SAF-RC-148
300 Area D4 Waste Sites – Soil Full Protocol
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 8/14/12
INITIAL/DATE

COMMENTS:

SDG KP0116 SAF-RC-148

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Sample Location/Waste Site: 300-15 Process Server – Verification

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
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August 7, 2012

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

Reference: **P.O. #S00W235A01**
Eberline Analytical S2-07-090-7745 SDG KP0116

Dear Ms. Kessner:

Enclosed is the data report for seven soil samples designated under SAF No. RC-148. The samples were received at Eberline Analytical on July 30, 2012. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Joseph Verville
Client Services Manager

NJV/

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group KP0116 was composed of seven soil samples designated under SAF No. RC-148 with a Project Designation of: 300 Area D4 Waste Sites – Soil Full Protocol.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist. The results were transmitted to WCH via e-mail on August 7, 2012

2.0 ANALYSIS NOTES

2.1 Gross Alpha/Gross Beta

No problems were encountered during the course of the analyses.

2.2 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.3 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

Joseph Verville **Client Services Manager**	8/7/12 **Date**

E B E R L I N E A N A L Y T I C A L - R I C H M O N D
SAMPLE DELIVERY GROUP KP0116

SDG	7745
Contact	Joseph Verville

Client	Hanford
Contract	No. S00W235A01
Case no	SDG_KP0116

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

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

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Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	08/07/12

SDG 7745
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_KP0116

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/07/12

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

SDG 7745
Contact Joseph Verville

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG KP0116

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
S207090-01	J1PW73	300-15 ProcesSewer-Verif	SOIL		RC-148	RC-148-047	07/25/12 08:28
S207090-02	J1PW74	300-15 ProcesSewer-Verif	SOIL		RC-148	RC-148-047	07/25/12 08:29
S207090-03	J1PW75	300-15 ProcesSewer-Verif	SOIL		RC-148	RC-148-047	07/25/12 10:10
S207090-04	J1PW76	300-15 ProcesSewer-Verif	SOIL		RC-148	RC-148-047	07/25/12 12:50
S207090-05	J1PW77	300-15 ProcesSewer-Verif	SOIL		RC-148	RC-148-047	07/25/12 13:56
S207090-06	J1PW78	300-15 ProcesSewer-Verif	SOIL		RC-148	RC-148-047	07/25/12 14:23
S207090-07	J1PW80	300-15 ProcesSewer-Verif	SOIL		RC-148	RC-148-047	07/25/12 14:47
S207090-08	Lab Control Sample		SOIL		RC-148		
S207090-09	Method Blank		SOIL		RC-148		
S207090-10	Duplicate (S207090-01)	300-15 ProcesSewer-Verif	SOIL		RC-148		07/25/12 08:28

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

SDG 7745
Contact Joseph Verville

QC SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG KP0116

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7745	RC-148-047	J1PW73	SOIL	97.5	847 g		07/27/12	2	S207090-01	7745-001
		J1PW74	SOIL	97.6	1010 g		07/27/12	2	S207090-02	7745-002
		J1PW75	SOIL	98.4	917 g		07/27/12	2	S207090-03	7745-003
		J1PW76	SOIL	97.3	836 g		07/27/12	2	S207090-04	7745-004
		J1PW77	SOIL	93.9	896 g		07/27/12	2	S207090-05	7745-005
		J1PW78	SOIL	98.7	869 g		07/27/12	2	S207090-06	7745-006
		J1PW80	SOIL	94.8	680 g		07/27/12	2	S207090-07	7745-007
		Method Blank	SOIL						S207090-09	7745-009
		Lab Control Sample	SOIL						S207090-08	7745-008
		Duplicate (S207090-01)	SOIL	97.5	847 g		07/27/12	2	S207090-10	7745-010

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

SDG 7745
Contact Joseph Verville

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG KP0116

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
93A	SOIL	Gross Alpha in Solids	7732-140	20.6	7			1	1	1/1		
93B	SOIL	Gross Beta in Solids	7732-140	20.6	7			1	1	1/1		
Gamma Spectroscopy												
GAM	SOIL	Gamma Scan	7732-140	7.0	7			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOIL	Uranium, Total in Solids	7732-140		7			1	1	1/1		

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

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

SDG 7745
Contact Joseph Verville

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG KP0116

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	MATRIX SAF No	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
S207090-01	J1PW73		7745-001	93A/93		08/03/12	08/06/12	BW	Gross Alpha in Solids
07/25/12	300-15 ProcesSewer-Verif	SOIL	7745-001	93B/93		08/03/12	08/06/12	BW	Gross Beta in Solids
07/27/12	RC-148-047	RC-148	7745-001	GAM		08/01/12	08/06/12	CSS	Gamma Scan
			7745-001	U_T		08/02/12	08/02/12	CSS	Uranium, Total in Solids
S207090-02	J1PW74		7745-002	93A/93		08/03/12	08/06/12	BW	Gross Alpha in Solids
07/25/12	300-15 ProcesSewer-Verif	SOIL	7745-002	93B/93		08/03/12	08/06/12	BW	Gross Beta in Solids
07/27/12	RC-148-047	RC-148	7745-002	GAM		08/01/12	08/06/12	CSS	Gamma Scan
			7745-002	U_T		08/02/12	08/02/12	CSS	Uranium, Total in Solids
S207090-03	J1PW75		7745-003	93A/93		08/03/12	08/06/12	BW	Gross Alpha in Solids
07/25/12	300-15 ProcesSewer-Verif	SOIL	7745-003	93B/93		08/03/12	08/06/12	BW	Gross Beta in Solids
07/27/12	RC-148-047	RC-148	7745-003	GAM		08/01/12	08/06/12	CSS	Gamma Scan
			7745-003	U_T		08/02/12	08/02/12	CSS	Uranium, Total in Solids
S207090-04	J1PW76		7745-004	93A/93		08/03/12	08/06/12	BW	Gross Alpha in Solids
07/25/12	300-15 ProcesSewer-Verif	SOIL	7745-004	93B/93		08/03/12	08/06/12	BW	Gross Beta in Solids
07/27/12	RC-148-047	RC-148	7745-004	GAM		08/01/12	08/06/12	CSS	Gamma Scan
			7745-004	U_T		08/02/12	08/02/12	CSS	Uranium, Total in Solids
S207090-05	J1PW77		7745-005	93A/93		08/03/12	08/06/12	BW	Gross Alpha in Solids
07/25/12	300-15 ProcesSewer-Verif	SOIL	7745-005	93B/93		08/03/12	08/06/12	BW	Gross Beta in Solids
07/27/12	RC-148-047	RC-148	7745-005	GAM		08/01/12	08/06/12	CSS	Gamma Scan
			7745-005	U_T		08/02/12	08/02/12	CSS	Uranium, Total in Solids
S207090-06	J1PW78		7745-006	93A/93		08/06/12	08/06/12	BW	Gross Alpha in Solids
07/25/12	300-15 ProcesSewer-Verif	SOIL	7745-006	93B/93		08/06/12	08/06/12	BW	Gross Beta in Solids
07/27/12	RC-148-047	RC-148	7745-006	GAM		08/01/12	08/06/12	CSS	Gamma Scan
			7745-006	U_T		08/02/12	08/02/12	CSS	Uranium, Total in Solids
S207090-07	J1PW80		7745-007	93A/93		08/06/12	08/06/12	BW	Gross Alpha in Solids
07/25/12	300-15 ProcesSewer-Verif	SOIL	7745-007	93B/93		08/06/12	08/06/12	BW	Gross Beta in Solids
07/27/12	RC-148-047	RC-148	7745-007	GAM		08/01/12	08/06/12	CSS	Gamma Scan
			7745-007	U_T		08/02/12	08/02/12	CSS	Uranium, Total in Solids
S207090-08	Lab Control Sample		7745-008	93A/93		08/06/12	08/06/12	BW	Gross Alpha in Solids
		SOIL	7745-008	93B/93		08/06/12	08/06/12	BW	Gross Beta in Solids
		RC-148	7745-008	GAM		08/01/12	08/06/12	CSS	Gamma Scan
			7745-008	U_T		08/02/12	08/02/12	CSS	Uranium, Total in Solids

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

SDG 7745
Contact Joseph Verville

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A01
Case no SDG KP0116

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
S207090-09	Method Blank			7745-009	93A/93		08/06/12	08/06/12	BW	Gross Alpha in Solids
			SOIL	7745-009	93B/93		08/06/12	08/06/12	BW	Gross Beta in Solids
		RC-148		7745-009	GAM		08/01/12	08/06/12	CSS	Gamma Scan
				7745-009	U_T		08/02/12	08/02/12	CSS	Uranium, Total in Solids
S207090-10	Duplicate (S207090-01)			7745-010	93A/93		08/06/12	08/06/12	BW	Gross Alpha in Solids
07/25/12	300-15 ProcesSewer-Verif		SOIL	7745-010	93B/93		08/06/12	08/06/12	BW	Gross Beta in Solids
07/27/12		RC-148		7745-010	GAM		08/01/12	08/06/12	CSS	Gamma Scan
				7745-010	U_T		08/02/12	08/02/12	CSS	Uranium, Total in Solids

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-148	Gross Alpha in Solids	900.0_ALPHABETA_GPC	7			1	1	1	10
93B/93	RC-148	Gross Beta in Solids	900.0_ALPHABETA_GPC	7			1	1	1	10
GAM	RC-148	Gamma Scan	GAMMA_GS	7			1	1	1	10
U_T	RC-148	Uranium, Total in Solids	UTOT_KPA	7			1	1	1	10
TOTALS				28			4	4	4	40

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

7745-009 Method Blank

METHOD BLANK

SDG	7745	Client/Case no	Hanford	SDG_KP0116	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S207090-09	Client sample id	Method Blank		
Dept sample id	7745-009	Material/Matrix		SOIL	
		SAF No	RC-148		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-1.08	1.6	4.25	10.0	U	93A
Gross Beta	12587-47-2	0.476	3.3	5.67	15.0	U	93B
Total Uranium (ug/g)	7440-61-1	0	0.004	0.009	1.00	U	U_T
Potassium 40	13966-00-2	U		0.658		U	GAM
Cobalt 60	10198-40-0	U		0.049	0.050	U	GAM
Zinc 65	13982-39-3	U		0.095		U	GAM
Niobium 94	14681-63-1	U		0.038		U	GAM
Ruthenium 106	13967-48-1	U		0.277		U	GAM
Antimony 125	14234-35-6	U		0.102		U	GAM
Cesium 134	13967-70-9	U		0.047		U	GAM
Cesium 137	10045-97-3	U		0.042	0.100	U	GAM
Cerium 144	14762-78-8	U		0.168		U	GAM
Europium 152	14683-23-9	U		0.103	0.100	U	GAM
Europium 154	15585-10-1	U		0.122	0.100	U	GAM
Europium 155	14391-16-3	U		0.100	0.100	U	GAM
Radium 226	13982-63-3	U		0.073	0.100	U	GAM
Radium 228	15262-20-1	U		0.158	0.200	U	GAM
Thorium 228	14274-82-9	U		0.061		U	GAM
Thorium 232	TH-232	U		0.158		U	GAM
Uranium 235	15117-96-1	U		0.194	0.300	U	GAM
Uranium 238	U-238	U		3.47	10.0	U	GAM
Americium 241	14596-10-2	U		0.129	0.300	U	GAM

QC-BLANK #82249

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

7745-008 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7745 Client/Case no Hanford SDG KP0116
Contact Joseph Verville Contract No. S00W235A01

Lab sample id S207090-08 Client sample id Lab Control Sample
Dept sample id 7745-008 Material/Matrix SOIL
SAF No RC-148

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	117	12	4.19	10.0		93A	111	4.4	105	63-137	80-120
Gross Beta	95.8	7.3	4.97	15.0		93B	101	4.0	95	68-132	80-120
Total Uranium (ug/g)	31.0	3.7	0.088	1.00		U_T	33.0	1.3	94	82-118	80-120
Cobalt 60	1.22	0.12	0.062	0.050		GAM	1.39	0.056	88	83-117	80-120
Cesium 137	1.58	0.11	0.074	0.100		GAM	1.62	0.065	98	84-116	80-120

QC-LCS #82248

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

7745-010 J1PW73

DUPLICATE

SDG	7745			Client/Case no	Hanford SDG KP0116
Contact	Joseph Verville			Contract	No. S00W235A01
	DUPLICATE		ORIGINAL		
Lab sample id	S207090-10	Lab sample id	S207090-01	Client sample id	J1PW73
Dept sample id	7745-010	Dept sample id	7745-001	Location/Matrix	300-15 ProcessSewer-Verif SOIL
		Received	07/27/12	Collected/Weight	07/25/12 08:28 847 g
% solids	97.5	% solids	97.5	Custody/SAF No	RC-148-047 RC-148

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Gross Alpha	10.2	4.1	3.32	10.0		93A	7.95	2.4	2.19		25	90	0.8
Gross Beta	17.0	5.0	7.02	15.0		93B	16.6	2.8	3.73		2	67	0.1
Total Uranium (ug/g)	2.51	0.30	0.088	1.00		U_T	2.58	0.31	0.088		3	25	0.3
Potassium 40	16.1	0.24	0.085			GAM	16.1	0.65	0.278		0	16	0
Cobalt 60	U		0.008	0.050	U	GAM	U		0.028	U	-		1.4
Zinc 65	U		0.020		U	GAM	U		0.069	U	-		1.4
Niobium 94	U		0.007		U	GAM	U		0.021	U	-		1.3
Ruthenium 106	U		0.073		U	GAM	U		0.197	U	-		1.2
Antimony 125	U		0.020		U	GAM	U		0.056	U	-		1.2
Cesium 134	U		0.013		U	GAM	U		0.038	U	-		1.2
Cesium 137	U		0.009	0.100	U	GAM	U		0.024	U	-		1.2
Cerium 144	U		0.048		U	GAM	U		0.133	U	-		1.2
Europium 152	U		0.025	0.100	U	GAM	U		0.068	U	-		1.2
Europium 154	U		0.030	0.100	U	GAM	U		0.098	U	-		1.3
Europium 155	U		0.032	0.100	U	GAM	U		0.168	U	-		1.6
Radium 226	0.483	0.020	0.018	0.100		GAM	0.428	0.052	0.048		12	24	1.5
Radium 228	0.818	0.043	0.039	0.200		GAM	0.805	0.14	0.124		2	31	0.2
Thorium 228	0.774	0.016	0.011			GAM	0.972	0.058	0.052		23	18	3.7
Thorium 232	0.818	0.043	0.039			GAM	0.805	0.14	0.124		2	31	0.2
Uranium 235	U		0.062	0.300	U	GAM	U		0.152	U	-		1.1
Uranium 238	U		2.18	10.0	U	GAM	U		3.21	U	-		0.5
Americium 241	U		0.017	0.300	U	GAM	U		0.166	U	-		1.8

QC-DUP#1 82250

300 Area D4 Waste Sites-Soil Full Protocol

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

7745-001 J1PW73

DATA SHEET

SDG	7745	Client/Case no	Hanford SDG_KP0116
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207090-01	Client sample id	J1PW73
Dept sample id	7745-001	Location/Matrix	300-15 ProcesSewer-Verif SOIL
Received	07/27/12	Collected/Weight	07/25/12 08:28 847 g
% solids	97.5	Custody/SAF No	RC-148-047 RC-148

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	7.95	2.4	2.19	10.0		93A
Gross Beta	12587-47-2	16.6	2.8	3.73	15.0		93B
Total Uranium (ug/g)	7440-61-1	2.58	0.31	0.088	1.00		U_T
Potassium 40	13966-00-2	16.1	0.65	0.278			GAM
Cobalt 60	10198-40-0	U		0.028	0.050	U	GAM
Zinc 65	13982-39-3	U		0.069		U	GAM
Niobium 94	14681-63-1	U		0.021		U	GAM
Ruthenium 106	13967-48-1	U		0.197		U	GAM
Antimony 125	14234-35-6	U		0.056		U	GAM
Cesium 134	13967-70-9	U		0.038		U	GAM
Cesium 137	10045-97-3	U		0.024	0.100	U	GAM
Cerium 144	14762-78-8	U		0.133		U	GAM
Europium 152	14683-23-9	U		0.068	0.100	U	GAM
Europium 154	15585-10-1	U		0.098	0.100	U	GAM
Europium 155	14391-16-3	U		0.168	0.100	U	GAM
Radium 226	13982-63-3	0.428	0.052	0.048	0.100		GAM
Radium 228	15262-20-1	0.805	0.14	0.124	0.200		GAM
Thorium 228	14274-82-9	0.972	0.058	0.052			GAM
Thorium 232	TH-232	0.805	0.14	0.124			GAM
Uranium 235	15117-96-1	U		0.152	0.300	U	GAM
Uranium 238	U-238	U		3.21	10.0	U	GAM
Americium 241	14596-10-2	U		0.166	0.300	U	GAM

300 Area D4 Waste Sites-Soil Full Protocol

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

7745-002 J1PW74

DATA SHEET

SDG	7745	Client/Case no	Hanford SDG_KP0116
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207090-02	Client sample id	J1PW74
Dept sample id	7745-002	Location/Matrix	300-15 ProcesSewer-Verif SOIL
Received	07/27/12	Collected/Weight	07/25/12 08:29 1010 g
% solids	97.6	Custody/SAF No	RC-148-047 RC-148

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	8.75	3.4	3.21	10.0		93A
Gross Beta	12587-47-2	23.0	4.7	6.14	15.0		93B
Total Uranium (ug/g)	7440-61-1	2.90	0.35	0.088	1.00		U_T
Potassium 40	13966-00-2	15.5	0.62	0.196			GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Zinc 65	13982-39-3	U		0.051		U	GAM
Niobium 94	14681-63-1	U		0.020		U	GAM
Ruthenium 106	13967-48-1	U		0.177		U	GAM
Antimony 125	14234-35-6	U		0.052		U	GAM
Cesium 134	13967-70-9	U		0.032		U	GAM
Cesium 137	10045-97-3	U		0.023	0.100	U	GAM
Cerium 144	14762-78-8	U		0.127		U	GAM
Europium 152	14683-23-9	U		0.062	0.100	U	GAM
Europium 154	15585-10-1	U		0.073	0.100	U	GAM
Europium 155	14391-16-3	U		0.064	0.100	U	GAM
Radium 226	13982-63-3	0.430	0.047	0.044	0.100		GAM
Radium 228	15262-20-1	0.743	0.11	0.102	0.200		GAM
Thorium 228	14274-82-9	0.708	0.038	0.034			GAM
Thorium 232	TH-232	0.743	0.11	0.102			GAM
Uranium 235	15117-96-1	U		0.147	0.300	U	GAM
Uranium 238	U-238	U		3.09	10.0	U	GAM
Americium 241	14596-10-2	U		0.043	0.300	U	GAM

300 Area D4 Waste Sites-Soil Full Protocol

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

7745-003 J1PW75

DATA SHEET

SDG	7745	Client/Case no	Hanford SDG_KP0116
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207090-03	Client sample id	J1PW75
Dept sample id	7745-003	Location/Matrix	300-15 ProcesSewer-Verif SOIL
Received	07/27/12	Collected/Weight	07/25/12 10:10 917 g
% solids	98.4	Custody/SAF No	RC-148-047 RC-148

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	8.12	3.3	3.14	10.0		93A
Gross Beta	12587-47-2	25.9	4.5	5.49	15.0		93B
Total Uranium (ug/g)	7440-61-1	4.00	0.48	0.088	1.00		U_T
Potassium 40	13966-00-2	16.3	0.59	0.156			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Zinc 65	13982-39-3	U		0.051		U	GAM
Niobium 94	14681-63-1	U		0.019		U	GAM
Ruthenium 106	13967-48-1	U		0.177		U	GAM
Antimony 125	14234-35-6	U		0.052		U	GAM
Cesium 134	13967-70-9	U		0.033		U	GAM
Cesium 137	10045-97-3	U		0.020	0.100	U	GAM
Cerium 144	14762-78-8	U		0.121		U	GAM
Europium 152	14683-23-9	U		0.063	0.100	U	GAM
Europium 154	15585-10-1	U		0.067	0.100	U	GAM
Europium 155	14391-16-3	U		0.062	0.100	U	GAM
Radium 226	13982-63-3	0.505	0.048	0.041	0.100		GAM
Radium 228	15262-20-1	0.710	0.093	0.090	0.200		GAM
Thorium 228	14274-82-9	0.722	0.037	0.032			GAM
Thorium 232	TH-232	0.710	0.093	0.090			GAM
Uranium 235	15117-96-1	U		0.140	0.300	U	GAM
Uranium 238	U-238	U		2.99	10.0	U	GAM
Americium 241	14596-10-2	U		0.041	0.300	U	GAM

300 Area D4 Waste Sites-Soil Full Protocol

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

7745-004 J1PW76

DATA SHEET

SDG	7745	Client/Case no	Hanford SDG_KP0116
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207090-04	Client sample id	J1PW76
Dept sample id	7745-004	Location/Matrix	300-15 ProcesSewer-Verif SOIL
Received	07/27/12	Collected/Weight	07/25/12 12:50 836 g
% solids	97.3	Custody/SAF No	RC-148-047 RC-148

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	14.6	4.7	3.08	10.0		93A
Gross Beta	12587-47-2	71.1	6.5	6.07	15.0		93B
Total Uranium (ug/g)	7440-61-1	5.21	0.61	0.088	1.00		U_T
Potassium 40	13966-00-2	19.1	0.83	0.401			GAM
Cobalt 60	10198-40-0	U		0.036	0.050	U	GAM
Zinc 65	13982-39-3	U		0.083		U	GAM
Niobium 94	14681-63-1	U		0.029		U	GAM
Ruthenium 106	13967-48-1	U		0.257		U	GAM
Antimony 125	14234-35-6	U		0.082		U	GAM
Cesium 134	13967-70-9	U		0.046		U	GAM
Cesium 137	10045-97-3	U		0.032	0.100	U	GAM
Cerium 144	14762-78-8	U		0.170		U	GAM
Europium 152	14683-23-9	U		0.096	0.100	U	GAM
Europium 154	15585-10-1	U		0.132	0.100	U	GAM
Europium 155	14391-16-3	U		0.084	0.100	U	GAM
Radium 226	13982-63-3	0.536	0.064	0.062	0.100		GAM
Radium 228	15262-20-1	1.07	0.17	0.133	0.200		GAM
Thorium 228	14274-82-9	1.01	0.054	0.048			GAM
Thorium 232	TH-232	1.07	0.17	0.133			GAM
Uranium 235	15117-96-1	U		0.419	0.300	U	GAM
Uranium 238	U-238	U		4.68	10.0	U	GAM
Americium 241	14596-10-2	U		0.049	0.300	U	GAM

300 Area D4 Waste Sites-Soil Full Protocol

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

7745-005 J1PW77

DATA SHEET

SDG	7745	Client/Case no	Hanford SDG_KP0116
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207090-05	Client sample id	J1PW77
Dept sample id	7745-005	Location/Matrix	300-15 ProcesSewer-Verif SOIL
Received	07/27/12	Collected/Weight	07/25/12 13:56 896 g
% solids	93.9	Custody/SAF No	RC-148-047 RC-148

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	9.80	4.2	4.22	10.0		93A
Gross Beta	12587-47-2	33.8	4.9	5.46	15.0		93B
Total Uranium (ug/g)	7440-61-1	2.25	0.27	0.088	1.00		U_T
Potassium 40	13966-00-2	12.0	1.1	0.553			GAM
Cobalt 60	10198-40-0	U		0.050	0.050	U	GAM
Zinc 65	13982-39-3	U		0.128		U	GAM
Niobium 94	14681-63-1	U		0.048		U	GAM
Ruthenium 106	13967-48-1	U		0.404		U	GAM
Antimony 125	14234-35-6	U		0.115		U	GAM
Cesium 134	13967-70-9	U		0.068		U	GAM
Cesium 137	10045-97-3	U		0.052	0.100	U	GAM
Cerium 144	14762-78-8	U		0.243		U	GAM
Europium 152	14683-23-9	U		0.125	0.100	U	GAM
Europium 154	15585-10-1	U		0.179	0.100	U	GAM
Europium 155	14391-16-3	U		0.124	0.100	U	GAM
Radium 226	13982-63-3	0.371	0.094	0.088	0.100		GAM
Radium 228	15262-20-1	0.706	0.24	0.226	0.200		GAM
Thorium 228	14274-82-9	0.535	0.072	0.069			GAM
Thorium 232	TH-232	0.706	0.24	0.226			GAM
Uranium 235	15117-96-1	U		0.280	0.300	U	GAM
Uranium 238	U-238	U		6.05	10.0	U	GAM
Americium 241	14596-10-2	U		0.126	0.300	U	GAM

