71	0-127	3	40
Acenaphthylene	136	3.22	ug/kg dry	161.05	3.33 U	85	50-140	0.5	40
Acenaphthene	132	3.22	ug/kg dry	161.05	115	11*	17-139	170*	40
Fluorene	128	3.22	ug/kg dry	161.05	3.33 U	80	28-145	2	40
Phenanthrene	128	3.22	ug/kg dry	161.05	3.33 U	79	30-152	3	40
Anthracene	147	3.22	ug/kg dry	161.05	3.33 U	91	19-171	3	40
Fluoranthene	129	3.22	ug/kg dry	161.05	3.33 U	80	34-159	9	40
Indeno[1,2,3-cd]pyrene	132	3.22	ug/kg dry	161.05	3.33 U	82	31-156	8	40
Pyrene	118	3.22	ug/kg dry	161.05	3.33 U	73	33-152	5	40
Benz[a]anthracene	132	3.22	ug/kg dry	161.05	3.33 U	82	32-157	13	40
Chrysene	128	3.22	ug/kg dry	161.05	3.33 U	80	31-159	7	40
Benzo[b] fluoranthene	125	3.22	ug/kg dry	161.05	3.33 U	78	33-164	8	40
Benzo[k] fluoranthene	129	3.22	ug/kg dry	161.05	3.33 U	80	28-161	7	40
Benzo[a] pyrene	129	3.22	ug/kg dry	161.05	3.33 U	80	29-149	8	40
Dibenz[a,h]anthracene	127	3.22	ug/kg dry	161.05	3.33 U	79	27-153	6	40
Benzo[g,h,i] perylene	122	3.22	ug/kg dry	161.05	3.33 U	76	32-157	7	40
Surrogate: Triphenylene	*139*		*ug/kg dry*	*161.05*		*86*	*68-129*		

PREPARATION BENCH SHEET

L109186

Lionville Laboratory

Printed: 9/16/2011 3:32:19PM

Matrix: Solid **Prepared using: HPLC - SW 3540C** **Surrogate used: 1100442**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1109046-01	8310 PAH	09/13/2011 16:06	30.64	5				50	WC-Hanford, Inc.	
1109046-02	8310 PAH	09/13/2011 16:06	30.43	5				50	WC-Hanford, Inc.	
1109046-03	8310 PAH	09/13/2011 16:06	30.39	5				50	WC-Hanford, Inc.	
1109058-01	8310 PAH	09/13/2011 16:06	30.19	5				50	WC-Hanford, Inc.	
1109058-02	8310 PAH	09/13/2011 16:06	30.9	5				50	WC-Hanford, Inc.	
1109061-01	8310 PAH	09/13/2011 16:06	30.77	5				50	WC-Hanford, Inc.	
1109061-02	8310 PAH	09/13/2011 16:06	30.98	5				50	WC-Hanford, Inc.	
L109186-BLK1	QC	09/13/2011 16:06	30	5				50		
L109186-BS1	QC	09/13/2011 16:06	30	5	1100443		50	50		
L109186-MS1	QC	09/13/2011 16:06	30.57	5	1100443	1109046-01	50	50		
L109186-MS2	QC	09/13/2011 16:06	30.06	5	1100443	1109058-01	50	50		
L109186-MS3	QC	09/13/2011 16:06	30.08	5	1100443	1109061-01	50	50		
L109186-MSD1	QC	09/13/2011 16:06	30.6	5	1100443	1109046-01	50	50		
L109186-MSD2	QC	09/13/2011 16:06	31.21	5	1100443	1109058-01	50	50		
L109186-MSD3	QC	09/13/2011 16:06	30.8	5	1100443	1109061-01	50	50		

9/16/11 15:30 — Extracts Relinquished By — Date

KC 9/19/11 — Extracts Received By — Date

Lionville Laboratory Use Only: 1109058

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WC. Hanford SAF# RC.075
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: Arlette Johnson
QC: SW Del: STD TAT: 21 days
Date Rec'd: 9-13-11 Date Due: 10-4-11

		A	B	C	D	E	F
Refrigerator #		1	1	1	1	1	1
#/Type Container	Liquid						
	Solid	1 aq	1 aq	1 aq	1 aq	1 aq	1 aq
Volume	Liquid						
	Solid	120	120	125	120	60	60
Preservatives		—	—	—	—	—	—

ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	~~Pest/~~ PCB	Herb	TPH-D	PAHS	(F) Metal HH	CN	Cr6
								ORGANIC						INORG		
								Lionville Laboratory Use Only								
										8082	8151A	ORO	8015 PAH	Met①		ER6
W Water	01	J1KVC7			S	9-8-11	0940			X	X	X	X	X		X
WW Waste Water	02	J1KVC8			✓	✓	0915			X	X	X	X	X		X
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																

Special Instructions: Run matrix QC

Met① = HSL + B, Mo, Si (no TL)

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

See SAQ

Relinquished by	Received by	Date	Time
[signature]	[signature]	9-13-11	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-261	Page 1 of 1

Collector: Lucas	Company Contact: Joan Kessner — Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH	Price Code: 8L — Data Turnaround: 21 Days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 118-D-2:1 Burial Ground- Split Samples	SAF No.: RC-075	
Ice Chest No.: WCH-11-068	Field Logbook No.: EL-1607-12 — COA: R118D22000	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A100857	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Rad < DOT

