0078936

SAF-RC-029
Remaining Sites Confirmation Sampling - Soil
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 10/15/08
INITIAL/DATE

COMMENTS:

SDG K1329 **SAF RC-029**

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 100-D-76

RECEIVED
OCT 2 2 2008
EDMC

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
Richmond, California 94804-3849
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www.eberlineservices.com

September 29, 2008

RECEIVED
SEP 2008

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

Reference: **P.O. #S00W235A00**
Eberline Services R8-09-117-7894, SDG K1329

Dear Ms. Kessner:

Enclosed is the data report for four solid (soil) samples designated under SAF No. RC-029 received at Eberline Services on September 12, 2008. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

FOR Melissa C. Mannion
Senior Program Manager

NJV/jag

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1329 was composed of four solid (soil) samples designated under SAF No. RC-029 with a Project Designation of: Remaining Sites Confirmation Sampling - Soil.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on September 29, 2008.

2.0 ANALYSIS NOTES

2.1 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.2 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.3 Strontium-90 Analysis

No problems were encountered during the course of the analyses.

2.4 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.5 Total 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."

For **Melissa C. Mannion**
Senior Program Manager

9/29/08
Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP K1329

SDG	7894
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_K1329

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	09/29/08

SDG 7894
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1329

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 09/29/08

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

LAB SAMPLE SUMMARY

SDG 7894
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG K1329

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R809117-01	J17FH3	100-D-76	SOLID		RC-029	RC-029-047	09/10/08 14:00
R809117-02	J17FH4	100-D-76	SOLID		RC-029	RC-029-047	09/10/08 14:50
R809117-03	J17FH5	100-D-76	SOLID		RC-029	RC-029-047	09/10/08 15:00
R809117-04	J17FH6	100-D-76	SOLID		RC-029	RC-029-047	09/10/08 15:15
R809117-05	Lab Control Sample		SOLID		RC-029		
R809117-06	Method Blank		SOLID		RC-029		
R809117-07	Duplicate (R809117-03)	100-D-76	SOLID		RC-029		09/10/08 15:00

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

SDG 7894
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1329

: 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
194	RC-029-047	J17FH3	SOLID	96.7	1084 g		09/12/08	2	R809117-01	7894-001
		J17FH4	SOLID	96.4	1983 g		09/12/08	2	R809117-02	7894-002
		J17FH5	SOLID	96.8	2005 g		09/12/08	2	R809117-03	7894-003
		J17FH6	SOLID	95.0	1630 g		09/12/08	2	R809117-04	7894-004
		Method Blank	SOLID						R809117-06	7894-006
		Lab Control Sample	SOLID						R809117-05	7894-005
		Duplicate (R809117-03)	SOLID	96.8	2005 g		09/12/08	2	R809117-07	7894-007

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

SDG 7894
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1329

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
PU	SOLID	Plutonium, Isotopic in Solids	6169-054	8.0	4			1	1	1/1		
U	SOLID	Uranium, Isotopic in Solids	6169-054	8.0	4			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Solids	6169-054	10.4	4			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6169-054	7.0	4			1	1	1/1		
Kinetic Phosphorimetry, ug												
U_T	SOLID	Uranium, Total in Solids	6169-054		4			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Solids	6169-054	10.0	4			1	1	1/1		
NI_L	SOLID	Nickel 63 in Solids	6169-054	11.2	4			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

SDG 7894
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1329

AB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
309117-01	J17FH3			7894-001	C		09/25/08	09/26/08	BW	Carbon 14 in Solids
09/10/08	100-D-76		SOLID	7894-001	GAM		09/18/08	09/22/08	CSS	Gamma Scan
09/12/08	RC-029-047	RC-029		7894-001	NI_L		09/25/08	09/26/08	BW	Nickel 63 in Solids
				7894-001	PU		09/25/08	09/26/08	BW	Plutonium, Isotopic in Solids
				7894-001	SR		09/22/08	09/25/08	BW	Total Strontium in Solids
				7894-001	U		09/23/08	09/25/08	BW	Uranium, Isotopic in Solids
				7894-001	U_T		09/24/08	09/24/08	BW	Uranium, Total in Solids
309117-02	J17FH4			7894-002	C		09/25/08	09/26/08	BW	Carbon 14 in Solids
09/10/08	100-D-76		SOLID	7894-002	GAM		09/18/08	09/22/08	CSS	Gamma Scan
09/12/08	RC-029-047	RC-029		7894-002	NI_L		09/25/08	09/26/08	BW	Nickel 63 in Solids
				7894-002	PU		09/25/08	09/26/08	BW	Plutonium, Isotopic in Solids
				7894-002	SR		09/22/08	09/25/08	BW	Total Strontium in Solids
				7894-002	U		09/23/08	09/25/08	BW	Uranium, Isotopic in Solids
				7894-002	U_T		09/24/08	09/24/08	BW	Uranium, Total in Solids
309117-03	J17FH5			7894-003	C		09/25/08	09/26/08	BW	Carbon 14 in Solids
09/10/08	100-D-76		SOLID	7894-003	GAM		09/18/08	09/22/08	CSS	Gamma Scan
09/12/08	RC-029-047	RC-029		7894-003	NI_L		09/25/08	09/26/08	BW	Nickel 63 in Solids
				7894-003	PU		09/25/08	09/26/08	BW	Plutonium, Isotopic in Solids
				7894-003	SR		09/22/08	09/25/08	BW	Total Strontium in Solids
				7894-003	U		09/23/08	09/25/08	BW	Uranium, Isotopic in Solids
				7894-003	U_T		09/24/08	09/24/08	BW	Uranium, Total in Solids
309117-04	J17FH6			7894-004	C		09/25/08	09/26/08	BW	Carbon 14 in Solids
09/10/08	100-D-76		SOLID	7894-004	GAM		09/18/08	09/22/08	CSS	Gamma Scan
09/12/08	RC-029-047	RC-029		7894-004	NI_L		09/25/08	09/26/08	BW	Nickel 63 in Solids
				7894-004	PU		09/25/08	09/26/08	BW	Plutonium, Isotopic in Solids
				7894-004	SR		09/22/08	09/25/08	BW	Total Strontium in Solids
				7894-004	U		09/23/08	09/25/08	BW	Uranium, Isotopic in Solids
				7894-004	U_T		09/24/08	09/24/08	BW	Uranium, Total in Solids
309117-05	Lab Control Sample			7894-005	C		09/26/08	09/26/08	BW	Carbon 14 in Solids
			SOLID	7894-005	GAM		09/18/08	09/22/08	CSS	Gamma Scan
		RC-029		7894-005	NI_L		09/25/08	09/26/08	BW	Nickel 63 in Solids
				7894-005	PU		09/25/08	09/26/08	BW	Plutonium, Isotopic in Solids
				7894-005	SR		09/22/08	09/25/08	BW	Total Strontium in Solids
				7894-005	U		09/24/08	09/25/08	BW	Uranium, Isotopic in Solids
				7894-005	U_T		09/24/08	09/24/08	BW	Uranium, Total in Solids

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

SDG 7894
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1329

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
809117-06	Method Blank			7894-006	C		09/25/08	09/26/08	BW	Carbon 14 in Solids
			SOLID	7894-006	GAM		09/18/08	09/22/08	CSS	Gamma Scan
		RC-029		7894-006	NI_L		09/25/08	09/26/08	BW	Nickel 63 in Solids
				7894-006	PU		09/25/08	09/26/08	BW	Plutonium, Isotopic in Solids
				7894-006	SR		09/22/08	09/25/08	BW	Total Strontium in Solids
				7894-006	U		09/24/08	09/25/08	BW	Uranium, Isotopic in Solids
				7894-006	U_T		09/24/08	09/24/08	BW	Uranium, Total in Solids
809117-07	Duplicate (R809117-03)			7894-007	C		09/25/08	09/26/08	BW	Carbon 14 in Solids
09/10/08	100-D-76		SOLID	7894-007	GAM		09/18/08	09/22/08	CSS	Gamma Scan
09/12/08		RC-029		7894-007	NI_L		09/25/08	09/26/08	BW	Nickel 63 in Solids
				7894-007	PU		09/25/08	09/26/08	BW	Plutonium, Isotopic in Solids
				7894-007	SR		09/22/08	09/25/08	BW	Total Strontium in Solids
				7894-007	U		09/24/08	09/25/08	BW	Uranium, Isotopic in Solids
				7894-007	U_T		09/24/08	09/24/08	BW	Uranium, Total in Solids

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
C	RC-029	Carbon 14 in Solids	C14_COX_LSC	4			1	1	1	7
GAM	RC-029	Gamma Scan	GAMMA_GS	4			1	1	1	7
NI_L	RC-029	Nickel 63 in Solids	NI63_LSC	4			1	1	1	7
PU	RC-029	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	4			1	1	1	7
SR	RC-029	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	4			1	1	1	7
U	RC-029	Uranium, Isotopic in Solids	UISO_PLATE_AEA	4			1	1	1	7
U_T	RC-029	Uranium, Total in Solids	UTOT_KPA	4			1	1	1	7
TOTALS				28			7	7	7	49

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

7894-006 **Method Blank**

METHOD BLANK

SDG	7894	Client/Case no	Hanford	SDG_K1329	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R809117-06	Client sample id	Method Blank		
Dept sample id	7894-006	Material/Matrix		SOLID	
		SAF No	RC-029		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	0.047	2.6	4.37	50.0	U	C
Nickel 63	13981-37-8	-1.02	1.7	2.97	30.0	U	NI_L
Total Strontium	SR-RAD	-0.047	0.11	0.242	1.00	U	SR
Total Uranium (ug/g)	7440-61-1	0	0.006	0.014	1.00	U	U_T
Uranium 233/234	U-233/234	0.017	0.034	0.130	1.00	U	U
Uranium 235	15117-96-1	0.021	0.041	0.157	1.00	U	U
Uranium 238	U-238	0	0.034	0.130	1.00	U	U
Plutonium 238	13981-16-3	0.124	0.19	0.296	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.062	0.237	1.00	U	PU
Potassium 40	13966-00-2	U		0.183		U	GAM
Cobalt 60	10198-40-0	U		0.007	0.050	U	GAM
Cesium 137	10045-97-3	U		0.008	0.100	U	GAM
Radium 226	13982-63-3	U		0.022	0.100	U	GAM
Radium 228	15262-20-1	U		0.037	0.200	U	GAM
Europium 152	14683-23-9	U		0.026	0.100	U	GAM
Europium 154	15585-10-1	U		0.025	0.100	U	GAM
Europium 155	14391-16-3	U		0.024	0.100	U	GAM
Thorium 228	14274-82-9	U		0.016		U	GAM
Thorium 232	TH-232	U		0.037		U	GAM
Uranium 235	15117-96-1	U		0.039		U	GAM
Uranium 238	U-238	U		0.899		U	GAM
Americium 241	14596-10-2	U		0.030		U	GAM

RemainSitesConfirmationSampling-Soil

QC-BLANK 67300

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

7894-005

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7894

Contact Melissa C. Mannion

Client/Case no Hanford SDG K1329

Contract No. S00W235A00

Lab sample id R809117-05

Dept sample id 7894-005

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No RC-029

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
Carbon 14	2180	44	9.96	50.0		C	2130	85	102	83-117	80-120
Nickel 63	253	6.2	3.02	30.0		NI_L	264	11	96	82-118	80-120
Total Strontium	10.6	0.58	0.248	1.00		SR	10.2	0.41	104	81-119	80-120
Total Uranium (ug/g)	35.0	4.9	0.141	1.00		U_T	36.2	1.4	97	79-121	80-120
Uranium 233/234	17.1	1.7	0.764	1.00		U	19.3	0.77	89	82-118	80-120
Uranium 235	14.4	1.5	0.166	1.00		U	15.7	0.63	92	81-119	80-120
Uranium 238	18.2	1.7	0.734	1.00		U	21.0	0.84	87	83-117	80-120
Plutonium 238	25.6	1.1	0.091	1.00		PU	25.8	1.0	99	85-115	80-120
Plutonium 239/240	29.0	1.2	0.058	1.00		PU	29.0	1.2	100	85-115	80-120
Cobalt 60	0.632	0.039	0.019	0.050		GAM	0.638	0.026	99	85-115	80-120
Cesium 137	0.761	0.033	0.017	0.100		GAM	0.734	0.029	104	86-114	80-120

RemainSitesConfirmationSampling-Soil

QC-LCS 67299

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

7894-007 J17FH5

DUPLICATE

SDG	7894			Client/Case no	Hanford SDG K1329
Contact	Melissa C. Mannion			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	R809117-07	Lab sample id	R809117-03	Client sample id	J17FH5
Dept sample id	7894-007	Dept sample id	7894-003	Location/Matrix	100-D-76 SOLID
		Received	09/12/08	Collected/Weight	09/10/08 15:00 2005 g
% solids	96.8	% solids	96.8	Custody/SAF No	RC-029-047 RC-029

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
Carbon 14	-0.193	1.8	2.99	50.0	U	C	-0.448	1.7	2.98	U	-		0.2
Nickel 63	0.076	2.0	3.33	30.0	U	NI_L	0.532	2.0	3.32	U	-		0.3
Total Strontium	0.023	0.12	0.247	1.00	U	SR	0.014	0.11	0.216	U	-		0.1
Total Uranium (ug/g)	1.17	0.16	0.014	1.00		U_T	1.18	0.16	0.014		1	29	0.1
Uranium 233/234	0.382	0.17	0.127	1.00		U	0.497	0.088	0.030		26	68	1.2
Uranium 235	0.020	0.040	0.154	1.00	U	U	0.038	0.029	0.037		62	256	0.7
Uranium 238	0.499	0.17	0.127	1.00		U	0.493	0.088	0.038		1	60	0.1
Plutonium 238	0	0.11	0.313	1.00	U	PU	0.024	0.19	0.348	U	-		0.2
Plutonium 239/240	0.028	0.11	0.216	1.00	U	PU	0.024	0.048	0.185	U	-		0.1
Potassium 40	10.2	0.62	0.197			GAM	10.4	0.38	0.161		2	18	0.3
Cobalt 60	U		0.023	0.050	U	GAM	U		0.014	U	-		0.7
Cesium 137	U		0.024	0.100	U	GAM	U		0.014	U	-		0.7
Radium 226	0.350	0.046	0.043	0.100		GAM	0.385	0.034	0.031		10	28	1.0
Radium 228	0.650	0.11	0.090	0.200		GAM	0.551	0.070	0.069		16	36	1.4
Europium 152	U		0.058	0.100	U	GAM	U		0.041	U	-		0.5
Europium 154	U		0.085	0.100	U	GAM	U		0.047	U	-		0.8
Europium 155	U		0.072	0.100	U	GAM	U		0.081	U	-		0.2
Thorium 228	0.540	0.030	0.027			GAM	0.610	0.028	0.026		12	18	2.0
Thorium 232	0.650	0.11	0.090			GAM	0.551	0.070	0.069		16	36	1.4
Uranium 235	U		0.091		U	GAM	U		0.078	U	-		0.2
Uranium 238	U		2.84		U	GAM	U		1.75	U	-		0.7
Americium 241	U		0.085		U	GAM	U		0.066	U	-		0.4