300 Area D4 Waste Sites-Soil Full Protocol

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

7745-006 J1PW78

DATA SHEET

SDG	7745	Client/Case no	Hanford SDG_KP0116
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207090-06	Client sample id	J1PW78
Dept sample id	7745-006	Location/Matrix	300-15 ProcesSewer-Verif SOIL
Received	07/27/12	Collected/Weight	07/25/12 14:23 869 g
% solids	98.7	Custody/SAF No	RC-148-047 RC-148

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	11.2	4.4	3.83	10.0		93A
Gross Beta	12587-47-2	35.4	5.1	5.43	15.0		93B
Total Uranium (ug/g)	7440-61-1	4.52	0.53	0.088	1.00		U_T
Potassium 40	13966-00-2	15.3	0.18	0.057			GAM
Cobalt 60	10198-40-0	U		0.007	0.050	U	GAM
Zinc 65	13982-39-3	U		0.014		U	GAM
Niobium 94	14681-63-1	U		0.006		U	GAM
Ruthenium 106	13967-48-1	U		0.054		U	GAM
Antimony 125	14234-35-6	U		0.014		U	GAM
Cesium 134	13967-70-9	U		0.009		U	GAM
Cesium 137	10045-97-3	U		0.006	0.100	U	GAM
Cerium 144	14762-78-8	U		0.044		U	GAM
Europium 152	14683-23-9	U		0.018	0.100	U	GAM
Europium 154	15585-10-1	U		0.023	0.100	U	GAM
Europium 155	14391-16-3	U		0.037	0.100	U	GAM
Radium 226	13982-63-3	0.397	0.014	0.013	0.100		GAM
Radium 228	15262-20-1	0.645	0.025	0.022	0.200		GAM
Thorium 228	14274-82-9	0.621	0.011	0.009			GAM
Thorium 232	TH-232	0.645	0.025	0.022			GAM
Uranium 235	15117-96-1	U		0.110	0.300	U	GAM
Uranium 238	U-238	U		1.48	10.0	U	GAM
Americium 241	14596-10-2	U		0.032	0.300	U	GAM

300 Area D4 Waste Sites-Soil Full Protocol

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

7745-007 J1PW80

DATA SHEET

SDG	7745	Client/Case no	Hanford SDG_KP0116
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207090-07	Client sample id	J1PW80
Dept sample id	7745-007	Location/Matrix	300-15 ProcesSewer-Verif SOIL
Received	07/27/12	Collected/Weight	07/25/12 14:47 680 g
% solids	94.8	Custody/SAF No	RC-148-047 RC-148

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	7.65	3.3	2.89	10.0		93A
Gross Beta	12587-47-2	28.8	5.0	6.06	15.0		93B
Total Uranium (ug/g)	7440-61-1	4.05	0.49	0.088	1.00		U_T
Potassium 40	13966-00-2	13.9	0.35	0.163			GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Zinc 65	13982-39-3	U		0.045		U	GAM
Niobium 94	14681-63-1	U		0.015		U	GAM
Ruthenium 106	13967-48-1	U		0.128		U	GAM
Antimony 125	14234-35-6	U		0.036		U	GAM
Cesium 134	13967-70-9	U		0.019		U	GAM
Cesium 137	10045-97-3	U		0.016	0.100	U	GAM
Cerium 144	14762-78-8	U		0.090		U	GAM
Europium 152	14683-23-9	U		0.043	0.100	U	GAM
Europium 154	15585-10-1	U		0.056	0.100	U	GAM
Europium 155	14391-16-3	U		0.054	0.100	U	GAM
Radium 226	13982-63-3	0.399	0.034	0.033	0.100		GAM
Radium 228	15262-20-1	0.672	0.077	0.072	0.200		GAM
Thorium 228	14274-82-9	0.709	0.026	0.024			GAM
Thorium 232	TH-232	0.672	0.077	0.072			GAM
Uranium 235	15117-96-1	U		0.116	0.300	U	GAM
Uranium 238	U-238	U		2.06	10.0	U	GAM
Americium 241	14596-10-2	U		0.131	0.300	U	GAM

300 Area D4 Waste Sites-Soil Full Protocol

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

Test 93A Matrix SOIL
SDG 7745
Contact Joseph Verville

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A01
Contract SDG KP0116

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
Preparation batch 7732-140					
S207090-01	93		7745-001	J1PW73	7.95
S207090-02	93		7745-002	J1PW74	8.75
S207090-03	93		7745-003	J1PW75	8.12
S207090-04	93		7745-004	J1PW76	14.6
S207090-05	93		7745-005	J1PW77	9.80
S207090-06	93		7745-006	J1PW78	11.2
S207090-07	93		7745-007	J1PW80	7.65
S207090-08	93		7745-008	Lab Control Sample	ok
S207090-09	93		7745-009	Method Blank	U
S207090-10	93		7745-010	Duplicate (S207090-01)	ok
Nominal values and limits from method				RDLs (pCi/g)	10.0

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7732-140			2σ prep error 20.6 % Reference Lab Notebook No. 7732 pg.140													
S207090-01	93		J1PW73	2.19	0.100			50		200			9	08/03/12	08/03	GRB-216
S207090-02	93		J1PW74	3.21	0.100			52		100			9	08/03/12	08/03	GRB-213
S207090-03	93		J1PW75	3.14	0.100			47		100			9	08/03/12	08/03	GRB-214
S207090-04	93		J1PW76	3.08	0.100			58		100			9	08/03/12	08/03	GRB-215
S207090-05	93		J1PW77	4.22	0.100			73		100			9	08/03/12	08/03	GRB-216
S207090-06	93		J1PW78	3.83	0.100			60		100			12	08/03/12	08/06	GRB-101
S207090-07	93		J1PW80	2.89	0.100			45		100			12	08/03/12	08/06	GRB-103
S207090-08	93		Lab Control Sample	4.19	0.100			60		100				08/03/12	08/06	GRB-104
S207090-09	93		Method Blank	4.25	0.100			61		100				08/03/12	08/06	GRB-105
S207090-10	93		Duplicate (S207090-01)	3.32	0.100			52		100			12	08/03/12	08/06	GRB-107
Nominal values and limits from method				10.0	0.100			0-250		100			180			

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

Test	93A
Matrix	SOIL
SDG	7745
Contact	Joseph Verville

LAB METHOD SUMMARY, cont.

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client	Hanford
Contract	No. S00W235A01
Contract	SDG KP0116

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 1
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 3

AVERAGES ± 2 SD	MDA	3.43	±	1.35
FOR 10 SAMPLES	RESIDUE	56	±	17

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

Test 93B Matrix SOIL
SDG 7745
Contact Joseph Verville

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A01
Contract SDG KP0116

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 7732-140					
S207090-01	93		7745-001	J1PW73	16.6
S207090-02	93		7745-002	J1PW74	23.0
S207090-03	93		7745-003	J1PW75	25.9
S207090-04	93		7745-004	J1PW76	71.1
S207090-05	93		7745-005	J1PW77	33.8
S207090-06	93		7745-006	J1PW78	35.4
S207090-07	93		7745-007	J1PW80	28.8
S207090-08	93		7745-008	Lab Control Sample	ok
S207090-09	93		7745-009	Method Blank	U
S207090-10	93		7745-010	Duplicate (S207090-01)	ok
Nominal values and limits from method				RDLs (pCi/g)	15.0

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7732-140			2σ prep error 20.6 % Reference Lab Notebook No. 7732 pg.140													
S207090-01	93		J1PW73	3.73	0.100			50		200			9	08/03/12	08/03	GRB-216
S207090-02	93		J1PW74	6.14	0.100			52		100			9	08/03/12	08/03	GRB-213
S207090-03	93		J1PW75	5.49	0.100			47		100			9	08/03/12	08/03	GRB-214
S207090-04	93		J1PW76	6.07	0.100			58		100			9	08/03/12	08/03	GRB-215
S207090-05	93		J1PW77	5.46	0.100			73		100			9	08/03/12	08/03	GRB-216
S207090-06	93		J1PW78	5.43	0.100			60		100			12	08/03/12	08/06	GRB-101
S207090-07	93		J1PW80	6.06	0.100			45		100			12	08/03/12	08/06	GRB-103
S207090-08	93		Lab Control Sample	4.97	0.100			60		100				08/03/12	08/06	GRB-104
S207090-09	93		Method Blank	5.67	0.100			61		100				08/03/12	08/06	GRB-105
S207090-10	93		Duplicate (S207090-01)	7.02	0.100			52		100			12	08/03/12	08/06	GRB-107
Nominal values and limits from method				15.0	0.100			0-250		100			180			

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

Test 93B	Matrix SOIL
SDG 7745	
Contact Joseph Verville	

LAB METHOD SUMMARY, cont.

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. S00W235A01	
Contract SDG KP0116	

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 1
	SPP-125	Gross Alpha and Gross Beta in Dissolved Solids, rev 3

AVERAGES ± 2 SD	MDA	5.60	±	1.73
FOR 10 SAMPLES	RESIDUE	56	±	17

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/07/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

Test GAM Matrix SOIL
SDG 7745
Contact Joseph Verville

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A01
Contract SDG KP0116

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 7732-140								
S207090-01			7745-001	J1PW73	U		U	
S207090-02			7745-002	J1PW74	U		U	
S207090-03			7745-003	J1PW75	U		U	
S207090-04			7745-004	J1PW76	U		U	
S207090-05			7745-005	J1PW77	U		U	
S207090-06			7745-006	J1PW78	U		U	
S207090-07			7745-007	J1PW80	U		U	
S207090-08			7745-008	Lab Control Sample	ok		ok	
S207090-09			7745-009	Method Blank	U		U	
S207090-10			7745-010	Duplicate (S207090-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.100	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7732-140			2σ prep error 7.0 %	Reference Lab Notebook No. 7732 pg.140												
S207090-01			J1PW73	0.028	572					114			7	07/31/12	08/01	MB,08,00
S207090-02			J1PW74	0.024	694					114			7	07/31/12	08/01	MB,06,00
S207090-03			J1PW75	0.021	637					140			7	07/31/12	08/01	MB,06,00
S207090-04			J1PW76	0.036	541					140			7	07/31/12	08/01	02,03,00
S207090-05			J1PW77	0.050	185					140			7	07/31/12	08/01	JR,04,00
S207090-06			J1PW78	0.007	743					968			7	07/31/12	08/01	02,02,00
S207090-07			J1PW80	0.017	557					967			7	07/31/12	08/01	MB,05,00
S207090-08			Lab Control Sample	0.062	180					113				07/31/12	08/01	01,03,00
S207090-09			Method Blank	0.049	180					114				07/31/12	08/01	01,04,00
S207090-10			Duplicate (S207090-01)	0.008	572					969			7	07/31/12	08/01	MB,06,00
Nominal values and limits from method				0.050	180					100			180			

Lab id EBRLNE
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EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

Test GAM Matrix SOIL	Client Hanford
SDG 7745	Contract No. S00W235A01
Contact Joseph Verville	Contract SDG KP0116

LAB METHOD SUMMARY, cont.

GAMMA SCAN

GAMMA SPECTROSCOPY

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

AVERAGES ± 2 SD FOR 10 SAMPLES	MDA	0.030 ± 0.037
	YIELD	____ ± ____

Lab id	EBRLNE
Protocol	RC-148
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EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

Test U T Matrix SOIL
SDG 7745
Contact Joseph Verville

LAB METHOD SUMMARY

URANIUM, TOTAL IN SOLIDS
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. S00W235A01
Contract SDG KP0116

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Uranium
Preparation batch 7732-140					
S207090-01			7745-001	J1PW73	2.58
S207090-02			7745-002	J1PW74	2.90
S207090-03			7745-003	J1PW75	4.00
S207090-04			7745-004	J1PW76	5.21
S207090-05			7745-005	J1PW77	2.25
S207090-06			7745-006	J1PW78	4.52
S207090-07			7745-007	J1PW80	4.05
S207090-08			7745-008	Lab Control Sample	ok
S207090-09			7745-009	Method Blank	U
S207090-10			7745-010	Duplicate (S207090-01)	ok
Nominal values and limits from method				RDLs (ug/g)	1.00

METHOD PERFORMANCE

LAB SAMPLE 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
Preparation batch 7732-140			2σ prep error		Reference Lab Notebook No. 7732 pg.140											
S207090-01			J1PW73	0.088	0.0500								8	08/02/12	08/02	KPA-001
S207090-02			J1PW74	0.088	0.0500								8	08/02/12	08/02	KPA-001
S207090-03			J1PW75	0.088	0.0500								8	08/02/12	08/02	KPA-001
S207090-04			J1PW76	0.088	0.0500								8	08/02/12	08/02	KPA-001
S207090-05			J1PW77	0.088	0.0500								8	08/02/12	08/02	KPA-001
S207090-06			J1PW78	0.088	0.0500								8	08/02/12	08/02	KPA-001
S207090-07			J1PW80	0.088	0.0500								8	08/02/12	08/02	KPA-001
S207090-08			Lab Control Sample	0.088	0.0500									08/02/12	08/02	KPA-001
S207090-09			Method Blank	0.009	0.0500									08/02/12	08/02	KPA-001
S207090-10			Duplicate (S207090-01)	0.088	0.0500								8	08/02/12	08/02	KPA-001
Nominal values and limits from method				1.00	0.0500								180			

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EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP KP0116

Test	U T
Matrix	SOIL
SDG	7745
Contact	Joseph Verville

LAB METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOLIDS

KINETIC PHOSPHORIMETRY

Client	Hanford
Contract	No. S00W235A01
Contract	SDG KP0116

PROCEDURES	REFERENCE	UTOT_KPA
	SPP-062	Sample Aliquoting, rev 1
	SPP-044	Sample Preparation for Total Uranium by Kinetic Phosphorimetry, rev 0
	CP-928	Total Uranium by Kinetic Phosphorimetry, rev 11

AVERAGES ± 2 SD	MDA	0.080	±	0.050
FOR 10 SAMPLES	YIELD		±	

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-LMS
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SDG 7745
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_KP0116

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

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Version 3.06
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SDG 7745
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG KP0116

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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REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG KP0116

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

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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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LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

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DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

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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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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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MATRIX SPIKE

for the recovery.

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

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

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METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-148-047 | Page ~~2 of 6~~

Collector Simonds, M	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688 (7745)	**Project Coordinator** KESSNER, JH
Price Code ~~8L~~ 9B	**Data Turnaround** 7 ~~21~~ Days		
Project Designation 300 Area D4 Waste Sites - Soil Full Protocol	**Sampling Location** 300-15 Process Sewer -- Verification KP0116	**SAF No.** RC-148	
Ice Chest No. RCC-07-005	**Field Logbook No.** EL-1663-03	**COA** R300152000	**Method of Shipment** Hand Deliver/Government Vehicle/FedEx
Shipped To EBERLINE SERVICES ~~LIONVILLE~~	**Offsite Property No.** A110484		**Bill of Lading/Air Bill No.** See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
Potential Radioactive < DOT Limits
AJ 7-26-12

Special Handling and/or Storage
None

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	aG	aG	Gs*	aG	aG	G/P	P/G	G/P
No. of Container(s)	1	1	1	1	3	1	1	1	1	1
Volume	60mL	60mL	60mL	120mL	40mL	250mL	120mL	500ml	60mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	Total Cyanide - 9010; Sulfides - 9030	TPH-Diesel Range - WTPH-D +	VOA - 5035/8260 (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (2) in Special Instructions.	Gross Alpha & Gross Beta	Total Uranium

Sample No.	Matrix *	Sample Date	Sample Time				RCF						
J1PW72	SOIL												
J1PW73	SOIL	7/25/12	0828				34047				✓	✓	✓
J1PW74	SOIL	7/25/12	0829				34048				✓	✓	✓
J1PW75	SOIL	7/25/12	1010				34049				✓	✓	✓
J1PW76	SOIL	7/25/12	1250				34050				✓	✓	✓

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MIRANDA SIMONDS	7/25/12 1610	DAVID BECKER	7/25/12 1610
DAVID BECKER	7/25/12 1730	1060, 3A *	7/25/12 1730
A. Freier	1060 #3A 0640 7-26-12	A. Freier	0640 7-26-12
A. Freier	WCH 1315 7-26-12		
Fed Ex		Fed Ex / F. MONTAUANAN	07/30/12 0930

SPECIAL INSTRUCTIONS
~~Please Note: VOA samples frozen upon collection~~
(1) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Uranium, Vanadium, Zinc, Zirconium}; Mercury - 7471 - (CV)
(2) Gamma Spec (Client List) {Americium-241, Antimony-125, Cerium-144, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238, Zinc-65}

KP0116

* Custodian unavailable to remove samples from controlled storage. Shipper removed samples, taking custody for shipment to lab.

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

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

REVIEWED BY JFB DATE 7-26-12

WCH-EE-011

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-148-047 | Page ~~3 of 6~~

Collector: Simonds, M	Company Contact: Joan Kessner	Telephone No.: 509-375-4688 (77145)	Project Coordinator: KESSNER, JH
Price Code: ~~8L~~ 9B	Data Turnaround: ~~21~~ 7 Days		
Project Designation: 300 Area D4 Waste Sites - Soil Full Protocol	Sampling Location: 300-15 Process Sewer -- Verification KP0116		SAF No.: RC-148
Ice Chest No.: RCC-07-005	Field Logbook No.: EL-1663-03	COA: R300152000	Method of Shipment: Hand Deliver/Government Vehicle/FedEx
Shipped To: EBERLINE SERVICES ~~LIONVILLE~~	Offsite Property No.: A110484		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive L DOT Limits AJ 7-26-12

Special Handling and/or Storage

None

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	aG	aG	Gs*	aG	aG	G/P	P/G	G/P
No. of Container(s)	1	1	1	1	3	1	1	1	1	1
Volume	60mL	60mL	60mL	120mL	40mL	250mL	120mL	500ml	60mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	Total Cyanide - 9010; Sulfides - 9030	TPH-Diesel Range - WTPH-D +	VOA - 5035/8260 (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (2) in Special Instructions.	Gross Alpha & Gross Beta	Total Uranium

Sample No.	Matrix *	Sample Date	Sample Time					RUF					
J1PW77	SOIL	7/25/12	1356					34051			✓	✓	✓
J1PW78	SOIL	7/25/12	1423					34052			✓	✓	✓
~~J1PW79~~	~~SOIL~~	~~7/25/12~~	~~0903~~										
J1PW80	SOIL	7/25/12	1447					34053			✓	✓	✓

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MICHAEL SIMONDS	7/25/12 1610	DAVID BECKER	7/25/12 1610
DAVID BECKER	7/25/12 1730	1060, 3A *	7/25/12 1730
1060#3A A. Freier	7-26-12 0640	A. Freier	7-26-12 0640
WCH A. Freier	7-26-12 1315	Fed Ex	
		F. WATANABE	07/26/12 0930

SPECIAL INSTRUCTIONS

~~Please Note: VOA samples frozen upon collection.~~

(1) ICP Metals - 6010TR (Client List) {~~Aluminum, Antimony~~, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, ~~Copper, Iron, Lead, Lithium, Magnesium~~, Manganese, Molybdenum, Nickel, Potassium, Selenium, ~~Silicon, Silver~~, Sodium, Uranium, Vanadium, ~~Zinc~~, Zirconium}; Mercury - 7471 - (CV)

(2) Gamma Spec (Client List) {Americium-241, Antimony-125, Cerium-144, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228, Ruthenium-106, Uranium-235, Uranium-238, Zinc-65}

KP0116

* Custodian unavailable to remove samples from controlled storage. Shipper removed samples, taking custody for shipment to lab.

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

REVIEWED BY JBB DATE 7-26-12

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

WCH-EE-011

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 07/30/12 0930 CoC No. RC-148-047

Container I.D. No. RCC-07-005 Requested TAT (Days) 7 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 7 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 [X] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [X] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH N/A Preservative _____
13. Describe any anomalies: SAMPLE J1PW75 - 500 ML CONTAINER IS BROKEN
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date: 07/30/12 Time: 1030

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 10048 V Calibration date 06 DEC 11

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

6 August 2012

Joan Kessner
WC-Hanford, Inc.
2620 Fermi Avenue
MSIN H4-21
Richland, WA 99354

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	1207059
SDG #	KP0116
SAF #	RC-148
Date Received	07/27/12
# Samples	8
Matrix	SOIL
Volatiles	X
Semivolatiles	X
Pest/PCB	X
Glycols	
DRO/KRO/GRO	X
PAHs	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

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 132 pages.

CHAIN OF CUSTODY

Lionville Laboratory Use Only: 1207059

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Lionville Laboratory
A Division of Eberline Analytical Corporation

Client: W.C. Hanford SAF # RC-148 KP0116
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: Quletta Johnson
QC: SW Del: SW TAT: 7 days
Date Rec'd: 7-27-12 Date Due: 8/3/12

		A-D	E	F		G			H	I		J			K	
Refrigerator #		Foo1	1	1		1			1	1		1			1	
#/Type Container	Liquid															
	Solid	4gl	1gl	1gl		1gl			1gl	1gl		1gl			1gl	
Volume	Liquid															
	Solid	40	250	120		120			60	60		60			40	
Preservatives		—	—	—		—			—	—		—			—	
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	~~Pest/~~ PCB	Herb	TPH-D			Metal + Hg	CN	SFD	IC Anions	NO2/ NO3		% Moisture	
Lionville Laboratory Use Only		TPH VOA 8260	8270, TCL	PCB		DRO/MO			METAL	CYANIDE	SULFIDES	ANIONS	NO3N2		% MOIST	

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	PCB		DRO/MO			METAL	CYANIDE	SULFIDES	ANIONS	NO3N2		% MOIST	
01	J1PW73			S	7.25.12	0828	X	X	X		X			X	X	X	X	X		X	
02	J1PW74					0829	X	X	X		X			X	X	X	X	X		X	
03	J1PW75					1010	X	X	X		X			X	X	X	X	X		X	
04	J1PW76					1250	X	X	X		X			X	X	X	X	X		X	
05	J1PW77					1356	X	X	X		X			X	X	X	X	X		X	
06	J1PW78					1423	X	X	X		X			X	X	X	X	X		X	
07	J1PW79					0903								X							
08	J1PW80					1447	X	X	X		X			X	X	X	X	X		X	

Special Instructions:
METALS = HSL + B, Li, Mo, Si, U, Zr (NO TL)

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	7.27.12	0950

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-148-047	Page ~~2 of 2~~ 1 OF 2

Collector Simonds, M	**Company Contact** Joan Kessner **Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH	**Price Code** ~~8L~~ 9B **Data Turnaround** 7 ~~21~~ Days 7/25/12
Project Designation 300 Area D4 Waste Sites - Soil Full Protocol	**Sampling Location** 300-15 Process Sewer -- Verification	**SAF No.** RC-148 7/25/12	
Ice Chest No. WCH-11-008	**Field Logbook No.** EL-1663-03 **COA** R300152000	**Method of Shipment** Hand Deliver/Government Vehicle/FedEx	
Shipped To ~~EBERLINE SERVICES~~ LIONVILLE 7/25/12	**Offsite Property No.** A 110472	**Bill of Lading/Air Bill No.** See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS 7/25/12

Potential Radioactive < DOT Limits AJ

Special Handling and/or Storage

~~None~~ Cool 4°C

AJ 7-26-12

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	aG	aG	Gs*	aG	aG	G/P	P/G	G/P
No. of Container(s)	1	1	1	1	5	1	1	1		
Volume	60mL	60mL	60mL	120mL	40mL	250mL	120mL	500mL	60mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	Total Cyanide - 9010; Sulfides - 9030	TPH-Diesel Range - WTPH-D +	VOA - 5035/8260 (TCL) *	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (2) in Special Instructions.	Gross Alpha & Gross Beta	Total Uranium

Sample No.	Matrix *	Sample Date	Sample Time										
~~J1PW72~~	~~SOIL~~	AJ 7-26-12									RCF AJ 7-26-12		
J1PW73	SOIL	7/25/12	0828	✓	✓	✓	✓	✓	✓	✓	JH 34047		
J1PW74	SOIL	7/25/12	0829	✓	✓	✓	✓	✓	✓	✓	34048		
J1PW75	SOIL	7/25/12	1010	✓	✓	✓	✓	✓	✓	✓	34049		
J1PW76	SOIL	7/25/12	1250	✓	✓	✓	✓	✓	✓	✓	34050		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MIRANDA SIMONDS	7/25/12 1610	DAVID BECKER	7/25/12 1610
DAVID BECKER	7/25/12 1730	1060,3A **	7/25/12 1730
1060 #3	0640	A. Freier	0640 7-26-12
A. Freier	7-26-12 1355	Fed Ex	
Fed Ex	7-27-12 0950	D. Smith	7-27-12 0950

SPECIAL INSTRUCTIONS

Please Note: VOA samples frozen upon collection.