Special Handling and/or Storage

Cool 4 Deg. C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None
Type of Container	G/P	G/P	G	aG	aG	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	0	0	0
Volume	60mL	60mL	125mL	120mL	120mL	125mL	1000mL	1000mL	1000mL	1000mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	Chromium Hex - 7196	TPH-Diesel Range - WTPH-D +	PAHs - 8310	PCBs - 8082	Chloro-Herbicides - EPA8151	See item (2) in Special Instructions.	Carbon-14 Low Level; Tritium - H3 Low Level Soil	Nickel-63, Strontium-89,90 -- Total Sr	Isotopic Plutonium
										RCF	27384		
~~J1KVC5~~	~~9/8/ SOIL~~												
~~J1KVC6~~	~~9/8/ SOIL~~												
J1KVC7	SOIL	9/8/11	0940	X	X	X	X	X	X				
J1KVC8	SOIL	9/8/11	0815	X	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Klucas Kenan Lucas — Date/Time: 9-8-11 1510	Received By/Stored In: D. Newman Dem Newm — Date/Time: 9/8/11 1510	
Relinquished By/Removed From: D. Newman Dem Newm — Date/Time: 1650 9/8/11	Received By/Stored In: 1060 #2 A. Freier A. Freier — Date/Time: 1650 9-8-11	
Relinquished By/Removed From: WCH A. Freier A. Freier 1060 #2 — Date/Time: 0900 9-12-11	Received By/Stored In: Fed Ex — Date/Time:	
Relinquished By/Removed From: [illegible] — Date/Time: 9.13.11 / 105	Received By/Stored In: [illegible] — Date/Time: 9.13.11 / 1015	
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 - 6010TR (Close-out 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) {Mercury}

(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

REVIEWED BY CMB DATE 9/12/11

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

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC. Hanford

Project/SAF/SOW/Release #: RC-075

Date: 9.13.11

LvL Batch #: 1109058

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7951 7600 3771
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.0	°C	Cooler # WCH-11-068
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 _____

LIONVILLE LABORATORY
A division of Fiberline Analytical Corporation

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

RECEIVED
OCT 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 10/05/2011 19:56

Analytical Report for Chlorinated Herbicides by SW846 8151A

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1KVC7	1109058-01	Soil	09/08/2011 09:40	09/13/2011 10:15
J1KVC8	1109058-02	Soil	09/08/2011 08:15	09/13/2011 10:15

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-075 K3671
LVL #: 1109058

W.O. #: 60049-001-001-0001
Date Received: 09-13-2011

HERBICIDE

Two (2) soil samples were collected on 09-08-2011.

The samples and their associated QC samples were extracted 09-22-2011 and analyzed 09-30-11 according to criteria set forth in Lionville Laboratory SOPs. The extraction and analysis procedures were based on SW846 Method 8151A.

Lionville Laboratory (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. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements:

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limits for all target compounds.
5. One (1) of eight (8) blank spike recoveries was outside acceptance criteria. The recovery was biased high there is minimal impact on data.
6. Six (6) of sixteen (16) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 11GC211) has been enclosed.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. The samples were reported on a dry weight basis.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
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 hardcopy data package has been authorized by the laboratory manager or a designee as verified by the following signature.

Iain Daniels
LvL Laboratory Manager

10/6/11
Date

r:\group\data\2011\herb\wc hanford\1109058oj.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 12 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 11GC211

Initiator: Catherine Carey
Date: 10/05/11
Client: WC Hanford

Batch: 1109058
Samples: MSD
Method: SW846/MCAWW/CLP/

Parameter: Herb
Matrix: SOIL
Prep Batch: L109329

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)

several spike recoveries are low in MSD1

MS1 + BS1 okay

2. Known or Probable Causes(s)

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)

N note
JB.

4. Project Manager Instructions...signature/date: 10/6/11

✓ 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: 10/6/11 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
__ 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: _____

QA-139-A-0208

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.
P	=	This flag is used for a dual column analysis (i.e. pesticides/PCB/herbicides) when there is greater than 40% difference for detected concentrations between the two GC columns; the lower of the two values is reported on Form 1 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.

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.
NPM	=	No pattern match for multi-component target analytes.

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

264 Welsh Pool Road
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Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	10/05/2011 19:56

J1KVC7

1109058-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Chlorinated Herbicides by SW846 8151A								
Dalapon	33.2 U	33.2	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
Dicamba	33.2 U	33.2	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
Dichloroprop	33.2 U	33.2	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
2,4-D	33.2 U	33.2	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
2,4,5-TP (Silvex)	33.2 U	33.2	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
2,4,5-T	33.2 U	33.2	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
Dinoseb	33.2 U	33.2	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
2,4-DB	33.2 U	33.2	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
Surrogate: DCAA	*92 %*	*20-130*			*L109329*	*09/22/2011*	*09/30/2011*	*8151A*

LIONVILLE LABORATORY
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Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	10/05/2011 19:56

J1KVC8

1109058-02 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Chlorinated Herbicides by SW846 8151A								
Dalapon	32.6 U	32.6	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
Dicamba	32.6 U	32.6	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
Dichloroprop	32.6 U	32.6	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
2,4-D	32.6 U	32.6	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
2,4,5-TP (Silvex)	32.6 U	32.6	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
2,4,5-T	32.6 U	32.6	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
Dinoseb	32.6 U	32.6	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
2,4-DB	32.6 U	32.6	ug/kg dry	1	L109329	09/22/2011	09/30/2011	8151A
Surrogate: DCAA	*85 %*	*20-130*			*L109329*	*09/22/2011*	*09/30/2011*	*8151A*

LIONVILLE LABORATORY
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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	10/05/2011 19:56