RemainSitesConfirmationSampling-Soil

QC-DUP#3 67301

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

7894-001 J17FH3

DATA SHEET

SDG	7894	Client/Case no	Hanford	SDG K1329	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R809117-01	Client sample id	J17FH3		
Dept sample id	7894-001	Location/Matrix	100-D-76	SOLID	
Received	09/12/08	Collected/Weight	09/10/08 14:00	1084 g	
% solids	96.7	Custody/SAF No	RC-029-047	RC-029	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-0.254	1.7	2.96	50.0	U	C
Nickel 63	13981-37-8	0.785	1.9	3.26	30.0	U	NI_L
Total Strontium	SR-RAD	0.087	0.15	0.290	1.00	U	SR
Total Uranium (ug/g)	7440-61-1	1.08	0.15	0.014	1.00		U_T
Uranium 233/234	U-233/234	0.462	0.10	0.047	1.00		U
Uranium 235	15117-96-1	0.006	0.024	0.046	1.00	U	U
Uranium 238	U-238	0.516	0.10	0.038	1.00		U
Plutonium 238	13981-16-3	0.047	0.14	0.292	1.00	U	PU
Plutonium 239/240	PU-239/240	0.071	0.095	0.181	1.00	U	PU
Potassium 40	13966-00-2	11.0	0.46	0.220			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	U		0.019	0.100	U	GAM
Radium 226	13982-63-3	0.457	0.044	0.039	0.100		GAM
Radium 228	15262-20-1	0.702	0.091	0.085	0.200		GAM
Europium 152	14683-23-9	U		0.049	0.100	U	GAM
Europium 154	15585-10-1	U		0.067	0.100	U	GAM
Europium 155	14391-16-3	U		0.050	0.100	U	GAM
Thorium 228	14274-82-9	0.664	0.029	0.026			GAM
Thorium 232	TH-232	0.702	0.091	0.085			GAM
Uranium 235	15117-96-1	U		0.074		U	GAM
Uranium 238	U-238	U		2.36		U	GAM
Americium 241	14596-10-2	U		0.029		U	GAM

RemainSitesConfirmationSampling-Soil

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

7894-002 J17FH4

DATA SHEET

SDG	7894	Client/Case no	Hanford	SDG_K1329	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R809117-02	Client sample id	J17FH4		
Dept sample id	7894-002	Location/Matrix	100-D-76	SOLID	
Received	09/12/08	Collected/Weight	09/10/08 14:50	1983 g	
% solids	96.4	Custody/SAF No	RC-029-047	RC-029	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-1.01	1.6	2.84	50.0	U	C
Nickel 63	13981-37-8	-0.076	2.0	3.33	30.0	U	NI_L
Total Strontium	SR-RAD	0.002	0.12	0.250	1.00	U	SR
Total Uranium (ug/g)	7440-61-1	1.17	0.16	0.014	1.00		U_T
Uranium 233/234	U-233/234	0.493	0.083	0.026	1.00		U
Uranium 235	15117-96-1	0.008	0.016	0.031	1.00	U	U
Uranium 238	U-238	0.483	0.083	0.026	1.00		U
Plutonium 238	13981-16-3	0.036	0.22	0.398	1.00	U	PU
Plutonium 239/240	PU-239/240	-0.036	0.072	0.276	1.00	U	PU
Potassium 40	13966-00-2	10.9	0.44	0.200			GAM
Cobalt 60	10198-40-0	U		0.020	0.050	U	GAM
Cesium 137	10045-97-3	U		0.016	0.100	U	GAM
Radium 226	13982-63-3	0.395	0.039	0.036	0.100		GAM
Radium 228	15262-20-1	0.662	0.094	0.087	0.200		GAM
Europium 152	14683-23-9	U		0.040	0.100	U	GAM
Europium 154	15585-10-1	U		0.058	0.100	U	GAM
Europium 155	14391-16-3	U		0.072	0.100	U	GAM
Thorium 228	14274-82-9	0.531	0.024	0.021			GAM
Thorium 232	TH-232	0.662	0.094	0.087			GAM
Uranium 235	15117-96-1	U		0.071		U	GAM
Uranium 238	U-238	U		2.10		U	GAM
Americium 241	14596-10-2	U		0.029		U	GAM

RemainSitesConfirmationSampling-Soil

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

7894-003 J17FH5

DATA SHEET

SDG	7894	Client/Case no	Hanford	SDG_K1329	
Contact	Melissa C. Mannion	Contract	No. S00W235A00		
Lab sample id	R809117-03	Client sample id	J17FH5		
Dept sample id	7894-003	Location/Matrix	100-D-76	SOLID	
Received	09/12/08	Collected/Weight	09/10/08 15:00	2005 g	
% solids	96.8	Custody/SAF No	RC-029-047	RC-029	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-0.448	1.7	2.98	50.0	U	C
Nickel 63	13981-37-8	0.532	2.0	3.32	30.0	U	NI_L
Total Strontium	SR-RAD	0.014	0.11	0.216	1.00	U	SR
Total Uranium (ug/g)	7440-61-1	1.18	0.16	0.014	1.00		U_T
Uranium 233/234	U-233/234	0.497	0.088	0.030	1.00		U
Uranium 235	15117-96-1	0.038	0.029	0.037	1.00		U
Uranium 238	U-238	0.493	0.088	0.038	1.00		U
Plutonium 238	13981-16-3	0.024	0.19	0.348	1.00	U	PU
Plutonium 239/240	PU-239/240	0.024	0.048	0.185	1.00	U	PU
Potassium 40	13966-00-2	10.4	0.38	0.161			GAM
Cobalt 60	10198-40-0	U		0.014	0.050	U	GAM
Cesium 137	10045-97-3	U		0.014	0.100	U	GAM
Radium 226	13982-63-3	0.385	0.034	0.031	0.100		GAM
Radium 228	15262-20-1	0.551	0.070	0.069	0.200		GAM
Europium 152	14683-23-9	U		0.041	0.100	U	GAM
Europium 154	15585-10-1	U		0.047	0.100	U	GAM
Europium 155	14391-16-3	U		0.081	0.100	U	GAM
Thorium 228	14274-82-9	0.610	0.028	0.026			GAM
Thorium 232	TH-232	0.551	0.070	0.069			GAM
Uranium 235	15117-96-1	U		0.078		U	GAM
Uranium 238	U-238	U		1.75		U	GAM
Americium 241	14596-10-2	U		0.066		U	GAM

RemainSitesConfirmationSampling-Soil

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

7894-004 J17FH6

DATA SHEET

SDG	7894	Client/Case no	Hanford	SDG_K1329
Contact	Melissa C. Mannion	Contract	No. S00W235A00	
Lab sample id	R809117-04	Client sample id	J17FH6	
Dept sample id	7894-004	Location/Matrix	100-D-76	SOLID
Received	09/12/08	Collected/Weight	09/10/08 15:15	1630 g
% solids	95.0	Custody/SAF No	RC-029-047	RC-029

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-0.379	1.7	2.94	50.0	U	C
Nickel 63	13981-37-8	-0.931	1.9	3.25	30.0	U	NI_L
Total Strontium	SR-RAD	-0.009	0.16	0.320	1.00	U	SR
Total Uranium (ug/g)	7440-61-1	1.01	0.14	0.014	1.00		U_T
Uranium 233/234	U-233/234	0.354	0.071	0.034	1.00		U
Uranium 235	15117-96-1	0.021	0.025	0.032	1.00	U	U
Uranium 238	U-238	0.399	0.078	0.027	1.00		U
Plutonium 238	13981-16-3	0	0.14	0.279	1.00	U	PU
Plutonium 239/240	PU-239/240	0.045	0.091	0.173	1.00	U	PU
Potassium 40	13966-00-2	10.6	0.75	0.258			GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	U		0.026	0.100	U	GAM
Radium 226	13982-63-3	0.399	0.057	0.053	0.100		GAM
Radium 228	15262-20-1	0.709	0.11	0.106	0.200		GAM
Europium 152	14683-23-9	U		0.073	0.100	U	GAM
Europium 154	15585-10-1	U		0.100	0.100	U	GAM
Europium 155	14391-16-3	U		0.068	0.100	U	GAM
Thorium 228	14274-82-9	0.649	0.038	0.036			GAM
Thorium 232	TH-232	0.709	0.11	0.106			GAM
Uranium 235	15117-96-1	U		0.125		U	GAM
Uranium 238	U-238	U		3.33		U	GAM
Americium 241	14596-10-2	U		0.041		U	GAM

RemainSitesConfirmationSampling-Soil

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

Test PU Matrix SOLID
SDG 7894
Contact Melissa C. Mannion

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1329

ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238	Plutonium 239/240
:eparation batch 6169-054						
309117-01			7894-001	J17FH3	U	U
309117-02			7894-002	J17FH4	U	U
309117-03			7894-003	J17FH5	U	U
309117-04			7894-004	J17FH6	U	U
309117-05			7894-005	Lab Control Sample	ok	ok
309117-06			7894-006	Method Blank	U	U
309117-07			7894-007	Duplicate (R809117-03)	- U	- U
›minal values and limits from method				RDLs (pCi/g)	1.00	1.00
:mainSitesConfirmationSampling-Soil						

:ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
:eparation batch 6169-054			2σ prep error 8.0 % Reference Lab Notebook #6169, pg. 54													
309117-01			J17FH3	0.292	0.500			75		124			15	09/24/08	09/25	SS-027
309117-02			J17FH4	0.398	0.500			57		125			15	09/24/08	09/25	SS-028
309117-03			J17FH5	0.348	0.500			74		127			15	09/24/08	09/25	SS-035
309117-04			J17FH6	0.279	0.500			76		127			15	09/24/08	09/25	SS-036
309117-05			Lab Control Sample	0.091	0.500			77		754				09/24/08	09/25	SS-031
309117-06			Method Blank	0.296	0.500			72		124				09/24/08	09/25	SS-031
309117-07			Duplicate (R809117-03)	0.313	0.500			76		124			15	09/24/08	09/25	SS-032
›minal values and limits from method				1.00	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 0.288 ± 0.192
YIELD 72 ± 14

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

Test U Matrix SOLID
SDG 7894
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1329

ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
:eparation batch 6169-054											
809117-01			7894-001	J17FH3	0.462	U	0.516	90	26	1	5
809117-02			7894-002	J17FH4	0.493	U	0.483	102	25	2	3
809117-03			7894-003	J17FH5	0.497	0.038	0.493	101	25	8	6
809117-04			7894-004	J17FH6	0.354	U	0.399	89	25	5	6
809117-05			7894-005	Lab Control Sample	ok	ok	ok				
809117-06			7894-006	Method Blank	U	U	U				
809117-07			7894-007	Duplicate (R809117-03)	ok	ok U	ok	77	43	4	8
ominal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00	100		4	
:mainSitesConfirmationSampling-Soil								Averages 92		4	

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
:eparation batch 6169-054 2σ prep error 8.0 % Reference Lab Notebook #6169, pg. 54																
809117-01			J17FH3	0.047	0.500			77		634			13	09/23/08	09/23	SS-040
809117-02			J17FH4	0.031	0.500			105		633			13	09/23/08	09/23	SS-060
809117-03			J17FH5	0.038	0.500			93		634			13	09/23/08	09/23	SS-065
809117-04			J17FH6	0.034	0.500			98		634			13	09/23/08	09/23	SS-066
809117-05			Lab Control Sample	0.764	0.500			100		134				09/23/08	09/24	SS-040
809117-06			Method Blank	0.157	0.500			101		134				09/23/08	09/24	SS-065
809117-07			Duplicate (R809117-03)	0.154	0.500			97		135			14	09/23/08	09/24	SS-066
ominal values and limits from method				1.00	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 0.175 ± 0.531
YIELD 96 ± 18

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

Test SR Matrix SOLID
SDG 7894
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1329

ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
:eparation batch 6169-054					
309117-01			7894-001	J17FH3	U
309117-02			7894-002	J17FH4	U
309117-03			7894-003	J17FH5	U
309117-04			7894-004	J17FH6	U
309117-05			7894-005	Lab Control Sample	ok
309117-06			7894-006	Method Blank	U
309117-07			7894-007	Duplicate (R809117-03)	- U

ominal values and limits from method RDLs (pCi/g) 1.00
emainSitesConfirmationSampling-Soil

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
reparation batch 6169-054			2σ prep error 10.4 % Reference Lab Notebook #6169, pg. 54													
309117-01			J17FH3	0.290	1.00			71		100			12	09/22/08	09/22	GRB-222
309117-02			J17FH4	0.250	1.00			92		100			12	09/22/08	09/22	GRB-202
309117-03			J17FH5	0.216	1.00			98		100			12	09/22/08	09/22	GRB-223
309117-04			J17FH6	0.320	1.00			74		100			12	09/22/08	09/22	GRB-204
309117-05			Lab Control Sample	0.248	1.00			88		100				09/22/08	09/22	GRB-221
309117-06			Method Blank	0.242	1.00			94		100				09/22/08	09/22	GRB-228
309117-07			Duplicate (R809117-03)	0.247	1.00			84		100			12	09/22/08	09/22	GRB-224
ominal values and limits from method				1.00	1.00			30-105		100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	SPP-062	Sample Aliquoting, rev 0
	CP-383	Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 0.259 ± 0.069
YIELD 86 ± 20

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

Test GAM Matrix SOLID
SDG 7894
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG K1329

ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
eparation batch 6169-054								
309117-01			7894-001	J17FH3	U		U	
309117-02			7894-002	J17FH4	U		U	
309117-03			7894-003	J17FH5	U		U	
309117-04			7894-004	J17FH6	U		U	
309117-05			7894-005	Lab Control Sample	ok		ok	
309117-06			7894-006	Method Blank	U		U	
309117-07			7894-007	Duplicate (R809117-03)	-	U	-	U
minal values and limits from method				RDLs (pCi/g)	0.050		0.100	
emainSitesConfirmationSampling-Soil								

ETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
eparation batch 6169-054			2σ prep error 7.0 %	Reference Lab Notebook #6169, pg. 54												
309117-01			J17FH3	4.44	766					183			8	09/16/08	09/18	MB,07,00
309117-02			J17FH4	3.49	937					119			8	09/16/08	09/18	MB,01,00
309117-03			J17FH5	2.56	963					119			8	09/16/08	09/18	MB,02,00
309117-04			J17FH6	6.83	839					117			8	09/16/08	09/18	MB,06,00
309117-05			Lab Control Sample	0.019	760					119				09/16/08	09/18	MB,01,00
309117-06			Method Blank	1.78	760					119				09/16/08	09/18	MB,02,00
309117-07			Duplicate (R809117-03)	5.47	963					119			8	09/16/08	09/18	02,04,00
minal values and limits from method				0.050	760					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	SPP-100	Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 3.51 ± 4.61
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

Test U T Matrix SOLID
SDG 7894
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, TOTAL IN SOLIDS

KINETIC PHOSPHORIMETRY, UG

Client Hanford
Contract No. S00W235A00
Contract SDG K1329

ESULTS

AB AMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Uranium
reparation batch 6169-054					
809117-01			7894-001	J17FH3	1.08
809117-02			7894-002	J17FH4	1.17
809117-03			7894-003	J17FH5	1.18
809117-04			7894-004	J17FH6	1.01
809117-05			7894-005	Lab Control Sample	ok
809117-06			7894-006	Method Blank	U
809117-07			7894-007	Duplicate (R809117-03)	ok
ominal values and limits from method				RDLs (ug/g)	1.00
emainSitesConfirmationSampling-Soil					