(1) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Uranium, Vanadium, Zinc, Zirconium}; Mercury - 7471 - (CV)

~~(2) Gamma Spec (Client List) {Americium-241, Antimony-125,~~ Cerium-144, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, ~~Europium-155, Niobium-94, Radium-226,~~ Radium-228, Ruthenium-106, Uranium-235, Uranium-238, Zinc-65 7/25/12

* freeze upon receipt AJ 7-26-12

KP0116

VOA samples frozen upon collection

Matrix *

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

LABORATORY SECTION	Received By	Title ** Custodian unavailable to remove samples from controlled storage. Shipper removed samples, taking custody for shipment to lab.	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method		Date/Time

REVIEWED BY DATE 7/26/12

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-148-047	Page ~~3 of 6~~ 2 of 2

Collector Simonds, M	**Company Contact** Joan Kessner **Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH	**Price Code** ~~8L~~ 9B 7/25/12 **Data Turnaround** 7/25/12 ~~21~~ Days 7/25/12
Project Designation 300 Area D4 Waste Sites - Soil Full Protocol	**Sampling Location** 300-15 Process Sewer -- Verification	**SAF No.** RC-148	
Ice Chest No. WCH-11-008	**Field Logbook No.** EL-1663-03 **COA** R300152000	**Method of Shipment** Hand Deliver/Government Vehicle/FedEx	
Shipped To ~~EBERLINE SERVICES~~ LIONVILLE	**Offsite Property No.** A110472	**Bill of Lading/Air Bill No.** See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS 7/25/12

Potential Radioactive < DOT Limits AJ 7-26-12

Special Handling and/or Storage

~~None~~ Cool 4°C AJ 7-26-12

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Freeze	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	aG	aG	Gs*	aG	aG	G/P	P/G	G/P
No. of Container(s)	1	1	1	1	5	1	1	1		
Volume	60mL	60mL	60mL	120mL	40mL	250mL	120mL	500ml	500mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	Total Cyanide - 9010; Sulfides - 9030	TPH-Diesel Range - WTPH-D +	VOA - 5035/8260 (TCL) *	Semi-VOA - 8270A (TCL)	PCBs - 8082	See item (2) in Special Instructions	Gross Alpha & Gross Beta	Total Uranium

Sample No.	Matrix *	Sample Date	Sample Time								RCF		
J1PW77	SOIL	7/25/12	1356	✓	✓	✓	✓	✓	✓	✓	34051		
J1PW78	SOIL	7/25/12	1423	✓	✓	✓	✓	✓	✓	✓	34052		
J1PW79	SOIL	7/25/12	0903	✓									
J1PW80	SOIL	7/25/12	1447	✓	✓	✓	✓	✓	✓	✓	34053		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
M. AND A SIMONDS	7/25/12 1610	DAVID BECKER	7/25/12 1610
DAVID BECKER	7/25/12 1730	1060, 3A **	7/25/12 1730
1060 #3 A. Freier	0640 7-26-12	A. Freier	0640 7-26-12
WCH A. Freier	1355 7-26-12	Fed Ex	
Fed Ex	7.27.12 0950	D. Smith	7.27.12 0950

SPECIAL INSTRUCTIONS

Please Note: VOA samples frozen upon collection.

(1) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Uranium, Vanadium, Zinc, Zirconium}; Mercury - 7471 - (CV)

~~(2) Gamma Spec (Client List)~~ {Americium-241, ~~Antimony-125~~, Cerium-144, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, ~~Europium-155, Niobium-94, Radium-226~~, Radium-228, Ruthenium-106, Uranium-235, Uranium-238, Zinc-65} 7/25/12

*freeze upon receipt ** AJ 7-26-12

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

KP0116

Custodian unavailable to remove samples from controlled storage. Shipper removed samples, taking custody for shipment to lab.

VOA samples frozen upon collection

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

REVIEWED BY DATE 7/26/12

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford

Project/SAF/SDW/Release #: RC-148

Date: 7.27.12

LvL Batch #: 1207059

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7938 3689 1440
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 3.8	°C	Cooler # WCH-11-008
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvL) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

SR-002-B.doc

VOLATILES

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

Analytical Report for Volatile Organic Compounds by SW846 8260B

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW73	1207059-01	Soil	07/25/2012 08:28	07/27/2012 09:50
J1PW74	1207059-02	Soil	07/25/2012 08:29	07/27/2012 09:50
J1PW75	1207059-03	Soil	07/25/2012 10:10	07/27/2012 09:50
J1PW76	1207059-04	Soil	07/25/2012 12:50	07/27/2012 09:50
J1PW77	1207059-05	Soil	07/25/2012 13:56	07/27/2012 09:50
J1PW78	1207059-06	Soil	07/25/2012 14:23	07/27/2012 09:50
J1PW80	1207059-08	Soil	07/25/2012 14:47	07/27/2012 09:50

LIONVILLE LABORATORY
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Case Narrative

Client: WC-HANFORD RC-148 KP0116
LVL #: 1207059

W.O. #: 60049-001-001-0001-00
Date Received: 07-27-2012

GC/MS VOLATILE

Seven (7) soil samples were collected on 07-25-2012.

The samples and associated QC samples were prepared and analyzed 07-27-2012 according to criteria set forth in Lionville Laboratory SOPs. The preparation procedure was based on SW846 Method 5035A and the analysis procedure was based on SW846 Method 8260B for Client Specified Volatile target compounds.

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

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

2. Samples were analyzed within hold time.

3. Non-target compounds were not detected in these samples.

4. All obtainable surrogate recoveries were within QC acceptance criteria.

5. All matrix spike recoveries were within QC acceptance criteria.

6. All blank spike recoveries were within acceptance criteria.

7. The method blank was below the reporting limit for all target analytes.

8. Samples are reported on a dry weight basis.

9. All initial calibrations associated with this data set were within acceptance criteria using the mean RSD described in method 8000B. Per method 8000B/8260B, the attached Table 1 provides the mean RSD and indicates the target compounds where the RSD exceeded 15%; results for the indicated target compounds are considered to have greater uncertainty.

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

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

11. All internal standard area and retention time criteria were met.

12. 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").

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

Iain Daniels
LvL Laboratory Manager

8/3/12
Date

TABLE 1

FULL LIST - 8000B/8260B COMPOUNDS WHERE THE MEAN %RSD IS USED TO MEET

CRITERIA FOR INITIAL CALIBRATION OF AN INDIVIDUAL COMPOUND

MEAN RSD USED FOR EVALUATION: 8.479 INSTRUMENT ID/DATE: 5972K 7/11/12

>15% RSD	Compound	>15% RSD	Compound	>15% RSD	Compound
	1,1,1,2-Tetrachloroethane		Carbon Disulfide		trans-1,4-Dichloro-2-butene
	1,1,1-Trichloroethane		Carbon Tetrachloride		Trichloroethene
	1,1,2,2-Tetrachloroethane		Chlorobenzene		Trichlorofluoromethane
	1,1,2-Trichloroethane		Chloroethane		Vinyl acetate
	1,1-Dichloroethane		Chloroform		Vinyl chloride
	1,1-Dichloroethene		Chloromethane		Xylenes, total
	1,1-Dichloropropene		cis-1,2-Dichloroethene		
	1,2,3-Trichlorobenzene		cis-1,3-Dichloropropene		
	1,2,3-Trichloropropane		Cyclohexane		
	1,2,3-Trimethylbenzene		Cyclohexanone		
	1,2,4-Trichlorobenzene		Dibromochloromethane		
	1,2,4-Trimethylbenzene		Dibromofluoromethane		
	1,2-Dibromo-3-chloropropane		Dibromomethane		
	1,2-Dibromoethane		Dichlorodifluoromethane		
	1,2-Dichlorobenzene		Diethyl Ether		
	1,2-Dichloroethane		Ethyl Acetate		
	1,2-Dichloroethene (total)		Ethyl Methacrylate		
	1,2-Dichloropropane		Ethylbenzene		**Surrogates:**
	1,2-Xylene		Ethylene oxide		1,2-Dichloroethane-d4
	1,3- and 1,4-Xylenes		Freon-113		Toluene-d8
	1,3,5-Trimethylbenzene		Freon-114		4-Bromofluorobenzene
	1,3-Dichlorobenzene		Hexachlorobutadiene		
	1,3-Dichloropropane		Hexane		
	1,3-Dichloropropene (total)		Iodomethane		
	1,4-Dichlorobenzene		Isobutyl alcohol		
	1,4-Dioxane		Isopropylbenzene		
	2,2-Dichloropropane		Methacrylonitrile		
✓	2-Butanone		Methyl Acetate		
	2-Chloro-1,3-butadiene		Methyl Methacrylate		
	2-Chloroethyl Vinyl Ether		Methylcyclohexane		
	2-Chlorotoluene		Methylene Chloride		
	2-Hexanone		Methyl-tert-Butyl Ether		
	2-Nitropropane		Naphthalene		
	3-Chloropropene		n-Butyl Alcohol		
	4-Chlorotoluene		n-Butylbenzene		
	4-Isopropyltoluene		n-Propylbenzene		
	4-Methyl-2-pentanone		Pentachloroethane		
✓	Acetone		Propionitrile		
	Acetonitrile		sec-Butylbenzene		
	Acrolein		Styrene		
	Acrylonitrile		tert-Butyl alcohol		
	Benzene		tert-Butylbenzene		
	Bromobenzene		Tetrachloroethene		
	Bromochloromethane		Tetrahydrofuran		
	Bromodichloromethane		Toluene		
	Bromoform		trans-1,2-Dichloroethene		
	Bromomethane		trans-1,3-Dichloropropene		

GLOSSARY

DATA QUALIFIERS

U	=	Indicates that the 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 quantitation modifications 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 quantitation modifications:

MP	-	Missed Peak: Manually added peak not found by automatic quantitation program.
PA	-	Peak Assignment: quantitation 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
PI	-	Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW73
1207059-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2,2-Tetrachloroethane	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2-Trichloroethane	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethane	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethane	6.48	U	6.48	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethene (total)	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloropropane	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Butanone	13.0	U	13.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Hexanone	13.0	U	13.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
4-Methyl-2-pentanone	13.0	U	13.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Acetone	13.0	U	13.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Benzene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromodichloromethane	6.48	U	6.48	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromoform	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromomethane	10.8	U	10.8	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Disulfide	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Tetrachloride	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chlorobenzene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroethane	10.8	U	10.8	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroform	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloromethane	10.8	U	10.8	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,2-Dichloroethene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,3-Dichloropropene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Dibromochloromethane	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Ethylbenzene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Methylene Chloride	6.48	U	6.48	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Styrene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Tetrachloroethene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,2-Dichloroethene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Toluene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,3-Dichloropropene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Trichloroethene	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Vinyl chloride	10.8	U	10.8	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Xylenes, total	5.40	U	5.40	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*107 %*		*60-130*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW73
1207059-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*95 %*	*72-117*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*116 %*	*72-144*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW74
1207059-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2,2-Tetrachloroethane	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2-Trichloroethane	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethane	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethane	6.51	U	6.51	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethene (total)	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloropropane	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Butanone	13.0	U	13.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Hexanone	13.0	U	13.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
4-Methyl-2-pentanone	13.0	U	13.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Acetone	13.0	U	13.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Benzene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromodichloromethane	6.51	U	6.51	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromoform	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromomethane	10.8	U	10.8	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Disulfide	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Tetrachloride	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chlorobenzene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroethane	10.8	U	10.8	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroform	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloromethane	10.8	U	10.8	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,2-Dichloroethene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,3-Dichloropropene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Dibromochloromethane	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Ethylbenzene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Methylene Chloride	6.51	U	6.51	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Styrene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Tetrachloroethene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,2-Dichloroethene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Toluene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,3-Dichloropropene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Trichloroethene	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Vinyl chloride	10.8	U	10.8	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Xylenes, total	5.42	U	5.42	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*108 %*		*60-130*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW74
1207059-02 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*97 %*	*72-117*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*118 %*	*72-144*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW75
1207059-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2,2-Tetrachloroethane	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2-Trichloroethane	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethane	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethane	7.12	U	7.12	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethene (total)	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloropropane	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Butanone	14.2	U	14.2	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Hexanone	14.2	U	14.2	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
4-Methyl-2-pentanone	14.2	U	14.2	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Acetone	14.2	U	14.2	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Benzene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromodichloromethane	7.12	U	7.12	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromoform	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromomethane	11.9	U	11.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Disulfide	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Tetrachloride	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chlorobenzene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroethane	11.9	U	11.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroform	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloromethane	11.9	U	11.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,2-Dichloroethene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,3-Dichloropropene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Dibromochloromethane	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Ethylbenzene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Methylene Chloride	7.12	U	7.12	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Styrene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Tetrachloroethene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,2-Dichloroethene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Toluene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,3-Dichloropropene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Trichloroethene	5.93	U	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Vinyl chloride	11.9	U	11.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Xylenes, total	**1.19**	J	5.93	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*113 %*		*60-130*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW75
1207059-03 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*96 %*	*72-117*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*118 %*	*72-144*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW76
1207059-04 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2,2-Tetrachloroethane	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2-Trichloroethane	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethane	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethane	7.22	U	7.22	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethene (total)	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloropropane	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Butanone	14.4	U	14.4	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Hexanone	14.4	U	14.4	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
4-Methyl-2-pentanone	14.4	U	14.4	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Acetone	14.4	U	14.4	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Benzene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromodichloromethane	7.22	U	7.22	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromoform	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromomethane	12.0	U	12.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Disulfide	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Tetrachloride	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chlorobenzene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroethane	12.0	U	12.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroform	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloromethane	12.0	U	12.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,2-Dichloroethene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,3-Dichloropropene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Dibromochloromethane	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Ethylbenzene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Methylene Chloride	7.22	U	7.22	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Styrene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Tetrachloroethene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,2-Dichloroethene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Toluene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,3-Dichloropropene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Trichloroethene	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Vinyl chloride	12.0	U	12.0	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Xylenes, total	6.01	U	6.01	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*113 %*		*60-130*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW76
1207059-04 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*94 %*	*72-117*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*120 %*	*72-144*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW77
1207059-05 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2,2-Tetrachloroethane	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2-Trichloroethane	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethane	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethane	5.47	U	5.47	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethene (total)	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloropropane	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Butanone	10.9	U	10.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Hexanone	10.9	U	10.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
4-Methyl-2-pentanone	10.9	U	10.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Acetone	10.9	U	10.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Benzene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromodichloromethane	5.47	U	5.47	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromoform	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromomethane	9.12	U	9.12	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Disulfide	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Tetrachloride	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chlorobenzene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroethane	9.12	U	9.12	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroform	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloromethane	9.12	U	9.12	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,2-Dichloroethene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,3-Dichloropropene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Dibromochloromethane	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Ethylbenzene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Methylene Chloride	5.47	U	5.47	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Styrene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Tetrachloroethene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,2-Dichloroethene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Toluene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,3-Dichloropropene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Trichloroethene	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Vinyl chloride	9.12	U	9.12	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Xylenes, total	4.56	U	4.56	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*108 %*		*60-130*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW77
1207059-05 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*96 %*	*72-117*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*116 %*	*72-144*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	Reported: 08/02/2012 11:04

J1PW78

1207059-06 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2,2-Tetrachloroethane	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2-Trichloroethane	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethane	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethane	6.85	U	6.85	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethene (total)	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloropropane	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Butanone	13.7	U	13.7	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Hexanone	13.7	U	13.7	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
4-Methyl-2-pentanone	13.7	U	13.7	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Acetone	13.7	U	13.7	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Benzene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromodichloromethane	6.85	U	6.85	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromoform	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromomethane	11.4	U	11.4	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Disulfide	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Tetrachloride	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chlorobenzene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroethane	11.4	U	11.4	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroform	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloromethane	11.4	U	11.4	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,2-Dichloroethene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,3-Dichloropropene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Dibromochloromethane	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Ethylbenzene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Methylene Chloride	6.85	U	6.85	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Styrene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Tetrachloroethene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,2-Dichloroethene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Toluene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,3-Dichloropropene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Trichloroethene	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Vinyl chloride	11.4	U	11.4	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Xylenes, total	5.71	U	5.71	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*114 %*		*60-130*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW78

1207059-06 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*97 %*	*72-117*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*128 %*	*72-144*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW80
1207059-08 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2,2-Tetrachloroethane	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1,2-Trichloroethane	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethane	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,1-Dichloroethene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethane	7.97	U	7.97	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloroethene (total)	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
1,2-Dichloropropane	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Butanone	15.9	U	15.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
2-Hexanone	15.9	U	15.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
4-Methyl-2-pentanone	15.9	U	15.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Acetone	15.9	U	15.9	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Benzene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromodichloromethane	7.97	U	7.97	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromoform	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Bromomethane	13.3	U	13.3	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Disulfide	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Carbon Tetrachloride	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chlorobenzene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroethane	13.3	U	13.3	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloroform	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Chloromethane	13.3	U	13.3	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,2-Dichloroethene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
cis-1,3-Dichloropropene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Dibromochloromethane	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Ethylbenzene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Methylene Chloride	7.97	U	7.97	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Styrene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Tetrachloroethene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,2-Dichloroethene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Toluene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
trans-1,3-Dichloropropene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Trichloroethene	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Vinyl chloride	13.3	U	13.3	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Xylenes, total	6.64	U	6.64	ug/kg dry	1	L207197	07/27/2012	07/27/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*110 %*		*60-130*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

J1PW80

1207059-08 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*101 %*	*72-117*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*127 %*	*72-144*			*L207197*	*07/27/2012*	*07/27/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207197 - SW 5035A										
Blank (L207197-BLK1)				Prepared & Analyzed: 07/27/2012						
1,1,1-Trichloroethane	5.00	U	5.00	ug/kg wet						
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/kg wet						
1,1,2-Trichloroethane	5.00	U	5.00	ug/kg wet						
1,1-Dichloroethane	5.00	U	5.00	ug/kg wet						
1,1-Dichloroethene	5.00	U	5.00	ug/kg wet						
1,2-Dichloroethane	6.00	U	6.00	ug/kg wet						
1,2-Dichloroethene (total)	5.00	U	5.00	ug/kg wet						
1,2-Dichloropropane	5.00	U	5.00	ug/kg wet						
2-Butanone	12.0	U	12.0	ug/kg wet						
2-Hexanone	12.0	U	12.0	ug/kg wet						
4-Methyl-2-pentanone	12.0	U	12.0	ug/kg wet						
Acetone	12.0	U	12.0	ug/kg wet						
Benzene	5.00	U	5.00	ug/kg wet						
Bromodichloromethane	6.00	U	6.00	ug/kg wet						
Bromoform	5.00	U	5.00	ug/kg wet						
Bromomethane	10.0	U	10.0	ug/kg wet						
Carbon Disulfide	5.00	U	5.00	ug/kg wet						
Carbon Tetrachloride	5.00	U	5.00	ug/kg wet						
Chlorobenzene	5.00	U	5.00	ug/kg wet						
Chloroethane	10.0	U	10.0	ug/kg wet						
Chloroform	5.00	U	5.00	ug/kg wet						
Chloromethane	10.0	U	10.0	ug/kg wet						
cis-1,2-Dichloroethene	5.00	U	5.00	ug/kg wet						
cis-1,3-Dichloropropene	5.00	U	5.00	ug/kg wet						
Dibromochloromethane	5.00	U	5.00	ug/kg wet						
Ethylbenzene	5.00	U	5.00	ug/kg wet						
Methylene Chloride	6.00	U	6.00	ug/kg wet						
Styrene	5.00	U	5.00	ug/kg wet						
Tetrachloroethene	5.00	U	5.00	ug/kg wet						
trans-1,2-Dichloroethene	5.00	U	5.00	ug/kg wet						
Toluene	5.00	U	5.00	ug/kg wet						
trans-1,3-Dichloropropene	5.00	U	5.00	ug/kg wet						
Trichloroethene	5.00	U	5.00	ug/kg wet						
Vinyl chloride	10.0	U	10.0	ug/kg wet						
Xylenes, total	5.00	U	5.00	ug/kg wet						
Surrogate: 1,2-Dichloroethane-d4	*55.0*			*ug/kg wet*	*50.000*		*110*	*60-130*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207197 - SW 5035A									
Blank (L207197-BLK1)			Prepared & Analyzed: 07/27/2012						
Surrogate: Toluene-d8	*49.3*		*ug/kg wet*	*50.000*		*99*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*61.9*		*ug/kg wet*	*50.000*		*124*	*72-144*		
LCS (L207197-BS1)			Prepared & Analyzed: 07/27/2012						
1,1,1-Trichloroethane	55.8	5.00	ug/kg wet	50.000		112	65-130		
1,1,2,2-Tetrachloroethane	45.9	5.00	ug/kg wet	50.000		92	50-130		
1,1,2-Trichloroethane	44.1	5.00	ug/kg wet	50.000		88	60-125		
1,1-Dichloroethane	60.3	5.00	ug/kg wet	50.000		121	70-130		
1,1-Dichloroethene	57.0	5.00	ug/kg wet	50.000		114	60-130		
1,2-Dichloroethane	52.4	6.00	ug/kg wet	50.000		105	60-130		
1,2-Dichloroethene (total)	115	5.00	ug/kg wet	100.00		115	75-125		
1,2-Dichloropropane	46.9	5.00	ug/kg wet	50.000		94	70-130		
2-Butanone	80.0	12.0	ug/kg wet	50.000		160	20-200		
2-Hexanone	62.6	12.0	ug/kg wet	50.000		125	20-200		
4-Methyl-2-pentanone	44.0	12.0	ug/kg wet	50.000		88	40-150		
Acetone	93.2	12.0	ug/kg wet	50.000		186	15-240		
Benzene	47.1	5.00	ug/kg wet	50.000		94	75-125		
Bromodichloromethane	50.8	6.00	ug/kg wet	50.000		102	65-135		
Bromoform	44.6	5.00	ug/kg wet	50.000		89	60-130		
Bromomethane	46.4	10.0	ug/kg wet	50.000		93	40-150		
Carbon Disulfide	54.6	5.00	ug/kg wet	50.000		109	55-140		
Carbon Tetrachloride	56.1	5.00	ug/kg wet	50.000		112	60-135		
Chlorobenzene	44.8	5.00	ug/kg wet	50.000		90	70-125		
Chloroethane	57.7	10.0	ug/kg wet	50.000		115	50-150		
Chloroform	55.1	5.00	ug/kg wet	50.000		110	70-130		
Chloromethane	56.5	10.0	ug/kg wet	50.000		113	40-130		
cis-1,2-Dichloroethene	54.8	5.00	ug/kg wet	50.000		110	70-125		
cis-1,3-Dichloropropene	39.5	5.00	ug/kg wet	50.000		79	70-125		
Dibromochloromethane	43.6	5.00	ug/kg wet	50.000		87	65-125		
Ethylbenzene	45.8	5.00	ug/kg wet	50.000		92	70-125		
Methylene Chloride	52.5	6.00	ug/kg wet	50.000		105	45-140		
Styrene	44.7	5.00	ug/kg wet	50.000		89	70-125		
Tetrachloroethene	48.0	5.00	ug/kg wet	50.000		96	60-130		
trans-1,2-Dichloroethene	60.0	5.00	ug/kg wet	50.000		120	65-130		
Toluene	43.4	5.00	ug/kg wet	50.000		87	70-125		
trans-1,3-Dichloropropene	47.2	5.00	ug/kg wet	50.000		94	65-125		
Trichloroethene	50.4	5.00	ug/kg wet	50.000		101	70-130		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207197 - SW 5035A									
LCS (L207197-BS1)			Prepared & Analyzed: 07/27/2012						
Vinyl chloride	53.3	10.0	ug/kg wet	50.000		107	50-150		
Xylenes, total	139	5.00	ug/kg wet	150.00		92	70-125		
Surrogate: 1,2-Dichloroethane-d4	*52.5*		*ug/kg wet*	*50.000*		*105*	*60-130*		
Surrogate: Toluene-d8	*42.8*		*ug/kg wet*	*50.000*		*86*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*55.1*		*ug/kg wet*	*50.000*		*110*	*72-144*		
Matrix Spike (L207197-MS1)		**Source: 1207059-01**	Prepared & Analyzed: 07/27/2012						
1,1,1-Trichloroethane	65.9	5.75	ug/kg dry	57.490	5.40 U	115	65-130		
1,1,2,2-Tetrachloroethane	49.0	5.75	ug/kg dry	57.490	5.40 U	85	50-130		
1,1,2-Trichloroethane	50.9	5.75	ug/kg dry	57.490	5.40 U	89	60-125		
1,1-Dichloroethane	58.7	5.75	ug/kg dry	57.490	5.40 U	102	70-130		
1,1-Dichloroethene	51.6	5.75	ug/kg dry	57.490	5.40 U	90	60-130		
1,2-Dichloroethane	63.9	6.90	ug/kg dry	57.490	6.48 U	111	60-130		
1,2-Dichloroethene (total)	107	5.75	ug/kg dry	114.98	5.40 U	93	75-125		
1,2-Dichloropropane	53.3	5.75	ug/kg dry	57.490	5.40 U	93	70-130		
2-Butanone	79.1	13.8	ug/kg dry	57.490	13.0 U	138	20-200		
2-Hexanone	66.5	13.8	ug/kg dry	57.490	13.0 U	116	20-200		
4-Methyl-2-pentanone	52.4	13.8	ug/kg dry	57.490	13.0 U	91	40-150		
Acetone	85.4	13.8	ug/kg dry	57.490	13.0 U	149	15-240		
Benzene	53.9	5.75	ug/kg dry	57.490	5.40 U	94	75-125		
Bromodichloromethane	61.5	6.90	ug/kg dry	57.490	6.48 U	107	65-135		
Bromoform	52.4	5.75	ug/kg dry	57.490	5.40 U	91	60-130		
Bromomethane	51.0	11.5	ug/kg dry	57.490	10.8 U	89	40-150		
Carbon Disulfide	51.1	5.75	ug/kg dry	57.490	5.40 U	89	55-140		
Carbon Tetrachloride	67.2	5.75	ug/kg dry	57.490	5.40 U	117	60-135		
Chlorobenzene	51.6	5.75	ug/kg dry	57.490	5.40 U	90	70-125		
Chloroethane	58.6	11.5	ug/kg dry	57.490	10.8 U	102	50-150		
Chloroform	63.7	5.75	ug/kg dry	57.490	5.40 U	111	70-130		
Chloromethane	58.0	11.5	ug/kg dry	57.490	10.8 U	101	40-130		
cis-1,2-Dichloroethene	53.3	5.75	ug/kg dry	57.490	5.40 U	93	70-125		
cis-1,3-Dichloropropene	45.9	5.75	ug/kg dry	57.490	5.40 U	80	70-125		
Dibromochloromethane	52.1	5.75	ug/kg dry	57.490	5.40 U	91	65-125		
Ethylbenzene	52.4	5.75	ug/kg dry	57.490	5.40 U	91	70-125		
Methylene Chloride	47.4	6.90	ug/kg dry	57.490	6.48 U	82	45-140		
Styrene	50.9	5.75	ug/kg dry	57.490	5.40 U	88	70-125		
Tetrachloroethene	55.1	5.75	ug/kg dry	57.490	5.40 U	96	60-130		
trans-1,2-Dichloroethene	53.5	5.75	ug/kg dry	57.490	5.40 U	93	65-130		