Chlorinated Herbicides by SW846 8151A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109329 - SW 8151A									
Blank (L109329-BLK1)			Prepared: 09/22/2011 Analyzed: 09/30/2011						
Dalapon	33.3 U	33.3	ug/kg wet						
Dicamba	33.3 U	33.3	ug/kg wet						
Dichloroprop	33.3 U	33.3	ug/kg wet						
2,4-D	33.3 U	33.3	ug/kg wet						
2,4,5-TP (Silvex)	33.3 U	33.3	ug/kg wet						
2,4,5-T	33.3 U	33.3	ug/kg wet						
Dinoseb	33.3 U	33.3	ug/kg wet						
2,4-DB	33.3 U	33.3	ug/kg wet						
Surrogate: DCAA	*140*		*ug/kg wet*	*166.67*		*84*	*20-130*		
LCS (L109329-BS1)			Prepared: 09/22/2011 Analyzed: 09/30/2011						
Dalapon	163	33.3	ug/kg wet	166.67		98	20-110		
Dicamba	184	33.3	ug/kg wet	166.67		110	40-110		
Dichloroprop	198	33.3	ug/kg wet	166.67		119	30-135		
2,4-D	159	33.3	ug/kg wet	166.67		95	45-110		
2,4,5-TP (Silvex)	195	33.3	ug/kg wet	166.67		117	50-120		
2,4,5-T	196	33.3	ug/kg wet	166.67		117*	50-110		
Dinoseb	58.6	33.3	ug/kg wet	166.67		35	5-120		
2,4-DB	183	33.3	ug/kg wet	166.67		110	30-140		
Surrogate: DCAA	*187*		*ug/kg wet*	*166.67*		*112*	*20-130*		
Matrix Spike (L109329-MS1)		**Source: 1109058-01**	Prepared: 09/22/2011 Analyzed: 09/30/2011						
Dalapon	59.7	32.7	ug/kg dry	163.73	33.2 U	36	20-110		
Dicamba	89.7	32.7	ug/kg dry	163.73	33.2 U	55	40-110		
Dichloroprop	122	32.7	ug/kg dry	163.73	33.2 U	75	30-135		
2,4-D	100	32.7	ug/kg dry	163.73	33.2 U	61	45-110		
2,4,5-TP (Silvex)	137	32.7	ug/kg dry	163.73	33.2 U	83	50-120		
2,4,5-T	97.6	32.7	ug/kg dry	163.73	33.2 U	60	50-110		
Dinoseb	143	32.7	ug/kg dry	163.73	33.2 U	87	5-120		
2,4-DB	128	32.7	ug/kg dry	163.73	33.2 U	78	30-140		
Surrogate: DCAA	*142*		*ug/kg dry*	*163.73*		*87*	*20-130*		

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	10/05/2011 19:56

Chlorinated Herbicides by SW846 8151A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109329 - SW 8151A									
Matrix Spike Dup (L109329-MSD1)		**Source: 1109058-01**	Prepared: 09/22/2011 Analyzed: 09/30/2011						
Dalapon	15.4 J	32.7	ug/kg dry	163.78	33.2 U	9*	20-110	118*	40
Dicamba	24.2 J	32.7	ug/kg dry	163.78	33.2 U	15*	40-110	115*	40
Dichloroprop	35.9	32.7	ug/kg dry	163.78	33.2 U	22*	30-135	109*	40
2,4-D	25.2 J	32.7	ug/kg dry	163.78	33.2 U	15*	45-110	120*	40
2,4,5-TP (Silvex)	46.8	32.7	ug/kg dry	163.78	33.2 U	29*	50-120	98*	40
2,4,5-T	23.6 J	32.7	ug/kg dry	163.78	33.2 U	14*	50-110	122*	40
Dinoseb	114	32.7	ug/kg dry	163.78	33.2 U	69	5-120	23	40
2,4-DB	82.9	32.7	ug/kg dry	163.78	33.2 U	51	30-140	43*	40
Surrogate: DCAA	*81.6*		*ug/kg dry*	*163.78*		*50*	*20-130*		

PREPARATION BENCH SHEET

L109329

Lionville Laboratory

Printed: 9/30/2011 12:35:08PM

000000009

Matrix: Solid **Prepared using: GC - SW 8151A** **Surrogate used: 1100766**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1109058-01	8151A Herbicides	09/22/2011 12:44	30.23	10				100	WC-Hanford, Inc.	
1109058-02	8151A Herbicides	09/22/2011 12:44	30.7	10				100	WC-Hanford, Inc.	
1109067-01	8151A Herbicides	09/22/2011 12:44	30.15	10				100	WC-Hanford, Inc.	
1109067-02	8151A Herbicides	09/22/2011 12:44	30.87	10				100	WC-Hanford, Inc.	
L109329-BLK1	QC	09/22/2011 12:44	30	10				100		
L109329-BS1	QC	09/22/2011 12:44	30	10	1100768		100	100		
L109329-MS1	QC	09/22/2011 12:44	30.7	10	1100768	1109058-01	100	100		
L109329-MS2	QC	09/22/2011 12:44	30.8	10	1100768	1109067-01	100	100		
L109329-MSD1	QC	09/22/2011 12:44	30.69	10	1100768	1109058-01	100	100		
L109329-MSD2	QC	09/22/2011 12:44	30.89	10	1100768	1109067-01	100	100		

Extracts Relinquished By — Date 9/30/11 1240

Extracts Received By — Date 9-30-11

Lionville Laboratory Use Only: 1109058

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WC. Hanford SAF# RC.075
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: Arlette Johnson
QC: SW Del: STD TAT: 21 days
Date Rec'd: 9-13-11 Date Due: 10-4-11

		A	B	C	D	E	F
Refrigerator #		1	1	1	1	1	1
#/Type Container	Liquid						
	Solid	1aq	1aq	1aq	1aq	1aq	1aq
Volume	Liquid						
	Solid	120	120	125	120	60	60
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED		ORGANIC: VOA, BNA, Pest/PCB	ORGANIC: Herb	ORGANIC: TPH-D	ORGANIC: PAHS	INORG: Metal, CN	INORG: CrVI
Lionville Laboratory Use Only		8082	8151A	ORO	8015 PAH	Met①	CR6

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	8082	8151A	ORO	8015 PAH	Met①	CR6
01	JIKVC7			S	9-8-11	0940	X	X	X	X	X	X
02	JIKVC8			↓	↓	0815	X	X	X	X	X	X

Special Instructions: Run matrix QC

Met① = HSL + B, Mo, S; (no TL)

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

See SRG

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9-13-11	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

9/8/11

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-261	Page 1 of 1

Collector: Lucas	Company Contact: Joan Kessner Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH	Price Code: 8L Data Turnaround: 21 Days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 118-D-2:1 Burial Ground- Split Samples	SAF No.: RC-075	
Ice Chest No.: WCH-11-068	Field Logbook No.: EL-1607-12 COA: R118D22000	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A100857	Bill of Lading/Air Bill No.: See OSPC	

000000011

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Rad < DOT

Special Handling and/or Storage

Cool 4 Deg. C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None
Type of Container	G/P	G/P	G	aG	aG	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	0	0	0
Volume	60mL	60mL	125mL	120mL	120mL	125mL	1000mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	TPH-Diesel Range - WTPH-D+	PAHs - 8310	PCBs - 8082	Chloro-Herbicides - EPA8151	See item (2) in Special Instructions.	Carbon-14 Low Level; Tritium - H3 Low Level Soil	Nickel-63, Strontium-89,90 -- Total Sr	Isotopic Plutonium