IETHOD PERFORMANCE

AB AMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA ug/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
reparation batch 6169-054			2σ prep error	Reference Lab Notebook #6169, pg. 54												
809117-01			J17FH3	0.014	0.0500								14	09/24/08	09/24	KPA-001
809117-02			J17FH4	0.014	0.0500								14	09/24/08	09/24	KPA-001
809117-03			J17FH5	0.014	0.0500								14	09/24/08	09/24	KPA-001
809117-04			J17FH6	0.014	0.0500								14	09/24/08	09/24	KPA-001
809117-05			Lab Control Sample	0.141	0.0500									09/24/08	09/24	KPA-001
809117-06			Method Blank	0.014	0.0500									09/24/08	09/24	KPA-001
809117-07			Duplicate (R809117-03)	0.014	0.0500								14	09/24/08	09/24	KPA-001
ominal values and limits from method				1.00	0.0500								180			

PROCEDURES	REFERENCE	UTOT_KPA
	CP-929	Calibration of the Kinetic Phosphorimeter, rev 9
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	CP-928	Total Uranium by Kinetic Phosphorimetry, rev 8

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 0.032 ± 0.096
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

Test C Matrix SOLID
SDG 7894
Contact Melissa C. Mannion

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1329

ESULTS

ıB ıMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14	
:eparation batch 6169-054						
!09117-01			7894-001	J17FH3	U	
!09117-02			7894-002	J17FH4	U	
!09117-03			7894-003	J17FH5	U	
!09117-04			7894-004	J17FH6	U	
!09117-05			7894-005	Lab Control Sample	ok	
!09117-06			7894-006	Method Blank	U	
!09117-07			7894-007	Duplicate (R809117-03)	-	U

ɔminal values and limits from method RDLs (pCi/g) 50.0
:mainSitesConfirmationSampling-Soil

.ETHOD PERFORMANCE

ıB ıMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
:eparation batch 6169-054 2σ prep error 10.0 % Reference Lab Notebook #6169, pg. 54																
!09117-01			J17FH3	2.96	0.434			100		50			15	09/25/08	09/25	LSC-007
!09117-02			J17FH4	2.84	0.455			100		50			15	09/25/08	09/25	LSC-007
!09117-03			J17FH5	2.98	0.433			100		50			15	09/25/08	09/25	LSC-007
!09117-04			J17FH6	2.94	0.446			100		50			15	09/25/08	09/25	LSC-007
!09117-05			Lab Control Sample	9.96	0.300			100		10				09/25/08	09/26	LSC-007
!09117-06			Method Blank	4.37	0.300			100		50				09/25/08	09/25	LSC-007
!09117-07			Duplicate (R809117-03)	2.99	0.436			100		50			15	09/25/08	09/25	LSC-007
ɔminal values and limits from method				50.0	0.300					10			180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD MDA 4.15 ± 5.24
FOR 7 SAMPLES YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/29/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1329

Test NI L Matrix SOLID
SDG 7894
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG K1329

ESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
reparation batch 6169-054						
309117-01			7894-001	J17FH3	U	
309117-02			7894-002	J17FH4	U	
309117-03			7894-003	J17FH5	U	
309117-04			7894-004	J17FH6	U	
309117-05			7894-005	Lab Control Sample	ok	
309117-06			7894-006	Method Blank	U	
309117-07			7894-007	Duplicate (R809117-03)	-	U

ominal values and limits from method RDLs (pCi/g) 30.0
emainSitesConfirmationSampling-Soil

ETHOD 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
reparation batch 6169-054			2σ prep error 11.2 % Reference Lab Notebook #6169, pg. 54													
309117-01			J17FH3	3.26	0.500			90		50			15	09/24/08	09/25	LSC-004
309117-02			J17FH4	3.33	0.500			88		50			15	09/24/08	09/25	LSC-004
309117-03			J17FH5	3.32	0.500			88		50			15	09/24/08	09/25	LSC-004
309117-04			J17FH6	3.25	0.500			90		50			15	09/24/08	09/25	LSC-004
309117-05			Lab Control Sample	3.02	0.500			98		50				09/24/08	09/25	LSC-004
309117-06			Method Blank	2.97	0.500			99		50				09/24/08	09/25	LSC-004
309117-07			Duplicate (R809117-03)	3.33	0.500			87		50			15	09/24/08	09/25	LSC-004
ominal values and limits from method				30.0	0.500			30-105		25			180			

PROCEDURES	REFERENCE	NI63_LSC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5
	CP-280	Nickel-63 Purification, rev 3

AVERAGES ± 2 SD	MDA 3.21 ± 0.304
FOR 7 SAMPLES	YIELD 91 ± 10

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/29/08

SDG 7894
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG K1329

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 09/29/08

SDG 7894
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1329

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

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Protocol Hanford1
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Form DVD-RG
Version 3.06
Report date 09/29/08

SDG 7894
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1329

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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REPORT GUIDE

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Contract No. S00W235A00
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DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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Protocol Hanford1
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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

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GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1329

DATA SHEET

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

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

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

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Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1329

LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

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Protocol Hanford1
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/29/08

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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1329

DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

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DUPLICATE

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

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

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

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

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

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Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
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Case no SDG K1329

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
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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.

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'

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.

7894 K1329

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-029-047	Page 1 of 1

Collector: C. Martinez (BEC D. Rios)	Company Contact: R. Nielson	Telephone No.: 372-9051	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-D-76 K1329 (7894)	SAF No.: RC-029	
Ice Chest No.: GRP-03-015	Field Logbook No.: EL-1601-2	COA: 010D76A000	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES/LIONVILLE	Offsite Property No.: A080339		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None

Preservation	None	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	
Type of Container	P	G/P	aG	G/P	G/P	G/P	aG	aG	aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	1000mL	125mL	120mL	250mL	125mL	125mL	250mL	120mL	250mL	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Carbon-14; ~~Tritium - H3~~ 09/10/08	See item (3) in Special Instructions.	Chromium Hex - 7196	See item (4) in Special Instructions.	Semi-VOA - 8270A (TCL) 08/	VOA - 8260A (TCL) 08	TPH (Total) - 418.1	

Sample No.	Matrix *	Sample Date	Sample Time										
J17FH3	SOIL	09/10/08	1400	✓	✓	✓	N/A						
J17FH4	SOIL		1450	✓	✓	✓	N/A						
J17FH5	SOIL		1500	✓	✓	✓	N/A						
J17FH6	SOIL		1515	✓	✓	✓	N/A						
~~J17FH7~~	~~SOIL~~	~~09/10/08~~	~~1340~~		~~09/10/08~~								

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	9-10-08 1545	C. Martinez/C. Martinez	09/10/08 1545
C. Martinez/C. Martinez	09/10/08 1650	1060 Bldg 2B	09/10/08 1650
1060/2B J.E. Bernhard	9-11-08 0900	J.E. Bernhard	9-11-08 0900
J.E. Bernhard	9-11-08 0901	Fed Ex	
Fed Ex		[signature]	09/12/08 09:15
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

08/20/08

(1) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; ~~Gamma Spec - Add-on {Americium-241}~~; ~~Gross Alpha & Gross Beta~~
(2) ~~Americium-241~~; Nickel-63; Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Strontium-89,90 -- Total Sr; ~~Technetium-99~~; Isotopic Uranium {Uranium-233/234, Uranium-235, Uranium-238}; Total Uranium
(3) ~~ICP Metals - 6010TR (Client List~~ {Aluminum, Antimony, Arsenic, Barium, ~~Beryllium, Boron~~, Cadmium, Calcium, Chromium, ~~Cobalt, Copper, Iron, Lead~~, Magnesium, Manganese, Molybdenum, Nickel, Potassium, ~~Selenium, Silicon~~, Silver, Sodium, ~~Vanadium, Zinc~~}; Mercury - 7471 - (CV)
(4) ~~IC Anions - 300.0~~ {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, ~~Sulfate~~}

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

Matrix *

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

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

WCH-EE-011

KMW

EBERLINE

SAMPLE RECEIPT CHECKLIST

HK 9/12/08

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 09/12/08 09:15 CoC No. RC-029-097

Container I.D. No. GRP-03-015 Requested TAT (Days) 15 P.O. Received Yes [ ] No [ ]

INSPECTION

1 Custody seals on shipping container intact? Yes [Y] No [ ] N/A [ ]

2 Custody seals on shipping container dated & signed? Yes [Y] 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 4 Sample Matrix S

7 Number of containers per sample 3 (Or see CoC)

8 Samples are in correct container Yes [X] No [ ]

9 Paperwork agrees with samples? Yes [X] No [ ]

10 Samples have Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]

11 Samples are In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]

12 Samples are Preserved [ ] Not preserved [X] pH _____ Preservative _____

13 Describe any anomalies

14 Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____

15 Inspected by [illegible] Date 09/12/08 Time 10:30

Customer Sample No	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe
All Samples	<60						

Ion Chamber Ser. No _____ Calibration date _____

Alpha Meter Ser. No _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 10 JUL 08

LvLI
LIONVILLE LABORATORY INC.

RECEIVED
OCT 2008

14 October 2008

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	0809L103
SDG #	K1329
SAF #	RC-029
Date Received	9/12/08
# Samples	5
Matrix	SOIL
Volatiles	X
Semivolatiles	X
Pest/PCB	
Glycols	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory

Orlette S. Johnson
Project Manager
d:\b_ltrs.doc

RECEIVED OCT 2008

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17FH3	001	S	08LVK178	09/10/08	N/A	09/22/08
J17FH3	001 MS	S	08LVK178	09/10/08	N/A	09/22/08
J17FH3	001 MSD	S	08LVK178	09/10/08	N/A	09/22/08
J17FH4	002	S	08LVK178	09/10/08	N/A	09/22/08
J17FH5	003	S	08LVK178	09/10/08	N/A	09/22/08
J17FH6	004	S	08LVK178	09/10/08	N/A	09/22/08

LAB QC:

VBLKHG	MB1	S	08LVK178	N/A	N/A	09/22/08
VBLKHG	MB1 BS	S	08LVK178	N/A	N/A	09/22/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-029
LVL #: 0809L103
SDG/SAF # K1329/RC-029

W.O. #: 60049-001-001-0001-00
Date Received: 09-12-2008

GC/MS VOLATILE

Four (4) soil samples were collected on 09-10-2008.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL Volatile target compounds on 09-22-2008.

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

1. Samples were analyzed within required holding time.
2. Non-target compounds were detected in these samples.
3. All surrogate recoveries were within acceptance criteria.
4. One (1) of seventy (70) matrix spike recoveries were outside acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. The method blank was below the reporting limit for all target compounds.
7. All internal standard area and retention time criteria were met.

r:\group\data\2008\voa\tnu\0809-103cs2.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 18 pages.

LIONVILLE LABORATORY INC.

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

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

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

Brian Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10/10/08
Date

GLOSSARY

DATA QUALIFIERS

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

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

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

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

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

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

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

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

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

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

CB - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.

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

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List
Report Date: 09/23/08 12:22

RFW Batch Number: **0809L103** Client: **WC-HANFORD RC-029 K1329** Work Order: 60049001001 Page: 1a

	Cust ID:	J17FH3	J17FH3	J17FH3	J17FH4	J17FH5	J17FH6
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	0.980	0.980	1.00	0.962
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	108 %	100 %	97 %	99 %	105 %	103 %
	Bromofluorobenzene	114 %	102 %	102 %	110 %	114 %	111 %
	1,2-Dichloroethane-d4	122 %	118 %	117 %	114 %	117 %	118 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	103 %	108 %	10 U	10 U	10 U
Bromomethane		10 U	102 %	103 %	10 U	10 U	10 U
Vinyl Chloride		10 U	112 %	114 %	10 U	10 U	10 U
Chloroethane		10 U	129 %	129 %	10 U	10 U	10 U
Methylene Chloride		7 B	75 %	79 %	6 B	7 B	6 B
Acetone		10 U	241 %	272 %	10 U	10 U	10 U
Carbon Disulfide		5 U	106 %	108 %	5 U	5 U	5 U
1,1-Dichloroethene		5 U	107 %	112 %	5 U	5 U	5 U
1,1-Dichloroethane		5 U	107 %	110 %	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	103 %	105 %	5 U	5 U	5 U
Chloroform		5 U	109 %	109 %	5 U	5 U	5 U
1,2-Dichloroethane		5 U	116 %	119 %	5 U	5 U	5 U
2-Butanone		10 U	184 %	202 * %	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	107 %	108 %	5 U	5 U	5 U
Carbon Tetrachloride		5 U	107 %	108 %	5 U	5 U	5 U
Bromodichloromethane		5 U	111 %	110 %	5 U	5 U	5 U
1,2-Dichloropropane		5 U	110 %	111 %	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	111 %	109 %	5 U	5 U	5 U
Trichloroethene		5 U	107 %	109 %	5 U	5 U	5 U
Dibromochloromethane		5 U	118 %	115 %	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	117 %	114 %	5 U	5 U	5 U
Benzene		5 U	103 %	105 %	5 U	5 U	5 U
Trans-1,3-Dichloropropene		5 U	113 %	114 %	5 U	5 U	5 U
Bromoform		5 U	122 %	122 %	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	137 %	150 %	10 U	10 U	10 U
2-Hexanone		10 U	170 %	189 %	10 U	10 U	10 U
Tetrachloroethene		5 U	93 %	95 %	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	123 %	122 %	5 U	5 U	5 U
Toluene		5 U	100 %	100 %	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

000000007

RFW Batch Number: **0809L103** Client: **WC-HANFORD RC-029 K1329** Work Order: 60049001001 Page: 1b

Cust ID:	J17FH3		J17FH3		J17FH3		J17FH4		J17FH5		J17FH6	
RFW#:	001		001 MS		001 MSD		002		003		004	
Chlorobenzene	5	U	105	%	104	%	5	U	5	U	5	U
Ethylbenzene	5	U	101	%	102	%	5	U	5	U	5	U
Styrene	5	U	104	%	102	%	5	U	5	U	5	U
Xylenes (total)	5	U	99	%	97	%	5	U	5	U	5	U
cis-1,2-dichloroethene	5	U	105	%	106	%	5	U	5	U	5	U
trans-1,2-dichloroethene	5	U	101	%	104	%	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

00000000

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List

Report Date: 09/23/08 12:22

RFW Batch Number: **0809L103** Client: **WC-HANFORD RC-029 K1329** Work Order: 60049001001 Page: 2a

	Cust ID:	**VBLKHG**	**VBLKHG BS**
Sample Information	RFW#:	**08LVK178-MB1**	**08LVK178-MB1**
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	ug/Kg	ug/Kg

	Toluene-d8	100	%	94	%
Surrogate	Bromofluorobenzene	99	%	91	%
Recovery	1,2-Dichloroethane-d4	106	%	106	%

Chloromethane	10	U	98	%
Bromomethane	10	U	112	%
Vinyl Chloride	10	U	116	%
Chloroethane	10	U	128	%
Methylene Chloride	4	J	82	%
Acetone	10	U	213	%
Carbon Disulfide	5	U	108	%
1,1-Dichloroethene	5	U	113	%
1,1-Dichloroethane	5	U	105	%
1,2-Dichloroethene (total)	5	U	104	%
Chloroform	5	U	103	%
1,2-Dichloroethane	5	U	112	%
2-Butanone	10	U	165	%
1,1,1-Trichloroethane	5	U	104	%
Carbon Tetrachloride	5	U	105	%
Bromodichloromethane	5	U	104	%
1,2-Dichloropropane	5	U	105	%
cis-1,3-Dichloropropene	5	U	102	%
Trichloroethene	5	U	106	%
Dibromochloromethane	5	U	113	%
1,1,2-Trichloroethane	5	U	106	%
Benzene	5	U	102	%
Trans-1,3-Dichloropropene	5	U	104	%
Bromoform	5	U	117	%
4-Methyl-2-pentanone	10	U	118	%
2-Hexanone	3	J	148	%
Tetrachloroethene	5	U	99	%
1,1,2,2-Tetrachloroethane	5	U	113	%
Toluene	5	U	98	%

*= Outside of EPA CLP QC limits.