LIONVILLE LABORATORY
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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207197 - SW 5035A									
Matrix Spike (L207197-MS1)		**Source: 1207059-01**	Prepared & Analyzed: 07/27/2012						
Toluene	51.9	5.75	ug/kg dry	57.490	5.40 U	90	70-125		
trans-1,3-Dichloropropene	55.2	5.75	ug/kg dry	57.490	5.40 U	96	65-125		
Trichloroethene	60.7	5.75	ug/kg dry	57.490	5.40 U	106	70-130		
Vinyl chloride	50.4	11.5	ug/kg dry	57.490	10.8 U	88	50-150		
Xylenes, total	161	5.75	ug/kg dry	172.47	5.40 U	93	70-125		
Surrogate: 1,2-Dichloroethane-d4	*64.1*		*ug/kg dry*	*57.490*		*112*	*60-130*		
Surrogate: Toluene-d8	*51.6*		*ug/kg dry*	*57.490*		*90*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*63.0*		*ug/kg dry*	*57.490*		*110*	*72-144*		
Matrix Spike Dup (L207197-MSD1)		**Source: 1207059-01**	Prepared & Analyzed: 07/27/2012						
1,1,1-Trichloroethane	56.5	4.80	ug/kg dry	47.998	5.40 U	118	65-130	3	20
1,1,2,2-Tetrachloroethane	40.2	4.80	ug/kg dry	47.998	5.40 U	84	50-130	2	20
1,1,2-Trichloroethane	44.2	4.80	ug/kg dry	47.998	5.40 U	92	60-125	4	20
1,1-Dichloroethane	48.1	4.80	ug/kg dry	47.998	5.40 U	100	70-130	2	20
1,1-Dichloroethene	44.6	4.80	ug/kg dry	47.998	5.40 U	93	60-130	3	20
1,2-Dichloroethane	55.5	5.76	ug/kg dry	47.998	6.48 U	116	60-130	4	20
1,2-Dichloroethene (total)	92.5	4.80	ug/kg dry	95.997	5.40 U	96	75-125	4	20
1,2-Dichloropropane	44.9	4.80	ug/kg dry	47.998	5.40 U	94	70-130	1	20
2-Butanone	68.2	11.5	ug/kg dry	47.998	13.0 U	142	20-200	3	20
2-Hexanone	60.1	11.5	ug/kg dry	47.998	13.0 U	125	20-200	8	20
4-Methyl-2-pentanone	46.2	11.5	ug/kg dry	47.998	13.0 U	96	40-150	5	20
Acetone	68.4	11.5	ug/kg dry	47.998	13.0 U	142	15-240	4	20
Benzene	45.2	4.80	ug/kg dry	47.998	5.40 U	94	75-125	0.4	20
Bromodichloromethane	52.4	5.76	ug/kg dry	47.998	6.48 U	109	65-135	2	20
Bromoform	45.8	4.80	ug/kg dry	47.998	5.40 U	95	60-130	4	20
Bromomethane	49.7	9.60	ug/kg dry	47.998	10.8 U	104	40-150	15	20
Carbon Disulfide	43.2	4.80	ug/kg dry	47.998	5.40 U	90	55-140	1	20
Carbon Tetrachloride	55.5	4.80	ug/kg dry	47.998	5.40 U	116	60-135	1	20
Chlorobenzene	44.5	4.80	ug/kg dry	47.998	5.40 U	93	70-125	3	20
Chloroethane	54.6	9.60	ug/kg dry	47.998	10.8 U	114	50-150	11	20
Chloroform	53.9	4.80	ug/kg dry	47.998	5.40 U	112	70-130	1	20
Chloromethane	45.8	9.60	ug/kg dry	47.998	10.8 U	95	40-130	6	20
cis-1,2-Dichloroethene	46.4	4.80	ug/kg dry	47.998	5.40 U	97	70-125	4	20
cis-1,3-Dichloropropene	51.9	4.80	ug/kg dry	47.998	5.40 U	108	70-125	30*	20
Dibromochloromethane	45.7	4.80	ug/kg dry	47.998	5.40 U	95	65-125	5	20
Ethylbenzene	46.4	4.80	ug/kg dry	47.998	5.40 U	97	70-125	6	20
Methylene Chloride	41.1	5.76	ug/kg dry	47.998	6.48 U	86	45-140	4	20

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:04

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207197 - SW 5035A									
Matrix Spike Dup (L207197-MSD1)	**Source: 1207059-01**		Prepared & Analyzed: 07/27/2012						
Styrene	44.7	4.80	ug/kg dry	47.998	5.40 U	93	70-125	5	20
Tetrachloroethene	47.0	4.80	ug/kg dry	47.998	5.40 U	98	60-130	2	20
trans-1,2-Dichloroethene	46.0	4.80	ug/kg dry	47.998	5.40 U	96	65-130	3	20
Toluene	45.6	4.80	ug/kg dry	47.998	5.40 U	95	70-125	5	20
trans-1,3-Dichloropropene	49.0	4.80	ug/kg dry	47.998	5.40 U	102	65-125	6	20
Trichloroethene	53.4	4.80	ug/kg dry	47.998	5.40 U	111	70-130	5	20
Vinyl chloride	45.6	9.60	ug/kg dry	47.998	10.8 U	95	50-150	8	20
Xylenes, total	138	4.80	ug/kg dry	144.00	5.40 U	96	70-125	3	20
Surrogate: 1,2-Dichloroethane-d4	*54.5*		*ug/kg dry*	*47.998*		*113*	*60-130*		
Surrogate: Toluene-d8	*47.3*		*ug/kg dry*	*47.998*		*99*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*54.8*		*ug/kg dry*	*47.998*		*114*	*72-144*		

PREPARATION BENCH SHEET

L207197

Lionville Laboratory

Printed: 7/31/2012 10:42:39AM

Matrix: Solid

Prepared using: VOAGCMS - SW 5035A

Surrogate used: 0902344

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1207054-01	8260B TCL VOC	07/27/2012 09:50	5.53	5				5	WC-Hanford, Inc.	
1207059-01	8260B TCL VOC	07/27/2012 13:15	4.74	5				5	WC-Hanford, Inc.	
1207059-02	8260B TCL VOC	07/27/2012 13:53	4.64	5				5	WC-Hanford, Inc.	
1207059-03	8260B TCL VOC	07/27/2012 15:44	4.23	5				5	WC-Hanford, Inc.	
1207059-04	8260B TCL VOC	07/27/2012 16:21	4.17	5				5	WC-Hanford, Inc.	
1207059-05	8260B TCL VOC	07/27/2012 16:57	5.85	5				5	WC-Hanford, Inc.	
1207059-06	8260B TCL VOC	07/27/2012 17:34	4.38	5				5	WC-Hanford, Inc.	
1207059-08	8260B TCL VOC	07/27/2012 18:11	3.77	5				5	WC-Hanford, Inc.	
L207197-BLK1	QC	07/27/2012 09:05	5	5				5		
L207197-BS1	QC	07/27/2012 08:28	5	5	1200958		5	5		
L207197-MS1	QC	07/27/2012 14:30	4.45	5	1200958	1207059-01	5	5		
L207197-MS2	QC	07/27/2012 10:27	4.71	5	1200958	1207054-01	5	5		
L207197-MSD1	QC	07/27/2012 15:07	5.33	5	1200958	1207059-01	5	5		
L207197-MSD2	QC	07/27/2012 11:04	4.19	5	1200958	1207054-01	5	5		

R 8/1/12

NA Rec'd 7/31

Extracts Relinquished By Date

Extracts Received By Date

SEMIVOLATILES

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 14:07

Analytical Report for Semivolatile Organic Compounds by SW846 8270C

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW73	1207059-01	Soil	07/25/2012 08:28	07/27/2012 09:50
J1PW74	1207059-02	Soil	07/25/2012 08:29	07/27/2012 09:50
J1PW75	1207059-03	Soil	07/25/2012 10:10	07/27/2012 09:50
J1PW76	1207059-04	Soil	07/25/2012 12:50	07/27/2012 09:50
J1PW77	1207059-05	Soil	07/25/2012 13:56	07/27/2012 09:50
J1PW78	1207059-06	Soil	07/25/2012 14:23	07/27/2012 09:50
J1PW80	1207059-08	Soil	07/25/2012 14:47	07/27/2012 09:50

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Case Narrative

Client: WC-HANFORD RC-148 KP0116
LVL #: 1207059

W.O. #: 60049-001-001-0001-00
Date Received: 07-27-2012

SEMIVOLATILE

Seven (7) soil samples were collected on 07-25-2012.

The samples and associated QC samples were extracted 07-30-2012 and analyzed 07-31-2012, 08-01-2012 according to Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C, and the analysis procedure was based on SW846 Method 8270C for TCL Semivolatile target compounds.

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

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

2. Samples were extracted and analyzed within holding time.

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

4. All obtainable surrogate recoveries were within acceptance criteria.

5. The method blank was below the reporting limit for all target compounds.

6. All blank spike recoveries were within acceptance criteria.

7. All obtainable matrix spike recoveries were within acceptance criteria.

8. The samples were reported on a dry weight basis.

9. All initial calibrations associated with this data set were within acceptance criteria. Per method 8000B/8270C, the attached Table 1 shows the target compounds where the RSD exceeded 15%, and the mean RSD was used for evaluation of the initial calibration. Results associated with these compounds are considered to have greater uncertainty. Refer to the Analysis Batch Sequence Summary Forms to associate the calibration with client samples.

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

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

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

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

Iain Daniels
LvL Laboratory Manager

8/3/12
Date

TABLE 1

TCL - 8000B/8270C COMPOUNDS WHERE THE MEAN %RSD IS USED TO MEET CRITERIA FOR INITIAL CALIBRATION OF AN INDIVIDUAL COMPOUND

MEAN RSD USED FOR EVALUATION: 10.43 CALIBRATION: 1208001

>15% RSD	Compound	>15% RSD	Compound	>15% RSD	Compound
	1,2,4-Trichlorobenzene		Di-n-butyl Phthalate		**Surrogates:**
	1,2-Dichlorobenzene		Di-n-octyl Phthalate		2-Fluorophenol
	1,3-Dichlorobenzene		Fluoranthene		Phenol-d5
	1,4-Dichlorobenzene		Fluorene		Nitrobenzene-d5
	2,4,5-Trichlorophenol		Hexachlorobenzene		2-Fluorobiphenyl
	2,4,6-Trichlorophenol		Hexachlorobutadiene	✓	2,4,6-Tribromophenol
	2,4-Dichlorophenol	✓	Hexachlorocyclopentadiene		p-Terphenyl-d14
✓	2,4-Dimethylphenol		Hexachloroethane		
✓	2,4-Dinitrophenol		Indeno[1,2,3-cd]pyrene		
	2,4-Dinitrotoluene		Isophorone		
	2,6-Dinitrotoluene		Naphthalene		
	2-Chloronaphthalene		Nitrobenzene		
	2-Chlorophenol		N-Nitrosodi-n-propylamine		
	2-Methylnaphthalene		N-Nitrosodiphenylamine		
	2-Methylphenol	✓	Pentachlorophenol		
	2-Nitroaniline		Phenanthrene		
	2-Nitrophenol		Phenol		
	3- and/or 4-Methylphenol		Pyrene		
	3,3'-Dichlorobenzidine				
	3-Nitroaniline				
✓	4,6-Dinitro-2-methylphenol		**OLM04.2 TCL addons:**		
	4-Bromophenyl Phenyl Ether		1,1-Biphenyl		
	4-Chloro-3-methylphenol		Atrazine		
	4-Chloroaniline		Benzaldehyde		
	4-Chlorophenyl Phenyl Ether		Caprolactam		
	4-Nitroaniline				
	4-Nitrophenol		**NonTCL addons:**		
	Acenaphthene		1,2-Diphenylhydrazine		
	Acenaphthylene		1,4-Dioxane		
	Anthracene		1-Methylnapthalene		
	Benz[a]anthracene		2,3,4,6-Tetrachlorophenol		
	Benzo[a] pyrene		Acetophenone		
	Benzo[b] fluoranthene		Aniline		
	Benzo[g,h,i] perylene		Benzidine		
	Benzo[k] fluoranthene		Benzoic Acid		
	Benzyl alcohol		N-Nitrosodimethylamine		
	Bis(2-chloroethoxy) methane		Pyridine		
	Bis(2-chloroethyl) ether		Tributylphosphate		
	Bis(2-chloroisopropyl) ether				
	Bis(2-ethylhexyl) phthalate				
	Butyl Benzyl Phthalate				
	Carbazole				
	Chrysene				
	Dibenz[a,h]anthracene				
	Dibenzofuran				
	Diethyl Phthalate				
	Dimethyl Phthalate				

ANALYSIS BATCH (SEQUENCE) SUMMARY
8270C

Laboratory:	Lionville Laboratory	SDG:	KP0116
Client:	WC-Hanford, Inc.	Project:	RC-148
Sequence:	2080003	Instrument:	HP5972C
Matrix:	Solid	Calibration:	1208001

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	2080003-TUN1	C073101.D	07/31/12 11:19
Cal Standard	2080003-CAL2	C073102.D	07/31/12 11:45
Cal Standard	2080003-CAL5	C073103.D	07/31/12 12:33
Cal Standard	2080003-CAL1	C073104.D	07/31/12 13:21
Cal Standard	2080003-CAL3	C073105.D	07/31/12 14:09
Cal Standard	2080003-CAL4	C073106.D	07/31/12 14:56
Secondary Cal Check	2080003-SCV1	C073107.D	07/31/12 15:44
J1PW78	1207059-06	C073108.D	07/31/12 16:32
J1PW77	1207059-05	C073109.D	07/31/12 17:19
J1PW80	1207059-08	C073110.D	07/31/12 18:07

TABLE 1

TCL - 8000B/8270C COMPOUNDS WHERE THE MEAN %RSD IS USED TO MEET CRITERIA FOR INITIAL CALIBRATION OF AN INDIVIDUAL COMPOUND

MEAN RSD USED FOR EVALUATION: 8.35 CALIBRATION: 1208002

>15% RSD	Compound	>15% RSD	Compound	>15% RSD	Compound
	1,2,4-Trichlorobenzene		Di-n-butyl Phthalate		**Surrogates:**
	1,2-Dichlorobenzene		Di-n-octyl Phthalate		2-Fluorophenol
	1,3-Dichlorobenzene		Fluoranthene		Phenol-d5
	1,4-Dichlorobenzene		Fluorene		Nitrobenzene-d5
	2,4,5-Trichlorophenol		Hexachlorobenzene		2-Fluorobiphenyl
	2,4,6-Trichlorophenol		Hexachlorobutadiene		2,4,6-Tribromophenol
	2,4-Dichlorophenol		Hexachlorocyclopentadiene		p-Terphenyl-d14
	2,4-Dimethylphenol		Hexachloroethane		
✓	2,4-Dinitrophenol		Indeno[1,2,3-cd]pyrene		
	2,4-Dinitrotoluene		Isophorone		
	2,6-Dinitrotoluene		Naphthalene		
	2-Chloronaphthalene		Nitrobenzene		
	2-Chlorophenol		N-Nitrosodi-n-propylamine		
	2-Methylnaphthalene		N-Nitrosodiphenylamine		
	2-Methylphenol		Pentachlorophenol		
	2-Nitroaniline		Phenanthrene		
	2-Nitrophenol		Phenol		
	3- and/or 4-Methylphenol		Pyrene		
	3,3'-Dichlorobenzidine				
✓	3-Nitroaniline				
	4,6-Dinitro-2-methylphenol		**OLM04.2 TCL addons:**		
	4-Bromophenyl Phenyl Ether		1,1-Biphenyl		
	4-Chloro-3-methylphenol		Atrazine		
	4-Chloroaniline		Benzaldehyde		
	4-Chlorophenyl Phenyl Ether		Caprolactam		
	4-Nitroaniline				
	4-Nitrophenol		**NonTCL addons:**		
	Acenaphthene		1,2-Diphenylhydrazine		
	Acenaphthylene		1,4-Dioxane		
	Anthracene		1-Methylnapthalene		
	Benz[a]anthracene		2,3,4,6-Tetrachlorophenol		
	Benzo[a] pyrene		Acetophenone		
	Benzo[b] fluoranthene		Aniline		
	Benzo[g,h,i] perylene		Benzidine		
	Benzo[k] fluoranthene		Benzoic Acid		
	Benzyl alcohol		N-Nitrosodimethylamine		
	Bis(2-chloroethoxy) methane		Pyridine		
	Bis(2-chloroethyl) ether		Tributylphosphate		
	Bis(2-chloroisopropyl) ether				
	Bis(2-ethylhexyl) phthalate				
	Butyl Benzyl Phthalate				
✓	Carbazole				
	Chrysene				
	Dibenz[a,h]anthracene				
	Dibenzofuran				
	Diethyl Phthalate				
	Dimethyl Phthalate				

ANALYSIS BATCH (SEQUENCE) SUMMARY
8270C

Laboratory:	Lionville Laboratory	SDG:	KP0116
Client:	WC-Hanford, Inc.	Project:	RC-148
Sequence:	2080004	Instrument:	HP5972D
Matrix:	Solid	Calibration:	1208002

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	2080004-TUN1	D073101.D	07/31/12 12:55
Cal Standard	2080004-CAL5	D073103.D	07/31/12 14:07
Cal Standard	2080004-CAL1	D073104.D	07/31/12 14:56
Cal Standard	2080004-CAL2	D073105.D	07/31/12 15:45
Cal Standard	2080004-CAL3	D073106.D	07/31/12 16:35
Cal Standard	2080004-CAL4	D073107.D	07/31/12 17:24
Secondary Cal Check	2080004-SCV1	D073108.D	07/31/12 18:13
LCS	L207184-BS1	D073109.D	07/31/12 19:02
Blank	L207184-BLK1	D073110.D	07/31/12 19:51
J1PW73	1207059-01	D073111.D	07/31/12 20:40
J1PW73	L207184-MS1	D073112.D	07/31/12 21:30
J1PW73	L207184-MSD1	D073113.D	07/31/12 22:19
J1PW74	1207059-02	D073114.D	07/31/12 23:08
J1PW75	1207059-03	D073115.D	07/31/12 23:57
J1PW76	1207059-04	D073116.D	08/01/12 00:46

GLOSSARY

DATA QUALIFIERS

U	=	Indicates that the 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 quantitation modifications 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 quantitation modifications:

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

PA - Peak Assignment: quantitation 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

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

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW73
1207059-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,2-Dichlorobenzene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,3-Dichlorobenzene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,4-Dichlorobenzene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,5-Trichlorophenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,6-Trichlorophenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dichlorophenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dimethylphenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrophenol	1680	U	1680	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrotoluene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,6-Dinitrotoluene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chloronaphthalene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chlorophenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylnaphthalene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylphenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitroaniline	1680	U	1680	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitrophenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3,3'-Dichlorobenzidine	670	U	670	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3-Nitroaniline	1680	U	1680	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4,6-Dinitro-2-methylphenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Bromophenyl Phenyl Ether	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloro-3-methylphenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloroaniline	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chlorophenyl Phenyl Ether	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3- and/or 4-Methylphenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitroaniline	1680	U	1680	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitrophenol	1680	U	1680	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthylene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Anthracene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benz[a]anthracene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[a] pyrene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[b] fluoranthene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[g,h,i] perylene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[k] fluoranthene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroethoxy) methane	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C