Sample No.	Matrix *	Sample Date	Sample Time										
~~J1KVC5~~	~~SOIL~~												
~~J1KVC6~~	~~SOIL~~												
J1KVC7	SOIL	9/8/11	0940	X	X	X	X	X	X				
J1KVC8	SOIL	9/8/11	0815	X	X	X	X	X	X				

RCF 27384

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Klucas Kenan Lucas	9-8-11 1570	D. Newman Dem Neum	9/8/11 1510
D. Newman Dem Neum	1650 9/8/11	A. Freier A. Freier 1060 #2	1650 9-8-11
A. Freier A. Freier WCH 1060 #2	0900 9-12-11	Fed Ex	
Fed Ex	9-13-11 1105	[illegible]	9-13-11 1015

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out 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) (Mercury)

(2) Gamma Spec (Client List) (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

REVIEWED BY CMB DATE 9/12/11

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

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC. Hanford
Project/SAF/SDW/Release #: RC-075

Date: 9.13.11

LvL Batch #: 1109058

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7951 7600 3771
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.0	°C	Cooler # WCH-11-068
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 _____

000000012

SR-002-B.doc

LIONVILLE LABORATORY
A division of Baseline Analytical Corporation

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Phone: 610-280-3000
Fax: 610-280-3041

RECEIVED
OCT 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 09/30/2011 13:29

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1KVC7	1109058-01	Soil	09/08/2011 09:40	09/13/2011 10:15
J1KVC8	1109058-02	Soil	09/08/2011 08:15	09/13/2011 10:15

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-075
LVL#: 1109058
SDG/SAF#: K3671/RC-075

W.O.#: 60049-001-001-0001-00
Date Received: 09-13-11

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 analyses of 2 soil samples.

2. The samples were prepared and analyzed in accordance with methods listed on the data report forms.

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

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

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

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

7. The preparation/method blank for 1 analyte was outside method criteria. {less than the Limit of Quantitation, samples greater than 20X MB value}.

   a). Method Blank L109245-BLK1 result for Chromium was above the client requested limit. The sample results for Chromium were reported herein "uncorrected" for the levels found in the MB.

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 4 analytes were outside the 75-125% 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 14 pages.

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 following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J1KVC7	Aluminum	22,000	80.4
	Antimony	100	100.0
	Iron	42,000	58.3
	Silicon	2,100	112.5

12. The duplicate analysis for 1 analyte was 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 sample result for Cadmium was 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

10/3/11
Date

alm/09-058hg%

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Exton, PA 19341
Phone: 610-280-3000
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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/30/2011 13:29

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-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/30/2011 13:29

J1KVC7
1109058-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	5370		4.12	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Antimony	0.494	U	0.494	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Arsenic	2.72		0.824	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Barium	51.6		0.412	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Beryllium	0.218		0.165	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Boron	1.14	B	1.65	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Cadmium	0.579		0.165	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Calcium	7110		82.4	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Chromium	7.69		0.165	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Cobalt	5.81		1.65	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Copper	12.9		0.824	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Iron	16300		16.5	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Lead	3.21		0.412	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Magnesium	3940		61.8	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Manganese	247		4.12	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Molybdenum	0.296	B	1.65	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Nickel	8.24		3.30	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Potassium	933		330	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Selenium	0.247	U	0.247	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Silicon	537		1.65	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Silver	0.165	U	0.165	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Sodium	138		41.2	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Vanadium	37.9		2.06	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Zinc	33.7		8.24	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Mercury	0.0245	U	0.0245	mg/kg dry	1	L109374	09/28/2011	09/29/2011	7471A

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/30/2011 13:29

J1KVC8

1109058-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**4800**		3.21	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Antimony	0.386	U	0.386	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Arsenic	**2.29**		0.643	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Barium	**46.0**		0.321	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Beryllium	**0.204**		0.129	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Boron	**1.17**	B	1.29	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Cadmium	**0.0820**	B	0.129	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Calcium	**6150**		64.3	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Chromium	**6.50**		0.129	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Cobalt	**5.53**		1.29	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Copper	**11.8**		0.643	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Iron	**15500**		12.9	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Lead	**2.94**		0.321	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Magnesium	**3830**		48.2	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Manganese	**228**		3.21	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Molybdenum	**0.307**	B	1.29	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Nickel	**7.47**		2.57	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Potassium	**873**		257	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Selenium	0.193	U	0.193	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Silicon	**425**		1.29	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Silver	0.129	U	0.129	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Sodium	**224**		32.1	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Vanadium	**36.9**		1.61	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Zinc	**30.9**		6.43	mg/kg dry	1	L109245	09/16/2011	09/20/2011	6010B
Mercury	0.0251	U	0.0251	mg/kg dry	1	L109374	09/28/2011	09/29/2011	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 09/30/2011 13:29

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 L109245 - SW 3050B										
Blank (L109245-BLK1)				Prepared: 09/16/2011 Analyzed: 09/20/2011						
Aluminum	4.46	U	4.46	mg/kg wet						
Antimony	0.536	U	0.536	mg/kg wet						
Arsenic	0.893	U	0.893	mg/kg wet						
Barium	0.446	U	0.446	mg/kg wet						
Beryllium	0.179	U	0.179	mg/kg wet						
Boron	1.79	U	1.79	mg/kg wet						
Cadmium	0.179	U	0.179	mg/kg wet						
Calcium	8.75	B	89.3	mg/kg wet						
Chromium	2.79		0.179	mg/kg wet						
Cobalt	1.79	U	1.79	mg/kg wet						
Copper	0.893	U	0.893	mg/kg wet						
Iron	13.0	B	17.9	mg/kg wet						
Lead	0.446	U	0.446	mg/kg wet						
Magnesium	4.34	B	67.0	mg/kg wet						
Manganese	0.221	B	4.46	mg/kg wet						
Molybdenum	1.79	U	1.79	mg/kg wet						
Nickel	0.975	B	3.57	mg/kg wet						
Potassium	357	U	357	mg/kg wet						
Selenium	0.268	U	0.268	mg/kg wet						
Silicon	1.79	U	1.79	mg/kg wet						
Silver	0.179	U	0.179	mg/kg wet						
Sodium	44.6	U	44.6	mg/kg wet						
Vanadium	2.23	U	2.23	mg/kg wet						
Zinc	8.93	U	8.93	mg/kg wet						
Duplicate (L109245-DUP1)		**Source: 1109058-01**		Prepared: 09/16/2011 Analyzed: 09/20/2011						
Aluminum	5310		3.75	mg/kg dry		5370			1.18	20
Antimony	0.450	U	0.450	mg/kg dry		0.494 U				20
Arsenic	2.40		0.750	mg/kg dry		2.72			12.3	20
Barium	50.2		0.375	mg/kg dry		51.6			2.67	20
Beryllium	0.218		0.150	mg/kg dry		0.218			0.0678	20
Boron	1.23	B	1.50	mg/kg dry		1.14			8.24	20
Cadmium	0.104	B	0.150	mg/kg dry		0.579			139*	20
Calcium	6670		75.0	mg/kg dry		7110			6.37	20
Chromium	7.94		0.150	mg/kg dry		7.69			3.20	20
Cobalt	5.95		1.50	mg/kg dry		5.81			2.42	20
Copper	12.9		0.750	mg/kg dry		12.9			0.0210	20

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 09/30/2011 13:29

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 L109245 - SW 3050B										
Duplicate (L109245-DUP1)		**Source: 1109058-01**		Prepared: 09/16/2011 Analyzed: 09/20/2011						
Iron	16600		15.0	mg/kg dry		16300			1.83	20
Lead	2.99		0.375	mg/kg dry		3.21			7.05	20
Magnesium	4290		56.3	mg/kg dry		3940			8.56	20
Manganese	241		3.75	mg/kg dry		247			2.41	20
Molybdenum	0.254	B	1.50	mg/kg dry		0.296			15.2	20
Nickel	11.3		3.00	mg/kg dry		8.24			31.0*	20
Potassium	868		300	mg/kg dry		933			7.19	20
Selenium	0.225	U	0.225	mg/kg dry		0.247 U				20
Silicon	480		1.50	mg/kg dry		537			11.2	20
Silver	0.150	U	0.150	mg/kg dry		0.165 U				20
Sodium	159		37.5	mg/kg dry		138			13.7	20
Vanadium	38.9		1.88	mg/kg dry		37.9			2.54	20
Zinc	32.6		7.50	mg/kg dry		33.7			3.36	20
Matrix Spike (L109245-MS1)		**Source: 1109058-01**		Prepared: 09/16/2011 Analyzed: 09/20/2011						
Aluminum	6000		3.99	mg/kg dry	159.57	5370	396*	75-125		20
Antimony	17.9		0.479	mg/kg dry	39.892	0.494 U	45.0*	75-125		20
Arsenic	140		0.798	mg/kg dry	159.57	2.72	85.9	75-125		20
Barium	193		0.399	mg/kg dry	159.57	51.6	88.4	75-125		20
Beryllium	3.68		0.160	mg/kg dry	3.9892	0.218	86.9	75-125		20
Boron	67.8		1.60	mg/kg dry	79.785	1.14	83.5	75-125		20
Cadmium	3.70		0.160	mg/kg dry	3.9892	0.579	78.2	75-125		20
Calcium	9300		79.8	mg/kg dry	1994.6	7110	110	75-125		20
Chromium	21.4		0.160	mg/kg dry	15.957	7.69	86.2	75-125		20
Cobalt	39.8		1.60	mg/kg dry	39.892	5.81	85.1	75-125		20
Copper	29.7		0.798	mg/kg dry	19.946	12.9	84.6	75-125		20
Iron	16900		16.0	mg/kg dry	79.785	16300	823*	75-125		20
Lead	35.0		0.399	mg/kg dry	39.892	3.21	79.8	75-125		20
Magnesium	6000		59.8	mg/kg dry	1994.6	3940	103	75-125		20
Manganese	287		3.99	mg/kg dry	39.892	247	102	75-125		20
Molybdenum	69.6		1.60	mg/kg dry	79.785	0.296	86.8	75-125		20
Nickel	42.6		3.19	mg/kg dry	39.892	8.24	86.0	75-125		20
Potassium	2640		319	mg/kg dry	1994.6	933	85.5	75-125		20
Selenium	132		0.239	mg/kg dry	159.57	0.247 U	82.5	75-125		20
Silicon	723		1.60	mg/kg dry	79.785	537	232*	75-125		20
Silver	3.30		0.160	mg/kg dry	3.9892	0.165 U	82.8	75-125		20
Sodium	1950		39.9	mg/kg dry	1994.6	138	90.6	75-125		20

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 09/30/2011 13:29

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 L109245 - SW 3050B									
Matrix Spike (L109245-MS1)		**Source: 1109058-01**	Prepared: 09/16/2011 Analyzed: 09/20/2011						
Vanadium	75.4	1.99	mg/kg dry	39.892	37.9	94.0	75-125		20
Zinc	68.4	7.98	mg/kg dry	39.892	33.7	87.0	75-125		20
Reference (L109245-SRM1)			Prepared: 09/16/2011 Analyzed: 09/20/2011						
Aluminum	6340	11.9	mg/kg wet	6670.0		95.0	0-200.89		
Antimony	52.6	1.43	mg/kg wet	53.000		99.2	0-235.8		
Arsenic	112	2.38	mg/kg wet	114.00		97.8	82.8-117.54		
Barium	300	1.19	mg/kg wet	307.00		97.9	79.8-120.2		
Beryllium	105	0.476	mg/kg wet	108.00		97.3	82.8-117.6		
Boron	82.6	4.76	mg/kg wet	85.100		97.1	67.5-132.8		
Cadmium	226	0.476	mg/kg wet	225.00		101	83.6-116.4		
Calcium	3260	238	mg/kg wet	3360.0		96.9	83.3-116.9		
Chromium	77.6	0.476	mg/kg wet	77.200		100	73.3-126.4		
Cobalt	163	4.76	mg/kg wet	166.00		98.4	80.7-118.7		
Copper	262	2.38	mg/kg wet	271.00		96.8	80.8-119.2		
Iron	8190	47.6	mg/kg wet	8420.0		97.2	78.6-121.1		
Lead	181	1.19	mg/kg wet	190.00		95.4	81.6-118.4		
Magnesium	8260	179	mg/kg wet	8570.0		96.4	83.2-116.7		
Manganese	1000	11.9	mg/kg wet	965.00		104	69.3-130.5		
Molybdenum	238	4.76	mg/kg wet	235.00		101	76.2-123.8		
Nickel	214	9.52	mg/kg wet	221.00		96.7	79.6-120.8		
Potassium	14400	952	mg/kg wet	14400		99.7	81.9-118.1		
Selenium	186	0.714	mg/kg wet	187.00		99.4	75.9-124.6		
Silicon	778	4.76	mg/kg wet	807.00		96.4	0-219.3		
Silver	80.7	0.476	mg/kg wet	83.500		96.6	82.7-117.1		
Sodium	9150	119	mg/kg wet	9730.0		94.1	82.5-117.2		
Vanadium	101	5.95	mg/kg wet	98.700		102	75.9-123.6		
Zinc	200	23.8	mg/kg wet	199.00		100	78.4-121.6		

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/30/2011 13:29

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 L109374 - SW 7471A Prep										
Blank (L109374-BLK1)				Prepared: 09/27/2011 Analyzed: 09/29/2011						
Mercury	0.0300	U	0.0300	mg/kg wet						
Duplicate (L109374-DUP3)		Source: 1109058-01		Prepared: 09/28/2011 Analyzed: 09/29/2011						
Mercury	0.0238	U	0.0238	mg/kg dry		0.0245 U				20
Matrix Spike (L109374-MS3)		Source: 1109058-01		Prepared: 09/28/2011 Analyzed: 09/29/2011						
Mercury	0.159		0.0251	mg/kg dry	0.13962	0.0245 U	114	75-125		20
Reference (L109374-SRM1)				Prepared: 09/28/2011 Analyzed: 09/29/2011						
Mercury	1.40		0.0290	mg/kg wet	1.2900		108	62.6-138		

Lionville Laboratory Logbook #: 996

SAMPLE DIGESTION RECORD

Digestion Batch #: L109245
Date/Time Initiated: 9/16/11 1145
Date/Time Completed: 9/16/11 1655
Analyst: JD
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 (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
1109058-01		0.61	50		TO	Fine	Brown	Rocks	N/A
L109245-Rg1		0.67	50						
-MS1	0.5	0.63	50						
1109058 02		0.78	50			Fine	Brown	Rocks	
1109066-01		0.56	50			Spongy	Yellow	Rocks	
L109245-Rg2		0.59	50						
-MS2	0.5	0.53	50						
1109067-01		0.73	50			Coarse	White	Rocks	
L109245-Rg3		0.63	50						
-MS3	0.5	0.56	50						
1109067.02		0.72	50			Fine	White	Rocks	
1109068-01		0.58	50			Fine	Brown	Rocks	
L109245-Rg4		0.74	50						
MS4	0.5	0.61	50						
1109068-02		0.71	50			Coarse	Brown	Rocks	
'03		0.58	50			Coarse	Brown	Rocks	
'04		0.58	50			Fine	Brown	Rocks	
'05		0.55	50			Fine	Brown	Rocks	
L109245-BLK1		0.56	50			Coarse	Boiling chips		
SRM1	(A)	0.63	50			Fine	Dusty pink sand		

JD 9/16/11

Spiking IDs / Expiration Date:
MS#: 1101064
LCS#: (A) 1101357

Reagent IDs:
HNO_3 K14076
HCl K200377
H_2O_2 K03A11
1:1 HNO_3 637-050-04
1:1 HCl

File ID#:

Data Review By/Date: Alan 9/19/11

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

Page #:

Lionville Laboratory

MERCURY PREPARATION

Logbook # 1009

Analyst: [illegible]
Date 9/27/11 – 9/28/11
Start Time/Temp: 1910 / 94°
End Time/Temp: 1950 / 96°

Instrument ID: HG3.1
Balance # 629 /NA
Pipette Calibration (Daily) (Y) ____

Prep Batch: L109374
Worksheet: HG092901
SOP No. ME-HgCVAA
BLOCK 1 2 (circle one) (3)

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				10 ml	50	
0.2 ug/l		0.100		10 ml	50	
1.0 ug/l		0.500		10 ml	50	
2.0 ug/l		1.000		10 ml	50	
5.0 ug/l		2.500		10 ml	50	
10.0 ug/l		5.000		10 ml	50	
ICV		0.125	2.5	10 ml	50	
CCV		0.250	5.0	10 ml	50	
ICB/CCB				10 ml	50	
L109374-BLK1				0.30	50	
SRM1		(A)	(A)	0.31	50	
1109048-01				0.33	50	
L109374-DUP1				0.37	50	
MS1		0.500	1.0	0.36	50	
1109048-02				0.34	50	
03				0.33	50	
04				0.39	50	
1109049-01				0.33	50	
L109374-DUP2				0.36	50	
MS2		0.500	1.0	0.36	50	
1109058-01				0.37	50	
L109374-DUP3				0.38	50	
MS3		0.500	1.0	0.36	50	
1109058-02				0.36	50	
1109067-01				0.37	50	
L109374-DUP4				0.36	50	
MS4		0.500	1.0	0.36	50	

Standard:	ID	Prep Date/Time
ICAL/MS	RI 1101356B	9/28/11 1340
ICV/CCV/LCS	I.V. 1101256A	↓

Reviewed By/Date: [illegible] 9/30/11

se book # 9368 for std traceability information

Soil LCS True Value = 129 mg/Kg
Standard # 1101357 (A)

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

Lionville Laboratory

MERCURY PREPARATION

Logbook # 1009

Analyst: [illegible]
Date 9/27/11 - 9/28/11
Start Time/Temp: [illegible]
End Time/Temp: [illegible]

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

Prep Batch: 409374
Worksheet: HG092901
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.
1109067-02				0.34	50	
1109068-01				0.34	50	
409374-DUP5				0.33	50	
MS5		0.500	1.0	0.34	50	
1109068-02				0.39	50	
03				0.38	50	
04				0.36	50	
05				0.38	50	
1109078-01				0.34	50	
409374-DUP6				0.32	50	
MS6		0.500	1.0	0.33	50	
1109093-01				0.37	50	
409374-DUP7				0.38	50	
MS7		0.500	1.0	0.37	50	
1109103-01				0.38	50	
409374-DUP8				0.34	50	
MS8		0.500	1.0	0.36	50	
1109103-02				0.36	50	
03				0.38	50	
04				0.32	50	

MW 9/28/11

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

Reviewed By/Date: [illegible] 9/30/11

se book # 9368 for std traceability information

Soil LCS True Value = [illegible] mg/Kg
Standard # [illegible]

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

ME-HgCVAA-Prep0910

Page #:

Lionville Laboratory Use Only
1109058

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client WC-Hanford SAF# RC.075
Est. Final Proj. Sampling Date
Project#
Project Contact/Phone#
Lionville Laboratory Project Manager Arlette Johnson
QC SW Del STD TAT 21 days

Date Rec'd 9-13-11 Date Due 10-4-11

		A	B	C	D	E	F
Refrigerator #		1	1	1	1	1	1
#/Type Container	Liquid						
	Solid	1aq	1aq	1aq	1aq	1aq	1aq
Volume	Liquid						
	Solid	120	120	125	120	60	60
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED		ORGANIC: VOA, BNA, Pest/PCB	Herb	TPH-D	PAHS	INORG: Metal, TH, CN	Cr+3
Lionville Laboratory Use Only		8082	8151A	ORO	8015 PAH	Met①	ER6

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8082	8151A	ORO	8015 PAH	Met①	ER6
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	01	JIKVC7			S	9-8-11	0940	X	X	X	X	X	X
	02	JIKVC8			✓	✓	0815	X	X	X	X	X	X

Special Instructions: Run matrix QC

Met① = HSL + B, Mo, S; (no TL)

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

See BRG

Relinquished by	Received by	Date	Time
[signature]	[signature]	9-13-11	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

000000014

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-261	Page 1 of 1

Collector: Lucas	Company Contact: Joan Kessner; Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 118-D-2:1 Burial Ground- Split Samples	SAF No.: RC-075	
Ice Chest No.: WCH-11-068	Field Logbook No.: EL-1607-12; COA: R118D22000	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A100857	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Rad < DOT

Special Handling and/or Storage

Cool 4 Deg. C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None
Type of Container	G/P	G/P	G	aG	aG	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	0	0	0
Volume	60mL	60mL	125mL	120mL	120mL	125mL	1000mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	TPH-Diesel Range - WTPH-D+	PAHs - 8310	PCBs - 8082	Chloro-Herbicides - EPA8151	See item (2) in Special Instructions.	Carbon-14 Low Level; Tritium - H3 Low Level Soil	Nickel-63, Strontium-89,90 -- Total Sr	Isotopic Plutonium

Sample No.	Matrix *	Sample Date	Sample Time											
J1KVC5	~~SOIL~~													
J1KVC6	~~SOIL~~													
J1KVC7	SOIL	9/8/11	0940	X	X	X	X	X	X		RCF	27384		
J1KVC8	SOIL	9/8/11	0815	X	X	X	X	X	X					

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: Kleucas Kessner Lucas; Date/Time: 9-8-11 1570	Received By/Stored In: D. Newman Dem Neum; Date/Time: 9/8/11 1510
Relinquished By/Removed From: D. Newman Dem Neum; Date/Time: 9/8/11 1650	Received By/Stored In: 1060 #2 A. Freier A. Freier; Date/Time: 1650 9-8-11
Relinquished By/Removed From: WCH A. Freier A. Freier 1060 #2; Date/Time: 0900 9-12-11	Received By/Stored In: Fed Ex; Date/Time:
Relinquished By/Removed From: Fed Ex; Date/Time: 9.13.11 1015	Received By/Stored In: [signature]; Date/Time: 9-13-11 1015
Relinquished By/Removed From:	Received By/Stored In:
Relinquished By/Removed From:	Received By/Stored In:

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out 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) (Mercury)

(2) Gamma Spec (Client List) (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

REVIEWED BY CMB DATE 9/12/11

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

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC. Hanford

Project/SAF/SDW/Release #: RC-075

Date: 9.13.11

LvL Batch #: 1109058

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7951 7600 3771
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.0	°C	Cooler # WCH-11-068
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 _____

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

RECEIVED
OCT 2011

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: K3671 Project Manager: Joan Kessner	Reported: 09/27/2011 12:32

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1KVC7	1109058-01	Soil	09/08/2011 09:40	09/13/2011 10:15
J1KVC8	1109058-02	Soil	09/08/2011 08:15	09/13/2011 10:15

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-075 K3671
LVL#: 1109058 **Date Received:** 09-13-11

INORGANIC NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

2. The samples were prepared and analyzed in accordance with the methods indicated on the data summary report.

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

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that met LvL's sample acceptance policy.

5. The method blank for Hexavalent Chromium (Cr^{6+}) was within the method criteria.

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

7. The matrix spike recoveries for Cr^{6+} were within the 75-125% control limits.

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

9. Results for soil samples are reported on a dry weight basis.

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 package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory

9/27/11
Date

njp\i09-058

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 8 pages.

LIONVILLE LABORATORY
A division of Iberline Analytical Corporation

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	09/27/2011 12:32

Notes and Definitions

U	Analyte included in the analysis, but not detected
D	Results reported from a dilution; related reporting limits are elevated due to the presence of an interference or a high target value
*	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
LOD	Limit of Detection (LOD): the minimum estimated concentration of a target analyte that can be detected reliably. Concentrations at the LOD or between the LOD and LOQ are flagged estimated with either a 'J' qualifier or client-specific qualifier.
LOQ	Limit of Quantitation (LOQ): the minimum concentration of a target analyte that can be quantified reliably

LIONVILLE LABORATORY
A division of Eurofins Analytical Corporation

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/27/2011 12:32

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1KVC7 (1109058-01) Soil									
%Solids	**99.5**	0.1	0.1	% by Weight	1	L109204	09/14/2011	09/14/2011	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.50	mg/kg dry	1	L109341	09/23/2011	09/26/2011	SW846 7196A
J1KVC8 (1109058-02) Soil									
%Solids	**99.7**	0.1	0.1	% by Weight	1	L109204	09/14/2011	09/14/2011	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.50	mg/kg dry	1	L109341	09/23/2011	09/26/2011	SW846 7196A

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: K3671	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	09/27/2011 12:32

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L109204 - % Solids										
Duplicate (L109204-DUP2)		Source: 1109058-01		Prepared & Analyzed: 09/14/2011						
%Solids	99.5	0.1	0.1	% by Weight		99.5			0.01	20
Batch L109341 - Default Prep GenChem										
Blank (L109341-BLK1)				Prepared: 09/23/2011 Analyzed: 09/26/2011						
Hexavalent Chromium	0.20 U	0.20	0.50	mg/kg wet						
LCS (L109341-BS1)				Prepared: 09/23/2011 Analyzed: 09/26/2011						
Hexavalent Chromium	3.81	0.20	0.50	mg/kg wet	4.0000		95	80-120		
LCS (L109341-BS2)				Prepared: 09/23/2011 Analyzed: 09/26/2011						
Hexavalent Chromium	1060 D	20.0	50.0	mg/kg wet	1204.3		88	80-120		
Duplicate (L109341-DUP3)		Source: 1109058-01		Prepared: 09/23/2011 Analyzed: 09/26/2011						
Hexavalent Chromium	0.20 U	0.20	0.50	mg/kg dry		0.20 U				20
Matrix Spike (L109341-MS5)		Source: 1109058-01		Prepared: 09/23/2011 Analyzed: 09/26/2011						
Hexavalent Chromium	3.52	0.20	0.50	mg/kg dry	4.0212	0.20 U	88	75-125		
Matrix Spike (L109341-MS6)		Source: 1109058-01		Prepared: 09/23/2011 Analyzed: 09/26/2011						
Hexavalent Chromium	1120 D	20.1	50.3	mg/kg dry	1275.4	0.20 U	88	75-125		

Lionville Laboratory Use Only

1109058

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: WC. Hanford SAF# RC.075

Est. Final Proj. Sampling Date:

Project#:

Project Contact/Phone#:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SW Del: STD TAT: 21 days

Date Rec'd: 9-13-11 Date Due: 10-4-11

		A	B	C	D	E	F
Refrigerator #		1	1	1	1	1	1
#/Type Container	Liquid						
	Solid	1aq	1aq	1aq	1aq	1aq	1aq
Volume	Liquid						
	Solid	120	120	125	120	60	60
Preservatives		—	—	—	—	—	—
ANALYSES REQUESTED		ORGANIC: VOA, BNA, Pest/PCB	Herb	TPH-D	PAHs	INORG: CN, Metal HHS	Cr6
Lionville Laboratory Use Only		8082	8151A	DRO	8015 PAH	Met①	CR6

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	VOA	BNA	Pest/PCB	Herb	TPH-D	PAHs	CN	Metal HHS	Cr6
01	JIKVC7			S	9-8-11	0940			X	X	X	X		X	X
02	JIKVC8			↓	↓	0815			X	X	X	X		X	X

Special Instructions: Run matrix QC

Met① = HSL + B, Mo, S; (no TL)

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

See SRG

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9-13-11	1015

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN			

9/8/11

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-261	Page 1 of 1

Collector: Lucas	Company Contact: Joan Kessner Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH	Price Code: 8L Data Turnaround: 21 Days
Project Designation: 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location: 118-D-2:1 Burial Ground- Split Samples	SAF No.: RC-075	
Ice Chest No.: WCH-11-068	Field Logbook No.: EL-1607-12 COA: R118D22000	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A100857	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Rad < DOT

Special Handling and/or Storage

Cool 4 Deg. C

SAMPLE ANALYSIS												
			Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None
			Type of Container	G/P	G/P	G	aG	aG	aG	G/P	G/P	G/P	G/P
			No. of Container(s)	1	1	1	1	1	1	1	0	0	0
			Volume	60mL	60mL	125mL	120mL	120mL	125mL	1000mL	1000mL	1000ml	1000mL
				See item (1) in Special Instructions.	Chromium Hex - 7196	TPH-Diesel Range - WTPH-D+	PAHs - 8310	PCBs - 8082	Chloro-Herbicides - EPA8151	See item (2) in Special Instructions.	Carbon-14 Low Level; Tritium - H3 Low Level Soil	Nickel-63, Strontium-89,90 -- Total Sr	Isotopic Plutonium
Sample No.	Matrix *	Sample Date	Sample Time										
~~J1KVC5~~	~~SOIL~~									RCF	27384		
~~J1KVC6~~	~~SOIL~~												
J1KVC7	SOIL	9/8/11	0940	X	X	X	X	X	X				
J1KVC8	SOIL	9/8/11	0815	X	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Kenos Kenos Lucas — Date/Time: 9-8-11 1570	Received By/Stored In: D. Newman Dem Neum — Date/Time: 9/8/11 1570	
Relinquished By/Removed From: D. Newman Dem Neum — Date/Time: 1650 9/8/11	Received By/Stored In: 1060 #2 A. Freier A. Freier — Date/Time: 1650 9-8-11	
Relinquished By/Removed From: WCH A. Freier A. Freier 1060 #2 — Date/Time: 0900 9-12-11	Received By/Stored In: Fed Ex — Date/Time:	
Relinquished By/Removed From: Fed Ex — Date/Time: 9.13.11 1105	Received By/Stored In: [illegible] — Date/Time: 9.13.11 1015	
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 - 6010TR (Close-out 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) (Mercury)

(2) Gamma Spec (Client List) (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

REVIEWED BY CMB DATE 9/12/11

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

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC. Hanford

Project/SAF/SOW/Release #: RC-075

Date: 9.13.11

LvL Batch #: 1109058

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7951 7600 3771
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.0	°C	Cooler # WCH-11-068
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 _____

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