000000009

Cust ID:	VBLKHG		VBLKHG BS	
RFW#:	08LVK178-MB1		08LVK178-MB1	
Chlorobenzene	5	U	103	%
Ethylbenzene	5	U	105	%
Styrene	5	U	102	%
Xylenes (total)	5	U	99	%
cis-1,2-dichloroethene	5	U	105	%
trans-1,2-dichloroethene	5	U	103	%

*= Outside of EPA CLP QC limits.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J17FH3

Lab Name: Lionville Labs, Inc. Contract: 60049001001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 0809L103-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: k092206

Level: (low/med) LOW Date Received: 09/12/08

% Moisture: not dec. 3 Date Analyzed: 09/22/08

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	16.933	20	JB
2.	UNKNOWN	22.102	6	JB
3.	UNKNOWN	24.591	5	JB

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J17FH4

Lab Name: Lionville Labs, Inc. Contract: 60049001001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 0809L103-002

Sample wt/vol: 5.10 (g/mL) G Lab File ID: k092207

Level: (low/med) LOW Date Received: 09/12/08

% Moisture: not dec. 3 Date Analyzed: 09/22/08

Column: (pack/cap) CAP Dilution Factor: 0.980

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	16.933	10	JB
2.	UNKNOWN	22.102	5	JB

FORM 1 VOA-TIC 1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J17FH5

Lab Name: Lionville Labs, Inc. Contract: 60049001001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 0809L103-003

Sample wt/vol: 5.00 (g/mL) G Lab File ID: k092208

Level: (low/med) LOW Date Received: 09/12/08

% Moisture: not dec. 3 Date Analyzed: 09/22/08

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	16.953	10	JB
2.	UNKNOWN	24.593	5	JB

FORM 1 VOA-TIC 1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

J17FH6

Lab Name: Lionville Labs, Inc. Contract: 60049001001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 0809L103-004

Sample wt/vol: 5.20 (g/mL) G Lab File ID: k092209

Level: (low/med) LOW Date Received: 09/12/08

% Moisture: not dec. 5 Date Analyzed: 09/22/08

Column: (pack/cap) CAP Dilution Factor: 0.962

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	16.919	7	JB
2.	UNKNOWN	22.106	7	JB

FORM 1 VOA-TIC 1/87 Rev.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKHG

Lab Name: Lionville Labs, Inc. Contract: 60049001001

Lab Code: Lionvi Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 08LVK178-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: k092205

Level: (low/med) LOW Date Received: 09/22/08

% Moisture: not dec. 0 Date Analyzed: 09/22/08

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	16.938	10	J
2.	UNKNOWN	22.106	5	J
3.	UNKNOWN	24.595	5	J

FORM 1 VOA-TIC 1/87 Rev.

Lionville Laboratory Use Only

0809L103

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: W.C. Hanford BC.029

Est. Final Proj. Sampling Date:

Project#: 60849-001-001-0001

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

QC: SW846 Del: 8/L TAT: 15

Date Rec'd: 9/12/08 Date Due: 9/27/08

	A	B	C	D	E
Refrigerator #	6	3	3	3	3
#/Type Container (Liquid / Solid)	1G	1G	1P	1P	1P
Volume	20	250	125	250	
Preservatives				1	1
ANALYSES REQUESTED (ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN)			IC Anions		Hexavalent Chrome

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625H					INOR①	ME①		ICR6				
001	J17FH 3			S	9-10-08	1400	X	X					X	X		X				
002	4					1450	X	X					X	X		X				
003	5					1500	X	X					X	X		X				
004	6					1515	X	X					X	X		X				
005	7					1340		X						X						

Matrix QC

Special Instructions:

ME1 = HSL + B, Mo, Si (NOTL)

INOR① = ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	9/12/08	0940

Relinquished by	Received by	Date	Time
	SRB	SRB	

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

000000016

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-029-047	Page 1 of 1

Collector: C. Martinez (Sec D. Rios)	Company Contact: R. Nielson	Telephone No.: 372-9051	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-D-76		SAF No.: RC-029
Ice Chest No.: ERL-02-007	Field Logbook No.: EL-1601-2	COA: 010D76A000	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080349		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None

	D	E	C	B	A	
Preservation	None	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	aG	G/P	G/P	G/P	aG	aG	aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	1000mL	125mL	120mL	250mL	125mL	125mL	250mL	120mL	250mL	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	See item (3) in Special Instructions.	Chromium Hex - 7196	See item (4) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	TPH (Total) - 418.1 Diesel + Motor Oil	

Sample No.	Matrix *	Sample Date	Sample Time										
J17FH3	SOIL	09/10/08	1400				✓	✓	✓	✓	✓	—	
J17FH4	SOIL		1450				✓	✓	✓	✓	✓	—	
J17FH5	SOIL		1500				✓	✓	✓	✓	✓	—	
J17FH6	SOIL		1515				✓	✓	✓	✓	✓	—	
J17FH7	SOIL	09/10/08	1340				✓	—	—	✓	—	—	

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	9-10-08 1545	C. Martinez / C. Martinez	09/10/08 1545
C. Martinez / C. Martinez	09/10/08 1650	2750 Bldg 2B	09/10/08 1650
1060/2B J.E. Bernhard	9-11-08 0940	J.E. Bernhard	9-11-08 0940
J.E. Bernhard	9-11-08 0945	FED EX	
[signature]	9-12-08 0940	[signature]	9-12-08 0940
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

08/20/08

(1) ~~Gamma Spectroscopy~~ (TCL List) {Cesium-137, Cobalt-60, ~~Europium-152, Europium-154~~, Europium-155}; ~~Gamma Spec - Add-on (Americium-241)~~; Gross Alpha & Gross Beta
(2) Americium-241; ~~Nickel-63; Isotopic Plutonium (Plutonium-238~~, Plutonium-239/240}; Strontium-89,90 -- Total ~~Sr; Technetium-99~~; Isotopic Uranium {Uranium-233/234, ~~Uranium-235~~, Uranium-238}; Total Uranium
(3) ICP Metals - 6010TR (Client List {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(4) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

TPH 418.1 changed to - Diesel + Motor Oil per J Kessner 09/12/08

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

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

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

WCH-EE-011

VMW

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/QAP/SOW/Release #: RC-029

Date: 9/12/08

LvLI Batch #: 0809L103

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7919 49457503
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 2.3	°C	Cooler # ERC-02-007
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

000000018

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17FH3	001	S	08LE0455	09/10/08	09/20/08	10/02/08
J17FH3	001 MS	S	08LE0455	09/10/08	09/20/08	10/02/08
J17FH3	001 MSD	S	08LE0455	09/10/08	09/20/08	10/02/08
J17FH4	002	S	08LE0455	09/10/08	09/20/08	10/03/08
J17FH5	003	S	08LE0455	09/10/08	09/20/08	10/03/08
J17FH6	004	S	08LE0455	09/10/08	09/20/08	10/02/08
J17FH7	005	S	08LE0455	09/10/08	09/20/08	10/03/08

LAB QC:

SBLKYA	MB1	S	08LE0455	N/A	09/20/08	10/03/08
SBLKYA	MB1 BS	S	08LE0455	N/A	09/20/08	10/03/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: WC-HANFORD RC-029 K1329
LVL #: 0809L103

W.O. #: 60049-001-001-0001-00
Date Received: 09-12-2008

SEMIVOLATILE

Five (5) soil samples were collected on 09-10-2008.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 09-10-2008 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 10-02,03-2008.

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

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

2. Samples were extracted and analyzed within holding time.

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

4. One (1) of fifty-four (54) surrogate recoveries was outside acceptance criteria for sample J17FH6. However, surrogate recovery acceptance criteria were met (i.e., no more than one outlier per fraction {acid and base neutral} and no recoveries less than 10%).

5. Five (5) of one hundred twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the sample discrepancy report (SDR# 08MS223) has been enclosed.

6. Twelve (12) of sixty-four (64) blank spike recoveries was outside acceptance criteria. A copy of the sample discrepancy report (SDR# 08MS223) has been enclosed.

7. The method blank contained the common laboratory contaminant bis(2-Ethlyhexyl) phthalate at a level less than the CRQL.

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. Internal standard area and retention time criteria were met.

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 20 pages.

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

LIONVILLE LABORATORY INC.

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

12. 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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/9/08
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08MS223

Initiator: Shawn Saylor
Date: 10-6-08
Client: WC Hanford RC029 K1329

Batch: 08094103
Samples: ms, msd
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: SOLID
Prep Batch: 08IE0455

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)

1. low recovery of isophorone & 1,2,4-trichlorobenzene in the ms + msd
2. low spike recoveries in the MS

2. Known or Probable Causes(s) Acidic phenols, nitroanilines are subject to erratic chromatographic behavior especially if the GC system is contaminated with high boiling material. Others sporadic. All surrogates within QC acceptance criteria

3. Discussion and Proposed Action Other Description: narrate

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

10/6/08

4. Project Manager Instructions...signature/date: _____

✓ 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: _____ Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

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

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

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

QA-139-A-0208

GLOSSARY

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

MP	-	Missed Peak: manually added peak not found by automatic quan program.
PA	-	Peak Assignment: quan report was changed to reflect correct peak assignment.
RI	-	Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
SP	-	Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
CB	-	Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
PI	-	Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Semivolatiles by GC/MS, HSL List — Report Date: 10/06/08 12:44

RFW Batch Number: 0809L103 — Client: WC-HANFORD RC-029 K1329 — Work Order: 60049001001 — Page: 1a

	Cust ID:	J17FH3	J17FH3	J17FH3	J17FH4	J17FH5	J17FH6
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	63 %	57 %	57 %	59 %	58 %	58 %
	2-Fluorobiphenyl	63 %	74 %	84 %	56 %	62 %	52 %
	Terphenyl-d14	101 %	112 %	108 %	85 %	87 %	83 %
	Phenol-d5	53 %	71 %	75 %	46 %	46 %	44 %
	2-Fluorophenol	57 %	65 %	67 %	47 %	51 %	45 %
	2,4,6-Tribromophenol	33 %	39 %	43 %	34 %	45 %	17 * %
		fl	fl	fl	fl	fl	fl
Phenol		340 U	68 %	75 %	340 U	340 U	350 U
bis(2-Chloroethyl)ether		340 U	71 %	68 %	340 U	340 U	350 U
2-Chlorophenol		340 U	74 %	77 %	340 U	340 U	350 U
1,3-Dichlorobenzene		340 U	54 %	52 %	340 U	340 U	350 U
1,4-Dichlorobenzene		340 U	55 %	54 %	340 U	340 U	350 U
1,2-Dichlorobenzene		340 U	61 %	59 %	340 U	340 U	350 U
2-Methylphenol		340 U	64 %	75 %	340 U	340 U	350 U
2,2'-oxybis(1-Chloropropane)		340 U	66 %	67 %	340 U	340 U	350 U
3/4 Methylphenol		340 U	72 %	81 %	340 U	340 U	350 U
N-Nitroso-di-n-propylamine		340 U	84 %	88 %	340 U	340 U	350 U
Hexachloroethane		340 U	58 %	57 %	340 U	340 U	350 U
Nitrobenzene		340 U	53 %	55 %	340 U	340 U	350 U
Isophorone		340 U	53 * %	55 * %	340 U	340 U	350 U
2-Nitrophenol		340 U	50 %	55 %	340 U	340 U	350 U
2,4-Dimethylphenol		340 U	52 %	59 %	340 U	340 U	350 U
bis(2-Chloroethoxy)methane		340 U	58 %	63 %	340 U	340 U	350 U
2,4-Dichlorophenol		340 U	55 %	57 %	340 U	340 U	350 U
1,2,4-Trichlorobenzene		340 U	53 * %	54 * %	340 U	340 U	350 U
Naphthalene		340 U	57 %	59 %	340 U	340 U	350 U
4-Chloroaniline		340 U	43 %	45 %	340 U	340 U	350 U
Hexachlorobutadiene		340 U	60 %	61 %	340 U	340 U	350 U
4-Chloro-3-methylphenol		340 U	63 %	61 %	340 U	340 U	350 U
2-Methylnaphthalene		340 U	61 %	63 %	340 U	340 U	350 U
Hexachlorocyclopentadiene		340 U	37 %	40 %	340 U	340 U	350 U
2,4,6-Trichlorophenol		340 U	50 %	55 %	340 U	340 U	350 U
2,4,5-Trichlorophenol		860 U	73 %	82 %	860 U	860 U	880 U

*= Outside of EPA CLP QC limits.