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Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW73
1207059-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroisopropyl) ether	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-ethylhexyl) phthalate	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Butyl Benzyl Phthalate	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Carbazole	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Chrysene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenz[a,h]anthracene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenzofuran	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Diethyl Phthalate	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dimethyl Phthalate	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-butyl Phthalate	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-octyl Phthalate	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluoranthene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluorene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobenzene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobutadiene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorocyclopentadiene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachloroethane	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Indeno[1,2,3-cd]pyrene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Isophorone	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Naphthalene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Nitrobenzene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodi-n-propylamine	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodiphenylamine	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pentachlorophenol	1680	U	1680	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenanthrene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenol	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pyrene	335	U	335	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Polychlorinated Biphenyl 3	**875**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Polychlorinated Biphenyl 2	**718**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Polychlorinated Biphenyl 1	**590**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 2	**27000**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 1	**632**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Surrogate: 2-Fluorophenol	*73 %*		*25-121*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Phenol-d5	*74 %*		*24-113*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*76 %*		*23-120*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW73
1207059-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*75 %*	*30-115*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*65 %*	*19-122*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*90 %*	*18-137*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW74
1207059-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,2-Dichlorobenzene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,3-Dichlorobenzene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,4-Dichlorobenzene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,5-Trichlorophenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,6-Trichlorophenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dichlorophenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dimethylphenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrophenol	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrotoluene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,6-Dinitrotoluene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chloronaphthalene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chlorophenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylnaphthalene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylphenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitroaniline	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitrophenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3,3'-Dichlorobenzidine	655	U	655	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3-Nitroaniline	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4,6-Dinitro-2-methylphenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Bromophenyl Phenyl Ether	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloro-3-methylphenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloroaniline	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chlorophenyl Phenyl Ether	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3- and/or 4-Methylphenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitroaniline	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitrophenol	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthylene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Anthracene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benz[a]anthracene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[a] pyrene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[b] fluoranthene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[g,h,i] perylene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[k] fluoranthene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroethoxy) methane	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW74
1207059-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroisopropyl) ether	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-ethylhexyl) phthalate	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Butyl Benzyl Phthalate	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Carbazole	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Chrysene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenz[a,h]anthracene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenzofuran	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Diethyl Phthalate	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dimethyl Phthalate	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-butyl Phthalate	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-octyl Phthalate	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluoranthene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluorene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobenzene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobutadiene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorocyclopentadiene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachloroethane	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Indeno[1,2,3-cd]pyrene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Isophorone	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Naphthalene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Nitrobenzene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodi-n-propylamine	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodiphenylamine	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pentachlorophenol	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenanthrene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenol	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pyrene	327	U	327	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Polychlorinated Biphenyl 3	**273**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Polychlorinated Biphenyl 2	**451**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Polychlorinated Biphenyl 1	**388**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 2	**19800**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 1	**490**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Surrogate: 2-Fluorophenol	*59 %*		*25-121*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Phenol-d5	*60 %*		*24-113*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*62 %*		*23-120*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW74
1207059-02 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*59 %*	*30-115*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*47 %*	*19-122*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*70 %*	*18-137*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW75
1207059-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,2-Dichlorobenzene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,3-Dichlorobenzene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,4-Dichlorobenzene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,5-Trichlorophenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,6-Trichlorophenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dichlorophenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dimethylphenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrophenol	1630	U	1630	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrotoluene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,6-Dinitrotoluene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chloronaphthalene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chlorophenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylnaphthalene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylphenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitroaniline	1630	U	1630	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitrophenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3,3'-Dichlorobenzidine	653	U	653	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3-Nitroaniline	1630	U	1630	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4,6-Dinitro-2-methylphenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Bromophenyl Phenyl Ether	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloro-3-methylphenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloroaniline	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chlorophenyl Phenyl Ether	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3- and/or 4-Methylphenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitroaniline	1630	U	1630	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitrophenol	1630	U	1630	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthylene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Anthracene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benz[a]anthracene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[a] pyrene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[b] fluoranthene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[g,h,i] perylene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[k] fluoranthene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroethoxy) methane	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW75
1207059-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroisopropyl) ether	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-ethylhexyl) phthalate	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Butyl Benzyl Phthalate	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Carbazole	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Chrysene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenz[a,h]anthracene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenzofuran	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Diethyl Phthalate	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dimethyl Phthalate	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-butyl Phthalate	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-octyl Phthalate	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluoranthene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluorene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobenzene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobutadiene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorocyclopentadiene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachloroethane	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Indeno[1,2,3-cd]pyrene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Isophorone	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Naphthalene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Nitrobenzene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodi-n-propylamine	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodiphenylamine	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pentachlorophenol	1630	U	1630	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenanthrene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenol	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pyrene	326	U	326	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Unknown 2	**201**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Unknown 1	**186**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 3	**278**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 2	**26500**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 1	**627**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Surrogate: 2-Fluorophenol	*62 %*		*25-121*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Phenol-d5	*63 %*		*24-113*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*64 %*		*23-120*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW75

1207059-03 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*62 %*	*30-115*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*45 %*	*19-122*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*75 %*	*18-137*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW76
1207059-04 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
1,2-Dichlorobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
1,3-Dichlorobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
1,4-Dichlorobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4,5-Trichlorophenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4,6-Trichlorophenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4-Dichlorophenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4-Dimethylphenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4-Dinitrophenol	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4-Dinitrotoluene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,6-Dinitrotoluene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Chloronaphthalene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Chlorophenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Methylnaphthalene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Methylphenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Nitroaniline	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Nitrophenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
3,3'-Dichlorobenzidine	660	U	660	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
3-Nitroaniline	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4,6-Dinitro-2-methylphenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Bromophenyl Phenyl Ether	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Chloro-3-methylphenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Chloroaniline	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Chlorophenyl Phenyl Ether	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
3- and/or 4-Methylphenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Nitroaniline	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Nitrophenol	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Acenaphthene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Acenaphthylene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Anthracene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Benz[a]anthracene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Benzo[a] pyrene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Benzo[b] fluoranthene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Benzo[g,h,i] perylene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Benzo[k] fluoranthene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Bis(2-chloroethoxy) methane	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW76
1207059-04 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Bis(2-chloroisopropyl) ether	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Bis(2-ethylhexyl) phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Butyl Benzyl Phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Carbazole	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Chrysene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Dibenz[a,h]anthracene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Dibenzofuran	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Diethyl Phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Dimethyl Phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Di-n-butyl Phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Di-n-octyl Phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Fluoranthene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Fluorene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Hexachlorobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Hexachlorobutadiene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Hexachlorocyclopentadiene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Hexachloroethane	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Indeno[1,2,3-cd]pyrene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Isophorone	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Naphthalene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Nitrobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
N-Nitrosodi-n-propylamine	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
N-Nitrosodiphenylamine	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Pentachlorophenol	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Phenanthrene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Phenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Pyrene	330	U	330	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
TIC:Aldol Condensate 1	**592**	A, B, J		ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
TIC:Aldol Condensate 2	**24500**	A, B, J		ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
TIC:Aldol Condensate 3	**244**	A, B, J		ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
TIC:Unknown 1	**310**	J		ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
TIC:Unknown 2	**191**	J		ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Surrogate: 2-Fluorophenol	*60 %*		*25-121*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: Phenol-d5	*62 %*		*24-113*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*62 %*		*23-120*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW76
1207059-04 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*62 %*	*30-115*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*51 %*	*19-122*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*77 %*	*18-137*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW77
1207059-05 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,2-Dichlorobenzene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,3-Dichlorobenzene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,4-Dichlorobenzene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,5-Trichlorophenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,6-Trichlorophenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dichlorophenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dimethylphenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrophenol	1740	U	1740	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrotoluene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,6-Dinitrotoluene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chloronaphthalene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chlorophenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylnaphthalene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylphenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitroaniline	1740	U	1740	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitrophenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3,3'-Dichlorobenzidine	698	U	698	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3-Nitroaniline	1740	U	1740	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4,6-Dinitro-2-methylphenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Bromophenyl Phenyl Ether	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloro-3-methylphenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloroaniline	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chlorophenyl Phenyl Ether	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3- and/or 4-Methylphenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitroaniline	1740	U	1740	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitrophenol	1740	U	1740	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthylene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Anthracene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benz[a]anthracene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[a] pyrene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[b] fluoranthene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[g,h,i] perylene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[k] fluoranthene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroethoxy) methane	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW77
1207059-05 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroisopropyl) ether	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-ethylhexyl) phthalate	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Butyl Benzyl Phthalate	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Carbazole	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Chrysene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenz[a,h]anthracene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenzofuran	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Diethyl Phthalate	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dimethyl Phthalate	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-butyl Phthalate	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-octyl Phthalate	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluoranthene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluorene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobenzene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobutadiene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorocyclopentadiene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachloroethane	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Indeno[1,2,3-cd]pyrene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Isophorone	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Naphthalene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Nitrobenzene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodi-n-propylamine	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodiphenylamine	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pentachlorophenol	1740	U	1740	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenanthrene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenol	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pyrene	349	U	349	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Unknown 3	**164**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Unknown 2	**128**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Unknown 1	**1610**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 1	**21100**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 2	**126**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Surrogate: 2-Fluorophenol	*27 %*		*25-121*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Phenol-d5	*35 %*		*24-113*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*55 %*		*23-120*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW77
1207059-05 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*58 %*	*30-115*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*46 %*	*19-122*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*65 %*	*18-137*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW78
1207059-06 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,2-Dichlorobenzene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,3-Dichlorobenzene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,4-Dichlorobenzene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,5-Trichlorophenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,6-Trichlorophenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dichlorophenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dimethylphenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrophenol	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrotoluene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,6-Dinitrotoluene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chloronaphthalene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chlorophenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylnaphthalene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylphenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitroaniline	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitrophenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3,3'-Dichlorobenzidine	658	U	658	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3-Nitroaniline	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4,6-Dinitro-2-methylphenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Bromophenyl Phenyl Ether	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloro-3-methylphenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloroaniline	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chlorophenyl Phenyl Ether	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3- and/or 4-Methylphenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitroaniline	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitrophenol	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthylene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Anthracene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benz[a]anthracene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[a] pyrene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[b] fluoranthene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[g,h,i] perylene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[k] fluoranthene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroethoxy) methane	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 14:07

J1PW78
1207059-06 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroisopropyl) ether	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-ethylhexyl) phthalate	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Butyl Benzyl Phthalate	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Carbazole	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Chrysene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenz[a,h]anthracene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenzofuran	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Diethyl Phthalate	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dimethyl Phthalate	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-butyl Phthalate	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-octyl Phthalate	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluoranthene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluorene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobenzene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobutadiene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorocyclopentadiene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachloroethane	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Indeno[1,2,3-cd]pyrene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Isophorone	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Naphthalene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Nitrobenzene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodi-n-propylamine	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodiphenylamine	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pentachlorophenol	1640	U	1640	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenanthrene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenol	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pyrene	329	U	329	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Trichloro-1-propene	**376**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 3	**581**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 2	**58200**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 4	**691**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 1	**452**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Surrogate: 2-Fluorophenol	*73 %*		*25-121*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Phenol-d5	*72 %*		*24-113*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*69 %*		*23-120*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW78
1207059-06 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*70 %*	*30-115*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*62 %*	*19-122*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*84 %*	*18-137*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW80
1207059-08 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,2-Dichlorobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,3-Dichlorobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,4-Dichlorobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,5-Trichlorophenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,6-Trichlorophenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dichlorophenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dimethylphenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrophenol	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrotoluene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,6-Dinitrotoluene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chloronaphthalene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chlorophenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylnaphthalene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylphenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitroaniline	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitrophenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3,3'-Dichlorobenzidine	661	U	661	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3-Nitroaniline	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4,6-Dinitro-2-methylphenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Bromophenyl Phenyl Ether	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloro-3-methylphenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloroaniline	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chlorophenyl Phenyl Ether	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3- and/or 4-Methylphenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitroaniline	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitrophenol	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthylene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Anthracene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benz[a]anthracene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[a] pyrene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[b] fluoranthene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[g,h,i] perylene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[k] fluoranthene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroethoxy) methane	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW80
1207059-08 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroisopropyl) ether	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-ethylhexyl) phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Butyl Benzyl Phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Carbazole	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Chrysene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenz[a,h]anthracene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenzofuran	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Diethyl Phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dimethyl Phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-butyl Phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-octyl Phthalate	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluoranthene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluorene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobutadiene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorocyclopentadiene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachloroethane	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Indeno[1,2,3-cd]pyrene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Isophorone	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Naphthalene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Nitrobenzene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodi-n-propylamine	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodiphenylamine	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pentachlorophenol	1650	U	1650	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenanthrene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenol	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pyrene	330	U	330	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Unknown 1	**445**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Unknown 2	**173**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 3	**199**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 2	**44400**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 1	**377**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Surrogate: 2-Fluorophenol	*65 %*		*25-121*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Phenol-d5	*64 %*		*24-113*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*60 %*		*23-120*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

J1PW80
1207059-08 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*65 %*	*30-115*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*32 %*	*19-122*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*69 %*	*18-137*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207184 - SW 3540C										
Blank (L207184-BLK1)				Prepared: 07/30/2012 Analyzed: 07/31/2012						
1,2,4-Trichlorobenzene	330	U	330	ug/kg wet						
1,2-Dichlorobenzene	330	U	330	ug/kg wet						
1,3-Dichlorobenzene	330	U	330	ug/kg wet						
1,4-Dichlorobenzene	330	U	330	ug/kg wet						
2,4,5-Trichlorophenol	330	U	330	ug/kg wet						
2,4,6-Trichlorophenol	330	U	330	ug/kg wet						
2,4-Dichlorophenol	330	U	330	ug/kg wet						
2,4-Dimethylphenol	330	U	330	ug/kg wet						
2,4-Dinitrophenol	1650	U	1650	ug/kg wet						
2,4-Dinitrotoluene	330	U	330	ug/kg wet						
2,6-Dinitrotoluene	330	U	330	ug/kg wet						
2-Chloronaphthalene	330	U	330	ug/kg wet						
2-Chlorophenol	330	U	330	ug/kg wet						
2-Methylnaphthalene	330	U	330	ug/kg wet						
2-Methylphenol	330	U	330	ug/kg wet						
2-Nitroaniline	1650	U	1650	ug/kg wet						
2-Nitrophenol	330	U	330	ug/kg wet						
3,3'-Dichlorobenzidine	660	U	660	ug/kg wet						
3-Nitroaniline	1650	U	1650	ug/kg wet						
4,6-Dinitro-2-methylphenol	330	U	330	ug/kg wet						
4-Bromophenyl Phenyl Ether	330	U	330	ug/kg wet						
4-Chloro-3-methylphenol	330	U	330	ug/kg wet						
4-Chloroaniline	330	U	330	ug/kg wet						
4-Chlorophenyl Phenyl Ether	330	U	330	ug/kg wet						
3- and/or 4-Methylphenol	330	U	330	ug/kg wet						
4-Nitroaniline	1650	U	1650	ug/kg wet						
4-Nitrophenol	1650	U	1650	ug/kg wet						
Acenaphthene	330	U	330	ug/kg wet						
Acenaphthylene	330	U	330	ug/kg wet						
Anthracene	330	U	330	ug/kg wet						
Benz[a]anthracene	330	U	330	ug/kg wet						
Benzo[a] pyrene	330	U	330	ug/kg wet						
Benzo[b] fluoranthene	330	U	330	ug/kg wet						
Benzo[g,h,i] perylene	330	U	330	ug/kg wet						
Benzo[k] fluoranthene	330	U	330	ug/kg wet						
Bis(2-chloroethoxy) methane	330	U	330	ug/kg wet						

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207184 - SW 3540C										
Blank (L207184-BLK1)				Prepared: 07/30/2012 Analyzed: 07/31/2012						
Bis(2-chloroethyl) ether	330	U	330	ug/kg wet						
Bis(2-chloroisopropyl) ether	330	U	330	ug/kg wet						
Bis(2-ethylhexyl) phthalate	330	U	330	ug/kg wet						
Butyl Benzyl Phthalate	330	U	330	ug/kg wet						
Carbazole	330	U	330	ug/kg wet						
Chrysene	330	U	330	ug/kg wet						
Dibenz[a,h]anthracene	330	U	330	ug/kg wet						
Dibenzofuran	330	U	330	ug/kg wet						
Diethyl Phthalate	330	U	330	ug/kg wet						
Dimethyl Phthalate	330	U	330	ug/kg wet						
Di-n-butyl Phthalate	330	U	330	ug/kg wet						
Di-n-octyl Phthalate	330	U	330	ug/kg wet						
Fluoranthene	330	U	330	ug/kg wet						
Fluorene	330	U	330	ug/kg wet						
Hexachlorobenzene	330	U	330	ug/kg wet						
Hexachlorobutadiene	330	U	330	ug/kg wet						
Hexachlorocyclopentadiene	330	U	330	ug/kg wet						
Hexachloroethane	330	U	330	ug/kg wet						
Indeno[1,2,3-cd]pyrene	330	U	330	ug/kg wet						
Isophorone	330	U	330	ug/kg wet						
Naphthalene	330	U	330	ug/kg wet						
Nitrobenzene	330	U	330	ug/kg wet						
N-Nitrosodi-n-propylamine	330	U	330	ug/kg wet						
N-Nitrosodiphenylamine	330	U	330	ug/kg wet						
Pentachlorophenol	1650	U	1650	ug/kg wet						
Phenanthrene	330	U	330	ug/kg wet						
Phenol	330	U	330	ug/kg wet						
Pyrene	330	U	330	ug/kg wet						
Aldol Condensate 2 TICS	21100	A, J		ug/kg wet						
Aldol Condensate 4	346	A, J		ug/kg wet						
Aldol Condensate 5	372	A, J		ug/kg wet						
Aldol Condensate 3	298	A, J		ug/kg wet						
Aldol Condensate 1 Reason/12	558	A, J		ug/kg wet						
Surrogate: 2-Fluorophenol	*1530*			*ug/kg wet*	*2500.0*		*61*	*25-121*		
Surrogate: Phenol-d5	*1550*			*ug/kg wet*	*2500.0*		*62*	*24-113*		
Surrogate: Nitrobenzene-d5	*1110*			*ug/kg wet*	*1666.7*		*67*	*23-120*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 14:07

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207184 - SW 3540C									
Blank (L207184-BLK1)			Prepared: 07/30/2012 Analyzed: 07/31/2012						
Surrogate: 2-Fluorobiphenyl	*1120*		*ug/kg wet*	*1666.7*		*67*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1030*		*ug/kg wet*	*2500.0*		*41*	*19-122*		
Surrogate: p-Terphenyl-d14	*1410*		*ug/kg wet*	*1666.7*		*84*	*18-137*		
LCS (L207184-BS1)			Prepared: 07/30/2012 Analyzed: 07/31/2012						
1,2,4-Trichlorobenzene	1500		ug/kg wet	2000.0		75	45-110		
1,2-Dichlorobenzene	1490		ug/kg wet	2000.0		75	45-105		
1,3-Dichlorobenzene	1450		ug/kg wet	2000.0		72	40-100		
1,4-Dichlorobenzene	1450		ug/kg wet	2000.0		73	35-105		
2,4,5-Trichlorophenol	1220		ug/kg wet	2000.0		61	30-140		
2,4,6-Trichlorophenol	583		ug/kg wet	2000.0		29	20-110		
2,4-Dichlorophenol	1510		ug/kg wet	2000.0		76	40-110		
2,4-Dimethylphenol	1410		ug/kg wet	2000.0		70	30-105		
2,4-Dinitrophenol	1950		ug/kg wet	2000.0		97	25-130		
2,4-Dinitrotoluene	1760		ug/kg wet	2000.0		88	50-115		
2,6-Dinitrotoluene	1760		ug/kg wet	2000.0		88	40-120		
2-Chloronaphthalene	1560		ug/kg wet	2000.0		78	45-115		
2-Chlorophenol	1520		ug/kg wet	2000.0		76	45-105		
2-Methylnaphthalene	1510		ug/kg wet	2000.0		75	45-110		
2-Methylphenol	1540		ug/kg wet	2000.0		77	40-120		
2-Nitroaniline	1730		ug/kg wet	2000.0		87	45-120		
2-Nitrophenol	1510		ug/kg wet	2000.0		75	40-110		
3,3'-Dichlorobenzidine	1740		ug/kg wet	2000.0		87	15-130		
3-Nitroaniline	1890		ug/kg wet	2000.0		95	40-130		
4,6-Dinitro-2-methylphenol	2040		ug/kg wet	2000.0		102	20-140		
4-Bromophenyl Phenyl Ether	1750		ug/kg wet	2000.0		87	45-115		
4-Chloro-3-methylphenol	1630		ug/kg wet	2000.0		82	35-115		
4-Chloroaniline	1160		ug/kg wet	2000.0		58	10-100		
4-Chlorophenyl Phenyl Ether	1650		ug/kg wet	2000.0		83	45-110		
3- and/or 4-Methylphenol	1590		ug/kg wet	2000.0		79	40-120		
4-Nitroaniline	1880		ug/kg wet	2000.0		94	40-130		
4-Nitrophenol	1340		ug/kg wet	2000.0		67	15-140		
Acenaphthene	1590		ug/kg wet	2000.0		79	45-110		
Acenaphthylene	1630		ug/kg wet	2000.0		82	45-115		
Anthracene	1630		ug/kg wet	2000.0		81	45-130		
Benz[a]anthracene	1840		ug/kg wet	2000.0		92	45-130		
Benzo[a] pyrene	1860		ug/kg wet	2000.0		93	45-130		

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Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207184 - SW 3540C									
LCS (L207184-BS1)			Prepared: 07/30/2012 Analyzed: 07/31/2012						
Benzo[b] fluoranthene	1950		ug/kg wet	2000.0		97	40-130		
Benzo[g,h,i] perylene	1910		ug/kg wet	2000.0		96	45-125		
Benzo[k] fluoranthene	1860		ug/kg wet	2000.0		93	45-125		
Bis(2-chloroethoxy) methane	1480		ug/kg wet	2000.0		74	45-110		
Bis(2-chloroethyl) ether	1440		ug/kg wet	2000.0		72	40-110		
Bis(2-chloroisopropyl) ether	1440		ug/kg wet	2000.0		72	30-115		
Bis(2-ethylhexyl) phthalate	1930		ug/kg wet	2000.0		97	40-145		
Butyl Benzyl Phthalate	1840		ug/kg wet	2000.0		92	50-125		
Carbazole	2220		ug/kg wet	2000.0		111	40-140		
Chrysene	1900		ug/kg wet	2000.0		95	45-130		
Dibenz[a,h]anthracene	1930		ug/kg wet	2000.0		96	45-125		
Dibenzofuran	1590		ug/kg wet	2000.0		80	45-120		
Diethyl Phthalate	1690		ug/kg wet	2000.0		84	50-125		
Dimethyl Phthalate	1620		ug/kg wet	2000.0		81	45-130		
Di-n-butyl Phthalate	1600		ug/kg wet	2000.0		80	50-130		
Di-n-octyl Phthalate	1990		ug/kg wet	2000.0		100	40-150		
Fluoranthene	1730		ug/kg wet	2000.0		86	45-130		
Fluorene	1660		ug/kg wet	2000.0		83	45-120		
Hexachlorobenzene	1770		ug/kg wet	2000.0		89	45-130		
Hexachlorobutadiene	1660		ug/kg wet	2000.0		83	45-105		
Hexachlorocyclopentadiene	1280		ug/kg wet	2000.0		64	10-100		
Hexachloroethane	1460		ug/kg wet	2000.0		73	35-110		
Indeno[1,2,3-cd]pyrene	1900		ug/kg wet	2000.0		95	45-130		
Isophorone	1460		ug/kg wet	2000.0		73	40-110		
Naphthalene	1620		ug/kg wet	2000.0		81	40-110		
Nitrobenzene	1480		ug/kg wet	2000.0		74	40-105		
N-Nitrosodi-n-propylamine	1640		ug/kg wet	2000.0		82	30-130		
N-Nitrosodiphenylamine	1710		ug/kg wet	2000.0		85	50-120		
Pentachlorophenol	1550		ug/kg wet	2000.0		77	25-120		
Phenanthrene	1720		ug/kg wet	2000.0		86	50-120		
Phenol	1490		ug/kg wet	2000.0		75	40-115		
Pyrene	1740		ug/kg wet	2000.0		87	45-125		
Surrogate: 2-Fluorophenol	*1980*		*ug/kg wet*	*2500.0*		*79*	*25-121*		
Surrogate: Phenol-d5	*2000*		*ug/kg wet*	*2500.0*		*80*	*24-113*		
Surrogate: Nitrobenzene-d5	*1360*		*ug/kg wet*	*1666.7*		*81*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1410*		*ug/kg wet*	*1666.7*		*85*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*765*		*ug/kg wet*	*2500.0*		*31*	*19-122*		

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Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207184 - SW 3540C									
LCS (L207184-BS1)			Prepared: 07/30/2012 Analyzed: 07/31/2012						
Surrogate: p-Terphenyl-d14	*1620*		*ug/kg wet*	*1666.7*		*97*	*18-137*		
Matrix Spike (L207184-MS1)		**Source: 1207059-01**	Prepared: 07/30/2012 Analyzed: 07/31/2012						
1,2,4-Trichlorobenzene	1000		ug/kg dry	2017.7	335 U	50	45-110		
1,2-Dichlorobenzene	1040		ug/kg dry	2017.7	335 U	51	45-105		
1,3-Dichlorobenzene	991		ug/kg dry	2017.7	335 U	49	40-100		
1,4-Dichlorobenzene	996		ug/kg dry	2017.7	335 U	49	35-105		
2,4,5-Trichlorophenol	1220		ug/kg dry	2017.7	335 U	61	30-140		
2,4,6-Trichlorophenol	1010		ug/kg dry	2017.7	335 U	50	20-110		
2,4-Dichlorophenol	1100		ug/kg dry	2017.7	335 U	55	40-110		
2,4-Dimethylphenol	1130		ug/kg dry	2017.7	335 U	56	30-105		
2,4-Dinitrophenol	997		ug/kg dry	2017.7	1680 U	49	25-130		
2,4-Dinitrotoluene	1200		ug/kg dry	2017.7	335 U	60	50-115		
2,6-Dinitrotoluene	1200		ug/kg dry	2017.7	335 U	60	40-120		
2-Chloronaphthalene	1130		ug/kg dry	2017.7	335 U	56	45-115		
2-Chlorophenol	1080		ug/kg dry	2017.7	335 U	54	45-105		
2-Methylnaphthalene	1070		ug/kg dry	2017.7	335 U	53	45-110		
2-Methylphenol	1180		ug/kg dry	2017.7	335 U	58	40-120		
2-Nitroaniline	1240		ug/kg dry	2017.7	1680 U	61	45-120		
2-Nitrophenol	1050		ug/kg dry	2017.7	335 U	52	40-110		
3,3'-Dichlorobenzidine	1070		ug/kg dry	2017.7	670 U	53	15-130		
3-Nitroaniline	1260		ug/kg dry	2017.7	1680 U	63	40-130		
4,6-Dinitro-2-methylphenol	1230		ug/kg dry	2017.7	335 U	61	20-140		
4-Bromophenyl Phenyl Ether	1200		ug/kg dry	2017.7	335 U	59	45-115		
4-Chloro-3-methylphenol	1170		ug/kg dry	2017.7	335 U	58	35-115		
4-Chloroaniline	783		ug/kg dry	2017.7	335 U	39	10-100		
4-Chlorophenyl Phenyl Ether	1170		ug/kg dry	2017.7	335 U	58	45-110		
3- and/or 4-Methylphenol	1160		ug/kg dry	2017.7	335 U	58	40-120		
4-Nitroaniline	1280		ug/kg dry	2017.7	1680 U	64	40-130		
4-Nitrophenol	802		ug/kg dry	2017.7	1680 U	40	15-140		
Acenaphthene	1150		ug/kg dry	2017.7	335 U	57	45-110		
Acenaphthylene	1200		ug/kg dry	2017.7	335 U	60	45-115		
Anthracene	1200		ug/kg dry	2017.7	335 U	60	45-130		
Benz[a]anthracene	1280		ug/kg dry	2017.7	335 U	63	45-130		
Benzo[a] pyrene	1270		ug/kg dry	2017.7	335 U	63	45-130		
Benzo[b] fluoranthene	1270		ug/kg dry	2017.7	335 U	63	40-130		
Benzo[g,h,i] perylene	1250		ug/kg dry	2017.7	335 U	62	45-125		

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Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207184 - SW 3540C									
Matrix Spike (L207184-MS1)		**Source: 1207059-01**	Prepared: 07/30/2012 Analyzed: 07/31/2012						
Benzo[k] fluoranthene	1280		ug/kg dry	2017.7	335 U	64	45-125		
Bis(2-chloroethoxy) methane	1080		ug/kg dry	2017.7	335 U	53	45-110		
Bis(2-chloroethyl) ether	1030		ug/kg dry	2017.7	335 U	51	40-110		
Bis(2-chloroisopropyl) ether	1060		ug/kg dry	2017.7	335 U	52	30-115		
Bis(2-ethylhexyl) phthalate	1380		ug/kg dry	2017.7	335 U	68	40-145		
Butyl Benzyl Phthalate	1310		ug/kg dry	2017.7	335 U	65	50-125		
Carbazole	1570		ug/kg dry	2017.7	335 U	78	40-140		
Chrysene	1330		ug/kg dry	2017.7	335 U	66	45-130		
Dibenz[a,h]anthracene	1270		ug/kg dry	2017.7	335 U	63	45-125		
Dibenzofuran	1180		ug/kg dry	2017.7	335 U	58	45-120		
Diethyl Phthalate	1200		ug/kg dry	2017.7	335 U	60	50-125		
Dimethyl Phthalate	1150		ug/kg dry	2017.7	335 U	57	45-130		
Di-n-butyl Phthalate	1170		ug/kg dry	2017.7	335 U	58	50-130		
Di-n-octyl Phthalate	1400		ug/kg dry	2017.7	335 U	70	40-150		
Fluoranthene	1200		ug/kg dry	2017.7	335 U	59	45-130		
Fluorene	1180		ug/kg dry	2017.7	335 U	59	45-120		
Hexachlorobenzene	1210		ug/kg dry	2017.7	335 U	60	45-130		
Hexachlorobutadiene	1110		ug/kg dry	2017.7	335 U	55	45-105		
Hexachlorocyclopentadiene	704		ug/kg dry	2017.7	335 U	35	10-100		
Hexachloroethane	979		ug/kg dry	2017.7	335 U	49	35-110		
Indeno[1,2,3-cd]pyrene	1260		ug/kg dry	2017.7	335 U	63	45-130		
Isophorone	1080		ug/kg dry	2017.7	335 U	53	40-110		
Naphthalene	1170		ug/kg dry	2017.7	335 U	58	40-110		
Nitrobenzene	1040		ug/kg dry	2017.7	335 U	52	40-105		
N-Nitrosodi-n-propylamine	1220		ug/kg dry	2017.7	335 U	60	30-130		
N-Nitrosodiphenylamine	1190		ug/kg dry	2017.7	335 U	59	50-120		
Pentachlorophenol	806		ug/kg dry	2017.7	1680 U	40	25-120		
Phenanthrene	1230		ug/kg dry	2017.7	335 U	61	50-120		
Phenol	1090		ug/kg dry	2017.7	335 U	54	40-115		
Pyrene	1270		ug/kg dry	2017.7	335 U	63	45-125		
Surrogate: 2-Fluorophenol	*1550*		*ug/kg dry*	*2522.2*		*62*	*25-121*		
Surrogate: Phenol-d5	*1560*		*ug/kg dry*	*2522.2*		*62*	*24-113*		
Surrogate: Nitrobenzene-d5	*1010*		*ug/kg dry*	*1681.4*		*60*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1070*		*ug/kg dry*	*1681.4*		*64*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1350*		*ug/kg dry*	*2522.2*		*53*	*19-122*		
Surrogate: p-Terphenyl-d14	*1210*		*ug/kg dry*	*1681.4*		*72*	*18-137*		

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Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207184 - SW 3540C									
Matrix Spike Dup (L207184-MSD1)	**Source: 1207059-01**	Prepared: 07/30/2012 Analyzed: 07/31/2012							
1,2,4-Trichlorobenzene	1140		ug/kg dry	2039.8	335 U	56	45-110	12	40
1,2-Dichlorobenzene	1130		ug/kg dry	2039.8	335 U	55	45-105	7	40
1,3-Dichlorobenzene	1070		ug/kg dry	2039.8	335 U	52	40-100	7	40
1,4-Dichlorobenzene	1080		ug/kg dry	2039.8	335 U	53	35-105	7	40
2,4,5-Trichlorophenol	1470		ug/kg dry	2039.8	335 U	72	30-140	17	40
2,4,6-Trichlorophenol	1140		ug/kg dry	2039.8	335 U	56	20-110	11	40
2,4-Dichlorophenol	1260		ug/kg dry	2039.8	335 U	62	40-110	12	40
2,4-Dimethylphenol	1240		ug/kg dry	2039.8	335 U	61	30-105	8	40
2,4-Dinitrophenol	1160		ug/kg dry	2039.8	1680 U	57	25-130	14	40
2,4-Dinitrotoluene	1460		ug/kg dry	2039.8	335 U	71	50-115	18	40
2,6-Dinitrotoluene	1460		ug/kg dry	2039.8	335 U	71	40-120	18	40
2-Chloronaphthalene	1290		ug/kg dry	2039.8	335 U	63	45-115	12	40
2-Chlorophenol	1190		ug/kg dry	2039.8	335 U	58	45-105	8	40
2-Methylnaphthalene	1200		ug/kg dry	2039.8	335 U	59	45-110	10	40
2-Methylphenol	1310		ug/kg dry	2039.8	335 U	64	40-120	10	40
2-Nitroaniline	1490		ug/kg dry	2039.8	1680 U	73	45-120	18	40
2-Nitrophenol	1190		ug/kg dry	2039.8	335 U	58	40-110	11	40
3,3'-Dichlorobenzidine	1390		ug/kg dry	2039.8	670 U	68	15-130	25	40
3-Nitroaniline	1550		ug/kg dry	2039.8	1680 U	76	40-130	19	40
4,6-Dinitro-2-methylphenol	1440		ug/kg dry	2039.8	335 U	71	20-140	14	40
4-Bromophenyl Phenyl Ether	1440		ug/kg dry	2039.8	335 U	71	45-115	17	40
4-Chloro-3-methylphenol	1380		ug/kg dry	2039.8	335 U	68	35-115	15	40
4-Chloroaniline	900		ug/kg dry	2039.8	335 U	44	10-100	13	40
4-Chlorophenyl Phenyl Ether	1390		ug/kg dry	2039.8	335 U	68	45-110	16	40
3- and/or 4-Methylphenol	1300		ug/kg dry	2039.8	335 U	64	40-120	10	40
4-Nitroaniline	1660		ug/kg dry	2039.8	1680 U	82	40-130	25	40
4-Nitrophenol	948		ug/kg dry	2039.8	1680 U	46	15-140	16	40
Acenaphthene	1340		ug/kg dry	2039.8	335 U	66	45-110	14	40
Acenaphthylene	1360		ug/kg dry	2039.8	335 U	67	45-115	12	40
Anthracene	1360		ug/kg dry	2039.8	335 U	66	45-130	11	40
Benz[a]anthracene	1510		ug/kg dry	2039.8	335 U	74	45-130	16	40
Benzo[a] pyrene	1520		ug/kg dry	2039.8	335 U	74	45-130	16	40
Benzo[b] fluoranthene	1530		ug/kg dry	2039.8	335 U	75	40-130	17	40
Benzo[g,h,i] perylene	1510		ug/kg dry	2039.8	335 U	74	45-125	18	40
Benzo[k] fluoranthene	1530		ug/kg dry	2039.8	335 U	75	45-125	16	40
Bis(2-chloroethoxy) methane	1210		ug/kg dry	2039.8	335 U	60	45-110	11	40

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 14:07

Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207184 - SW 3540C									
Matrix Spike Dup (L207184-MSD1)	**Source: 1207059-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
Bis(2-chloroethyl) ether	1140		ug/kg dry	2039.8	335 U	56	40-110	9	40
Bis(2-chloroisopropyl) ether	1150		ug/kg dry	2039.8	335 U	56	30-115	7	40
Bis(2-ethylhexyl) phthalate	1580		ug/kg dry	2039.8	335 U	78	40-145	13	40
Butyl Benzyl Phthalate	1530		ug/kg dry	2039.8	335 U	75	50-125	14	40
Carbazole	1930		ug/kg dry	2039.8	335 U	95	40-140	19	40
Chrysene	1540		ug/kg dry	2039.8	335 U	76	45-130	14	40
Dibenz[a,h]anthracene	1530		ug/kg dry	2039.8	335 U	75	45-125	18	40
Dibenzofuran	1370		ug/kg dry	2039.8	335 U	67	45-120	14	40
Diethyl Phthalate	1430		ug/kg dry	2039.8	335 U	70	50-125	16	40
Dimethyl Phthalate	1380		ug/kg dry	2039.8	335 U	68	45-130	17	40
Di-n-butyl Phthalate	1320		ug/kg dry	2039.8	335 U	65	50-130	11	40
Di-n-octyl Phthalate	1610		ug/kg dry	2039.8	335 U	79	40-150	13	40
Fluoranthene	1390		ug/kg dry	2039.8	335 U	68	45-130	14	40
Fluorene	1410		ug/kg dry	2039.8	335 U	69	45-120	16	40
Hexachlorobenzene	1480		ug/kg dry	2039.8	335 U	73	45-130	19	40
Hexachlorobutadiene	1250		ug/kg dry	2039.8	335 U	61	45-105	10	40
Hexachlorocyclopentadiene	823		ug/kg dry	2039.8	335 U	40	10-100	15	40
Hexachloroethane	1070		ug/kg dry	2039.8	335 U	53	35-110	8	40
Indeno[1,2,3-cd]pyrene	1500		ug/kg dry	2039.8	335 U	74	45-130	16	40
Isophorone	1200		ug/kg dry	2039.8	335 U	59	40-110	10	40
Naphthalene	1280		ug/kg dry	2039.8	335 U	63	40-110	8	40
Nitrobenzene	1170		ug/kg dry	2039.8	335 U	58	40-105	11	40
N-Nitrosodi-n-propylamine	1360		ug/kg dry	2039.8	335 U	66	30-130	10	40
N-Nitrosodiphenylamine	1430		ug/kg dry	2039.8	335 U	70	50-120	17	40
Pentachlorophenol	1110		ug/kg dry	2039.8	1680 U	54	25-120	30	40
Phenanthrene	1440		ug/kg dry	2039.8	335 U	71	50-120	14	40
Phenol	1210		ug/kg dry	2039.8	335 U	59	40-115	9	40
Pyrene	1470		ug/kg dry	2039.8	335 U	72	45-125	13	40
Surrogate: 2-Fluorophenol	*1650*		*ug/kg dry*	*2549.8*		*65*	*25-121*		
Surrogate: Phenol-d5	*1670*		*ug/kg dry*	*2549.8*		*66*	*24-113*		
Surrogate: Nitrobenzene-d5	*1110*		*ug/kg dry*	*1699.9*		*65*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1170*		*ug/kg dry*	*1699.9*		*69*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1520*		*ug/kg dry*	*2549.8*		*60*	*19-122*		
Surrogate: p-Terphenyl-d14	*1300*		*ug/kg dry*	*1699.9*		*76*	*18-137*		

PREPARATION BENCH SHEET

L207184

Lionville Laboratory

Printed: 7/31/2012 1:14:47PM

000000075

Matrix: Solid **Prepared using: SVOCGCMS - SW 3540C** **Surrogate used: 1200845**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1207059-01	8270C TCL SVOC	07/30/2012 12:16	30.24	1				500	WC-Hanford, Inc.	
1207059-02	8270C TCL SVOC	07/30/2012 12:16	30.43	1				500	WC-Hanford, Inc.	
1207059-03	8270C TCL SVOC	07/30/2012 12:16	30.44	1				500	WC-Hanford, Inc.	
1207059-04	8270C TCL SVOC	07/30/2012 12:16	30.09	1				500	WC-Hanford, Inc.	
1207059-05	8270C TCL SVOC	07/30/2012 12:16	30.29	1				500	WC-Hanford, Inc.	
1207059-06	8270C TCL SVOC	07/30/2012 12:16	30.1	1				500	WC-Hanford, Inc.	
1207059-08	8270C TCL SVOC	07/30/2012 12:16	30.01	1				500	WC-Hanford, Inc.	
1207060-01	8270C TCL SVOC	07/30/2012 12:16	30.56	1				500	WC-Hanford, Inc.	
1207060-02	8270C TCL SVOC	07/30/2012 12:16	30.88	1				500	WC-Hanford, Inc.	
1207060-03	8270C TCL SVOC	07/30/2012 12:16	30.07	4				500	WC-Hanford, Inc.	
1207060-04	8270C TCL SVOC	07/30/2012 12:16	30.35	1				500	WC-Hanford, Inc.	
1207060-05	8270C TCL SVOC	07/30/2012 12:16	30.24	1				500	WC-Hanford, Inc.	
1207060-06	8270C TCL SVOC	07/30/2012 12:16	30.04	1				500	WC-Hanford, Inc.	
1207061-01	8270C TCL SVOC	07/30/2012 12:16	31.77	1				500	WC-Hanford, Inc.	
L207184-BLK1	QC	07/30/2012 12:16	30	1				500		
L207184-BS1	QC	07/30/2012 12:16	30	1	1200843		600	500		
L207184-MS1	QC	07/30/2012 12:16	30.43	1	1200843	1207059-01	600	500		
L207184-MS2	QC	07/30/2012 12:16	30.63	1	1200843	1207060-01	600	500		
L207184-MS3	QC	07/30/2012 12:16	30.79	1	1200843	1207061-01	600	500		
L207184-MSD1	QC	07/30/2012 12:16	30.1	1	1200843	1207059-01	600	500		

7/31/12 1314
Extracts Relinquished By Date

7/31/12 1320
Extracts Received By Date

PREPARATION BENCH SHEET

L207184

Lionville Laboratory

Printed: 7/31/2012 1:14:47PM

000000076

Matrix: Solid **Prepared using: SVOCGCMS - SW 3540C** **Surrogate used: 1200845**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L207184-MSD2	QC	07/30/2012 12:16	30.48	1	1200843	1207060-01	600	500		
L207184-MSD3	QC	07/30/2012 12:16	30.27	1	1200843	1207061-01	600	500		

Extracts Relinquished By 7/31/12 1314 Date

Extracts Received By 7/31/12 1320 Date

PCBS

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/03/2012 13:16

Analytical Report for Polychlorinated Biphenyls by SW846 8082

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW73	1207059-01	Soil	07/25/2012 08:28	07/27/2012 09:50
J1PW74	1207059-02	Soil	07/25/2012 08:29	07/27/2012 09:50
J1PW75	1207059-03	Soil	07/25/2012 10:10	07/27/2012 09:50
J1PW76	1207059-04	Soil	07/25/2012 12:50	07/27/2012 09:50
J1PW77	1207059-05	Soil	07/25/2012 13:56	07/27/2012 09:50
J1PW78	1207059-06	Soil	07/25/2012 14:23	07/27/2012 09:50
J1PW80	1207059-08	Soil	07/25/2012 14:47	07/27/2012 09:50

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Case Narrative

Client: WC-HANFORD RC-148 KP0116
LVL #: 1207059

W.O. #: 60049-001-001-0001-00
Received: 07-27-2012

PCBs

Seven (7) soil samples were collected on 07-25-2012.

The samples and associated QC samples were extracted 07-30-2012 and analyzed 08-01,02-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8082. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on SW846 methods 3660A and 3665A.

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

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

2. All required holding times for extraction and analysis have been met.

3. Three (3) of twenty-two (22) surrogate recoveries were outside acceptance criteria. Surrogate recovery criteria were not met due to dilution of samples and interference from AR 1260 in the samples.

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

5. All blank spike recoveries were within acceptance criteria.

6. Two (2) of four (4) matrix spike recoveries were outside acceptance criteria. Matrix spike recovery criteria were not met due to dilution of samples and interference from AR 1260 in the samples.

7. All samples required dilutions from 5 to 40-fold due to high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.

8. The samples are reported on a dry weight basis.

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

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

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

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

Iain Daniels
LvL Laboratory Manager

8/7/12
Date

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
NPM	=	No pattern match for multi-component target analytes.

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:16

J1PW73
1207059-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	543	U	543	ug/kg dry	40	L207193	07/30/2012	08/01/2012	8082
Aroclor 1221	543	U	543	ug/kg dry	40	L207193	07/30/2012	08/01/2012	8082
Aroclor 1232	543	U	543	ug/kg dry	40	L207193	07/30/2012	08/01/2012	8082
Aroclor 1242	543	U	543	ug/kg dry	40	L207193	07/30/2012	08/01/2012	8082
Aroclor 1248	543	U	543	ug/kg dry	40	L207193	07/30/2012	08/01/2012	8082
Aroclor 1254	**5340**	D	543	ug/kg dry	40	L207193	07/30/2012	08/01/2012	8082
Aroclor 1260	**1150**	D	543	ug/kg dry	40	L207193	07/30/2012	08/01/2012	8082
Aroclor 1262	543	U	543	ug/kg dry	40	L207193	07/30/2012	08/01/2012	8082
Aroclor 1268	543	U	543	ug/kg dry	40	L207193	07/30/2012	08/01/2012	8082
Surrogate: Decachlorobiphenyl	*141 %*		*43-144*			*L207193*	*07/30/2012*	*08/01/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*112 %*		*52-141*			*L207193*	*07/30/2012*	*08/01/2012*	*8082*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:16

J1PW74
1207059-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	532	U	532	ug/kg dry	40	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	532	U	532	ug/kg dry	40	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	532	U	532	ug/kg dry	40	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	532	U	532	ug/kg dry	40	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	532	U	532	ug/kg dry	40	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**6800**	D	532	ug/kg dry	40	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**1430**	D	532	ug/kg dry	40	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	532	U	532	ug/kg dry	40	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	532	U	532	ug/kg dry	40	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*151 % **		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*124 %*		*52-141*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:16

J1PW75
1207059-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	64.2	U	64.2	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	64.2	U	64.2	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	64.2	U	64.2	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	64.2	U	64.2	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	**179**	D	64.2	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**307**	D	64.2	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**43.5**	J, D	64.2	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	64.2	U	64.2	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	64.2	U	64.2	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*96 %*		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*110 %*		*52-141*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:16

J1PW76
1207059-04 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**1070**	D	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**81.9**	J, D	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*54 %*		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*106 %*		*52-141*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:16

J1PW77
1207059-05 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	69.3	U	69.3	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	69.3	U	69.3	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	69.3	U	69.3	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	69.3	U	69.3	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	**559**	D	69.3	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**672**	D	69.3	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**90.5**	D	69.3	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	69.3	U	69.3	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	69.3	U	69.3	ug/kg dry	5	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*81 %*		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*96 %*		*52-141*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:16

J1PW78
1207059-06 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	133	U	133	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	133	U	133	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	133	U	133	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	133	U	133	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	133	U	133	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**837**	D	133	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**247**	D	133	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	133	U	133	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	133	U	133	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*56 %*		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*116 %*		*52-141*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:16

J1PW80
1207059-08 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**995**	D	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**179**	D	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	132	U	132	ug/kg dry	10	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*51 %*		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*101 %*		*52-141*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:16

Polychlorinated Biphenyls by SW846 8082 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207193 - SW 3540C										
Blank (L207193-BLK1)				Prepared: 07/30/2012 Analyzed: 08/01/2012						
Aroclor 1016	13.3	U	13.3	ug/kg wet						
Aroclor 1221	13.3	U	13.3	ug/kg wet						
Aroclor 1232	13.3	U	13.3	ug/kg wet						
Aroclor 1242	13.3	U	13.3	ug/kg wet						
Aroclor 1248	13.3	U	13.3	ug/kg wet						
Aroclor 1254	13.3	U	13.3	ug/kg wet						
Aroclor 1260	13.3	U	13.3	ug/kg wet						
Aroclor 1262	13.3	U	13.3	ug/kg wet						
Aroclor 1268	13.3	U	13.3	ug/kg wet						
Surrogate: Decachlorobiphenyl	*28.0*			*ug/kg wet*	*33.333*		*84*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*29.2*			*ug/kg wet*	*33.337*		*87*	*52-141*		
LCS (L207193-BS1)				Prepared: 07/30/2012 Analyzed: 08/01/2012						
Aroclor 1016	102		13.3	ug/kg wet	166.67		61	50-138		
Aroclor 1260	118		13.3	ug/kg wet	166.67		71	50-148		
Surrogate: Decachlorobiphenyl	*25.5*			*ug/kg wet*	*33.333*		*77*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*25.8*			*ug/kg wet*	*33.337*		*77*	*52-141*		
Matrix Spike (L207193-MS1)		**Source: 1207059-01**		Prepared: 07/30/2012 Analyzed: 08/01/2012						
Aroclor 1016	213	J, D	542	ug/kg dry	169.87	543 U	126	50-138		
Aroclor 1260	1510	D	542	ug/kg dry	169.87	1150	214*	50-148		
Surrogate: Decachlorobiphenyl	*50.8*			*ug/kg dry*	*33.975*		*150**	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*41.0*			*ug/kg dry*	*33.978*		*121*	*52-141*		
Matrix Spike Dup (L207193-MSD1)		**Source: 1207059-01**		Prepared: 07/30/2012 Analyzed: 08/01/2012						
Aroclor 1016	234	J, D	540	ug/kg dry	169.26	543 U	138	50-138	10	40
Aroclor 1260	1580	D	540	ug/kg dry	169.26	1150	256*	50-148	18	40
Surrogate: Decachlorobiphenyl	*50.0*			*ug/kg dry*	*33.851*		*148**	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*41.9*			*ug/kg dry*	*33.855*		*124*	*52-141*		

PREPARATION BENCH SHEET

L207193

Lionville Laboratory

Printed: 8/1/2012 12:25:59PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1200502**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1207059-01	8082 PCBs	07/30/2012 15:00	30.09	10				250	WC-Hanford, Inc.	
1207059-02	8082 PCBs	07/30/2012 15:00	30.17	10				250	WC-Hanford, Inc.	
1207059-03	8082 PCBs	07/30/2012 15:00	31.16	10				250	WC-Hanford, Inc.	
1207059-04	8082 PCBs	07/30/2012 15:00	30.27	10				250	WC-Hanford, Inc.	
1207059-05	8082 PCBs	07/30/2012 15:00	30.71	10				250	WC-Hanford, Inc.	
1207059-06	8082 PCBs	07/30/2012 15:00	30.11	10				250	WC-Hanford, Inc.	
1207059-08	8082 PCBs	07/30/2012 15:00	30.27	10				250	WC-Hanford, Inc.	
1207060-01	8082 PCBs	07/30/2012 15:00	30.73	10				250	WC-Hanford, Inc.	
1207060-02	8082 PCBs	07/30/2012 15:00	30.27	10				250	WC-Hanford, Inc.	
1207060-03	8082 PCBs	07/30/2012 15:00	30.47	10				250	WC-Hanford, Inc.	
1207060-04	8082 PCBs	07/30/2012 15:00	30.08	10				250	WC-Hanford, Inc.	
1207060-05	8082 PCBs	07/30/2012 15:00	30.4	10				250	WC-Hanford, Inc.	
1207060-06	8082 PCBs	07/30/2012 15:00	30.55	10				250	WC-Hanford, Inc.	
1207061-01	8082 PCBs	07/30/2012 15:00	11.183	10				250	WC-Hanford, Inc.	
L207193-BLK1	QC	07/30/2012 15:00	30	10				250		
L207193-BS1	QC	07/30/2012 15:00	30	10	1200902		250	250		
L207193-MS1	QC	07/30/2012 15:00	30.12	10	1200902	1207059-01	250	250		
L207193-MS2	QC	07/30/2012 15:00	30.03	10	1200902	1207060-01	250	250		
L207193-MS3	QC	07/30/2012 15:00	10.56	10	1200902	1207061-01	250	250		
L207193-MSD1	QC	07/30/2012 15:00	30.23	10	1200902	1207059-01	250	250		

Extracts Relinquished By 8/1/12 1230 Date

Cleaned 08.01.12 Cu Lot# G16W031

Extracts Received By 08.01.12 12:30 Date

PREPARATION BENCH SHEET

L207193

Lionville Laboratory

Printed: 8/1/2012 12:25:59PM

000000091

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1200502**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L207193-MSD2	QC	07/30/2012 15:00	30.54	10	1200902	1207060-01	250	250		
L207193-MSD3	QC	07/30/2012 15:00	11.23	10	1200902	1207061-01	250	250		

Scleaned 08.01.12
Cu lot # 616W031

Extracts Relinquished By 8/1/12 1230 Date

Extracts Received By Shah 08.01.12 12:30 Date

DIESEL

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/01/2012 19:40

Analytical Report for Extractable Petroleum Hydrocarbons by SW846 8015

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW73	1207059-01	Soil	07/25/2012 08:28	07/27/2012 09:50
J1PW74	1207059-02	Soil	07/25/2012 08:29	07/27/2012 09:50
J1PW75	1207059-03	Soil	07/25/2012 10:10	07/27/2012 09:50
J1PW76	1207059-04	Soil	07/25/2012 12:50	07/27/2012 09:50
J1PW77	1207059-05	Soil	07/25/2012 13:56	07/27/2012 09:50
J1PW78	1207059-06	Soil	07/25/2012 14:23	07/27/2012 09:50
J1PW80	1207059-08	Soil	07/25/2012 14:47	07/27/2012 09:50

LIONVILLE LABORATORY
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Exton, Pennsylvania 19341
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Case Narrative

Client: WC-HANFORD RC-148 KP0116
LVL #: 1207059

W.O. #: 60049-001-001-0001-00
Date Received: 07-27-2012

DIESEL RANGE ORGANICS

Seven (7) soil samples were collected on 07-25-2012.

The samples and associated QC samples were extracted 07-30-2012 and analyzed 07-31-2012, 08-01-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8015B for Diesel Range Organics.

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

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

Iain Daniels
LvL Laboratory Manager

8/7/12
Date

r:\group\data\2012\dro\wc hanford\1207059jes.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 pages.

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
NPM	=	No pattern match for multi-component target analytes.

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/01/2012 19:40

Extractable Petroleum Hydrocarbons by SW846 8015
Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW73 (1207059-01) Soil								
Surrogate: p-Terphenyl	*107 %*	*39-129*			*L207183*	*07/30/2012*	*07/31/2012*	*8015M*
Diesel Range Organics	13500	3310	ug/kg dry	1	L207183	07/30/2012	07/31/2012	8015M
Motor Oil	19600	9920	ug/kg dry	1	L207183	07/30/2012	07/31/2012	8015M
J1PW74 (1207059-02) Soil								
Surrogate: p-Terphenyl	*78 %*	*39-129*			*L207183*	*07/30/2012*	*07/31/2012*	*8015M*
Diesel Range Organics	6160	3300	ug/kg dry	1	L207183	07/30/2012	07/31/2012	8015M
Motor Oil	9870 J	9910	ug/kg dry	1	L207183	07/30/2012	07/31/2012	8015M
J1PW75 (1207059-03) Soil								
Surrogate: p-Terphenyl	*81 %*	*39-129*			*L207183*	*07/30/2012*	*07/31/2012*	*8015M*
Diesel Range Organics	4660	3200	ug/kg dry	1	L207183	07/30/2012	07/31/2012	8015M
Motor Oil	9100 J	9600	ug/kg dry	1	L207183	07/30/2012	07/31/2012	8015M
J1PW76 (1207059-04) Soil								
Surrogate: p-Terphenyl	*97 %*	*39-129*			*L207183*	*07/30/2012*	*07/31/2012*	*8015M*
Diesel Range Organics	6290	3300	ug/kg dry	1	L207183	07/30/2012	07/31/2012	8015M
Motor Oil	22500	9890	ug/kg dry	1	L207183	07/30/2012	07/31/2012	8015M
J1PW77 (1207059-05) Soil								
Surrogate: p-Terphenyl	*83 %*	*39-129*			*L207183*	*07/30/2012*	*08/01/2012*	*8015M*
Diesel Range Organics	5120	3550	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
Motor Oil	13400	10600	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
J1PW78 (1207059-06) Soil								
Surrogate: p-Terphenyl	*74 %*	*39-129*			*L207183*	*07/30/2012*	*08/01/2012*	*8015M*
Diesel Range Organics	1800 J	3330	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
Motor Oil	3540 J	9990	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/01/2012 19:40

Extractable Petroleum Hydrocarbons by SW846 8015
Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW80 (1207059-08) Soil								
Surrogate: p-Terphenyl	*109 %*	*39-129*			*L207183*	*07/30/2012*	*08/01/2012*	*8015M*
Diesel Range Organics	16600	3290	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
Motor Oil	53400	9870	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/01/2012 19:40

Extractable Petroleum Hydrocarbons by SW846 8015 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207183 - SW 3540C										
Blank (L207183-BLK1)				Prepared: 07/30/2012 Analyzed: 07/31/2012						
Diesel Range Organics	1400	J	3330	ug/kg wet						
Motor Oil	10000	U	10000	ug/kg wet						
Surrogate: p-Terphenyl	*5140*			*ug/kg wet*	*6666.7*		*77*	*39-129*		
LCS (L207183-BS1)				Prepared: 07/30/2012 Analyzed: 07/31/2012						
Diesel Range Organics	45400		3330	ug/kg wet	66667		68	42-133		
Surrogate: p-Terphenyl	*4980*			*ug/kg wet*	*6666.7*		*75*	*39-129*		
Matrix Spike (L207183-MS1)		**Source: 1207059-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
Diesel Range Organics	56500		3330	ug/kg dry	66514	13500	65	42-133		
Surrogate: p-Terphenyl	*5750*			*ug/kg dry*	*6651.4*		*86*	*39-129*		
Matrix Spike Dup (L207183-MSD1)		**Source: 1207059-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
Diesel Range Organics	51000		3410	ug/kg dry	68176	13500	55	42-133	16	40
Surrogate: p-Terphenyl	*5780*			*ug/kg dry*	*6817.6*		*85*	*39-129*		

PREPARATION BENCH SHEET

L207183

Lionville Laboratory

Printed: 7/31/2012 1:14:26PM

Matrix: Solid

Prepared using: GC - SW 3540C

Surrogate used: 1200549

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1207059-01	8015M DRO	07/30/2012 12:16	30.95	1				1000	WC-Hanford, Inc.	
1207059-02	8015M DRO	07/30/2012 12:16	30.48	1				1000	WC-Hanford, Inc.	
1207059-03	8015M DRO	07/30/2012 12:16	31.37	1				1000	WC-Hanford, Inc.	
1207059-04	8015M DRO	07/30/2012 12:16	30.43	1				1000	WC-Hanford, Inc.	
1207059-05	8015M DRO	07/30/2012 12:16	30.08	1				1000	WC-Hanford, Inc.	
1207059-06	8015M DRO	07/30/2012 12:16	30.04	1				1000	WC-Hanford, Inc.	
1207059-08	8015M DRO	07/30/2012 12:16	30.42	1				1000	WC-Hanford, Inc.	
1207060-01	8015M DRO	07/30/2012 12:16	30.96	1				1000	WC-Hanford, Inc.	
1207060-02	8015M DRO	07/30/2012 12:16	30.37	1				1000	WC-Hanford, Inc.	
1207060-03	8015M DRO	07/30/2012 12:16	31.04	1				1000	WC-Hanford, Inc.	
1207060-04	8015M DRO	07/30/2012 12:16	30.1	1				1000	WC-Hanford, Inc.	
1207060-05	8015M DRO	07/30/2012 12:16	30.4	1				1000	WC-Hanford, Inc.	
1207060-06	8015M DRO	07/30/2012 12:16	30.01	1				1000	WC-Hanford, Inc.	
L207183-BLK1	QC	07/30/2012 12:16	30	1				1000		
L207183-BS1	QC	07/30/2012 12:16	30	1	1200846		1000	1000		
L207183-MS1	QC	07/30/2012 12:16	30.77	1	1200846	1207059-01	1000	1000		
L207183-MS2	QC	07/30/2012 12:16	30.53	1	1200846	1207060-01	1000	1000		
L207183-MSD1	QC	07/30/2012 12:16	30.02	1	1200846	1207059-01	1000	1000		
L207183-MSD2	QC	07/30/2012 12:16	30.32	1	1200846	1207060-01	1000	1000		

Extracts Relinquished By — 7/31/12 13:14 Date

Extracts Received By — 07.31.12 13:20 Date

METALS

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:52

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW73	1207059-01	Soil	07/25/2012 08:28	07/27/2012 09:50
J1PW74	1207059-02	Soil	07/25/2012 08:29	07/27/2012 09:50
J1PW75	1207059-03	Soil	07/25/2012 10:10	07/27/2012 09:50
J1PW76	1207059-04	Soil	07/25/2012 12:50	07/27/2012 09:50
J1PW77	1207059-05	Soil	07/25/2012 13:56	07/27/2012 09:50
J1PW78	1207059-06	Soil	07/25/2012 14:23	07/27/2012 09:50
J1PW79	1207059-07	Soil	07/25/2012 09:03	07/27/2012 09:50
J1PW80	1207059-08	Soil	07/25/2012 14:47	07/27/2012 09:50

LIONVILLE LABORATORY
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Case Narrative

Client: WC-HANFORD RC-148
LVL#: 1207059
SDG/SAF#: KP0116/RC-148

W.O.#: 60049-001-001-0001-00
Date Received: 07-27-12

METALS

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

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

1. This narrative covers the analyses of 8 soil samples.

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

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

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

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

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

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

   The MB results for Manganese was greater than the Limit of Quantitation (LOQ) and all samples read less than 20 times the MB concentration. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

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

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

10. The matrix spike (MS) recoveries for 22 analytes were outside the 75-125% control limits.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J1PW73	Aluminum	22,000	89.1
	Antimony	100	91.5
	Arsenic	100	102.1
	Beryllium	100	92.7
	Boron	100	87.6
	Cadmium	100	98.2
	Chromium	100	100.3
	Cobalt	100	93.4
	Copper	100	97.6
	Iron	42,000	84.5
	Lead	100	83.4
	Manganese	1,000	71.8
	Molybdenum	100	96.4
	Nickel	100	94.0
	Potassium	2,000	123.0
	Selenium	100	98.7
	Silicon	2,100	127.0
	Silver	100	86.4
	Uranium	500	84.1
	Vanadium	1,000	79.2
	Zinc	1,100	84.5
	Zirconium	500	88.9

12. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limit criteria. The ± 20% RPD control limit applies to sample results greater than ten times the MDL.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

8/7/12
Date

rgc07-060hg%

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

Notes and Definitions

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

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

J1PW73
1207059-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**5470**		4.41	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.529	U	0.529	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.46**		0.882	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**54.2**		0.441	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.214**		0.176	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**1.03**	B	1.76	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.112**	B	0.176	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**4140**		88.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**8.31**		0.176	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**5.06**		1.76	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**9.44**		0.882	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**16600**		17.6	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**2.94**		0.441	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**5.75**		2.21	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3470**		66.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**242**		4.41	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.272**	B	1.76	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**7.98**		3.53	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**979**		353	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.265	U	0.265	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**411**		1.76	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.176	U	0.176	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**169**		44.1	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	17.6	U	17.6	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**45.7**		2.21	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**37.1**		8.82	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**16.7**		2.21	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0279	U	0.0279	mg/kg dry	1	L207192	07/30/2012	07/31/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

J1PW74
1207059-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**5560**		4.34	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.521	U	0.521	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.13**		0.868	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**63.8**		0.434	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.219**		0.174	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**0.953**	B	1.74	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.134**	B	0.174	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**3920**		86.8	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**8.65**		0.174	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**4.86**		1.74	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**9.00**		0.868	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**16400**		17.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**2.71**		0.434	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**6.36**		2.17	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3680**		65.1	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**253**		4.34	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.422**	B	1.74	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**7.74**		3.47	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**1050**		347	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.260	U	0.260	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**465**		1.74	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.174	U	0.174	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**175**		43.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	17.4	U	17.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**44.5**		2.17	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**36.9**		8.68	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**17.9**		2.17	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0245	U	0.0245	mg/kg dry	1	L207192	07/30/2012	07/31/2012	7471A

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:52

J1PW75
1207059-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**5700**		4.11	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.494	U	0.494	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.25**		0.823	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**70.8**		0.411	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.217**		0.165	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**1.05**	B	1.65	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.128**	B	0.165	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**4330**		82.3	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**8.88**		0.165	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**4.87**		1.65	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**9.94**		0.823	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**15600**		16.5	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**2.93**		0.411	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**6.37**		2.06	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3650**		61.7	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**228**		4.11	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.300**	B	1.65	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**9.01**		3.29	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**1050**		329	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.247	U	0.247	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**452**		1.65	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.165	U	0.165	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**196**		41.1	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	16.5	U	16.5	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**42.3**		2.06	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**62.2**		8.23	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**16.4**		2.06	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0266	U	0.0266	mg/kg dry	1	L207192	07/30/2012	07/31/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

J1PW76
1207059-04 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**5910**		4.04	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.485	U	0.485	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.18**		0.809	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**66.6**		0.404	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.226**		0.162	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**0.920**	B	1.62	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.0854**	B	0.162	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**3290**		80.9	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**7.50**		0.162	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**4.83**		1.62	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**10.1**		0.809	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**15500**		16.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**2.78**		0.404	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**6.52**		2.02	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3440**		60.7	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**241**		4.04	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.238**	B	1.62	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**8.04**		3.24	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**1070**		324	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.243	U	0.243	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**357**		1.62	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.162	U	0.162	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**232**		40.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	16.2	U	16.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**41.8**		2.02	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**34.8**		8.09	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**17.3**		2.02	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0251	U	0.0251	mg/kg dry	1	L207192	07/30/2012	07/31/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

J1PW77
1207059-05 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**5570**		4.85	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.582	U	0.582	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.46**		0.970	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**61.1**		0.485	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.227**		0.194	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**0.968**	B	1.94	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.0956**	B	0.194	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**4880**		97.0	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**7.96**		0.194	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**5.34**		1.94	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**11.3**		0.970	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**17300**		19.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**3.04**		0.485	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**6.16**		2.43	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3700**		72.8	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**237**		4.85	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.511**	B	1.94	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**7.80**		3.88	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**940**		388	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.291	U	0.291	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**802**		1.94	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.194	U	0.194	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**231**		48.5	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	19.4	U	19.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**49.0**		2.43	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**40.0**		9.70	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**16.9**		2.43	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0253	U	0.0253	mg/kg dry	1	L207192	07/30/2012	07/31/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

J1PW78
1207059-06 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**5260**		4.10	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.492	U	0.492	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.07**		0.820	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**61.3**		0.410	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.201**		0.164	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**0.677**	B	1.64	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.0626**	B	0.164	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**3020**		82.0	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**7.21**		0.164	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**4.53**		1.64	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**8.36**		0.820	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**15200**		16.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**2.40**		0.410	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**6.25**		2.05	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3380**		61.5	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**218**		4.10	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.212**	B	1.64	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**7.20**		3.28	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**942**		328	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.246	U	0.246	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**283**		1.64	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.164	U	0.164	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**150**		41.0	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	16.4	U	16.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**40.6**		2.05	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**31.2**		8.20	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**14.0**		2.05	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0273	U	0.0273	mg/kg dry	1	L207192	07/30/2012	07/31/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

J1PW79
1207059-07 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**187**		4.61	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.553	U	0.553	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**0.292**	B	0.922	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**2.28**		0.461	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	0.184	U	0.184	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	1.84	U	1.84	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	0.184	U	0.184	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**37.1**	B	92.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	0.184	U	0.184	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	1.84	U	1.84	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	0.922	U	0.922	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**824**		18.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**0.662**		0.461	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	2.30	U	2.30	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**20.7**	B	69.1	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**16.9**		4.61	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	1.84	U	1.84	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	3.69	U	3.69	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**43.6**	B	369	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.276	U	0.276	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**142**		1.84	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.184	U	0.184	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	46.1	U	46.1	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	18.4	U	18.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**0.420**	B	2.30	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**1.55**	B	9.22	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**0.878**	B	2.30	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0240	U	0.0240	mg/kg dry	1	L207192	07/30/2012	07/31/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

J1PW80
1207059-08 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**5440**		4.72	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.567	U	0.567	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.22**		0.945	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**65.9**		0.472	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.209**		0.189	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**1.04**	B	1.89	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.0761**	B	0.189	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**4100**		94.5	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**7.90**		0.189	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**4.94**		1.89	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**9.09**		0.945	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**15400**		18.9	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**3.24**		0.472	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**6.23**		2.36	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3780**		70.8	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**236**		4.72	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.317**	B	1.89	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**9.77**		3.78	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**1010**		378	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.283	U	0.283	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**451**		1.89	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.189	U	0.189	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**167**		47.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	18.9	U	18.9	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**40.8**		2.36	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**35.1**		9.45	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**15.3**		2.36	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0282	U	0.0282	mg/kg dry	1	L207192	07/30/2012	07/31/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207191 - SW 3050B										
Blank (L207191-BLK1)				Prepared: 07/30/2012 Analyzed: 07/31/2012						
Aluminum	4.81	U	4.81	mg/kg wet						
Antimony	0.577	U	0.577	mg/kg wet						
Arsenic	0.962	U	0.962	mg/kg wet						
Barium	0.481	U	0.481	mg/kg wet						
Beryllium	0.192	U	0.192	mg/kg wet						
Boron	1.92	U	1.92	mg/kg wet						
Cadmium	0.192	U	0.192	mg/kg wet						
Calcium	96.2	U	96.2	mg/kg wet						
Chromium	0.192	U	0.192	mg/kg wet						
Cobalt	1.92	U	1.92	mg/kg wet						
Copper	0.962	U	0.962	mg/kg wet						
Iron	19.2	U	19.2	mg/kg wet						
Lead	0.481	U	0.481	mg/kg wet						
Lithium	2.40	U	2.40	mg/kg wet						
Magnesium	72.1	U	72.1	mg/kg wet						
Manganese	16.2		4.81	mg/kg wet						
Molybdenum	1.92	U	1.92	mg/kg wet						
Nickel	3.85	U	3.85	mg/kg wet						
Potassium	385	U	385	mg/kg wet						
Selenium	0.288	U	0.288	mg/kg wet						
Silicon	1.92	U	1.92	mg/kg wet						
Silver	0.192	U	0.192	mg/kg wet						
Sodium	48.1	U	48.1	mg/kg wet						
Uranium	19.2	U	19.2	mg/kg wet						
Vanadium	2.40	U	2.40	mg/kg wet						
Zinc	9.62	U	9.62	mg/kg wet						
Zirconium	2.40	U	2.40	mg/kg wet						

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:52

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207191 - SW 3050B										
Duplicate (L207191-DUP1)		**Source: 1207059-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
Aluminum	5650		4.19	mg/kg dry		5470			3.19	20
Antimony	0.503	U	0.503	mg/kg dry		0.529 U				20
Arsenic	2.72		0.839	mg/kg dry		2.46			9.91	20
Barium	62.9		0.419	mg/kg dry		54.2			14.9	20
Beryllium	0.222		0.168	mg/kg dry		0.214			3.32	20
Boron	0.929	B	1.68	mg/kg dry		1.03			9.88	20
Cadmium	0.110	B	0.168	mg/kg dry		0.112			1.25	20
Calcium	4300		83.9	mg/kg dry		4140			3.78	20
Chromium	8.11		0.168	mg/kg dry		8.31			2.47	20
Cobalt	5.19		1.68	mg/kg dry		5.06			2.43	20
Copper	10.2		0.839	mg/kg dry		9.44			7.74	20
Iron	16500		16.8	mg/kg dry		16600			1.04	20
Lead	3.05		0.419	mg/kg dry		2.94			3.71	20
Lithium	6.09		2.10	mg/kg dry		5.75			5.82	20
Magnesium	3600		62.9	mg/kg dry		3470			3.87	20
Manganese	250		4.19	mg/kg dry		242			3.03	20
Molybdenum	0.258	B	1.68	mg/kg dry		0.272			5.50	20
Nickel	8.81		3.36	mg/kg dry		7.98			9.83	20
Potassium	1020		336	mg/kg dry		979			4.41	20
Selenium	0.252	U	0.252	mg/kg dry		0.265 U				20
Silicon	429		1.68	mg/kg dry		411			4.35	20
Silver	0.168	U	0.168	mg/kg dry		0.176 U				20
Sodium	175		41.9	mg/kg dry		169			3.91	20
Uranium	2.50	B	16.8	mg/kg dry		17.6 U				20
Vanadium	44.9		2.10	mg/kg dry		45.7			1.95	20
Zinc	37.8		8.39	mg/kg dry		37.1			1.73	20
Zirconium	17.2		2.10	mg/kg dry		16.7			2.73	20

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207191 - SW 3050B									
Matrix Spike (L207191-MS1)	**Source: 1207059-01**	Prepared: 07/30/2012 Analyzed: 07/31/2012							
Aluminum	6460	4.41	mg/kg dry	176.44	5470	561*	75-125		
Antimony	16.6	0.529	mg/kg dry	44.109	0.529 U	37.7*	75-125		
Arsenic	133	0.882	mg/kg dry	176.44	2.46	74.0*	75-125		
Barium	195	0.441	mg/kg dry	176.44	54.2	79.8	75-125		
Beryllium	3.34	0.176	mg/kg dry	4.4109	0.214	71.0*	75-125		
Boron	57.7	1.76	mg/kg dry	88.218	1.03	64.3*	75-125		
Cadmium	3.29	0.176	mg/kg dry	4.4109	0.112	72.1*	75-125		
Calcium	5830	88.2	mg/kg dry	2205.4	4140	76.4	75-125		
Chromium	20.8	0.176	mg/kg dry	17.644	8.31	71.0*	75-125		
Cobalt	35.7	1.76	mg/kg dry	44.109	5.06	69.4*	75-125		
Copper	24.6	0.882	mg/kg dry	22.054	9.44	68.8*	75-125		
Iron	15600	17.6	mg/kg dry	88.218	16600	-1160*	75-125		
Lead	31.4	0.441	mg/kg dry	44.109	2.94	64.4*	75-125		
Lithium	74.5	2.21	mg/kg dry	88.218	5.75	78.0	75-125		
Magnesium	5290	66.2	mg/kg dry	2205.4	3470	82.8	75-125		
Manganese	270	4.41	mg/kg dry	44.109	242	61.8*	75-125		
Molybdenum	64.3	1.76	mg/kg dry	88.218	0.272	72.6*	75-125		
Nickel	37.8	3.53	mg/kg dry	44.109	7.98	67.5*	75-125		
Potassium	2590	353	mg/kg dry	2205.4	979	72.9*	75-125		
Selenium	127	0.265	mg/kg dry	176.44	0.265 U	71.8*	75-125		
Silicon	581	1.76	mg/kg dry	88.218	411	192*	75-125		
Silver	3.09	0.176	mg/kg dry	4.4109	0.176 U	70.0*	75-125		
Sodium	1870	44.1	mg/kg dry	2205.4	169	77.2	75-125		
Uranium	318	17.6	mg/kg dry	441.09	17.6 U	72.0*	75-125		
Vanadium	75.1	2.21	mg/kg dry	44.109	45.7	66.5*	75-125		
Zinc	67.9	8.82	mg/kg dry	44.109	37.1	69.7*	75-125		
Zirconium	332	2.21	mg/kg dry	441.09	16.7	71.5*	75-125		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:52

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207192 - SW 7471A Prep										
Blank (L207192-BLK1)				Prepared: 07/30/2012 Analyzed: 07/31/2012						
Mercury	0.0281	U	0.0281	mg/kg wet						
Duplicate (L207192-DUP1)		**Source: 1207059-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
Mercury	0.0256	U	0.0256	mg/kg dry		0.0279 U				20
Matrix Spike (L207192-MS1)		**Source: 1207059-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
Mercury	0.163		0.0271	mg/kg dry	0.15049	0.0279 U	108	75-125		20
Reference (L207192-SRM1)				Prepared: 07/30/2012 Analyzed: 07/31/2012						
Mercury	1.24		0.0290	mg/kg wet	1.2900		96.0	62.6-138		

Lionville Laboratory

Logbook #: 1128

SAMPLE DIGESTION RECORD

Digestion Batch #: L207191
Date/Time Initiated: 7/30/12 1300
Date/Time Completed: 7/31/12 1200
Analyst: MW
Matrix (circle): Soil Water Other
Method (circle one): 3005A 3010A 3050 200.7 (1994)
pH/Turbidity: N/A for Solids.
NOTE: All temperatures are recorded as corrected temperatures

~~Digested~~ / Undigested (circle one)
Balance #: B14
Balance Cal Verification: (Y) NA
Temp: 94°
BLOCK (1) 2 (circle one)

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/ TC	Texture	Color / Appearance	Artifact	Turb
1207059-01		0.58	50		TO	fine	brown sandy	rocks	
L207191-DUP1		0.61	50						
MS1	0.5 *	0.58	50						
1207059-02		0.58	50			fine	brown sandy	rocks	
03		0.61	50			fine	light brown sandy	rocks	
04		0.62	50			fine	brown sandy	rocks, pieces of clay	
05		0.55	50			not fine	dk. brown granular	rocks	
06		0.61	50			fine	lt. brown sandy	rocks	
07		0.55	50			coarse	wet Ottawa sand	N/A	
08		0.53	50			not fine	dk brown soil	N/A	
1207060-01		0.64	50			not fine	dk brown soil	rocks	
L207191-DUP2		0.62	50						
MS2	0.5 *	0.62	50						
1209060-02		0.65	50			fine	brown soil	rocks	
03		0.63	50			not fine	brown soil	rocks	
04		0.68	50			fine	lt. brown powdery	rocks	
05		0.64	50			fine	lt. brown sandy	rocks	
06		0.58	50			fine	lt. brown sandy	rocks	
1207061-01		0.52	50			coarse	rusty red, baked clay	N/A	
L207191-DUP3		0.54	50						
MS3	0.5 *	0.51	50						
BLK1		0.52	50			coarse	white boiling chips		
SPIK1	(*)	0.50	50			fine	pink sandy		

MW 7/30/12

Spiking IDs / Expiration Date:
MS# : 1200457

LCS#: 1101357 (*)

Reagent IDs:
HNO_3 L08023
HCl L01031
H_2O_2 K09A03
1:1 HNO_3 637-066-02
1:1 HCl

File ID#:

Data Review By/Date:
RCB 8/1/12

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

* also 0.25 mL 1200380 (U-)
1200386 (2)

Page #:

Lionville Laboratory

MERCURY PREPARATION

Analyst: [illegible]
Date 7/30/12
Start Time/Temp: 1830/93°
End Time/Temp: 1910/97°

Instrument ID: HG3.2
Balance # B14 /NA
Pipette Calibration (Daily) (Y)

Logbook # 1143
Prep Batch: L207192
Worksheet: HG073102
SOP No. ME-HgCVAA
BLOCK 1 2 (3) (circle one)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
Blank				10ml	50	
0.2 µg/l		0.100		10ml	50	
1.0 µg/l		0.500		10ml	50	
2.0 µg/l		1.000		10ml	50	
5.0 µg/l		2.500		10ml	50	
10.0 µg/l		5.000		10ml	50	
ICV		0.125	2.5	10ml	50	
CCV		0.250	5.0	10ml	50	
ICB/CCB				10ml	50	
L207192-BLK1				0.32	50	
SRM1				0.31	50	
1207059-01				0.33	50	
L207192-DUP1				0.36	50	
MS1		0.500	1.0	0.34	50	
1207059-02				0.37	50	
03				0.34	50	
04				0.36	50	
05				0.38	50	
06				0.33	50	
07				0.38	50	
08				0.32	50	
1207060-01				0.38	50	
L207192-DUP2				0.38	50	
MS2		0.500	1.0	0.37	50	
1207060-02				0.33	50	
03				0.34	50	
04				0.35	50	

Standard:	ID	Prep Date/Time
ICAL/MS	RI 1200588	7/30/12 1100
ICV/CCV/LCS	(I.V. 1200532)	N/A

Reviewed By/Date: [illegible]

se book # 1143 pg 1 for std traceability information

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

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

ME-HgCVAA-Prep0910

Page #:

Lionville Laboratory

MERCURY PREPARATION

Analyst: [illegible]
Date 7/30/12
Start Time/Temp: [illegible] 027
End Time/Temp: [illegible]

Instrument ID: HG3.2
Balance # B14 /NA
Pipette Calibration (Daily) (Y)

Logbook # 1143
Prep Batch: L207192
Worksheet: HG073102
SOP No. ME-HgCVAA
BLOCK 1 2 (circle one) (3)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
1207060-05				0.33	50	
06				0.35	50	
1207061-01				0.33	50	
L207192-DP3				0.36	50	
MS3		0.500	1.0	0.36	50	

[illegible] 7/30/12

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

Reviewed By/Date: [illegible]

se book # 1143 pg 1 for std traceability information

Soil LCS True Value = [illegible] 027 mg/Kg
Standard # [illegible]

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

ME-HgCVAA-Prep0910

Page #:

000000120

INORGANICS

264 Welsh Pool Road
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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:11

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW73	1207059-01	Soil	07/25/2012 08:28	07/27/2012 09:50
J1PW74	1207059-02	Soil	07/25/2012 08:29	07/27/2012 09:50
J1PW75	1207059-03	Soil	07/25/2012 10:10	07/27/2012 09:50
J1PW76	1207059-04	Soil	07/25/2012 12:50	07/27/2012 09:50
J1PW77	1207059-05	Soil	07/25/2012 13:56	07/27/2012 09:50
J1PW78	1207059-06	Soil	07/25/2012 14:23	07/27/2012 09:50
J1PW79	1207059-07	Soil	07/25/2012 09:03	07/27/2012 09:50
J1PW80	1207059-08	Soil	07/25/2012 14:47	07/27/2012 09:50

LIONVILLE LABORATORY
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Case Narrative

Client: WC-HANFORD RC-148 KP0116
LVL#: 1207059 **Date Received:** 07-27-12

INORGANIC NARRATIVE

1. This narrative covers the analyses of 8 soil samples.

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

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

3. Sample holding times as required by the method and/or contract were met with the exceptions of Nitrate, Nitrite, Orthophosphate and Sulfide.

4. The results presented in this report are derived from samples that met LvL's sample acceptance policy with the exceptions noted on the Sample Receipt Checklist.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits with the exception of L208002-BS1 for Cyanide that was below the 80-120% control limits at 73.0% and L208012-BS2 for Sulfide that was above the 80-120% control limits at 137%; L208002-BS2 and L208012-BS1 were within the acceptance range. For Cyanide and Sulfide the associated matrix spike recoveries were within the 75-125% 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

8/13/12
Date

njp\i07-059

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 15 pages.

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/03/2012 13:11

Notes and Definitions

U	Analyte included in the analysis, but not detected
D	Results reported from a dilution; related reporting limits are elevated due to the presence of an interference or a high target value.
*	Value outside QC acceptance criteria
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
Dry	Sample results reported on a dry weight basis
Wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference
LOD	Limit of Detection (LOD): the minimum estimated concentration of a target analyte that can be detected reliably. Concentrations at the LOD or between the LOD and LOQ are flagged estimated with either a 'J' qualifier or client-specific qualifier.
LOQ	Limit of Quantitation (LOQ): the minimum concentration of a target analyte that can be quantified reliably

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:11

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW73 (1207059-01) Soil									
%Solids	**97.7**		0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Chloride	1.0 U	1.0	5.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate	**2.9**	1.0	5.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrite	1.0 U	1.0	5.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Orthophosphate	**2.0**	2.0	10.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**7.3**	1.0	5.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.62**	0.10	0.51	mg/kg dry	1	L208011	07/30/2012	08/01/2012	EPA 353.2
Cyanide	0.51 U	0.51	1.02	mg/kg dry	1	L208002	08/01/2012	08/01/2012	SW846 9014
Sulfide	40.9 U	40.9	102	mg/kg dry	1	L208008	07/31/2012	07/31/2012	SW846 9034
%Moisture	**2.28**		0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216
J1PW74 (1207059-02) Soil									
%Solids	**99.3**		0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
Bromide	1.0 U	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Chloride	1.0 U	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate	**3.0**	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrite	1.0 U	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Orthophosphate	**2.1**	2.0	9.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**7.2**	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.69**	0.10	0.50	mg/kg dry	1	L208011	07/30/2012	08/01/2012	EPA 353.2
Cyanide	0.50 U	0.50	1.01	mg/kg dry	1	L208002	08/01/2012	08/01/2012	SW846 9014
Sulfide	40.3 U	40.3	101	mg/kg dry	1	L208012	08/02/2012	08/02/2012	SW846 9034
%Moisture	**0.65**		0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:11

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW75 (1207059-03) Soil									
%Solids	**99.7**		0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
Bromide	1.0 U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Chloride	**10.4**	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate	**1.6**	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrite	1.0 U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Orthophosphate	**2.3**	2.0	9.8	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**23.2**	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.32**	0.10	0.49	mg/kg dry	1	L208011	07/30/2012	08/01/2012	EPA 353.2
Cyanide	0.50 U	0.50	1.00	mg/kg dry	1	L208002	08/01/2012	08/01/2012	SW846 9014
Sulfide	40.1 U	40.1	100	mg/kg dry	1	L208012	08/02/2012	08/02/2012	SW846 9034
%Moisture	**0.35**		0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216
J1PW76 (1207059-04) Soil									
%Solids	**99.7**		0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
Bromide	1.0 U	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Chloride	**8.3**	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate	**2.4**	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrite	1.0 U	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Orthophosphate	**2.7**	2.0	9.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**27.7**	1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.57**	0.10	0.50	mg/kg dry	1	L208011	07/30/2012	08/01/2012	EPA 353.2
Cyanide	0.50 U	0.50	1.00	mg/kg dry	1	L208002	08/01/2012	08/01/2012	SW846 9014
Sulfide	40.1 U	40.1	100	mg/kg dry	1	L208012	08/02/2012	08/02/2012	SW846 9034
%Moisture	**0.30**		0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/03/2012 13:11

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier		LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW77 (1207059-05) Soil										
%Solids	**93.7**			0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
Bromide	**1.0**		1.0	5.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Chloride	**116**	D	2.0	10.2	mg/kg dry	2	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Fluoride	1.0	U	1.0	5.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate	**7.4**		1.0	5.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrite	1.0	U	1.0	5.1	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Orthophosphate	2.0	U	2.0	10.2	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**129**	D	2.0	10.2	mg/kg dry	2	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	0.10	U	0.10	0.51	mg/kg dry	1	L208011	07/30/2012	08/01/2012	EPA 353.2
Cyanide	0.53	U	0.53	1.07	mg/kg dry	1	L208002	08/01/2012	08/01/2012	SW846 9014
Sulfide	42.7	U	42.7	107	mg/kg dry	1	L208012	08/02/2012	08/02/2012	SW846 9034
%Moisture	**6.28**			0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216
J1PW78 (1207059-06) Soil										
%Solids	**100**			0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
Bromide	1.0	U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Chloride	1.0	U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Fluoride	1.0	U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate	1.0	U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrite	1.0	U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Orthophosphate	2.0	U	2.0	9.8	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**3.5**		1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	0.10	U	0.10	0.49	mg/kg dry	1	L208011	07/30/2012	08/01/2012	EPA 353.2
Cyanide	0.50	U	0.50	1.00	mg/kg dry	1	L208002	08/01/2012	08/01/2012	SW846 9014
Sulfide	40.0	U	40.0	100	mg/kg dry	1	L208012	08/02/2012	08/02/2012	SW846 9034
%Moisture				0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0116 Project Manager: Joan Kessner	**Reported:** 08/03/2012 13:11

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW79 (1207059-07) Soil									
%Solids	**98.6**		0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
J1PW80 (1207059-08) Soil									
%Solids	**99.9**		0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
Bromide	1.0 U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Chloride	**12.0**	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate	**2.7**	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrite	1.0 U	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Orthophosphate	1.9 U	1.9	9.7	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**8.6**	1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.52**	0.10	0.49	mg/kg dry	1	L208011	07/30/2012	08/01/2012	EPA 353.2
Cyanide	0.50 U	0.50	1.00	mg/kg dry	1	L208002	08/01/2012	08/01/2012	SW846 9014
Sulfide	40.0 U	40.0	100	mg/kg dry	1	L208012	08/02/2012	08/02/2012	SW846 9034
%Moisture	**0.12**		0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:11

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207187 - % Solids										
Duplicate (L207187-DUP1)		**Source: 1207059-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
%Solids	97.7		0.1	% by Weight		97.7			0.01	20
Batch L207190 - Default Prep GenChem										
Duplicate (L207190-DUP1)		**Source: 1207059-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
%Moisture	2.26		0.10	% by Weight		2.28			0.642	20
Batch L208001 - Default Prep GenChem										
Blank (L208001-BLK1)				Prepared & Analyzed: 07/30/2012						
Fluoride	1.0 U	1.0	5.0	mg/kg wet						
Chloride	1.0 U	1.0	5.0	mg/kg wet						
Bromide	1.0 U	1.0	5.0	mg/kg wet						
Orthophosphate	2.0 U	2.0	10.0	mg/kg wet						
Sulfate	1.0 U	1.0	5.0	mg/kg wet						
Nitrate	1.0 U	1.0	5.0	mg/kg wet						
Nitrite	1.0 U	1.0	5.0	mg/kg wet						
LCS (L208001-BS1)				Prepared & Analyzed: 07/30/2012						
Fluoride	49.1	1.0	5.0	mg/kg wet	50.000		98.2	80-120		
Chloride	45.9	1.0	5.0	mg/kg wet	50.000		91.8	80-120		
Bromide	47.6	1.0	5.0	mg/kg wet	50.000		95.2	80-120		
Orthophosphate	46.5	2.0	10.0	mg/kg wet	50.000		93.0	80-120		
Sulfate	47.3	1.0	5.0	mg/kg wet	50.000		94.6	80-120		
Nitrate	47.3	1.0	5.0	mg/kg wet	50.000		94.6	80-120		
Nitrite	47.6	1.0	5.0	mg/kg wet	50.000		95.2	80-120		

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:11

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208001 - Default Prep GenChem										
Duplicate (L208001-DUP1)	**Source: 1207059-01**			Prepared & Analyzed: 07/30/2012						
Fluoride	1.0 U	1.0	5.1	mg/kg dry		1.0 U				20
Chloride	1.0 U	1.0	5.1	mg/kg dry		1.0 U				20
Bromide	1.0 U	1.0	5.1	mg/kg dry		1.0 U				20
Orthophosphate	2.0 U	2.0	10.2	mg/kg dry		2.0 J				20
Sulfate	7.3	1.0	5.1	mg/kg dry		7.3			0.596	20
Nitrate	3.1	1.0	5.1	mg/kg dry		2.9			3.99	20
Nitrite	1.0 U	1.0	5.1	mg/kg dry		1.0 U				20
Matrix Spike (L208001-MS1)	**Source: 1207059-01**			Prepared & Analyzed: 07/30/2012						
Fluoride	52.3	1.0	5.1	mg/kg dry	50.794	1.0 U	103	75-125		
Chloride	49.2	1.0	5.1	mg/kg dry	50.794	1.0 U	96.8	75-125		
Bromide	50.3	1.0	5.1	mg/kg dry	50.794	1.0 U	99.0	75-125		
Orthophosphate	50.5	2.0	10.2	mg/kg dry	50.794	2.0 J	99.4	75-125		
Sulfate	57.3	1.0	5.1	mg/kg dry	50.794	7.3	98.4	75-125		
Nitrate	53.3	1.0	5.1	mg/kg dry	50.794	2.9	99.2	75-125		
Nitrite	50.6	1.0	5.1	mg/kg dry	50.794	1.0 U	99.6	75-125		
Batch L208002 - Default Prep GenChem										
Blank (L208002-BLK1)				Prepared & Analyzed: 08/01/2012						
Cyanide	0.50 U	0.50	1.00	mg/kg wet						
LCS (L208002-BS1)				Prepared & Analyzed: 08/01/2012						
Cyanide	1.46	0.50	1.00	mg/kg wet	2.0000		73.0*	80-120		
LCS (L208002-BS2)				Prepared & Analyzed: 08/01/2012						
Cyanide	9.01	0.50	1.00	mg/kg wet	10.000		90.1	80-120		

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0116	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 13:11

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208002 - Default Prep GenChem										
Duplicate (L208002-DUP1)	**Source: 1207059-01**			Prepared & Analyzed: 08/01/2012						
Cyanide	0.51 U	0.51	1.02	mg/kg dry		0.51 U				20
Matrix Spike (L208002-MS1)	**Source: 1207059-01**			Prepared & Analyzed: 08/01/2012						
Cyanide	3.98	0.51	1.02	mg/kg dry	5.1166	0.51 U	77.9	75-125		
Batch L208008 - SW 9030B										
Blank (L208008-BLK1)				Prepared & Analyzed: 07/31/2012						
Sulfide	40.0 U	40.0	100	mg/kg wet						
LCS (L208008-BS1)				Prepared & Analyzed: 07/31/2012						
Sulfide	236	40.0	100	mg/kg wet	227.66		104	80-120		
LCS (L208008-BS2)				Prepared & Analyzed: 07/31/2012						
Sulfide	230	40.0	100	mg/kg wet	225.45		102	80-120		
Batch L208011 - Default Prep GenChem										
Blank (L208011-BLK1)				Prepared: 07/30/2012 Analyzed: 08/01/2012						
Nitrate/Nitrite as N	0.10 U	0.10	0.50	mg/kg wet						
LCS (L208011-BS1)				Prepared: 07/30/2012 Analyzed: 08/01/2012						
Nitrate/Nitrite as N	4.90	0.10	0.50	mg/kg wet	5.0000		98.0	90-110		
Duplicate (L208011-DUP1)	**Source: 1207059-01**			Prepared: 07/30/2012 Analyzed: 08/01/2012						
Nitrate/Nitrite as N	0.75	0.10	0.51	mg/kg dry		0.62			19.0	20

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Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208011 - Default Prep GenChem										
Matrix Spike (L208011-MS1)	**Source: 1207059-01**			Prepared: 07/30/2012 Analyzed: 08/01/2012						
Nitrate/Nitrite as N	6.20	0.10	0.51	mg/kg dry	5.0794	0.62	110	75-125		
Batch L208012 - SW 9030B										
Blank (L208012-BLK1)				Prepared & Analyzed: 08/02/2012						
Sulfide	40.0 U	40.0	100	mg/kg wet						
LCS (L208012-BS1)				Prepared & Analyzed: 08/02/2012						
Sulfide	248	40.0	100	mg/kg wet	229.98		108	80-120		
LCS (L208012-BS2)				Prepared & Analyzed: 08/02/2012						
Sulfide	329	40.0	100	mg/kg wet	239.93		137*	80-120		
Duplicate (L208012-DUP1)	**Source: 1207059-02**			Prepared & Analyzed: 08/02/2012						
Sulfide	40.3 U	40.3	101	mg/kg dry		40.3 U				20
Matrix Spike (L208012-MS1)	**Source: 1207059-02**			Prepared & Analyzed: 08/02/2012						
Sulfide	252	40.3	101	mg/kg dry	229.15	40.3 U	110	75-125		