000000008

RFW Batch Number: [illegible]

Cust ID:	J17FH3		J17FH3		J17FH3		J17FH4		J17FH5		J17FH6	
RFW#:	001		001 MS		001 MSD		002		003		004	
2-Chloronaphthalene	340	U	70	%	80	%	340	U	340	U	350	U
2-Nitroaniline	860	U	82	%	91	%	860	U	860	U	880	U
Dimethylphthalate	340	U	99	%	111	%	340	U	340	U	350	U
Acenaphthylene	340	U	80	%	90	%	340	U	340	U	350	U
2,6-Dinitrotoluene	340	U	89	%	102	%	340	U	340	U	350	U
3-Nitroaniline	860	U	76	%	80	%	860	U	860	U	880	U
Acenaphthene	340	U	76	%	85	%	340	U	340	U	350	U
2,4-Dinitrophenol	860	U	38	%	36	%	860	U	860	U	880	U
4-Nitrophenol	860	U	87	%	91	%	860	U	860	U	880	U
Dibenzofuran	340	U	81	%	91	%	340	U	340	U	350	U
2,4-Dinitrotoluene	340	U	86	%	95	%	340	U	340	U	350	U
Diethylphthalate	340	U	110	%	121	%	340	U	340	U	350	U
4-Chlorophenyl-phenylether	340	U	113	%	124 *	%	340	U	340	U	350	U
Fluorene	340	U	95	%	103	%	340	U	340	U	350	U
4-Nitroaniline	860	U	71	%	74	%	860	U	860	U	880	U
4,6-Dinitro-2-methylphenol	860	U	58	%	55	%	860	U	860	U	880	U
N-Nitrosodiphenylamine (1)	340	U	78	%	89	%	340	U	340	U	350	U
4-Bromophenyl-phenylether	340	U	91	%	103	%	340	U	340	U	350	U
Hexachlorobenzene	340	U	88	%	102	%	340	U	340	U	350	U
Pentachlorophenol	860	U	52	%	39	%	860	U	860	U	880	U
Phenanthrene	340	U	84	%	95	%	340	U	340	U	350	U
Anthracene	340	U	83	%	93	%	340	U	340	U	350	U
Carbazole	340	U	78	%	88	%	340	U	340	U	350	U
Di-n-butylphthalate	340	U	114	%	130	%	34	J	18	J	19	J
Fluoranthene	340	U	77	%	90	%	340	U	340	U	350	U
Pyrene	340	U	93	%	92	%	340	U	340	U	350	U
Butylbenzylphthalate	340	U	129	%	126	%	340	U	340	U	350	U
3,3'-Dichlorobenzidine	340	U	98	%	109	%	340	U	340	U	350	U
Benzo(a)anthracene	340	U	69	%	93	%	340	U	340	U	350	U
Chrysene	340	U	81	%	93	%	340	U	340	U	350	U
bis(2-Ethylhexyl)phthalate	210	JB	124	%	127	%	280	JB	28	JB	30	JB
Di-n-octyl phthalate	340	U	103	%	108	%	340	U	340	U	350	U
Benzo(b)fluoranthene	340	U	81	%	85	%	340	U	340	U	350	U
Benzo(k)fluoranthene	340	U	52	%	88	%	340	U	340	U	350	U
Benzo(a)pyrene	340	U	77	%	87	%	340	U	340	U	350	U
Indeno(1,2,3-cd)pyrene	340	U	75	%	85	%	340	U	340	U	350	U
Dibenz(a,h)anthracene	340	U	77	%	90	%	340	U	340	U	350	U
Benzo(g,h,i)perylene	340	U	73	%	85	%	340	U	340	U	350	U

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

000000009

	Cust ID:	J17FH7	SBLKYA	SBLKYA BS
Sample Information	RFW#:	005	08LE0455-MB1	08LE0455-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	82 %	62 %	57 %
	2-Fluorobiphenyl	73 %	61 %	65 %
	Terphenyl-d14	114 %	86 %	79 %
	Phenol-d5	61 %	63 %	60 %
	2-Fluorophenol	66 %	72 %	65 %
	2,4,6-Tribromophenol	48 %	33 %	40 %
		fl	fl	fl
Phenol		330 U	330 U	53 %
bis(2-Chloroethyl)ether		330 U	330 U	58 %
2-Chlorophenol		330 U	330 U	51 %
1,3-Dichlorobenzene		330 U	330 U	49 * %
1,4-Dichlorobenzene		330 U	330 U	50 %
1,2-Dichlorobenzene		330 U	330 U	52 %
2-Methylphenol		330 U	330 U	51 * %
2,2'-oxybis(1-Chloropropane)		330 U	330 U	57 %
3/4 Methylphenol		330 U	330 U	55 * %
N-Nitroso-di-n-propylamine		330 U	330 U	61 %
Hexachloroethane		330 U	330 U	45 * %
Nitrobenzene		330 U	330 U	52 %
Isophorone		330 U	330 U	53 * %
2-Nitrophenol		330 U	330 U	53 %
2,4-Dimethylphenol		330 U	330 U	45 * %
bis(2-Chloroethoxy)methane		330 U	330 U	66 %
2,4-Dichlorophenol		330 U	330 U	55 %
1,2,4-Trichlorobenzene		330 U	330 U	54 * %
Naphthalene		330 U	330 U	54 %
4-Chloroaniline		330 U	330 U	44 %
Hexachlorobutadiene		330 U	330 U	52 %
4-Chloro-3-methylphenol		330 U	330 U	57 * %
2-Methylnaphthalene		330 U	330 U	57 * %
Hexachlorocyclopentadiene		330 U	330 U	44 %
2,4,6-Trichlorophenol		330 U	330 U	48 %
2,4,5-Trichlorophenol		830 U	830 U	56 %

*= Outside of EPA CLP QC limits.

000000010

Cust ID:	J17FH7		SBLKYA		SBLKYA BS	
RFW#:	005		08LE0455-MB1		08LE0455-MB1	
2-Chloronaphthalene	330	U	330	U	60	%
2-Nitroaniline	830	U	830	U	57 *	%
Dimethylphthalate	330	U	330	U	70	%
Acenaphthylene	330	U	330	U	62	%
2,6-Dinitrotoluene	330	U	330	U	63	%
3-Nitroaniline	830	U	830	U	66	%
Acenaphthene	330	U	330	U	60	%
2,4-Dinitrophenol	830	U	830	U	18 *	%
4-Nitrophenol	830	U	830	U	48	%
Dibenzofuran	330	U	330	U	63	%
2,4-Dinitrotoluene	330	U	330	U	64	%
Diethylphthalate	330	U	330	U	69	%
4-Chlorophenyl-phenylether	330	U	330	U	67	%
Fluorene	330	U	330	U	61	%
4-Nitroaniline	830	U	830	U	71	%
4,6-Dinitro-2-methylphenol	830	U	830	U	30 *	%
N-Nitrosodiphenylamine (1)	330	U	330	U	69	%
4-Bromophenyl-phenylether	330	U	330	U	63	%
Hexachlorobenzene	330	U	330	U	62	%
Pentachlorophenol	830	U	830	U	37	%
Phenanthrene	330	U	330	U	68	%
Anthracene	330	U	330	U	70	%
Carbazole	330	U	330	U	79	%
Di-n-butylphthalate	330	U	330	U	86	%
Fluoranthene	330	U	330	U	75	%
Pyrene	330	U	330	U	67	%
Butylbenzylphthalate	330	U	330	U	88	%
3,3'-Dichlorobenzidine	330	U	330	U	64	%
Benzo(a)anthracene	330	U	330	U	77	%
Chrysene	330	U	330	U	78	%
bis(2-Ethylhexyl)phthalate	73	JB	38	J	103	%
Di-n-octyl phthalate	330	U	330	U	87	%
Benzo(b)fluoranthene	330	U	330	U	76	%
Benzo(k)fluoranthene	330	U	330	U	75	%
Benzo(a)pyrene	330	U	330	U	76	%
Indeno(1,2,3-cd)pyrene	330	U	330	U	71	%
Dibenz(a,h)anthracene	330	U	330	U	70	%
Benzo(g,h,i)perylene	330	U	330	U	74	%

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

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J17FH3

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

Client: WC-HANFORD RC-029 K1329

Matrix: (soil/water) SOIL

Lab Sample ID: 0809L103-001

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: N100214

Level: (low/med) LOW

Date Received: 09/12/08

% Moisture: 3 decanted: (Y/N)__

Date Extracted: 09/20/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/02/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	4.420	300	JAB
2.	UNKNOWN	4.882	90000	JB
3.	UNKNOWN	4.960	50000	JB
4.	UNKNOWN	18.995	900	JB
5.	UNKNOWN	22.003	300	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J17FH4

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

Client: WC-HANFORD RC-029 K1329

Matrix: (soil/water) SOIL

Lab Sample ID: 0809L103-002

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: N100217

Level: (low/med) LOW

Date Received: 09/12/08

% Moisture: 3 decanted: (Y/N)

Date Extracted: 09/20/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/03/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH:

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	4.377	300	JAB
2.	UNKNOWN	4.891	100000	JB
3.	UNKNOWN	18.996	600	JB
4.	UNKNOWN	24.959	200	J
5.	UNKNOWN	26.632	400	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J17FH5

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

Client: WC-HANFORD RC-029 K1329

Matrix: (soil/water) SOIL

Lab Sample ID: 0809L103-003

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: N100218

Level: (low/med) LOW

Date Received: 09/12/08

% Moisture: 3 decanted: (Y/N)__

Date Extracted: 09/20/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/03/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	4.396	300	JAB
2.	UNKNOWN	4.901	100000	JB
3.	UNKNOWN	4.945	40000	JB
4.	UNKNOWN	18.998	200	JB
5.	UNKNOWN	22.005	200	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J17FH6

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

Client: WC-HANFORD RC-029 K1329

Matrix: (soil/water) SOIL

Lab Sample ID: 0809L103-004

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: N100215

Level: (low/med) LOW

Date Received: 09/12/08

% Moisture: 5 decanted: (Y/N)__

Date Extracted: 09/20/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/02/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	2.293	200	JA
2.	ALDOL CONDENSATE	4.342	300	JAB
3.	UNKNOWN	4.891	100000	JB
4.	UNKNOWN	4.909	10000	JB
5.	UNKNOWN	18.996	1000	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J17FH7

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

Client: WC-HANFORD RC-029 K1329

Matrix: (soil/water) SOIL

Lab Sample ID: 0809L103-005

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: N100216

Level: (low/med) LOW

Date Received: 09/12/08

% Moisture: 0 decanted: (Y/N)__

Date Extracted: 09/20/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/03/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.852	400	J
2.	ALDOL CONDENSATE	4.524	300	JAB
3.	UNKNOWN	4.864	90000	JB
4.	UNKNOWN	5.047	100000	JB
5.	UNKNOWN	18.995	400	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKYA

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

Client: WC-HANFORD RC-029 K1329

Matrix: (soil/water) SOIL

Lab Sample ID: 08LE0455-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: D100309

Level: (low/med) LOW

Date Received: 09/20/08

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

Date Extracted: 09/20/08

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 10/03/08

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.897	600	JA
2.	UNKNOWN	6.450	90000	J
3.	UNKNOWN	6.485	30000	J
4.	ALDOL CONDENSATE	7.741	200	JA
5.	UNKNOWN	20.756	300	J

Lionville Laboratory Use Only

0809L103

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

000000018

ient W.C. Hanford BC-029

t. Final Proj. Sampling Date

oject# 60849-001-001-0001

oject Contact/Phone#

onville Laboratory Project Manager O. JOHNSON

: 5W846 Del 8AL TAT 15

ate Rec'd 9/12/08 Date Due 9/27/08

		A	B					C	D		E					
Refrigerator #		G	3					3	3		3					
#/Type Container	Liquid															
	Solid	1G	1G					1P	1P		1P					
Volume		120	250					125	250							
Preservatives									—		—					
ANALYSES REQUESTED	ORGANIC	VOA	BNA	Pest/PCB	Herb			TO Pest/PCB	INORG Metal	CN	Hexa Chrome					
	Lionville Laboratory Use Only	0625244	0625SH					INOR	ME		ICP6					

ATRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J 17FH 3			S	9-10-08	1400	X	X					X	X		X				
	002	4					1450	X	X					X	X		X				
	003	5					1500	X	X					X	X		X				
	004	6					1515	X	X					X	X		X				
	005	7					1340		X						X						

Matrix QC

Special Instructions:

FI = HSL + B, Mo, Si (NOTL)

DRO = ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
		9/12/08	0940

Relinquished by	Received by	Date	Time
	SRG	SRG	

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-029-047	Page 1 of 1

Collector C. Martinez See D. Ries	Company Contact R. Nielson	Telephone No. 372-9051	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days
Project Designation Remaining Sites Confirmation Sampling - Soil	Sampling Location 100-D-76		SAF No. RC-029		
Ice Chest No. ERL-02-007	Field Logbook No. EL-1601-2	COA 010D76A000	Method of Shipment FedEx		
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A080349		Bill of Lading/Air Bill No. See OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS
None

Special Handling and/or Storage
None

					D	E	C	B	A		
Preservation	None	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C		
Type of Container	P	G/P	aG	G/P	G/P	G/P	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	1000mL	125mL	120mL	250mL	125mL	125mL	250mL	120mL	250mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	See item (3) in Special Instructions.	Chromium Hex - 7196	See item (4) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	TPH (Total) - 418.1 Diesel + Motor Oil		

Sample No.	Matrix *	Sample Date	Sample Time										
J17FH3	SOIL	09/10/08	1400				✓	✓	✓	✓	✓	—	
J17FH4	SOIL		1450				✓	✓	✓	✓	✓	—	
J17FH5	SOIL		1500				✓	✓	✓	✓	✓	—	
J17FH6	SOIL		1515				✓	✓	✓	✓	✓	—	
J17FH7	SOIL	09/10/08	1340				✓	—	—	✓	—	—	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From [signature]	9-10-08 1545	Received By/Stored In C. Martinez / C. Martinez	09/10/08 1545
Relinquished By/Removed From C. Martinez / C. Martinez	09/10/08 1650	Received By/Stored In [signature] 2B Bldg	09/10/08 1650
Relinquished By/Removed From 1060/2B J.E. Bernhard	9-11-08 0940	Received By/Stored In J.E. Bernhard	9-11-08 0940
Relinquished By/Removed From J.E. Bernhard	9-11-08 0945	Received By/Stored In FED EX	
Relinquished By/Removed From FedEx	9-12-08 0940	Received By/Stored In [signature]	9-12-08 0940
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS
03/20/08
(1) ~~Gamma Spectroscopy~~ (TCL List) {Cesium-137, Cobalt-60, ~~Europium-152, Europium-154~~, Europium-155}; ~~Gamma Spec - Add-on {Americium-241}~~; Gross Alpha & Gross Beta
(2) Americium-241; ~~Nickel-63; Isotopic Plutonium {Plutonium-238~~, Plutonium-239/240}; Strontium-89,90 -- ~~Total Sr; Technetium-99~~; Isotopic Uranium {Uranium-233/234, ~~Uranium-235~~, Uranium-238}; ~~Total Uranium~~
(3) ICP Metals - 6010TR (Client List {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(4) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

TPH 418.1 Changed to - Diesel + Motor Oil per J Kessner 9/12/08

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

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

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

WCH-EE-011

KMW

000000019

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAP/SOW/Release #: RC-029

Date: 9/12/08

LvLI Batch #: 0809L103

Sample Custodian: Victo Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7919 49457503
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 2.3	°C	Cooler # ERC-02-007
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17FH3						
SILVER, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
SILVER, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
SILVER, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
ALUMINUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
ALUMINUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
ALUMINUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
ARSENIC, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/25/08
ARSENIC, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/25/08
ARSENIC, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/25/08
BORON, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/25/08
BORON, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/25/08
BORON, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/25/08
BARIUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
BARIUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
BARIUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
BERYLLIUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
BERYLLIUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
BERYLLIUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
CALCIUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
CALCIUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
CALCIUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
CADMIUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
CADMIUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
CADMIUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
COBALT, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
COBALT, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
COBALT, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
CHROMIUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
CHROMIUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
CHROMIUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
COPPER, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
COPPER, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
COPPER, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
IRON, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
IRON, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
MERCURY, TOTAL	001	S	08C0162	09/10/08	09/17/08	09/18/08
MERCURY, TOTAL	001 REP	S	08C0162	09/10/08	09/17/08	09/18/08
MERCURY, TOTAL	001 MS	S	08C0162	09/10/08	09/17/08	09/18/08
POTASSIUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	10/02/08
POTASSIUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	10/02/08
POTASSIUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	10/02/08
MAGNESIUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
MAGNESIUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
MAGNESIUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
MANGANESE, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
MANGANESE, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
MANGANESE, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
MOLYBDENUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
MOLYBDENUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
MOLYBDENUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
SODIUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	10/02/08
SODIUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	10/02/08
SODIUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	10/02/08
NICKEL, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
NICKEL, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
NICKEL, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
LEAD, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
LEAD, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
LEAD, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
ANTIMONY, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/25/08
ANTIMONY, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/25/08
ANTIMONY, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/25/08
SELENIUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/25/08
SELENIUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/25/08
SELENIUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/25/08
SILICON, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/25/08
SILICON, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/25/08
SILICON, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/25/08
VANADIUM, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08
VANADIUM, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
VANADIUM, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
ZINC, TOTAL	001	S	08L0351	09/10/08	09/24/08	09/26/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 REP	S	08L0351	09/10/08	09/24/08	09/26/08
ZINC, TOTAL	001 MS	S	08L0351	09/10/08	09/24/08	09/26/08
J17FH4						
SILVER, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
ALUMINUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
ARSENIC, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/25/08
BORON, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/25/08
BARIUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
BERYLLIUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
CALCIUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
CADMIUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
COBALT, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
CHROMIUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
COPPER, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
IRON, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
MERCURY, TOTAL	002	S	08C0162	09/10/08	09/17/08	09/18/08
POTASSIUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	10/02/08
MAGNESIUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
MANGANESE, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
MOLYBDENUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
SODIUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	10/02/08
NICKEL, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
LEAD, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
ANTIMONY, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/25/08
SELENIUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/25/08
SILICON, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/25/08
VANADIUM, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
ZINC, TOTAL	002	S	08L0351	09/10/08	09/24/08	09/26/08
J17FH5						
SILVER, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
ALUMINUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
ARSENIC, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/25/08
BORON, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/25/08
BARIUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
CALCIUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
CADMIUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
COBALT, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
CHROMIUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
COPPER, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
IRON, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
MERCURY, TOTAL	003	S	08C0162	09/10/08	09/17/08	09/18/08
POTASSIUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	10/02/08
MAGNESIUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
MANGANESE, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
MOLYBDENUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
SODIUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	10/02/08
NICKEL, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
LEAD, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
ANTIMONY, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/25/08
SELENIUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/25/08
SILICON, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/25/08
VANADIUM, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
ZINC, TOTAL	003	S	08L0351	09/10/08	09/24/08	09/26/08
J17FH6						
SILVER, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
ALUMINUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
ARSENIC, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/25/08
BORON, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/25/08
BARIUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
BERYLLIUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
CALCIUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
CADMIUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
COBALT, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
CHROMIUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
COPPER, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
IRON, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
MERCURY, TOTAL	004	S	08C0162	09/10/08	09/17/08	09/18/08
POTASSIUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	10/02/08
MAGNESIUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
MOLYBDENUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
SODIUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	10/02/08
NICKEL, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
LEAD, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
ANTIMONY, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/25/08
SELENIUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/25/08
SILICON, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/25/08
VANADIUM, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
ZINC, TOTAL	004	S	08L0351	09/10/08	09/24/08	09/26/08
J17FH7						
SILVER, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
ALUMINUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
ARSENIC, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/25/08
BORON, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/25/08
BARIUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
BERYLLIUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
CALCIUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
CADMIUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
COBALT, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
CHROMIUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
COPPER, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
IRON, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
MERCURY, TOTAL	005	S	08C0162	09/10/08	09/17/08	09/18/08
POTASSIUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	10/02/08
MAGNESIUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
MANGANESE, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
MOLYBDENUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
SODIUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	10/02/08
NICKEL, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
LEAD, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
ANTIMONY, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/25/08
SELENIUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/25/08
SILICON, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/25/08
VANADIUM, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08
ZINC, TOTAL	005	S	08L0351	09/10/08	09/24/08	09/26/08

LAB QC:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
SILVER, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
ALUMINUM LABORTORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
ALUMINUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
ARSENIC LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/25/08
ARSENIC, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/25/08
BORON LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/25/08
BORON, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/25/08
BARIUM LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
BARIUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
BERYLLIUM LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
BERYLLIUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
CALCIUM LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
CALCIUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
CADMIUM LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
CADMIUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
COBALT LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
COBALT, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
CHROMIUM LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
CHROMIUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
COPPER LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
COPPER, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
IRON LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
IRON, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
MERCURY LABORATORY	LC1 BS	S	08C0162	N/A	09/17/08	09/18/08
MERCURY, TOTAL	MB1	S	08C0162	N/A	09/17/08	09/18/08
POTASSIUM LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	10/02/08
POTASSIUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	10/02/08
MAGNESIUM LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
MAGNESIUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
MANGANESE LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
MANGANESE, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
MOLYBDENUM LABORATOR	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
MOLYBDENUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
SODIUM LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	10/02/08

Lionville Laboratory, Inc.
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WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SODIUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	10/02/08
NICKEL LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
NICKEL, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
LEAD LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
LEAD, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
ANTIMONY LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/25/08
ANTIMONY, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/25/08
SELENIUM LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/25/08
SELENIUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/25/08
SILICON LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/25/08
SILICON, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/25/08
VANADIUM LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
VANADIUM, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08
ZINC LABORATORY	LC1 BS	S	08L0351	N/A	09/24/08	09/26/08
ZINC, TOTAL	MB1	S	08L0351	N/A	09/24/08	09/26/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD RC-029
LVL#: 0809L103
SDG/SAF#: K1329/RC-029

W.O.#: 11343-606-001-9999-00
Date Received: 09-12-08

METALS CASE NARRATIVE

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

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

1. This narrative covers the analyses of 5 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

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

4. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within control limits with the exception of most analytes for the ending CCV's in file TA0925B. All samples, with the exceptiom of sample J17FH7, were rerun with 3-fold dilutions for all analytes (with the exception of Arsenic, Potassium, Sodium, Antimony, Selenium, and Thallium) in files TA0926A and TA0926C. The samples were rerun for Potassium and Sodium in file PS1002A.

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

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

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

8. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 23.9%. Refer to the Inorganics Laboratory Control Standards Report. All associated sample results may be biased low.

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 26 pages.

9. The matrix spike (MS) recoveries for 6 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J17FH3	Aluminum	60,000	104.2
	Iron	60,000	91.1
	Magnesium	60,000	94.1
	Manganese	3,000	108.4
	Antimony	300	97.5
	Silicon	3,300	110.2

11. The duplicate analyses for 7 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10/7/08
Date

jjw/m09-103

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

he following methods are used as reference for the digestion and analysis of samples contained within th
ot#: 0809L103

eaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A X3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	X 6010B		__200.7				__99
Antimony	X 6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	X 6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	X 6010B		__200.7				__99
Beryllium	X 6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	X 6010B		__200.7				__99
Cadmium	X 6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	X 6010B		__200.7				__99
Chromium	X 6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	X 6010B		__200.7				__99
Copper	X 6010B	__7211 [5]	__200.7	__220.2			__99
Iron	X 6010B		__200.7				__99
Lead	X 6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	X 6010B		__200.7				__99
Manganese	X 6010B		__200.7				__99
Mercury	__7470A [3]	X 7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	X 6010B		__200.7				__99
Nickel	X 6010B		__200.7				__99
Potassium	X 6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	X 6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	X 6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	X 6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	X 6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2 __200.9			__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	X 6010B		__200.7				__99
Zinc	X 6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Method:_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Flame AA.

4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17FH3	Silver, Total	0.24 u	MG/KG	0.24	3.0
		Aluminum, Total	5800	MG/KG	9.5	3.0
		Arsenic, Total	2.2	MG/KG	0.40	1.0
		Boron, Total	1.3	MG/KG	0.40	1.0
		Barium, Total	60.3	MG/KG	0.24	3.0
		Beryllium, Total	0.22	MG/KG	0.12	3.0
		Calcium, Total	7480	MG/KG	9.5	3.0
		Cadmium, Total	0.12 u	MG/KG	0.12	3.0
		Cobalt, Total	9.7	MG/KG	0.48	3.0
		Chromium, Total	9.1	MG/KG	0.48	3.0
		Copper, Total	16.0	MG/KG	0.48	3.0
		Iron, Total	26500	MG/KG	10.7	3.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	863	MG/KG	39.2	1.0
		Magnesium, Total	4730	MG/KG	6.0	3.0
		Manganese, Total	355	MG/KG	0.1	3.0
		Molybdenum, Total	0.72 u	MG/KG	0.72	3.0
		Sodium, Total	261	MG/KG	1.6	1.0
		Nickel, Total	10.8	MG/KG	0.48	3.0
		Lead, Total	3.8	MG/KG	0.72	3.0
		Antimony, Total	0.24 u	MG/KG	0.24	1.0
		Selenium, Total	0.48 u	MG/KG	0.48	1.0
		Silicon, Total	315	MG/KG	3.2	1.0
		Vanadium, Total	66.9	MG/KG	0.33	3.0
		Zinc, Total	50.1	MG/KG	1.4	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J17FH4	Silver, Total	0.25 u	MG/KG	0.25	3.0
		Aluminum, Total	5920	MG/KG	10.2	3.0
		Arsenic, Total	2.1	MG/KG	0.42	1.0
		Boron, Total	1.6	MG/KG	0.42	1.0
		Barium, Total	61.3	MG/KG	0.25	3.0
		Beryllium, Total	0.28	MG/KG	0.13	3.0
		Calcium, Total	7760	MG/KG	10.2	3.0
		Cadmium, Total	0.15	MG/KG	0.13	3.0
		Cobalt, Total	8.7	MG/KG	0.51	3.0
		Chromium, Total	16.3	MG/KG	0.51	3.0
		Copper, Total	18.3	MG/KG	0.51	3.0
		Iron, Total	24400	MG/KG	11.4	3.0
		Mercury, Total	0.008u	MG/KG	0.008	1.0
		Potassium, Total	832	MG/KG	41.7	1.0
		Magnesium, Total	4780	MG/KG	6.4	3.0
		Manganese, Total	312	MG/KG	0.10	3.0
		Molybdenum, Total	0.76 u	MG/KG	0.76	3.0
		Sodium, Total	204	MG/KG	1.7	1.0
		Nickel, Total	10.3	MG/KG	0.51	3.0
		Lead, Total	6.1	MG/KG	0.76	3.0
		Antimony, Total	0.25 u	MG/KG	0.25	1.0
		Selenium, Total	0.51 u	MG/KG	0.51	1.0
		Silicon, Total	312	MG/KG	3.4	1.0
		Vanadium, Total	59.1	MG/KG	0.36	3.0
		Zinc, Total	50.4	MG/KG	1.5	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J17FH5	Silver, Total	0.24 u	MG/KG	0.24	3.0
		Aluminum, Total	6410	MG/KG	9.6	3.0
		Arsenic, Total	2.4	MG/KG	0.40	1.0
		Boron, Total	1.6	MG/KG	0.40	1.0
		Barium, Total	66.1	MG/KG	0.24	3.0
		Beryllium, Total	0.26	MG/KG	0.12	3.0
		Calcium, Total	7760	MG/KG	9.6	3.0
		Cadmium, Total	0.12 u	MG/KG	0.12	3.0
		Cobalt, Total	8.6	MG/KG	0.48	3.0
		Chromium, Total	20.2	MG/KG	0.48	3.0
		Copper, Total	18.0	MG/KG	0.48	3.0
		Iron, Total	24600	MG/KG	10.8	3.0
		Mercury, Total	0.009u	MG/KG	0.009	1.0
		Potassium, Total	924	MG/KG	39.4	1.0
		Magnesium, Total	4680	MG/KG	6.0	3.0
		Manganese, Total	320	MG/KG	0.1	3.0
		Molybdenum, Total	0.72 u	MG/KG	0.72	3.0
		Sodium, Total	348	MG/KG	1.6	1.0
		Nickel, Total	11.6	MG/KG	0.48	3.0
		Lead, Total	6.9	MG/KG	0.72	3.0
		Antimony, Total	0.24 u	MG/KG	0.24	1.0
		Selenium, Total	0.48 u	MG/KG	0.48	1.0
		Silicon, Total	286	MG/KG	3.2	1.0
		Vanadium, Total	62.3	MG/KG	0.34	3.0
		Zinc, Total	52.2	MG/KG	1.4	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J17FH6	Silver, Total	0.25 u	MG/KG	0.25	3.0
		Aluminum, Total	6360	MG/KG	9.8	3.0
		Arsenic, Total	2.6	MG/KG	0.41	1.0
		Boron, Total	1.2	MG/KG	0.41	1.0
		Barium, Total	57.9	MG/KG	0.25	3.0
		Beryllium, Total	0.28	MG/KG	0.12	3.0
		Calcium, Total	7320	MG/KG	9.8	3.0
		Cadmium, Total	0.12 u	MG/KG	0.12	3.0
		Cobalt, Total	9.1	MG/KG	0.49	3.0
		Chromium, Total	9.6	MG/KG	0.49	3.0
		Copper, Total	15.7	MG/KG	0.49	3.0
		Iron, Total	25000	MG/KG	11.1	3.0
		Mercury, Total	0.008u	MG/KG	0.008	1.0
		Potassium, Total	975	MG/KG	40.3	1.0
		Magnesium, Total	4730	MG/KG	6.1	3.0
		Manganese, Total	331	MG/KG	0.1	3.0
		Molybdenum, Total	0.74 u	MG/KG	0.74	3.0
		Sodium, Total	307	MG/KG	1.6	1.0
		Nickel, Total	10.9	MG/KG	0.49	3.0
		Lead, Total	4.1	MG/KG	0.74	3.0
		Antimony, Total	0.26	MG/KG	0.25	1.0
		Selenium, Total	0.49 u	MG/KG	0.49	1.0
		Silicon, Total	287	MG/KG	3.3	1.0
		Vanadium, Total	60.2	MG/KG	0.34	3.0
		Zinc, Total	47.1	MG/KG	1.5	3.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J17FH7	Silver, Total	0.35	MG/KG	0.08	1.0
		Aluminum, Total	105	MG/KG	3.1	1.0
		Arsenic, Total	0.38 u	MG/KG	0.38	1.0
		Boron, Total	0.38 u	MG/KG	0.38	1.0
		Barium, Total	1.8	MG/KG	0.08	1.0
		Beryllium, Total	0.04 u	MG/KG	0.04	1.0
		Calcium, Total	45.4	MG/KG	3.1	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.15 u	MG/KG	0.15	1.0
		Chromium, Total	0.63	MG/KG	0.15	1.0
		Copper, Total	0.15 u	MG/KG	0.15	1.0
		Iron, Total	199	MG/KG	3.4	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Potassium, Total	37.6 u	MG/KG	37.6	1.0
		Magnesium, Total	14.7	MG/KG	1.9	1.0
		Manganese, Total	5.0	MG/KG	0.03	1.0
		Molybdenum, Total	0.23 u	MG/KG	0.23	1.0
		Sodium, Total	42.3	MG/KG	1.5	1.0
		Nickel, Total	0.15 u	MG/KG	0.15	1.0
		Lead, Total	1.8	MG/KG	0.23	1.0
		Antimony, Total	0.23 u	MG/KG	0.23	1.0
		Selenium, Total	0.46 u	MG/KG	0.46	1.0
		Silicon, Total	70.8	MG/KG	3.1	1.0
		Vanadium, Total	0.12	MG/KG	0.11	1.0
		Zinc, Total	1.3	MG/KG	0.46	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	08L0351-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Aluminum, Total	4.9	MG/KG	4.0	1.0
		Arsenic, Total	0.50 u	MG/KG	0.50	1.0
		Boron, Total	0.50 u	MG/KG	0.50	1.0
		Barium, Total	0.26	MG/KG	0.10	1.0
		Beryllium, Total	0.05 u	MG/KG	0.05	1.0
		Calcium, Total	6.3	MG/KG	4.0	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.20 u	MG/KG	0.20	1.0
		Chromium, Total	0.20 u	MG/KG	0.20	1.0
		Copper, Total	0.20 u	MG/KG	0.20	1.0
		Iron, Total	7.1	MG/KG	4.5	1.0
		Potassium, Total	49.3 u	MG/KG	49.3	1.0
		Magnesium, Total	2.5 u	MG/KG	2.5	1.0
		Manganese, Total	0.1	MG/KG	0.04	1.0
		Molybdenum, Total	0.30 u	MG/KG	0.30	1.0
		Sodium, Total	9.9	MG/KG	2.0	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.30 u	MG/KG	0.30	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Selenium, Total	0.60 u	MG/KG	0.60	1.0
		Silicon, Total	4.0 u	MG/KG	4.0	1.0
		Vanadium, Total	0.14 u	MG/KG	0.14	1.0
		Zinc, Total	1.8	MG/KG	0.60	1.0
BLANK1	08C0162-MB1	Mercury, Total	0.01 u	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329

LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17FH3	Silver, Total	3.6	0.24u	4.0	90.0	3.0
		Aluminum, Total	6260	5800	159	294.1*	3.0
		Arsenic, Total	153	2.2	159	95.0	1.0
		Boron, Total	74.0	1.3	79.5	91.4	1.0
		Barium, Total	226	60.3	159	104.2	3.0
		Beryllium, Total	4.1	0.22	4.0	97.0	3.0
		Calcium, Total	9040	7480	1990	78.2	3.0
		Cadmium, Total	3.8	0.12u	4.0	95.0	3.0
		Cobalt, Total	47.2	9.7	39.8	94.2	3.0
		Chromium, Total	24.8	9.1	15.9	98.7	3.0
		Copper, Total	35.8	16.0	19.9	99.5	3.0
		Iron, Total	24800	26500	79.5	-2200. *	3.0
		Mercury, Total	0.17	0.00u	0.15	111.2	1.0
		Potassium, Total	2600	863	1990	87.2	1.0
		Magnesium, Total	6050	4730	1990	66.2	3.0
		Manganese, Total	417	355	39.8	155.8*	3.0
		Molybdenum, Total	73.6	0.72u	79.5	92.6	3.0
		Sodium, Total	2060	261	1990	90.6	1.0
		Nickel, Total	51.4	10.8	39.8	102.0	3.0
		Lead, Total	41.2	3.8	39.8	94.0	3.0
		Antimony, Total	19.2	0.24u	39.8	48.2	1.0
		Selenium, Total	129	0.48u	159	80.9	1.0
		Silicon, Total	420	315	79.5	132.3	1.0
		Vanadium, Total	101	66.9	39.8	85.7	3.0
		Zinc, Total	84.5	50.1	39.8	86.4	3.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17FH3	Silver, Total	0.24u	0.25u	NC	3.0
		Aluminum, Total	5800	5300	9.0	3.0
		Arsenic, Total	2.2	2.3	4.4	1.0
		Boron, Total	1.3	1.2	8.0	1.0
		Barium, Total	60.3	79.5	27.5	3.0
		Beryllium, Total	0.22	0.22	2.3	3.0
		Calcium, Total	7480	6070	20.8	3.0
		Cadmium, Total	0.12u	0.13u	NC	3.0
		Cobalt, Total	9.7	7.9	20.5	3.0
		Chromium, Total	9.1	7.9	14.1	3.0
		Copper, Total	16.0	14.1	12.6	3.0
		Iron, Total	26500	21700	19.9	3.0
		Mercury, Total	0.00u	0.00u	NC	1.0
		Potassium, Total	863	800	7.5	1.0
		Magnesium, Total	4730	3840	20.8	3.0
		Manganese, Total	355	280	23.6	3.0
		Molybdenum, Total	0.72u	0.91	~~NC~~ 20.2	3.0
		Sodium, Total	261	246	6.0	1.0
		Nickel, Total	10.8	9.0	18.2	3.0
		Lead, Total	3.8	2.8	30.3	3.0
		Antimony, Total	0.24u	0.25u	NC	1.0
		Selenium, Total	0.48u	0.50u	NC	1.0
		Silicon, Total	315	364	14.4	1.0
		Vanadium, Total	66.9	59.4	11.9	3.0
		Zinc, Total	50.1	42.4	16.6	3.0

corrected value MC 10/13/08

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	08L0351-LC1	Silver, LCS	47.1	50.0	MG/KG	94.2
		Aluminum, LCS	509	500	MG/KG	101.7
		Arsenic, LCS	933	1000	MG/KG	93.3
		Boron, LCS	458	500	MG/KG	91.7
		Barium, LCS	492	500	MG/KG	98.5
		Beryllium, LCS	24.6	25.0	MG/KG	98.4
		Calcium, LCS	2430	2500	MG/KG	97.1
		Cadmium, LCS	23.9	25.0	MG/KG	95.6
		Cobalt, LCS	242	250	MG/KG	96.9
		Chromium, LCS	49.9	50.0	MG/KG	99.8
		Copper, LCS	124	125	MG/KG	99.1
		Iron, LCS	507	500	MG/KG	101.3
		Potassium, LCS	2250	2500	MG/KG	90.1
		Magnesium, LCS	2360	2500	MG/KG	94.4
		Manganese, LCS	73.3	75.0	MG/KG	97.7
		Molybdenum, LCS	479	500	MG/KG	95.9
		Sodium, LCS	2360	2500	MG/KG	94.4
		Nickel, LCS	196	200	MG/KG	98.0
		Lead, LCS	242	250	MG/KG	97.0
		Antimony, LCS	278	300	MG/KG	92.5
		Selenium, LCS	911	1000	MG/KG	91.1
		Silicon, LCS	119	500	MG/KG	23.9
		Vanadium, LCS	239	250	MG/KG	95.5
		Zinc, LCS	97.8	100	MG/KG	97.8
LCS1	08C0162-LC1	Mercury, LCS	4.8	4.7	MG/KG	102.6

onville Laboratory Use Only

2809L103

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI

ent W.C. Hanford RC.029

t. Final Proj. Sampling Date

oject# 60649-001-001-0001

oject Contact/Phone#

onville Laboratory Project Manager O. Johnson

808846 Del 8/21 TAT 15

te Rec'd 9/12/08 Date Due 9/27/08

		A	B					C	D		E					
Refrigerator #		6	3					3	3		3					
#/Type Container	Liquid															
	Solid	1G	1G					1P	1P		1P					
Volume		120	250					125	250							
Preservatives									—		—					
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb			IC Anions	Metal	CN	Hexavalent Chromium					
		Lionville Laboratory Use Only														
		0623H	0623H					INOR	ME		ICP					

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP, Leachate, Wipe, Other, Fish	001	J17FH 3			S	9-10-08	1400	X	X				X	X		X					
	002	4					1450	X	X				X	X		X					
	003	5					1500	X	X				X	X		X					
	004	6					1515	X	X				X	X		X					
	005	7					1340		X					X							

Matrix QC

pecial Instructions:

Ei = HSL + B, Mo, Si (NOTL)

ORQ = ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9/12/08	0940

Relinquished by	Received by	Date	Time
	See SRG		

Relinquished by	Received by	Date	Time
ORIGINAL RE-WRITTEN	"COMPOSITE WASTE"		

000000021

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-029-047	Page 1 of 1

Collector: C. Martinez (See D. Rios)	Company Contact: R. Nielson	Telephone No.: 372-9051	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-D-76	SAF No.: RC-029	
Ice Chest No.: ERL-02-007	Field Logbook No.: EL-1601-2	COA: 010D76A000	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080349		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None

		D	E	C	B	A				
Preservation	None	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	P	G/P	aG	G/P	G/P	G/P	aG	aG	aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	1000mL	125mL	120mL	250mL	125mL	125mL	250mL	120mL	250mL	
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	See item (3) in Special Instructions.	Chromium Hex - 7196	See item (4) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	TPH (Total) - 418.1 Diesel + Motor Oil	

Sample No.	Matrix *	Sample Date	Sample Time										
J17FH3	SOIL	09/10/08	1400				✓	✓	✓	✓	✓	—	
J17FH4	SOIL		1450				✓	✓	✓	✓	✓	—	
J17FH5	SOIL		1500				✓	✓	✓	✓	✓	—	
J17FH6	SOIL		1515				✓	✓	✓	✓	✓	—	
J17FH7	SOIL	09/10/08	1340				✓	—	—	✓	—	—	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: [signature]	9-10-08 1545	Received By/Stored In: C. Martinez / C. Martinez	09/10/08 1545
Relinquished By/Removed From: C. Martinez / C. Martinez	09/10/08 1650	Received By/Stored In: 1608 Bldg 2B	09/10/08 1650
Relinquished By/Removed From: 1060/2B J.E. Bernhard	9-11-08 0940	Received By/Stored In: J.E. Bernhard	9-11-08 0940
Relinquished By/Removed From: J.E. Bernhard	9-11-08 0945	Received By/Stored In: FED EX	
Relinquished By/Removed From: FedEx	9-12-08 0940	Received By/Stored In: [signature]	9-12-08 0940
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

08/20/08

(1) ~~Gamma Spectroscopy (TCL List)~~ {Cesium-137, Cobalt-60, ~~Europium-152, Europium-154~~, Europium-155}; ~~Gamma Spec -- Add-on (Americium-241)~~; Gross Alpha & Gross Beta
(2) Americium-241; ~~Nickel-63; Isotopic Plutonium (Plutonium-238~~, Plutonium-239/240}; Strontium-89,90 -- Total ~~Sr; Technetium-99~~; Isotopic Uranium {Uranium-233/234, ~~Uranium-235~~, Uranium-238}; Total Uranium
(3) ICP Metals - 6010TR (Client List {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(4) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

TPH 418.1 changed to - Diesel + Motor Oil per J Kessner 09/12/08

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

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

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

WCH-EE-011

KMW

000000022

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAF/SOW/Release #: RC-029

Date: 9/12/08

LvLI Batch #: U8091103

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7919 49457503
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 2.3	°C	Cooler # ERC-02-007
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI LIONVILLE LABORATORIES

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: [illegible]
Date: 9/17/08
Start Time/Temp: 1505 | 91°
End Time/Temp: 1535 | 98°

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

Prep Batch: 08C0162
Worksheet: HG091801/HG091901
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
Blank	SE			10mL	50mL	
0.2 µg/L	8H	0.100				
1.0	HR	0.500				
2.0	303	1.000				
5.0	X5	2.500				
10.0	FT	5.000				
ICV	11A	0.125	2.5			
CCV	G7	0.250	5.0			
ICB/CCB	H5					90.50L
MB1	J5			0.30		IBS162 100.0
LC1	A27	*	*	0.34		LCSS162
0809L084-001	3X			0.31		R 91.37
001R	GR			0.30		
001S	AB	0.500	1.0	0.31		
002	C9			0.31		81.85
003	W0			0.37		89.40
004	35			0.40		85.81
005	N60			0.34		86.49
006	CT			0.30		84.41
007	JB			0.31		90.11
008	1C			0.32		81.45
009	818			0.34		86.77
010	DR			0.33		88.85
011	700			0.34		91.18
012	OF			0.33		88.15
013	NJ			0.34		89.61
0809L103 - 001	AH			0.34		96.77

Standard:	ID	Prep Date/Time
CAL/MS	RI 6077-78-14B	9/17/08 1000
ICV/CCV/LCS	LS 6077-78-15A	

Reviewed By/Date: [signature] 9/22/08

see book # 936 for std traceability information

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

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

Lionville Laboratory Incorporated

MERCURY PREPARATION

Logbook # 498

Analyst: [illegible]
Date 9/17/08
Start Time/Temp: see page
End Time/Temp: 024

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

Prep Batch: 08C0162
Worksheet: HG091801 / HG091901
SOP No. ME-HgCVAA, Rev. 02

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

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

LvLI Batch #	Container Number	Spike Volume (mL)	Spike Conc. (µg/L)	Initial Wt. or Volume (g or mL)	Final Sample Volume (mL)	Comments, % Solids, etc.
0809L103-001R	PF			0.36	50mL	96.77
001S	B14	0.500	1.0	0.34	↓	↓
002	G12			0.38	↓	96.85
003	997			0.33	↓	96.86
004	508			0.38	↓	94.71
005	154			0.31	↓	99.86
0809L112-001	76			0.32	↓	R 96.15
001R	F2			0.38	↓	↓
001S	500	0.500	1.0	0.32	↓	↓
0809L113-001	B2			0.30	↓	100.00
001R	OLN			0.33	↓	↓
001S	183	0.500	1.0	0.30	↓	↓

TLD 9/17/08

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS	see page 024	

Reviewed By/Date: [illegible] 9/22/0

see book # 9368 for std traceability information

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

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

Lionville Laboratory Incorporated

Logbook #: 482

SAMPLE DIGESTION RECORD

SOP: L-SPI-3020 Rev. 00

Digestion Batch #: 08L0351
Date/Time Initiated: 9/24/08 1315
Date/Time Completed: 9/24/08 1930
Analyst(s): MW
Matrix: (Soil) Water Other:
Instr. Type: AA (ICP)
Parameters: See backlog

(Digested) Undigested (circle one)
Balance #: B20
Balance Cal Verif: (✓) NA
Hot Plate Temp: 95°

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

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

Eberline / TPW

COC Batch #	Spike Vol(s) (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/So/TC	Texture	Color/Appearance	Artifact	Turb
0809L043-003		1.21 gr	100 ml	<2	TO	coarse	light brown-clay like	N/A	RAD
003R		1.28 gr							
003S	1.0 ml	1.21 gr							
0809L146-001		1.17 gr					black-tar like		
001R		1.17 gr							
001S	1.0 ml *	1.18 gr							
002		1.43 gr				liquid	amber / clear		
003		1.28 gr				coarse	black powder	rocks	
004		1.38 gr					brown particles	N/A	RAD
0809L103-001		1.30 gr				fine	brown soil	rocks	
001R		1.23 gr							
001S	1.0 ml	1.30 gr							
002		1.22 gr							
003		1.29 gr							
004		1.29 gr							
005		1.31 gr				coarse	Ottawa sand	N/A	
0809L154-001		1.23 gr					white chalky powder	with large	RAD
001R		1.25 gr							
001S	1.0 ml *	1.22 gr							
08L0351-MD1		1.0 gr					tootsy chips		
LC1	1.0 ml *	1.0 gr							
		MW 9/24/08							

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

Reagent IDs:
HNO_3 G11022
HCL G05039
H_2O_2 G15A18
1:1 HNO_3 9789-083-08
1:1 HCL

File ID#: IC035101 IC035
IC035102 IC035

LIMS Transfer: (Y) N updated

Data Review By/Date:
PMP, 09/26/08

* also 0.5 ml 6072-079-13 (2r)

RECEIVED
OCT 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J17FH3						
% SOLIDS	001	S	08L%S076	09/10/08	09/15/08	09/16/08
% SOLIDS	001 REP	S	08L%S076	09/10/08	09/15/08	09/16/08
BROMIDE BY IC	001	S	08LICS74	09/10/08	09/26/08	09/28/08
CHLORIDE BY IC	001	S	08LICS74	09/10/08	09/26/08	09/28/08
FLUORIDE BY IC	001	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRITE BY IC	001	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRATE BY IC	001	S	08LICS74	09/10/08	09/26/08	09/28/08
PHOSPHATE BY IC	001	S	08LICS74	09/10/08	09/26/08	09/28/08
CHROMIUM VI	001	S	08LVI063	09/10/08	09/18/08	09/18/08
CHROMIUM VI	001 REP	S	08LVI063	09/10/08	09/18/08	09/18/08
CHROMIUM VI	001 MS	S	08LVI063	09/10/08	09/18/08	09/18/08
CHROMIUM VI	001 MSD	S	08LVI063	09/10/08	09/18/08	09/18/08
SULFATE BY IC	001	S	08LICS74	09/10/08	09/26/08	09/28/08
J17FH4						
% SOLIDS	002	S	08L%S076	09/10/08	09/15/08	09/16/08
BROMIDE BY IC	002	S	08LICS74	09/10/08	09/26/08	09/28/08
CHLORIDE BY IC	002	S	08LICS74	09/10/08	09/26/08	09/28/08
FLUORIDE BY IC	002	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRITE BY IC	002	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRATE BY IC	002	S	08LICS74	09/10/08	09/26/08	09/28/08
PHOSPHATE BY IC	002	S	08LICS74	09/10/08	09/26/08	09/28/08
CHROMIUM VI	002	S	08LVI063	09/10/08	09/18/08	09/18/08
SULFATE BY IC	002	S	08LICS74	09/10/08	09/26/08	09/28/08
J17FH5						
% SOLIDS	003	S	08L%S076	09/10/08	09/15/08	09/16/08
BROMIDE BY IC	003	S	08LICS74	09/10/08	09/26/08	09/28/08
CHLORIDE BY IC	003	S	08LICS74	09/10/08	09/26/08	09/28/08
FLUORIDE BY IC	003	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRITE BY IC	003	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRATE BY IC	003	S	08LICS74	09/10/08	09/26/08	09/28/08
PHOSPHATE BY IC	003	S	08LICS74	09/10/08	09/26/08	09/28/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	003	S	08LVI063	09/10/08	09/18/08	09/18/08
SULFATE BY IC	003	S	08LICS74	09/10/08	09/26/08	09/28/08
J17FH6						
% SOLIDS	004	S	08L%S076	09/10/08	09/15/08	09/16/08
BROMIDE BY IC	004	S	08LICS74	09/10/08	09/26/08	09/28/08
BROMIDE BY IC	004 REP	S	08LICS74	09/10/08	09/26/08	09/28/08
BROMIDE BY IC	004 MS	S	08LICS74	09/10/08	09/26/08	09/28/08
CHLORIDE BY IC	004	S	08LICS74	09/10/08	09/26/08	09/28/08
CHLORIDE BY IC	004 REP	S	08LICS74	09/10/08	09/26/08	09/28/08
CHLORIDE BY IC	004 MS	S	08LICS74	09/10/08	09/26/08	09/28/08
FLUORIDE BY IC	004	S	08LICS74	09/10/08	09/26/08	09/28/08
FLUORIDE BY IC	004 REP	S	08LICS74	09/10/08	09/26/08	09/28/08
FLUORIDE BY IC	004 MS	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRITE BY IC	004	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRITE BY IC	004 REP	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRITE BY IC	004 MS	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRATE BY IC	004	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRATE BY IC	004 REP	S	08LICS74	09/10/08	09/26/08	09/28/08
NITRATE BY IC	004 MS	S	08LICS74	09/10/08	09/26/08	09/28/08
PHOSPHATE BY IC	004	S	08LICS74	09/10/08	09/26/08	09/28/08
PHOSPHATE BY IC	004 REP	S	08LICS74	09/10/08	09/26/08	09/28/08
PHOSPHATE BY IC	004 MS	S	08LICS74	09/10/08	09/26/08	09/28/08
CHROMIUM VI	004	S	08LVI063	09/10/08	09/18/08	09/18/08
SULFATE BY IC	004	S	08LICS74	09/10/08	09/26/08	09/28/08
SULFATE BY IC	004 REP	S	08LICS74	09/10/08	09/26/08	09/28/08
SULFATE BY IC	004 MS	S	08LICS74	09/10/08	09/26/08	09/28/08
J17FH7						
% SOLIDS	005	S	08L%S076	09/10/08	09/15/08	09/16/08

LAB QC:

BROMIDE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
BROMIDE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
CHLORIDE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
WC-HANFORD RC-029 K1329

DATE RECEIVED: 09/12/08 LVL LOT # :0809L103

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
FLUORIDE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
FLUORIDE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
NITRITE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
NITRITE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
NITRATE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
NITRATE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
PHOSPHATE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
PHOSPHATE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08
CHROMIUM VI	MB1	S	08LVI063	N/A	09/18/08	09/18/08
CHROMIUM VI	MB1 BS	S	08LVI063	N/A	09/18/08	09/18/08
CHROMIUM VI	MB1 BSD	S	08LVI063	N/A	09/18/08	09/18/08
SULFATE BY IC	MB1	S	08LICS74	N/A	09/26/08	09/28/08
SULFATE BY IC	MB1 BS	S	08LICS74	N/A	09/26/08	09/28/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: WC-HANFORD RC-029 K1329 **W.O.#:** 60049-001-001-0001-00
LVL#: 0809L103 **Date Received:** 09-12-08

INORGANIC NARRATIVE

1. This narrative covers the analyses of 5 soil samples.

2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.

   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 LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

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

7. The matrix spike recoveries 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

10/7/08
Date

njp\i09-103

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.

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

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

Other: Bromide, Chloride, Fluoride, **Method:** EPA 300.0

Other: Nitrite, Nitrate, Phosphate, Sulfate **Method**

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103
WORK ORDER: 60049-001-001-0001-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J17FH3	% Solids	96.8		%	0.01	1.0
		Bromide by IC	5.1	u	MG/KG	5.1	1.0
		Chloride by IC	2.5	u	MG/KG	2.5	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	2.54	u	MG/KG	2.54	1.0
		Nitrate by IC	2.54	u	MG/KG	2.54	1.0
		Phosphate by IC	2.5	u	MG/KG	2.5	1.0
		Chromium VI	0.40		MG/KG	0.21	1.0
		Sulfate by IC	2.3	u	MG/KG	2.3	1.0
-002	J17FH4	% Solids	96.8		%	0.01	1.0
		Bromide by IC	4.9	u	MG/KG	4.9	1.0
		Chloride by IC	2.4	u	MG/KG	2.4	1.0
		Fluoride by IC	2.4	u	MG/KG	2.4	1.0
		Nitrite by IC	2.43	u	MG/KG	2.43	1.0
		Nitrate by IC	2.43	u	MG/KG	2.43	1.0
		Phosphate by IC	2.4	u	MG/KG	2.4	1.0
		Chromium VI	0.66		MG/KG	0.21	1.0
		Sulfate by IC	2.3	u	MG/KG	2.3	1.0
-003	J17FH5	% Solids	96.9		%	0.01	1.0
		Bromide by IC	4.4	u	MG/KG	4.4	1.0
		Chloride by IC	2.2	u	MG/KG	2.2	1.0
		Fluoride by IC	2.2	u	MG/KG	2.2	1.0
		Nitrite by IC	2.19	u	MG/KG	2.19	1.0
		Nitrate by IC	2.19	u	MG/KG	2.19	1.0
		Phosphate by IC	2.2	u	MG/KG	2.2	1.0
		Chromium VI	0.94		MG/KG	0.21	1.0
		Sulfate by IC	2.5	u	MG/KG	2.5	1.0
-004	J17FH6	% Solids	94.7		%	0.01	1.0
		Bromide by IC	5.0	u	MG/KG	5.0	1.0
		Chloride by IC	2.5	u	MG/KG	2.5	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	2.52	u	MG/KG	2.52	1.0
		Nitrate by IC	2.52	u	MG/KG	2.52	1.0
		Phosphate by IC	2.5	u	MG/KG	2.5	1.0
		Chromium VI	0.87		MG/KG	0.21	1.0
		Sulfate by IC	2.4	u	MG/KG	2.4	1.0
-005	J17FH7	% Solids	99.9		%	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LICS74-MB1	Bromide by IC	4.7	u	MG/KG	4.7	1.0
		Chloride by IC	2.4	u	MG/KG	2.4	1.0
		Fluoride by IC	2.4	u	MG/KG	2.4	1.0
		Nitrite by IC	2.36	u	MG/KG	2.36	1.0
		Nitrate by IC	2.36	u	MG/KG	2.36	1.0
		Phosphate by IC	2.4	u	MG/KG	2.4	1.0
		Sulfate by IC	2.6	u	MG/KG	2.6	1.0
BLANK10	08LVI063-MB1	Chromium VI	0.20	u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J17FH3	Soluble Chromium VI	4.8	0.40	4.1	106.7	1.0
		Insoluble Chromium VI	1020	0.40	1150	88.8	100
-004	J17FH6	Bromide by IC	112	0.0	103	108.4	2.0
		Chloride by IC	114	0.0	103	110.9	2.0
		Fluoride by IC	112	0.36	103	108.2	2.0
		Nitrite by IC	114	2.52u	103	110.6	2.0
		Nitrate by IC	117	2.52u	103	113.3	2.0
		Phosphate by IC	116	2.5 u	103	113.0	2.0
		Sulfate by IC	106	2.4 u	101	105.0	2.0
BLANK10	08LICS74-MB1	Bromide by IC	69.9	4.7 u	67.3	103.9	1.0
		Chloride by IC	71.7	2.4 u	67.3	106.6	1.0
		Fluoride by IC	71.3	2.4 u	67.3	105.9	1.0
		Nitrite by IC	71.9	2.36u	67.3	106.9	1.0
		Nitrate by IC	69.7	2.36u	67.3	103.7	1.0
		Phosphate by IC	69.4	2.4 u	67.3	103.2	1.0
		Sulfate by IC	63.4	2.6 u	66.4	95.5	1.0
BLANK10	08LVI063-MB1	Soluble Chromium VI	4.0	0.20u	4.0	100.8	1.0
		Insoluble Chromium VI	1090	0.20u	1210	90.1	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/03/08

CLIENT: WC-HANFORD RC-029 K1329 LVL LOT #: 0809L103

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J17FH3	% Solids	96.8	96.6	0.21	1.0
		Chromium VI	0.40	0.45	12.7	1.0
-004REP	J17FH6	Bromide by IC	5.0 u	5.0 u	NC	1.0
		Chloride by IC	2.5 u	2.5 u	NC	1.0
		Fluoride by IC	2.5 u	2.5 u	NC	1.0
		Nitrite by IC	2.52u	2.49u	NC	1.0
		Nitrate by IC	2.52u	2.49u	NC	1.0
		Phosphate by IC	2.5 u	2.5 u	NC	1.0
		Sulfate by IC	2.4 u	2.2 u	NC	1.0

onville Laboratory Use Only

2809L103

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

ent W.C. Hanford RC-029

t. Final Proj. Sampling Date

oject# 60649-001-001-0001

oject Contact/Phone#

onville Laboratory Project Manager O-JOHNSON

: 808846 Del 8-7-L TAT 15

te Rec'd 9/12/08 Date Due 9/27/08

		A	B					C	D		E					
Refrigerator #		6	3					3	3		3					
#/Type Container	Liquid															
	Solid	1G	1G					1P	1P		1P					
Volume		120	250					125	250							
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb			TC Pest/PCB	Metal	CN	Hex Cr/Phos					

TRIX DES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only: OG24H	OG25H					INORG	MED		ICP6					
Soil, Sediment, Solid, Sludge, Water, Oil, Air, Drum Solids, Drum Liquids, EP/TCLP Leachate, Wipe, Other, Fish	001	J17FH 3			S	9-10-08	1400	X	X					X	X		X					
	002	4					1450	X	X					X	X		X					
	003	5					1500	X	X					X	X		X					
	004	6					1515	X	X					X	X		X					
	005	7					1340		X						X							

Matrix QC

Special Instructions:

FI = HSL + B, Mo, Si (NOTL)

ORD = ICBR, ICCL, ICFL, ICNO2, ICNO3, ICSO4, ICPO4

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	9/12/08	0940

Relinquished by	Received by	Date	Time
	See SRC		

Relinquished by	Received by	Date	Time
ORIGINAL RE-WRITTEN	"COMPOSITE WASTE"		

000000011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-029-047	Page 1 of 1

Collector: C. Martinez (See D. Rios)	Company Contact: R. Nielson	Telephone No.: 372-9051	Project Coordinator: KESSNER, JH
Price Code: 8C	Data Turnaround: 15 Days		
Project Designation: Remaining Sites Confirmation Sampling - Soil	Sampling Location: 100-D-76	SAF No.: RC-029	
Ice Chest No.: ERL-02-007	Field Logbook No.: EL-1601-2	COA: 010D76A000	Method of Shipment: FedEx
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A080349		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

None

Special Handling and/or Storage

None

					D	E	C	B	A		
Preservation	None	None	None	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	
Type of Container	P	G/P	aG	G/P	G/P	G/P	aG	aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	1000mL	125mL	120mL	250mL	125mL	125mL	250mL	120mL	250mL		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	See item (3) in Special Instructions.	Chromium Hex - 7196	See item (4) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	TPH (Total) - 418.1 Diesel + Motor Oil		
Sample No.	Matrix *	Sample Date	Sample Time								
J17FH3	SOIL	09/10/08	1400			✓	✓	✓	✓	✓	—
J17FH4	SOIL		1450			✓	✓	✓	✓	✓	—
J17FH5	SOIL		1500			✓	✓	✓	✓	✓	—
J17FH6	SOIL		1515			✓	✓	✓	✓	✓	—
J17FH7	SOIL	09/10/08	1340			✓	—	—	✓	—	—

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: [signature]	Date/Time: 9-10-08 1545	Received By/Stored In: C. Martinez/C. Martinez	Date/Time: 09/10/08 1545
Relinquished By/Removed From: C. Martinez/C. Martinez	Date/Time: 09/10/08 1650	Received By/Stored In: 8bldg 2B	Date/Time: 09/10/08 1650
Relinquished By/Removed From: 1060/2B J.E. Bernhard	Date/Time: 9-11-08 0940	Received By/Stored In: J.E. Bernhard	Date/Time: 9-11-08 0940
Relinquished By/Removed From: J.E. Bernhard	Date/Time: 9-11-08 0945	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: [signature]	Date/Time: 9-12-08 0940	Received By/Stored In: [signature]	Date/Time: 9-12-08 0940
Relinquished By/Removed From	Date/Time:	Received By/Stored In	Date/Time:

SPECIAL INSTRUCTIONS

03/20/08

(1) ~~Gamma Spectroscopy~~ (TCL List) (Cesium-137, Cobalt-60, ~~Europium-152, Europium-154~~, Europium-155); ~~Gamma Spec - Add-on (Americium-241)~~; Gross Alpha & Gross Beta
(2) Americium-241; ~~Nickel-63, Isotopic Plutonium (Plutonium-238~~, Plutonium-239/240); Strontium-89,90 -- ~~Total Sr, Technetium-99~~; Isotopic Uranium (Uranium-233/234, ~~Uranium-235~~, Uranium-238); ~~Total Uranium~~
(3) ICP Metals - 6010TR (Client List (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)
(4) IC Anions - 300.0 (Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate)

TPH 418.1 changed to - Diesel + Motor Oil per J Kessner 09/12/08

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

Matrix *

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

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

WCH-EE-011

KMW

000000012

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAP/SOW/Release #: RC-029

Date: 9/12/08

LvLI Batch #: U8091103

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7919 49457503
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 2.3	°C	Cooler # ERC-02-007
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI