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 KP0113 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 S2-07-084-7743 SDG KP0113

Dear Ms. Kessner:

Enclosed is the data report for six soil samples designated under SAF No. RC-148. The samples were received at Eberline Analytical on July 26, 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 KP0113 was composed of six soil samples designated under SAF No. RC-148 with a Project Designation of: 300 Area D4 Waste Sites – Soil Full Protocol.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist. The results were transmitted to WCH via e-mail on August 2, 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 KP0113

SDG	7743
Contact	Joseph Verville

Client	Hanford
Contract	No. S00W235A00
Case no	SDG_KP0113

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	08/09/12

SDG 7743
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_KP0113

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 08/09/12

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 KP0113

SDG 7743
Contact Joseph Verville

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG KP0113

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
S207084-01	J1PW67	300-15 Proc.Swr.-Verify	SOIL		RC-148	RC-148-047	07/24/12 09:00
S207084-02	J1PW68	300-15 Proc.Swr.-Verify	SOIL		RC-148	RC-148-047	07/24/12 10:03
S207084-03	J1PW69	300-15 Proc.Swr.-Verify	SOIL		RC-148	RC-148-047	07/24/12 10:14
S207084-04	J1PW70	300-15 Proc.Swr.-Verify	SOIL		RC-148	RC-148-047	07/24/12 14:09
S207084-05	J1PW71	300-15 Proc.Swr.-Verify	SOIL		RC-148	RC-148-047	07/24/12 14:47
S207084-06	J1PW72	300-15 Proc.Swr.-Verify	SOIL		RC-148	RC-148-047	07/24/12 15:16
S207084-07	Lab Control Sample		SOIL		RC-148		
S207084-08	Method Blank		SOIL		RC-148		
S207084-09	Duplicate (S207084-01)	300-15 Proc.Swr.-Verify	SOIL		RC-148		07/24/12 09:00

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

SDG 7743
Contact Joseph Verville

QC SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG KP0113

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
7743	RC-148-047	J1PW67	SOIL	91.6	807 g		07/26/12	2	S207084-01	7743-001
		J1PW68	SOIL	93.8	785 g		07/26/12	2	S207084-02	7743-002
		J1PW69	SOIL	91.6	852 g		07/26/12	2	S207084-03	7743-003
		J1PW70	SOIL	97.8	856 g		07/26/12	2	S207084-04	7743-004
		J1PW71	SOIL	97.7	833 g		07/26/12	2	S207084-05	7743-005
		J1PW72	SOIL	98.7	915 g		07/26/12	2	S207084-06	7743-006
		Method Blank	SOIL						S207084-08	7743-008
		Lab Control Sample	SOIL						S207084-07	7743-007
		Duplicate (S207084-01)	SOIL	91.6	807 g		07/26/12	2	S207084-09	7743-009

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

SDG 7743
Contact Joseph Verville

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG KP0113

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	7734-106	20.6	6			1	1	1/1		
93B	SOIL	Gross Beta in Solids	7734-106	20.6	6			1	1	1/1		
Gamma Spectroscopy												
GAM	SOIL	Gamma Scan	7734-106	7.0	6			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOIL	Uranium, Total in Solids	7734-106		6			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 08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

SDG 7743
Contact Joseph Verville

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG KP0113

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
S207084-01	J1PW67			7743-001	93A/93		07/31/12	07/31/12	BW	Gross Alpha in Solids
07/24/12	300-15 Proc.Swr.-Verify		SOIL	7743-001	93B/93		07/31/12	07/31/12	BW	Gross Beta in Solids
07/26/12	RC-148-047	RC-148		7743-001	GAM		07/28/12	07/30/12	CSS	Gamma Scan
				7743-001	U_T		07/31/12	07/31/12	TSC	Uranium, Total in Solids
S207084-02	J1PW68			7743-002	93A/93		07/31/12	07/31/12	BW	Gross Alpha in Solids
07/24/12	300-15 Proc.Swr.-Verify		SOIL	7743-002	93B/93		07/31/12	07/31/12	BW	Gross Beta in Solids
07/26/12	RC-148-047	RC-148		7743-002	GAM		07/27/12	07/30/12	CSS	Gamma Scan
				7743-002	U_T		07/31/12	07/31/12	TSC	Uranium, Total in Solids
S207084-03	J1PW69			7743-003	93A/93		07/31/12	07/31/12	BW	Gross Alpha in Solids
07/24/12	300-15 Proc.Swr.-Verify		SOIL	7743-003	93B/93		07/31/12	07/31/12	BW	Gross Beta in Solids
07/26/12	RC-148-047	RC-148		7743-003	GAM		07/28/12	07/30/12	CSS	Gamma Scan
				7743-003	U_T		07/31/12	07/31/12	TSC	Uranium, Total in Solids
S207084-04	J1PW70			7743-004	93A/93		07/31/12	07/31/12	BW	Gross Alpha in Solids
07/24/12	300-15 Proc.Swr.-Verify		SOIL	7743-004	93B/93		07/31/12	07/31/12	BW	Gross Beta in Solids
07/26/12	RC-148-047	RC-148		7743-004	GAM		07/28/12	07/30/12	CSS	Gamma Scan
				7743-004	U_T		07/31/12	07/31/12	TSC	Uranium, Total in Solids
S207084-05	J1PW71			7743-005	93A/93		07/31/12	07/31/12	BW	Gross Alpha in Solids
07/24/12	300-15 Proc.Swr.-Verify		SOIL	7743-005	93B/93		07/31/12	07/31/12	BW	Gross Beta in Solids
07/26/12	RC-148-047	RC-148		7743-005	GAM		07/28/12	07/30/12	CSS	Gamma Scan
				7743-005	U_T		07/31/12	07/31/12	TSC	Uranium, Total in Solids
S207084-06	J1PW72			7743-006	93A/93		07/31/12	07/31/12	BW	Gross Alpha in Solids
07/24/12	300-15 Proc.Swr.-Verify		SOIL	7743-006	93B/93		07/31/12	07/31/12	BW	Gross Beta in Solids
07/26/12	RC-148-047	RC-148		7743-006	GAM		07/28/12	07/30/12	CSS	Gamma Scan
				7743-006	U_T		07/31/12	07/31/12	TSC	Uranium, Total in Solids
S207084-07	Lab Control Sample			7743-007	93A/93		07/31/12	07/31/12	BW	Gross Alpha in Solids
			SOIL	7743-007	93B/93		07/31/12	07/31/12	BW	Gross Beta in Solids
		RC-148		7743-007	GAM		07/27/12	07/30/12	CSS	Gamma Scan
				7743-007	U_T		07/31/12	07/31/12	TSC	Uranium, Total in Solids
S207084-08	Method Blank			7743-008	93A/93		07/31/12	07/31/12	BW	Gross Alpha in Solids
			SOIL	7743-008	93B/93		07/31/12	07/31/12	BW	Gross Beta in Solids
		RC-148		7743-008	GAM		07/28/12	07/30/12	CSS	Gamma Scan
				7743-008	U_T		07/31/12	07/31/12	TSC	Uranium, Total in Solids

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

SDG 7743
Contact Joseph Verville

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG KP0113

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
S207084-09	Duplicate (S207084-01)			7743-009	93A/93		07/31/12	07/31/12	BW	Gross Alpha in Solids
07/24/12	300-15 Proc.Swr.-Verify		SOIL	7743-009	93B/93		07/31/12	07/31/12	BW	Gross Beta in Solids
07/26/12		RC-148		7743-009	GAM		07/28/12	07/30/12	CSS	Gamma Scan
				7743-009	U_T		07/31/12	07/31/12	TSC	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	6			1	1	1	9
93B/93	RC-148	Gross Beta in Solids	900.0_ALPHABETA_GPC	6			1	1	1	9
GAM	RC-148	Gamma Scan	GAMMA_GS	6			1	1	1	9
U_T	RC-148	Uranium, Total in Solids	UTOT_KPA	6			1	1	1	9
TOTALS				24			4	4	4	36

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

7743-008 Method Blank

METHOD BLANK

SDG	7743	Client/Case no	Hanford SDG_KP0113
Contact	Joseph Verville	Contract	No. S00W235A00
Lab sample id	S207084-08	Client sample id	Method Blank
Dept sample id	7743-008	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	-0.399	1.3	3.48	10.0	U	93A
Gross Beta	12587-47-2	-0.266	3.6	6.16	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		0.199		U	GAM
Cobalt 60	10198-40-0	U		0.018	0.050	U	GAM
Zinc 65	13982-39-3	U		0.028		U	GAM
Niobium 94	14681-63-1	U		0.016		U	GAM
Ruthenium 106	13967-48-1	U		0.130		U	GAM
Antimony 125	14234-35-6	U		0.033		U	GAM
Cesium 134	13967-70-9	U		0.021		U	GAM
Cesium 137	10045-97-3	U		0.015	0.100	U	GAM
Cerium 144	14762-78-8	U		0.065		U	GAM
Europium 152	14683-23-9	U		0.036	0.100	U	GAM
Europium 154	15585-10-1	U		0.043	0.100	U	GAM
Europium 155	14391-16-3	U		0.034	0.100	U	GAM
Radium 226	13982-63-3	U		0.036	0.100	U	GAM
Radium 228	15262-20-1	U		0.069	0.200	U	GAM
Thorium 228	14274-82-9	U		0.023		U	GAM
Thorium 232	TH-232	U		0.069		U	GAM
Uranium 235	15117-96-1	U		0.075	0.300	U	GAM
Uranium 238	U-238	U		1.84	10.0	U	GAM
Americium 241	14596-10-2	U		0.019	0.300	U	GAM

QC-BLANK #82228

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

7743-007 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7743 Client/Case no Hanford SDG KP0113

Contact Joseph Verville Contract No. S00W235A00

Lab sample id S207084-07 Client sample id Lab Control Sample

Dept sample id 7743-007 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	123	14	3.67	10.0		93A	101	4.0	122	57-143	80-120
Gross Beta	81.0	7.0	5.48	15.0		93B	84.4	3.4	96	67-133	80-120
Total Uranium (ug/g)	35.2	4.1	0.091	1.00		U_T	33.0	1.3	107	80-120	80-120
Cobalt 60	0.484	0.040	0.021	0.050		GAM	0.556	0.022	87	85-115	80-120
Cesium 137	0.562	0.036	0.023	0.100		GAM	0.649	0.026	87	86-114	80-120

QC-LCS #82227

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

7743-009 J1PW67

DUPLICATE

SDG	7743			Client/Case no	Hanford SDG KP0113
Contact	Joseph Verville			Contract	No. S00W235A00
	DUPLICATE		ORIGINAL		
Lab sample id	S207084-09	Lab sample id	S207084-01	Client sample id	J1PW67
Dept sample id	7743-009	Dept sample id	7743-001	Location/Matrix	300-15 Proc.Swr.-Verify SOIL
		Received	07/26/12	Collected/Weight	07/24/12 09:00 807 g
% solids	91.6	% solids	91.6	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	13.0	4.1	3.78	10.0		93A	18.8	5.2	3.27		36	77	1.4
Gross Beta	25.9	4.4	4.95	15.0		93B	31.2	4.9	5.42		19	56	1.0
Total Uranium (ug/g)	7.30	0.86	0.091	1.00		U_T	6.87	0.80	0.091		6	25	0.7
Potassium 40	16.3	0.73	0.332			GAM	16.0	0.57	0.222		2	17	0.3
Cobalt 60	U		0.031	0.050	U	GAM	U		0.022	U	-		0.5
Zinc 65	U		0.073		U	GAM	U		0.054	U	-		0.4
Niobium 94	U		0.026		U	GAM	U		0.020	U	-		0.4
Ruthenium 106	U		0.194		U	GAM	U		0.166	U	-		0.2
Antimony 125	U		0.062		U	GAM	U		0.048	U	-		0.4
Cesium 134	U		0.041		U	GAM	U		0.032	U	-		0.3
Cesium 137	U		0.028	0.100	U	GAM	U		0.020	U	-		0.5
Cerium 144	U		0.143		U	GAM	U		0.126	U	-		0.2
Europium 152	U		0.075	0.100	U	GAM	U		0.061	U	-		0.3
Europium 154	U		0.109	0.100	U	GAM	U		0.068	U	-		0.6
Europium 155	U		0.222	0.100	U	GAM	U		0.084	U	-		1.2
Radium 226	0.466	0.056	0.050	0.100		GAM	0.462	0.048	0.045		1	28	0.1
Radium 228	0.719	0.16	0.135	0.200		GAM	0.766	0.10	0.098		6	41	0.5
Thorium 228	0.702	0.042	0.036			GAM	0.695	0.035	0.030		1	19	0.2
Thorium 232	0.719	0.16	0.135			GAM	0.766	0.10	0.098		6	41	0.5
Uranium 235	U		0.194	0.300	U	GAM	U		0.273	U	-		0.5
Uranium 238	U		6.21	10.0	U	GAM	U		5.18	U	-		0.3
Americium 241	U		0.181	0.300	U	GAM	U		0.108	U	-		0.7

QC-DUP#1 82229

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 08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

7743-001 J1PW67

DATA SHEET

SDG	7743	Client/Case no	Hanford	SDG_KP0113	
Contact	Joseph Verville	Contract	No. S00W235A00		
Lab sample id	S207084-01	Client sample id	J1PW67		
Dept sample id	7743-001	Location/Matrix	300-15 Proc.Swr.-Verify	SOIL	
Received	07/26/12	Collected/Weight	07/24/12 09:00	807 g	
% solids	91.6	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	18.8	5.2	3.27	10.0		93A
Gross Beta	12587-47-2	31.2	4.9	5.42	15.0		93B
Total Uranium (ug/g)	7440-61-1	6.87	0.80	0.091	1.00		U_T
Potassium 40	13966-00-2	16.0	0.57	0.222			GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Zinc 65	13982-39-3	U		0.054		U	GAM
Niobium 94	14681-63-1	U		0.020		U	GAM
Ruthenium 106	13967-48-1	U		0.166		U	GAM
Antimony 125	14234-35-6	U		0.048		U	GAM
Cesium 134	13967-70-9	U		0.032		U	GAM
Cesium 137	10045-97-3	U		0.020	0.100	U	GAM
Cerium 144	14762-78-8	U		0.126		U	GAM
Europium 152	14683-23-9	U		0.061	0.100	U	GAM
Europium 154	15585-10-1	U		0.068	0.100	U	GAM
Europium 155	14391-16-3	U		0.084	0.100	U	GAM
Radium 226	13982-63-3	0.462	0.048	0.045	0.100		GAM
Radium 228	15262-20-1	0.766	0.10	0.098	0.200		GAM
Thorium 228	14274-82-9	0.695	0.035	0.030			GAM
Thorium 232	TH-232	0.766	0.10	0.098			GAM
Uranium 235	15117-96-1	U		0.273	0.300	U	GAM
Uranium 238	U-238	U		5.18	10.0	U	GAM
Americium 241	14596-10-2	U		0.108	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	08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

7743-002 J1PW68

DATA SHEET

SDG	7743	Client/Case no	Hanford SDG_KP0113
Contact	Joseph Verville	Contract	No. S00W235A00
Lab sample id	S207084-02	Client sample id	J1PW68
Dept sample id	7743-002	Location/Matrix	300-15 Proc.Swr.-Verify SOIL
Received	07/26/12	Collected/Weight	07/24/12 10:03 785 g
% solids	93.8	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	31.2	6.4	3.01	10.0		93A
Gross Beta	12587-47-2	37.5	5.5	6.09	15.0		93B
Total Uranium (ug/g)	7440-61-1	47.1	5.5	0.091	1.00		U_T
Potassium 40	13966-00-2	17.0	0.75	0.243			GAM
Cobalt 60	10198-40-0	U		0.030	0.050	U	GAM
Zinc 65	13982-39-3	U		0.062		U	GAM
Niobium 94	14681-63-1	U		0.024		U	GAM
Ruthenium 106	13967-48-1	U		0.251		U	GAM
Antimony 125	14234-35-6	U		0.073		U	GAM
Cesium 134	13967-70-9	U		0.046		U	GAM
Cesium 137	10045-97-3	U		0.030	0.100	U	GAM
Cerium 144	14762-78-8	U		0.208		U	GAM
Europium 152	14683-23-9	U		0.084	0.100	U	GAM
Europium 154	15585-10-1	U		0.105	0.100	U	GAM
Europium 155	14391-16-3	U		0.118	0.100	U	GAM
Radium 226	13982-63-3	0.510	0.061	0.056	0.100		GAM
Radium 228	15262-20-1	0.808	0.13	0.127	0.200		GAM
Thorium 228	14274-82-9	0.755	0.047	0.036			GAM
Thorium 232	TH-232	0.808	0.13	0.127			GAM
Uranium 235	15117-96-1	1.43	0.21	0.263	0.300		GAM
Uranium 238	U-238	21.2	4.1	4.40	10.0		GAM
Americium 241	14596-10-2	U		0.092	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	08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

7743-003 J1PW69

DATA SHEET

SDG	7743	Client/Case no	Hanford	SDG_KP0113
Contact	Joseph Verville	Contract	No. S00W235A00	
Lab sample id	S207084-03	Client sample id	J1PW69	
Dept sample id	7743-003	Location/Matrix	300-15 Proc.Swr.-Verify	SOIL
Received	07/26/12	Collected/Weight	07/24/12 10:14	852 g
% solids	91.6	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	20.6	5.1	3.87	10.0		93A
Gross Beta	12587-47-2	42.5	5.2	4.96	15.0		93B
Total Uranium (ug/g)	7440-61-1	13.5	1.6	0.091	1.00		U_T
Potassium 40	13966-00-2	16.6	0.72	0.268			GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Zinc 65	13982-39-3	U		0.059		U	GAM
Niobium 94	14681-63-1	U		0.023		U	GAM
Ruthenium 106	13967-48-1	U		0.220		U	GAM
Antimony 125	14234-35-6	U		0.063		U	GAM
Cesium 134	13967-70-9	U		0.039		U	GAM
Cesium 137	10045-97-3	U		0.024	0.100	U	GAM
Cerium 144	14762-78-8	U		0.150		U	GAM
Europium 152	14683-23-9	U		0.070	0.100	U	GAM
Europium 154	15585-10-1	U		0.100	0.100	U	GAM
Europium 155	14391-16-3	U		0.091	0.100	U	GAM
Radium 226	13982-63-3	0.473	0.058	0.054	0.100		GAM
Radium 228	15262-20-1	0.713	0.13	0.122	0.200		GAM
Thorium 228	14274-82-9	0.724	0.043	0.032			GAM
Thorium 232	TH-232	0.713	0.13	0.122			GAM
Uranium 235	15117-96-1	U		0.162	0.300	U	GAM
Uranium 238	U-238	U		5.47	10.0	U	GAM
Americium 241	14596-10-2	U		0.055	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	08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

7743-004 J1PW70

DATA SHEET

SDG	7743	Client/Case no	Hanford SDG_KP0113
Contact	Joseph Verville	Contract	No. S00W235A00
Lab sample id	S207084-04	Client sample id	J1PW70
Dept sample id	7743-004	Location/Matrix	300-15 Proc.Swr.-Verify SOIL
Received	07/26/12	Collected/Weight	07/24/12 14:09 856 g
% solids	97.8	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	14.7	4.8	3.35	10.0		93A
Gross Beta	12587-47-2	19.2	4.5	5.76	15.0		93B
Total Uranium (ug/g)	7440-61-1	6.39	0.75	0.091	1.00		U_T
Potassium 40	13966-00-2	15.9	0.58	0.226			GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Zinc 65	13982-39-3	U		0.062		U	GAM
Niobium 94	14681-63-1	U		0.020		U	GAM
Ruthenium 106	13967-48-1	U		0.191		U	GAM
Antimony 125	14234-35-6	U		0.053		U	GAM
Cesium 134	13967-70-9	U		0.036		U	GAM
Cesium 137	10045-97-3	U		0.027	0.100	U	GAM
Cerium 144	14762-78-8	U		0.128		U	GAM
Europium 152	14683-23-9	U		0.064	0.100	U	GAM
Europium 154	15585-10-1	U		0.087	0.100	U	GAM
Europium 155	14391-16-3	U		0.081	0.100	U	GAM
Radium 226	13982-63-3	0.525	0.057	0.052	0.100		GAM
Radium 228	15262-20-1	0.854	0.11	0.099	0.200		GAM
Thorium 228	14274-82-9	0.772	0.038	0.034			GAM
Thorium 232	TH-232	0.854	0.11	0.099			GAM
Uranium 235	15117-96-1	U		0.337	0.300	U	GAM
Uranium 238	U-238	U		4.14	10.0	U	GAM
Americium 241	14596-10-2	U		0.164	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	08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

7743-005 J1PW71

DATA SHEET

SDG	7743	Client/Case no	Hanford SDG_KP0113
Contact	Joseph Verville	Contract	No. S00W235A00
Lab sample id	S207084-05	Client sample id	J1PW71
Dept sample id	7743-005	Location/Matrix	300-15 Proc.Swr.-Verify SOIL
Received	07/26/12	Collected/Weight	07/24/12 14:47 833 g
% solids	97.7	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	11.6	4.2	3.19	10.0		93A
Gross Beta	12587-47-2	34.7	5.1	5.68	15.0		93B
Total Uranium (ug/g)	7440-61-1	2.63	0.31	0.091	1.00		U_T
Potassium 40	13966-00-2	15.3	0.56	0.189			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Zinc 65	13982-39-3	U		0.045		U	GAM
Niobium 94	14681-63-1	U		0.019		U	GAM
Ruthenium 106	13967-48-1	U		0.172		U	GAM
Antimony 125	14234-35-6	U		0.054		U	GAM
Cesium 134	13967-70-9	U		0.036		U	GAM
Cesium 137	10045-97-3	U		0.021	0.100	U	GAM
Cerium 144	14762-78-8	U		0.142		U	GAM
Europium 152	14683-23-9	U		0.066	0.100	U	GAM
Europium 154	15585-10-1	U		0.073	0.100	U	GAM
Europium 155	14391-16-3	U		0.081	0.100	U	GAM
Radium 226	13982-63-3	0.475	0.050	0.045	0.100		GAM
Radium 228	15262-20-1	0.718	0.10	0.101	0.200		GAM
Thorium 228	14274-82-9	0.723	0.038	0.033			GAM
Thorium 232	TH-232	0.718	0.10	0.101			GAM
Uranium 235	15117-96-1	U		0.160	0.300	U	GAM
Uranium 238	U-238	U		2.75	10.0	U	GAM
Americium 241	14596-10-2	U		0.106	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	08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

7743-006 J1PW72

DATA SHEET

SDG	7743	Client/Case no	Hanford	SDG KP0113
Contact	Joseph Verville	Contract	No. S00W235A00	
Lab sample id	S207084-06	Client sample id	J1PW72	
Dept sample id	7743-006	Location/Matrix	300-15 Proc.Swr.-Verify	SOIL
Received	07/26/12	Collected/Weight	07/24/12 15:16	915 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	9.65	3.9	3.09	10.0		93A
Gross Beta	12587-47-2	42.8	5.3	5.33	15.0		93B
Total Uranium (ug/g)	7440-61-1	3.85	0.45	0.091	1.00		U_T
Potassium 40	13966-00-2	13.5	0.58	0.183			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Zinc 65	13982-39-3	U		0.063		U	GAM
Niobium 94	14681-63-1	U		0.022		U	GAM
Ruthenium 106	13967-48-1	U		0.183		U	GAM
Antimony 125	14234-35-6	U		0.048		U	GAM
Cesium 134	13967-70-9	U		0.032		U	GAM
Cesium 137	10045-97-3	U		0.021	0.100	U	GAM
Cerium 144	14762-78-8	U		0.122		U	GAM
Europium 152	14683-23-9	U		0.056	0.100	U	GAM
Europium 154	15585-10-1	U		0.084	0.100	U	GAM
Europium 155	14391-16-3	U		0.071	0.100	U	GAM
Radium 226	13982-63-3	0.334	0.044	0.045	0.100		GAM
Radium 228	15262-20-1	0.667	0.11	0.107	0.200		GAM
Thorium 228	14274-82-9	0.545	0.031	0.029			GAM
Thorium 232	TH-232	0.667	0.11	0.107			GAM
Uranium 235	15117-96-1	U		0.136	0.300	U	GAM
Uranium 238	U-238	U		3.43	10.0	U	GAM
Americium 241	14596-10-2	U		0.099	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	08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

Test 93A Matrix SOIL
SDG 7743
Contact Joseph Verville

LAB METHOD SUMMARY

GROSS ALPHA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG KP0113

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
Preparation batch 7734-106					
S207084-01	93		7743-001	J1PW67	18.8
S207084-02	93		7743-002	J1PW68	31.2
S207084-03	93		7743-003	J1PW69	20.6
S207084-04	93		7743-004	J1PW70	14.7
S207084-05	93		7743-005	J1PW71	11.6
S207084-06	93		7743-006	J1PW72	9.65
S207084-07	93		7743-007	Lab Control Sample	HIGH
S207084-08	93		7743-008	Method Blank	U
S207084-09	93		7743-009	Duplicate (S207084-01)	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 7734-106			2σ prep error 20.6 % Reference Lab Notebook 7734 pg. 106													
S207084-01	93		J1PW67	3.27	0.100			51		100			7	07/30/12	07/31	GRB-101
S207084-02	93		J1PW68	3.01	0.100			49		100			7	07/30/12	07/31	GRB-103
S207084-03	93		J1PW69	3.87	0.100			54		100			7	07/30/12	07/31	GRB-104
S207084-04	93		J1PW70	3.35	0.100			52		100			7	07/30/12	07/31	GRB-109
S207084-05	93		J1PW71	3.19	0.100			50		100			7	07/30/12	07/31	GRB-111
S207084-06	93		J1PW72	3.09	0.100			47		100			7	07/30/12	07/31	GRB-112
S207084-07	93		Lab Control Sample	3.67	0.100			63		100				07/30/12	07/31	GRB-101
S207084-08	93		Method Blank	3.48	0.100			64		100				07/30/12	07/31	GRB-103
S207084-09	93		Duplicate (S207084-01)	3.78	0.100			52		100			7	07/30/12	07/31	GRB-104
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 08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

Test 93A	Matrix SOIL
SDG 7743	
Contact Joseph Verville	

LAB METHOD SUMMARY, cont.

GROSS ALPHA IN SOLIDS

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. S00W235A00	
Contract SDG KP0113	

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	3.41	±	0.614
FOR 9 SAMPLES	RESIDUE	54	±	12

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

Test 93B Matrix SOIL
SDG 7743
Contact Joseph Verville

LAB METHOD SUMMARY

GROSS BETA IN SOLIDS
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. S00W235A00
Contract SDG KP0113

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 7734-106					
S207084-01	93		7743-001	J1PW67	31.2
S207084-02	93		7743-002	J1PW68	37.5
S207084-03	93		7743-003	J1PW69	42.5
S207084-04	93		7743-004	J1PW70	19.2
S207084-05	93		7743-005	J1PW71	34.7
S207084-06	93		7743-006	J1PW72	42.8
S207084-07	93		7743-007	Lab Control Sample	ok
S207084-08	93		7743-008	Method Blank	U
S207084-09	93		7743-009	Duplicate (S207084-01)	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 7734-106			2σ prep error 20.6 %	Reference Lab Notebook 7734 pg. 106												
S207084-01	93		J1PW67	5.42	0.100			51		100			7	07/30/12	07/31	GRB-101
S207084-02	93		J1PW68	6.09	0.100			49		100			7	07/30/12	07/31	GRB-103
S207084-03	93		J1PW69	4.96	0.100			54		100			7	07/30/12	07/31	GRB-104
S207084-04	93		J1PW70	5.76	0.100			52		100			7	07/30/12	07/31	GRB-109
S207084-05	93		J1PW71	5.68	0.100			50		100			7	07/30/12	07/31	GRB-111
S207084-06	93		J1PW72	5.33	0.100			47		100			7	07/30/12	07/31	GRB-112
S207084-07	93		Lab Control Sample	5.48	0.100			63		100				07/30/12	07/31	GRB-101
S207084-08	93		Method Blank	6.16	0.100			64		100				07/30/12	07/31	GRB-103
S207084-09	93		Duplicate (S207084-01)	4.95	0.100			52		100			7	07/30/12	07/31	GRB-104
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 08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

Test 93B Matrix SOIL	Client Hanford
SDG 7743	Contract No. S00W235A00
Contact Joseph Verville	Contract SDG KP0113

LAB METHOD SUMMARY, cont.

GROSS BETA IN SOLIDS

GAS PROPORTIONAL COUNTING

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	5.54	±	0.866
FOR 9 SAMPLES	RESIDUE	54	±	12

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

Test GAM Matrix SOIL
SDG 7743
Contact Joseph Verville

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. S00W235A00
Contract SDG KP0113

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 7734-106								
S207084-01			7743-001	J1PW67	U		U	
S207084-02			7743-002	J1PW68	U		U	
S207084-03			7743-003	J1PW69	U		U	
S207084-04			7743-004	J1PW70	U		U	
S207084-05			7743-005	J1PW71	U		U	
S207084-06			7743-006	J1PW72	U		U	
S207084-07			7743-007	Lab Control Sample	ok		ok	
S207084-08			7743-008	Method Blank	U		U	
S207084-09			7743-009	Duplicate (S207084-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.100	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7734-106			2σ prep error 7.0 %	Reference Lab Notebook 7734 pg. 106												
S207084-01			J1PW67	0.022	523					146			4	07/27/12	07/28	02,02,00
S207084-02			J1PW68	0.030	452					131			3	07/27/12	07/27	MB,06,00
S207084-03			J1PW69	0.022	507					126			4	07/27/12	07/28	MB,06,00
S207084-04			J1PW70	0.024	619					126			4	07/27/12	07/28	MB,08,00
S207084-05			J1PW71	0.021	629					118			4	07/27/12	07/28	02,02,00
S207084-06			J1PW72	0.023	723					126			4	07/27/12	07/28	02,04,00
S207084-07			Lab Control Sample	0.021	450					146				07/27/12	07/27	01,03,00
S207084-08			Method Blank	0.018	450					126				07/27/12	07/28	01,03,00
S207084-09			Duplicate (S207084-01)	0.031	523					109			4	07/27/12	07/28	MB,08,00
Nominal values and limits from method				0.050	3.00					100			180			

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

AVERAGES ± 2 SD FOR 9 SAMPLES
MDA 0.024 ± 0.009
YIELD ____ ± ____

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

Test	U T
Matrix	SOIL
SDG	7743
Contact	Joseph Verville

LAB METHOD SUMMARY

URANIUM, TOTAL IN SOLIDS

KINETIC PHOSPHORIMETRY

Client	Hanford
Contract	No. S00W235A00
Contract	SDG KP0113

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Uranium
Preparation batch 7734-106					
S207084-01			7743-001	J1PW67	6.87
S207084-02			7743-002	J1PW68	47.1
S207084-03			7743-003	J1PW69	13.5
S207084-04			7743-004	J1PW70	6.39
S207084-05			7743-005	J1PW71	2.63
S207084-06			7743-006	J1PW72	3.85
S207084-07			7743-007	Lab Control Sample	ok
S207084-08			7743-008	Method Blank	U
S207084-09			7743-009	Duplicate (S207084-01)	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 7734-106			2σ prep error		Reference Lab Notebook 7734 pg. 106											
S207084-01			J1PW67	0.091	0.0500								7	07/31/12	07/31	KPA-001
S207084-02			J1PW68	0.091	0.0500								7	07/31/12	07/31	KPA-001
S207084-03			J1PW69	0.091	0.0500								7	07/31/12	07/31	KPA-001
S207084-04			J1PW70	0.091	0.0500								7	07/31/12	07/31	KPA-001
S207084-05			J1PW71	0.091	0.0500								7	07/31/12	07/31	KPA-001
S207084-06			J1PW72	0.091	0.0500								7	07/31/12	07/31	KPA-001
S207084-07			Lab Control Sample	0.091	0.0500									07/31/12	07/31	KPA-001
S207084-08			Method Blank	0.009	0.0500									07/31/12	07/31	KPA-001
S207084-09			Duplicate (S207084-01)	0.091	0.0500								7	07/31/12	07/31	KPA-001
Nominal values and limits from method				1.00	0.0500								180			

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/09/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0113

Test U T Matrix SOIL	Client Hanford
SDG 7743	Contract No. S00W235A00
Contact Joseph Verville	Contract SDG KP0113

LAB METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOLIDS

KINETIC PHOSPHORIMETRY

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 0.082	± 0.055
FOR 9 SAMPLES	YIELD	±

Lab id	EBRLNE
Protocol	RC-148
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/09/12

SDG 7743
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_KP0113

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/09/12

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

SDG 7743
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_KP0113

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id EBRLNE
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Version Ver 1.0
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REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_KP0113

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

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GUIDE, cont.

Client Hanford
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Case no SDG KP0113

DATA SHEET

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

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

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

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REPORT GUIDE

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Contract No. S00W235A00
Case no SDG KP0113

LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-RG
Version 3.06
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DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

DUPLICATE

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

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

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

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

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

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Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_KP0113

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id EBRLNE
Protocol RC-148
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/09/12

SDG 7743
Contact Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_KP0113

MATRIX SPIKE

for the recovery.

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

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

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-148-047	Page 1 of ~~6~~ 2

Collector Simonds, M	Company Contact Joan Kessner	Telephone No. 509-375-4688 (7743)	Project Coordinator KESSNER, JH
Project Designation 300 Area D4 Waste Sites - Soil Full Protocol	Sampling Location 300-15 Process Sewer -- Verification KP0113		SAF No. RC-148
Ice Chest No. RCC-07-002	Field Logbook No. EL-1663-03	COA R300152000	Method of Shipment Hand Deliver/Government Vehicle/FedEx
Shipped To EBERLINE SERVICES ~~LIONVILLE~~ 7/24/12	Offsite Property No. A110443		Bill of Lading/Air Bill No. See OSPC

Price Code ~~8L~~ 9B 7/24/12

Data Turnaround 7 ~~21~~ Days 7/24/12

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive LDOT Limits AJ 7-25-12

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	5	1	1	1	1	1
Volume	60mL	60mL	60mL	120mL	40mL	250mL	120mL	500ml	60mL	60mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	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
									RCF				
J1PW67	SOIL	7/24/12	0900						34033		✓	✓	✓
J1PW68	SOIL	7/24/12	1003						34034		✓	✓	✓
J1PW69	SOIL	7/24/12	1014						34035		✓	✓	✓
J1PW70	SOIL	7/24/12	1409						34036		✓	✓	✓
J1PW71	SOIL	7/24/12	1447						34037		✓	✓	✓

REVIEWED BY JR DATE 7/25/12

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From Miranda Simonds	7/24/12 1610	Received By/Stored In David Becker	7/24/12 1610
Relinquished By/Removed From David Becker	7/24/12 1715	Received By/Stored In 1060, 2A *	7/24/12 1715
Relinquished By/Removed From 1060 #2 A. Freier	7-25-12 0650	Received By/Stored In A. Freier	7-25-12 0650
Relinquished By/Removed From WCH A. Freier	7-26-12 1410	Received By/Stored In Fed Ex	
Relinquished By/Removed From FED EX		Received By/Stored In MERATRANSON	07/26/12 0930
Relinquished By/Removed From		Received By/Stored In	

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}

KP0113

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

Matrix *

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

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

WCH-EE-011

RCB 7/24/12

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

Collector: Simonds, M	Company Contact: Joan Kessner	Telephone No.: 509-375-4688 (7743)	Project Coordinator: KESSNER, JH
Price Code: ~~8L~~ 9B RCB 7/24/12	Data Turnaround: 7 ~~21~~ Days RCB 7/24/12		
Project Designation: 300 Area D4 Waste Sites - Soil Full Protocol	Sampling Location: 300-15 Process Sewer -- Verification KP0113	SAF No.: RC-148	
Ice Chest No.: RCC-07-002	Field Logbook No.: EL-1663-03	COA: R300152000	Method of Shipment: Hand Deliver/Government Vehicle/FedEx
Shipped To: EBERLINE SERVICES ~~LIONVILLE~~ RCB 7/24/12	Offsite Property No.: A110443		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive < DOT Limits AJ 7-25-12

Special Handling and/or Storage

None

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
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	1	1
Volume	60mL	60mL	60mL	120mL	40mL	250mL	120mL	500ml	60mL	60mL

Sample No.	Matrix *	Sample Date	Sample Time						RCF				
J1PW72	SOIL	7/24/12	1516						34038		✓	✓	✓
J1PW73	SOIL												
J1PW74	SOIL												
J1PW75	SOIL												
J1PW76	SOIL												

RCB 7/24/12

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MIRANDA SIMONDS	7/24/12 1610	DAVID BECKER	7/24/12 1610
DAVID BECKER	7/24/12 1715	1060, 2A *	7/24/12 1715
1060 #2 A. Freier	7-25-12 0650	A. Freier	7-25-12 0650
WCH A. Freier	7-25-12 1410	Fed Ex	
FED EX		M. HUTCHINSON	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}

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

KP0113

REVIEWED BY DJK DATE 7/25/12

Matrix *

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

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

WCH-EE-011

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: W.C HANFORD City RICHLAND State WA

Date/Time received 07/26/12 0930 CoC No. RC-148-047

Container I.D. No. RCC-07-002 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: 6 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 [ ] Missing [ ]
12. Samples are: Preserved [X] ~~Not~~ preserved [ ] pH N/A Preservative _____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by [signature] Date: 07/26/12 Time: 1030

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100487 Calibration date 06 DEC 11

"over 55 years of quality nuclear services"

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

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 #	1207060
SDG #	KP0113
SAF #	RC-148
Date Received	07/27/12
# Samples	6
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 131 pages.

R:\GROUP\PM\ORLETTE\Hanford\Data\B_ltrs.DOC

121 05; 8/14/12

CHAIN OF CUSTODY

Lionville Laboratory Use Only: 1207060

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 KP0113
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: Arlette Johnson
QC: SW Del: SHL TAT: 7 Days
Date Rec'd: 7.27.12 Date Due: 8/3/12

Refrigerator #		A-D	E	F		G			H	I		J		K		
		F001	1	1		1			1	1		1		1		
#/Type Container	Liquid															
	Solid	4aql	1aql	1aql		1aql			1	1aql		1		1aql		
Volume	Liquid															
	Solid	40	250	120		120			60	60		60		40		
Preservatives		—	—	—		—			—	—		—		—		
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	~~Pest~~ POB	Herb	TPH-D			Metal 1	CN	SFD	IC Anions	2021/2023	% Moisture		
		Lionville Laboratory Use Only														
		VOA 8260/8260	8270	PCB		DEQ/MCI			METO	CYANIDE	SULFIDE	ANIONS	NBNZ	Moisture		

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	8270	PCB		DEQ/MCI			METO	CYANIDE	SULFIDE	ANIONS	NBNZ	Moisture		
W Water, WW Waste Water, GW Groundwater, WST Waste, WI Wipe, SO Solid, S Soil, SL Sludge, SE Sediment, PC Paint Chips, O Oil, NAL Non-Aqueous Liquid, L Leachate, A Air, T Tissue, F Fish	01	J1PW67			S	7.24.12	0900	X	X	X		X			X	X	X	X	X	X		
	02	J1PW68					1003	X	X	X		X			X	X	X	X	X	X		
	03	J1PW69					1014	X	X	X		X			X	X	X	X	X	X		
	04	J1PW70					1409	X	X	X		X			X	X	X	X	X	X		
	05	J1PW71					1447	X	X	X		X			X	X	X	X	X	X		
	06	J1PW72					1516	X	X	X		X			X	X	X	X	X	X		

Special Instructions:

METO = HSL + B, Mo, Li, Si, U, Zr (NO TL)

Special Instructions:

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

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	7.27.12	1500

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

0000000003

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-148-047	Page 1 of ~~6~~ 2

Collector: Simonds, M	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: ~~8L~~ 9B 7/24/12	Data Turnaround: ~~21~~ 7 Days 7/24/12		
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-11-001	Field Logbook No.: EL-1663-03	COA: R300152000	Method of Shipment: Hand Deliver/Government Vehicle/FedEx
Shipped To: ~~EBERLINE SERVICES~~ LIONVILLE 7/24/12	Offsite Property No.: A110470		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~~ Cool 4°C / Freeze VOAs 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	1	1
Volume	60mL	60mL	60mL	120mL	40mL	250mL	120mL	500mL	60mL	60mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	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
											RCF		
J1PW67	SOIL	7/24/12	0900	✓	✓	✓	✓	✓	✓	✓	34033		
J1PW68	SOIL	7/24/12	1003	✓	✓	✓	✓	✓	✓	✓	34034		
J1PW69	SOIL	7/24/12	1014	✓	✓	✓	✓	✓	✓	✓	34035		
J1PW70	SOIL	7/24/12	1409	✓	✓	✓	✓	✓	✓	✓	34036		
J1PW71	SOIL	7/24/12	1447	✓	✓	✓	✓	✓	✓	✓	34037		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
HIPANDA SIMONDS	7/24/12 1610	DAVID BECKER	7/24/12 1610
DAVID BECKER	7/24/12 1715	1060, 2A	7/24/12 1715
1060#2 A. Freier	7-25-12 0650	1060#3 A. Freier	7-25-12 0650
1060#3 A. Freier	7-26-12 0940 WCH	Fed Ex	
Fed Ex	7-27-12 15:00	[illegible]	7-27-12 15:00

SPECIAL INSTRUCTIONS

Please Note: VOA samples frozen upon collection. ** freeze upon receipt. AJ 7-25-12

(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}~~ 7/24/12

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

KP0113

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	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

REVIEWED BY AJ DATE 7/26/12

WCH-EE-011

000000004

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

Collector: Simonds, M	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: ~~8L~~ 9B 7/24/12	Data Turnaround: 7 ~~21~~ Days 7/24/12		
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-11-001	Field Logbook No.: EL-1663-03	COA: R300152000	Method of Shipment: Hand Deliver/Government Vehicle/FedEx
Shipped To: ~~EBERLINE SERVICES~~ LIONVILLE 7/24/12	Offsite Property No.: A110470		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~~ Cool 4°C / Freeze VOAs 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	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	7/24/12	1516	✓	✓	✓	✓	✓	✓	✓	RCF 34038		
J1PW73	SOIL												
J1PW74	SOIL												
J1PW75	SOIL												
J1PW76	SOIL												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MICHAEL SIMONDS	7/24/12 1610	DAVID BECKER	7/24/12 1610
DAVID BECKER	7/24/12 1715	1060, 2A *	7/24/12 1715
A. Freier	7-25-12 0650	A. Freier 1060#3	7-25-12 0650
A. Freier 1060#3	7-26-12 0940	Fed Ex	
FEDEX	7-27-12 15:00		7-27-12 15:00

SPECIAL INSTRUCTIONS
Please Note: VOA samples frozen upon collection. ** freeze upon receipt. AJ 7-25-12

(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}~~ 7/24/12

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

VOA samples frozen upon collection

KP0113

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

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

REVIEWED BY DJM DATE 7/26/12

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAF/SOW/Release #: RC-148

Date: 7-27-12

LvL Batch #: 12070160

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 798665866980
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 2.8	°C	Cooler # WCH-11-001
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 05 7/27/12	☑ No NO3 NO2 OPO4 rec'd out of holding time	
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 05 7/27/12	☑ No see item #12	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☑ N/A 05 7/27/12
Person Contacted _____		Date _____	

SR-002-B.doc

000000006

VOLATILES

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: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 10:42

Analytical Report for Volatile Organic Compounds by SW846 8260B

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW67	1207060-01	Soil	07/24/2012 09:00	07/27/2012 15:00
J1PW68	1207060-02	Soil	07/24/2012 10:03	07/27/2012 15:00
J1PW69	1207060-03	Soil	07/24/2012 10:14	07/27/2012 15:00
J1PW70	1207060-04	Soil	07/24/2012 14:09	07/27/2012 15:00
J1PW71	1207060-05	Soil	07/24/2012 14:47	07/27/2012 15:00
J1PW72	1207060-06	Soil	07/24/2012 15:16	07/27/2012 15:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-148 KP0113
LVL #: 1207060

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

GC/MS VOLATILE

Six (6) soil samples were collected on 07-24-2012.

The samples and associated QC samples were prepared and analyzed 07-30-2012 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: 6.532 INSTRUMENT ID/DATE: 5973E 6/12/12

>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.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 10:42

J1PW67
1207060-01 (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	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2,2-Tetrachloroethane	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2-Trichloroethane	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethane	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethane	6.26	U	6.26	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethene (total)	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloropropane	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Butanone	12.5	U	12.5	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Hexanone	12.5	U	12.5	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
4-Methyl-2-pentanone	12.5	U	12.5	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Acetone	12.5	U	12.5	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Benzene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromodichloromethane	6.26	U	6.26	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromoform	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromomethane	10.4	U	10.4	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Disulfide	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Tetrachloride	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chlorobenzene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroethane	10.4	U	10.4	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroform	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloromethane	10.4	U	10.4	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,2-Dichloroethene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,3-Dichloropropene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Dibromochloromethane	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Ethylbenzene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Methylene Chloride	**4.37**	B, J	6.26	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Styrene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Tetrachloroethene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,2-Dichloroethene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Toluene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,3-Dichloropropene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Trichloroethene	5.22	U	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Vinyl chloride	10.4	U	10.4	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Xylenes, total	**2.26**	J	5.22	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*84 %*		*60-130*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 10:42

J1PW67
1207060-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*84 %*	*72-117*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*92 %*	*72-144*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 10:42

J1PW68
1207060-02 (Soil)

Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,1,1-Trichloroethane	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2,2-Tetrachloroethane	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2-Trichloroethane	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethane	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethane	6.17	U	6.17	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethene (total)	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloropropane	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Butanone	12.3	U	12.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Hexanone	12.3	U	12.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
4-Methyl-2-pentanone	12.3	U	12.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Acetone	12.3	U	12.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Benzene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromodichloromethane	6.17	U	6.17	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromoform	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromomethane	10.3	U	10.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Disulfide	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Tetrachloride	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chlorobenzene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroethane	10.3	U	10.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroform	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloromethane	10.3	U	10.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,2-Dichloroethene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,3-Dichloropropene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Dibromochloromethane	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Ethylbenzene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Methylene Chloride	**4.73**	B, J	6.17	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Styrene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Tetrachloroethene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,2-Dichloroethene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Toluene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,3-Dichloropropene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Trichloroethene	5.14	U	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Vinyl chloride	10.3	U	10.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Xylenes, total	**2.73**	J	5.14	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*85 %*		*60-130*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 10:42

J1PW68
1207060-02 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*89 %*	*72-117*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*96 %*	*72-144*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 10:42

J1PW69
1207060-03 (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	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2,2-Tetrachloroethane	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2-Trichloroethane	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethane	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethane	6.52	U	6.52	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethene (total)	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloropropane	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Butanone	13.0	U	13.0	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Hexanone	13.0	U	13.0	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
4-Methyl-2-pentanone	13.0	U	13.0	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Acetone	13.0	U	13.0	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Benzene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromodichloromethane	6.52	U	6.52	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromoform	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromomethane	10.9	U	10.9	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Disulfide	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Tetrachloride	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chlorobenzene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroethane	10.9	U	10.9	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroform	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloromethane	10.9	U	10.9	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,2-Dichloroethene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,3-Dichloropropene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Dibromochloromethane	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Ethylbenzene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Methylene Chloride	**4.42**	B, J	6.52	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Styrene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Tetrachloroethene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,2-Dichloroethene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Toluene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,3-Dichloropropene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Trichloroethene	5.43	U	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Vinyl chloride	10.9	U	10.9	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Xylenes, total	**1.99**	J	5.43	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*86 %*		*60-130*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 10:42

J1PW69
1207060-03 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*84 %*	*72-117*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*93 %*	*72-144*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 10:42

J1PW70
1207060-04 (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	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2,2-Tetrachloroethane	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2-Trichloroethane	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethane	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethane	10.6	U	10.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethene (total)	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloropropane	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Butanone	21.1	U	21.1	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Hexanone	21.1	U	21.1	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
4-Methyl-2-pentanone	21.1	U	21.1	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Acetone	21.1	U	21.1	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Benzene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromodichloromethane	10.6	U	10.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromoform	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromomethane	17.6	U	17.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Disulfide	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Tetrachloride	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chlorobenzene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroethane	17.6	U	17.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroform	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloromethane	17.6	U	17.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,2-Dichloroethene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,3-Dichloropropene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Dibromochloromethane	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Ethylbenzene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Methylene Chloride	**7.39**	B, J	10.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Styrene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Tetrachloroethene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,2-Dichloroethene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Toluene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,3-Dichloropropene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Trichloroethene	8.81	U	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Vinyl chloride	17.6	U	17.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Xylenes, total	**4.14**	J	8.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*96 %*		*60-130*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 10:42

J1PW70
1207060-04 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*85 %*	*72-117*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*90 %*	*72-144*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 10:42

J1PW71
1207060-05 (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	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2,2-Tetrachloroethane	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2-Trichloroethane	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethane	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethane	6.97	U	6.97	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethene (total)	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloropropane	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Butanone	13.9	U	13.9	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Hexanone	13.9	U	13.9	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
4-Methyl-2-pentanone	13.9	U	13.9	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Acetone	**5.53**	J	13.9	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Benzene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromodichloromethane	6.97	U	6.97	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromoform	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromomethane	11.6	U	11.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Disulfide	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Tetrachloride	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chlorobenzene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroethane	11.6	U	11.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroform	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloromethane	11.6	U	11.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,2-Dichloroethene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,3-Dichloropropene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Dibromochloromethane	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Ethylbenzene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Methylene Chloride	**4.22**	B, J	6.97	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Styrene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Tetrachloroethene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,2-Dichloroethene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Toluene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,3-Dichloropropene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Trichloroethene	5.81	U	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Vinyl chloride	11.6	U	11.6	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Xylenes, total	**1.78**	J	5.81	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*98 %*		*60-130*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 10:42

J1PW71
1207060-05 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*90 %*	*72-117*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*95 %*	*72-144*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 10:42

J1PW72
1207060-06 (Soil)

Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,1,1-Trichloroethane	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2,2-Tetrachloroethane	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1,2-Trichloroethane	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethane	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,1-Dichloroethene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethane	7.63	U	7.63	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloroethene (total)	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
1,2-Dichloropropane	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Butanone	15.3	U	15.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
2-Hexanone	15.3	U	15.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
4-Methyl-2-pentanone	15.3	U	15.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Acetone	15.3	U	15.3	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Benzene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromodichloromethane	7.63	U	7.63	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromoform	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Bromomethane	12.7	U	12.7	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Disulfide	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Carbon Tetrachloride	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chlorobenzene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroethane	12.7	U	12.7	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloroform	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Chloromethane	12.7	U	12.7	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,2-Dichloroethene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
cis-1,3-Dichloropropene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Dibromochloromethane	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Ethylbenzene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Methylene Chloride	**3.82**	B, J	7.63	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Styrene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Tetrachloroethene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,2-Dichloroethene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Toluene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
trans-1,3-Dichloropropene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Trichloroethene	6.36	U	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Vinyl chloride	12.7	U	12.7	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Xylenes, total	**1.94**	J	6.36	ug/kg dry	1	L207195	07/30/2012	07/30/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*100 %*		*60-130*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 10:42

J1PW72
1207060-06 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*88 %*	*72-117*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*98 %*	*72-144*			*L207195*	*07/30/2012*	*07/30/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 10:42

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 L207195 - SW 5035A										
Blank (L207195-BLK1)				Prepared & Analyzed: 07/30/2012						
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	4.31	J	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	*42.8*			*ug/kg wet*	*50.000*		*86*	*60-130*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 10:42

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 L207195 - SW 5035A									
Blank (L207195-BLK1)			Prepared & Analyzed: 07/30/2012						
Surrogate: Toluene-d8	*42.3*		*ug/kg wet*	*50.000*		*85*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*45.5*		*ug/kg wet*	*50.000*		*91*	*72-144*		
LCS (L207195-BS1)			Prepared & Analyzed: 07/30/2012						
1,1,1-Trichloroethane	48.4	5.00	ug/kg wet	50.000		97	65-130		
1,1,2,2-Tetrachloroethane	43.2	5.00	ug/kg wet	50.000		86	50-130		
1,1,2-Trichloroethane	47.8	5.00	ug/kg wet	50.000		96	60-125		
1,1-Dichloroethane	42.9	5.00	ug/kg wet	50.000		86	70-130		
1,1-Dichloroethene	42.8	5.00	ug/kg wet	50.000		86	60-130		
1,2-Dichloroethane	44.8	6.00	ug/kg wet	50.000		90	60-130		
1,2-Dichloroethene (total)	89.4	5.00	ug/kg wet	100.00		89	75-125		
1,2-Dichloropropane	41.9	5.00	ug/kg wet	50.000		84	70-130		
2-Butanone	57.1	12.0	ug/kg wet	50.000		114	20-200		
2-Hexanone	52.9	12.0	ug/kg wet	50.000		106	20-200		
4-Methyl-2-pentanone	44.0	12.0	ug/kg wet	50.000		88	40-150		
Acetone	70.8	12.0	ug/kg wet	50.000		142	15-240		
Benzene	43.7	5.00	ug/kg wet	50.000		87	75-125		
Bromodichloromethane	45.1	6.00	ug/kg wet	50.000		90	65-135		
Bromoform	51.2	5.00	ug/kg wet	50.000		102	60-130		
Bromomethane	43.2	10.0	ug/kg wet	50.000		86	40-150		
Carbon Disulfide	41.4	5.00	ug/kg wet	50.000		83	55-140		
Carbon Tetrachloride	49.8	5.00	ug/kg wet	50.000		100	60-135		
Chlorobenzene	47.9	5.00	ug/kg wet	50.000		96	70-125		
Chloroethane	47.6	10.0	ug/kg wet	50.000		95	50-150		
Chloroform	45.3	5.00	ug/kg wet	50.000		91	70-130		
Chloromethane	40.3	10.0	ug/kg wet	50.000		81	40-130		
cis-1,2-Dichloroethene	43.8	5.00	ug/kg wet	50.000		88	70-125		
cis-1,3-Dichloropropene	43.5	5.00	ug/kg wet	50.000		87	70-125		
Dibromochloromethane	47.0	5.00	ug/kg wet	50.000		94	65-125		
Ethylbenzene	48.2	5.00	ug/kg wet	50.000		96	70-125		
Methylene Chloride	40.1	6.00	ug/kg wet	50.000		80	45-140		
Styrene	46.3	5.00	ug/kg wet	50.000		93	70-125		
Tetrachloroethene	51.0	5.00	ug/kg wet	50.000		102	60-130		
trans-1,2-Dichloroethene	45.6	5.00	ug/kg wet	50.000		91	65-130		
Toluene	45.6	5.00	ug/kg wet	50.000		91	70-125		
trans-1,3-Dichloropropene	49.8	5.00	ug/kg wet	50.000		100	65-125		
Trichloroethene	46.6	5.00	ug/kg wet	50.000		93	70-130		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 10:42

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 L207195 - SW 5035A									
LCS (L207195-BS1)			Prepared & Analyzed: 07/30/2012						
Vinyl chloride	44.2	10.0	ug/kg wet	50.000		88	50-150		
Xylenes, total	143	5.00	ug/kg wet	150.00		95	70-125		
Surrogate: 1,2-Dichloroethane-d4	*40.7*		*ug/kg wet*	*50.000*		*81*	*60-130*		
Surrogate: Toluene-d8	*40.1*		*ug/kg wet*	*50.000*		*80*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*42.3*		*ug/kg wet*	*50.000*		*85*	*72-144*		
Matrix Spike (L207195-MS1)		**Source: 1207060-01**	Prepared & Analyzed: 07/30/2012						
1,1,1-Trichloroethane	48.5	4.94	ug/kg dry	49.435	5.22 U	98	65-130		
1,1,2,2-Tetrachloroethane	40.4	4.94	ug/kg dry	49.435	5.22 U	82	50-130		
1,1,2-Trichloroethane	44.6	4.94	ug/kg dry	49.435	5.22 U	90	60-125		
1,1-Dichloroethane	42.3	4.94	ug/kg dry	49.435	5.22 U	86	70-130		
1,1-Dichloroethene	42.1	4.94	ug/kg dry	49.435	5.22 U	85	60-130		
1,2-Dichloroethane	44.0	5.93	ug/kg dry	49.435	6.26 U	89	60-130		
1,2-Dichloroethene (total)	87.7	4.94	ug/kg dry	98.870	5.22 U	89	75-125		
1,2-Dichloropropane	41.1	4.94	ug/kg dry	49.435	5.22 U	83	70-130		
2-Butanone	52.0	11.9	ug/kg dry	49.435	12.5 U	105	20-200		
2-Hexanone	48.7	11.9	ug/kg dry	49.435	12.5 U	99	20-200		
4-Methyl-2-pentanone	37.7	11.9	ug/kg dry	49.435	12.5 U	76	40-150		
Acetone	61.6	11.9	ug/kg dry	49.435	12.5 U	125	15-240		
Benzene	44.2	4.94	ug/kg dry	49.435	5.22 U	89	75-125		
Bromodichloromethane	44.4	5.93	ug/kg dry	49.435	6.26 U	90	65-135		
Bromoform	46.9	4.94	ug/kg dry	49.435	5.22 U	95	60-130		
Bromomethane	39.3	9.89	ug/kg dry	49.435	10.4 U	80	40-150		
Carbon Disulfide	40.8	4.94	ug/kg dry	49.435	5.22 U	83	55-140		
Carbon Tetrachloride	49.2	4.94	ug/kg dry	49.435	5.22 U	99	60-135		
Chlorobenzene	46.8	4.94	ug/kg dry	49.435	5.22 U	95	70-125		
Chloroethane	46.1	9.89	ug/kg dry	49.435	10.4 U	93	50-150		
Chloroform	44.7	4.94	ug/kg dry	49.435	5.22 U	91	70-130		
Chloromethane	39.2	9.89	ug/kg dry	49.435	10.4 U	79	40-130		
cis-1,2-Dichloroethene	43.2	4.94	ug/kg dry	49.435	5.22 U	87	70-125		
cis-1,3-Dichloropropene	40.9	4.94	ug/kg dry	49.435	5.22 U	83	70-125		
Dibromochloromethane	46.5	4.94	ug/kg dry	49.435	5.22 U	94	65-125		
Ethylbenzene	47.9	4.94	ug/kg dry	49.435	5.22 U	97	70-125		
Methylene Chloride	38.4	5.93	ug/kg dry	49.435	4.37	69	45-140		
Styrene	45.1	4.94	ug/kg dry	49.435	5.22 U	91	70-125		
Tetrachloroethene	50.6	4.94	ug/kg dry	49.435	5.22 U	102	60-130		
trans-1,2-Dichloroethene	44.5	4.94	ug/kg dry	49.435	5.22 U	90	65-130		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 10:42

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 L207195 - SW 5035A									
Matrix Spike (L207195-MS1)		**Source: 1207060-01**	Prepared & Analyzed: 07/30/2012						
Toluene	45.7	4.94	ug/kg dry	49.435	5.22 U	92	70-125		
trans-1,3-Dichloropropene	45.9	4.94	ug/kg dry	49.435	5.22 U	93	65-125		
Trichloroethene	46.9	4.94	ug/kg dry	49.435	5.22 U	95	70-130		
Vinyl chloride	41.9	9.89	ug/kg dry	49.435	10.4 U	85	50-150		
Xylenes, total	142	4.94	ug/kg dry	148.30	2.26	94	70-125		
Surrogate: 1,2-Dichloroethane-d4	*42.3*		*ug/kg dry*	*49.435*		*85*	*60-130*		
Surrogate: Toluene-d8	*43.4*		*ug/kg dry*	*49.435*		*88*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*45.8*		*ug/kg dry*	*49.435*		*93*	*72-144*		
Matrix Spike Dup (L207195-MSD1)		**Source: 1207060-01**	Prepared & Analyzed: 07/30/2012						
1,1,1-Trichloroethane	40.4	4.27	ug/kg dry	42.680	5.22 U	95	65-130	3	20
1,1,2,2-Tetrachloroethane	30.2	4.27	ug/kg dry	42.680	5.22 U	71	50-130	14	20
1,1,2-Trichloroethane	35.5	4.27	ug/kg dry	42.680	5.22 U	83	60-125	8	20
1,1-Dichloroethane	35.1	4.27	ug/kg dry	42.680	5.22 U	82	70-130	4	20
1,1-Dichloroethene	35.1	4.27	ug/kg dry	42.680	5.22 U	82	60-130	3	20
1,2-Dichloroethane	37.3	5.12	ug/kg dry	42.680	6.26 U	87	60-130	2	20
1,2-Dichloroethene (total)	73.6	4.27	ug/kg dry	85.360	5.22 U	86	75-125	3	20
1,2-Dichloropropane	34.9	4.27	ug/kg dry	42.680	5.22 U	82	70-130	2	20
2-Butanone	42.5	10.2	ug/kg dry	42.680	12.5 U	100	20-200	5	20
2-Hexanone	39.6	10.2	ug/kg dry	42.680	12.5 U	93	20-200	6	20
4-Methyl-2-pentanone	30.7	10.2	ug/kg dry	42.680	12.5 U	72	40-150	6	20
Acetone	53.2	10.2	ug/kg dry	42.680	12.5 U	125	15-240	0.2	20
Benzene	36.3	4.27	ug/kg dry	42.680	5.22 U	85	75-125	5	20
Bromodichloromethane	37.3	5.12	ug/kg dry	42.680	6.26 U	87	65-135	3	20
Bromoform	39.0	4.27	ug/kg dry	42.680	5.22 U	91	60-130	4	20
Bromomethane	33.8	8.54	ug/kg dry	42.680	10.4 U	79	40-150	0.5	20
Carbon Disulfide	33.8	4.27	ug/kg dry	42.680	5.22 U	79	55-140	4	20
Carbon Tetrachloride	40.1	4.27	ug/kg dry	42.680	5.22 U	94	60-135	6	20
Chlorobenzene	37.5	4.27	ug/kg dry	42.680	5.22 U	88	70-125	7	20
Chloroethane	39.9	8.54	ug/kg dry	42.680	10.4 U	93	50-150	0.4	20
Chloroform	37.4	4.27	ug/kg dry	42.680	5.22 U	88	70-130	3	20
Chloromethane	33.1	8.54	ug/kg dry	42.680	10.4 U	78	40-130	2	20
cis-1,2-Dichloroethene	36.1	4.27	ug/kg dry	42.680	5.22 U	84	70-125	3	20
cis-1,3-Dichloropropene	33.6	4.27	ug/kg dry	42.680	5.22 U	79	70-125	5	20
Dibromochloromethane	36.8	4.27	ug/kg dry	42.680	5.22 U	86	65-125	9	20
Ethylbenzene	38.9	4.27	ug/kg dry	42.680	5.22 U	91	70-125	6	20
Methylene Chloride	33.0	5.12	ug/kg dry	42.680	4.37	67	45-140	3	20

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 10:42

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 L207195 - SW 5035A									
Matrix Spike Dup (L207195-MSD1)		**Source: 1207060-01**	Prepared & Analyzed: 07/30/2012						
Styrene	35.8	4.27	ug/kg dry	42.680	5.22 U	84	70-125	9	20
Tetrachloroethene	39.5	4.27	ug/kg dry	42.680	5.22 U	92	60-130	10	20
trans-1,2-Dichloroethene	37.5	4.27	ug/kg dry	42.680	5.22 U	88	65-130	2	20
Toluene	36.5	4.27	ug/kg dry	42.680	5.22 U	86	70-125	8	20
trans-1,3-Dichloropropene	36.8	4.27	ug/kg dry	42.680	5.22 U	86	65-125	7	20
Trichloroethene	40.6	4.27	ug/kg dry	42.680	5.22 U	95	70-130	0.3	20
Vinyl chloride	36.8	8.54	ug/kg dry	42.680	10.4 U	86	50-150	2	20
Xylenes, total	118	4.27	ug/kg dry	128.04	2.26	90	70-125	4	20
Surrogate: 1,2-Dichloroethane-d4	*37.5*		*ug/kg dry*	*42.680*		*88*	*60-130*		
Surrogate: Toluene-d8	*36.5*		*ug/kg dry*	*42.680*		*86*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*39.5*		*ug/kg dry*	*42.680*		*92*	*72-144*		

PREPARATION BENCH SHEET

L207195

Lionville Laboratory

Printed: 7/31/2012 10:16:26AM

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
1207060-01	8260B TCL VOC	07/30/2012 12:53	5.27	5				5	WC-Hanford, Inc.	
1207060-02	8260B TCL VOC	07/30/2012 13:25	5.17	5				5	WC-Hanford, Inc.	
1207060-03	8260B TCL VOC	07/30/2012 15:04	4.91	5				5	WC-Hanford, Inc.	
1207060-04	8260B TCL VOC	07/30/2012 15:36	2.85	5				5	WC-Hanford, Inc.	
1207060-05	8260B TCL VOC	07/30/2012 16:09	4.31	5				5	WC-Hanford, Inc.	
1207060-06	8260B TCL VOC	07/30/2012 16:41	3.93	5				5	WC-Hanford, Inc.	
1207061-01	8260B TCL VOC	07/30/2012 17:14	5.17	5				5	WC-Hanford, Inc.	
L207195-BLK1	QC	07/30/2012 12:02	5	5				5		
L207195-BS1	QC	07/30/2012 11:30	5	5	1200958		5	5		
L207195-MS1	QC	07/30/2012 13:58	5.56	5	1200958	1207060-01	5	5		
L207195-MS2	QC	07/30/2012 17:47	4.7	5	1200958	1207061-01	5	5		
L207195-MSD1	QC	07/30/2012 14:31	6.44	5	1200958	1207060-01	5	5		
L207195-MSD2	QC	07/30/2012 18:20	4.51	5	1200958	1207061-01	5	5		

R 8/1/12

Extracts Relinquished By Date

NA Received Extracts Received By Date

SEMIVOLATILES

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

Analytical Report for Semivolatile Organic Compounds by SW846 8270C

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW67	1207060-01	Soil	07/24/2012 09:00	07/27/2012 15:00
J1PW68	1207060-02	Soil	07/24/2012 10:03	07/27/2012 15:00
J1PW69	1207060-03	Soil	07/24/2012 10:14	07/27/2012 15:00
J1PW70	1207060-04	Soil	07/24/2012 14:09	07/27/2012 15:00
J1PW71	1207060-05	Soil	07/24/2012 14:47	07/27/2012 15:00
J1PW72	1207060-06	Soil	07/24/2012 15:16	07/27/2012 15:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Case Narrative

Client: WC-HANFORD RC-148 KP0113
LVL #: 1207060

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

SEMIVOLATILE

Six (6) soil samples were collected on 07-24-2012.

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. Due to the sample matrix, sample J1PW69 had an elevated final volume of 4 mls. Reporting limits have been adjusted to reflect this change.

4. Sample J1PW69 required a 3-fold dilution due to the sample matrix. Reporting limits have been adjusted to reflect the necessary dilutions.

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

6. One (1) of sixty (60) surrogate recoveries was outside acceptance criteria. The surrogate recovery criteria were not met for sample J1PW68. The loss of the surrogate 2,4,6-Tribromophenol in the sample J1PW68 appears to be due to a chemical reaction rather than to a problem with the extraction process. Peaks on the chromatogram indicate this reaction. The conversion compound has been reported as a non-target compound in the sample at a retention time of 21.411 minutes. The loss of this surrogate has been associated with the use of soxhlet extractions.

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

8. All blank spike recoveries 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.

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

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

11. 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.

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

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

14. 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").

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 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: 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:	KP0113
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

ANALYSIS BATCH (SEQUENCE) SUMMARY
8270C

Laboratory:	Lionville Laboratory	SDG:	KP0113
Client:	WC-Hanford, Inc.	Project:	RC-148
Sequence:	2080007	Instrument:	HP5972D
Matrix:	Solid	Calibration:	1208002

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	2080007-TUN1	D080101.D	08/01/12 11:25
Calibration Check	2080007-CCV1	D080102.D	08/01/12 11:48
J1PW67	1207060-01	D080106.D	08/01/12 15:14
J1PW67	L207184-MS2	D080107.D	08/01/12 16:03
J1PW67	L207184-MSD2	D080108.D	08/01/12 16:53
J1PW69	1207060-03	D080109.D	08/01/12 17:42

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: 120F001

>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:	KP0113
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
J1PW71	1207060-05	C073111.D	07/31/12 18:55
J1PW72	1207060-06	C073112.D	07/31/12 19:42
J1PW68	1207060-02	C073113.D	07/31/12 20:30
J1PW70	1207060-04	C073114.D	07/31/12 21:17

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: KP0113	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW67
1207060-01 (Soil)

Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2,4-Trichlorobenzene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
1,2-Dichlorobenzene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
1,3-Dichlorobenzene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
1,4-Dichlorobenzene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4,5-Trichlorophenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4,6-Trichlorophenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4-Dichlorophenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4-Dimethylphenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4-Dinitrophenol	1780	U	1780	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,4-Dinitrotoluene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2,6-Dinitrotoluene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Chloronaphthalene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Chlorophenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Methylnaphthalene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Methylphenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Nitroaniline	1780	U	1780	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
2-Nitrophenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
3,3'-Dichlorobenzidine	712	U	712	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
3-Nitroaniline	1780	U	1780	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4,6-Dinitro-2-methylphenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Bromophenyl Phenyl Ether	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Chloro-3-methylphenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Chloroaniline	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Chlorophenyl Phenyl Ether	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
3- and/or 4-Methylphenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Nitroaniline	1780	U	1780	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
4-Nitrophenol	1780	U	1780	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Acenaphthene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Acenaphthylene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Anthracene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Benz[a]anthracene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Benzo[a] pyrene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Benzo[b] fluoranthene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Benzo[g,h,i] perylene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Benzo[k] fluoranthene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Bis(2-chloroethoxy) methane	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

J1PW67
1207060-01 (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	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Bis(2-chloroisopropyl) ether	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Bis(2-ethylhexyl) phthalate	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Butyl Benzyl Phthalate	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Carbazole	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Chrysene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Dibenz[a,h]anthracene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Dibenzofuran	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Diethyl Phthalate	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Dimethyl Phthalate	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Di-n-butyl Phthalate	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Di-n-octyl Phthalate	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Fluoranthene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Fluorene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Hexachlorobenzene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Hexachlorobutadiene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Hexachlorocyclopentadiene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Hexachloroethane	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Indeno[1,2,3-cd]pyrene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Isophorone	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Naphthalene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Nitrobenzene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
N-Nitrosodi-n-propylamine	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
N-Nitrosodiphenylamine	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Pentachlorophenol	1780	U	1780	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Phenanthrene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Phenol	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Pyrene	356	U	356	ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
TIC:Unknown 2	**523**	J		ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
TIC:Unknown 1	**346**	J		ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
TIC:Aldol Condensate 3	**224**	A, B, J		ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
TIC:Aldol Condensate 2	**20200**	A, B, J		ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
TIC:Aldol Condensate 1	**451**	A, B, J		ug/kg dry	1	L207184	07/30/2012	08/01/2012	8270C
Surrogate: 2-Fluorophenol	*59 %*		*25-121*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: Phenol-d5	*60 %*		*24-113*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*64 %*		*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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW67

1207060-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*62 %*	*30-115*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*22 %*	*19-122*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*76 %*	*18-137*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

J1PW68
1207060-02 (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	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,2-Dichlorobenzene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,3-Dichlorobenzene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,4-Dichlorobenzene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,5-Trichlorophenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,6-Trichlorophenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dichlorophenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dimethylphenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrophenol	1710	U	1710	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dinitrotoluene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,6-Dinitrotoluene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chloronaphthalene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chlorophenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylnaphthalene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylphenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitroaniline	1710	U	1710	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Nitrophenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3,3'-Dichlorobenzidine	682	U	682	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3-Nitroaniline	1710	U	1710	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4,6-Dinitro-2-methylphenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Bromophenyl Phenyl Ether	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloro-3-methylphenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloroaniline	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chlorophenyl Phenyl Ether	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3- and/or 4-Methylphenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitroaniline	1710	U	1710	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Nitrophenol	1710	U	1710	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthylene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Anthracene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benz[a]anthracene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[a] pyrene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[b] fluoranthene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[g,h,i] perylene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[k] fluoranthene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroethoxy) methane	341	U	341	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: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

J1PW68
1207060-02 (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	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroisopropyl) ether	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-ethylhexyl) phthalate	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Butyl Benzyl Phthalate	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Carbazole	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Chrysene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenz[a,h]anthracene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenzofuran	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Diethyl Phthalate	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dimethyl Phthalate	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-butyl Phthalate	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-octyl Phthalate	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluoranthene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluorene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobenzene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobutadiene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorocyclopentadiene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachloroethane	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Indeno[1,2,3-cd]pyrene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Isophorone	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Naphthalene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Nitrobenzene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodi-n-propylamine	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodiphenylamine	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pentachlorophenol	1710	U	1710	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenanthrene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenol	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pyrene	341	U	341	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Unknown 1	**231**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Unknown 2	**640**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 3	**141**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 2	**51300**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 1	**376**	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	*54 %*		*24-113*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*58 %*		*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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW68
1207060-02 (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	*18 % **	*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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW69
1207060-03 (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	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
1,2-Dichlorobenzene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
1,3-Dichlorobenzene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
1,4-Dichlorobenzene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2,4,5-Trichlorophenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2,4,6-Trichlorophenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2,4-Dichlorophenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2,4-Dimethylphenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2,4-Dinitrophenol	21100	U	21100	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2,4-Dinitrotoluene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2,6-Dinitrotoluene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2-Chloronaphthalene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2-Chlorophenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2-Methylnaphthalene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2-Methylphenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2-Nitroaniline	21100	U	21100	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
2-Nitrophenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
3,3'-Dichlorobenzidine	8430	U	8430	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
3-Nitroaniline	21100	U	21100	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
4,6-Dinitro-2-methylphenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
4-Bromophenyl Phenyl Ether	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
4-Chloro-3-methylphenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
4-Chloroaniline	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
4-Chlorophenyl Phenyl Ether	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
3- and/or 4-Methylphenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
4-Nitroaniline	21100	U	21100	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
4-Nitrophenol	21100	U	21100	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Acenaphthene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Acenaphthylene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Anthracene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Benz[a]anthracene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Benzo[a] pyrene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Benzo[b] fluoranthene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Benzo[g,h,i] perylene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Benzo[k] fluoranthene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Bis(2-chloroethoxy) methane	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW69
1207060-03 (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	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Bis(2-chloroisopropyl) ether	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Bis(2-ethylhexyl) phthalate	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Butyl Benzyl Phthalate	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Carbazole	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Chrysene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Dibenz[a,h]anthracene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Dibenzofuran	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Diethyl Phthalate	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Dimethyl Phthalate	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Di-n-butyl Phthalate	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Di-n-octyl Phthalate	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Fluoranthene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Fluorene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Hexachlorobenzene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Hexachlorobutadiene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Hexachlorocyclopentadiene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Hexachloroethane	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Indeno[1,2,3-cd]pyrene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Isophorone	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Naphthalene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Nitrobenzene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
N-Nitrosodi-n-propylamine	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
N-Nitrosodiphenylamine	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Pentachlorophenol	21100	U	21100	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Phenanthrene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Phenol	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Pyrene	4210	U	4210	ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
TIC:Aldol Condensate 1	**41400**	A, B, D, J		ug/kg dry	3	L207184	07/30/2012	08/01/2012	8270C
Surrogate: 2-Fluorophenol	*72 %*		*25-121*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: Phenol-d5	*77 %*		*24-113*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*72 %*		*23-120*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: 2-Fluorobiphenyl	*77 %*		*30-115*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*20 %*		*19-122*			*L207184*	*07/30/2012*	*08/01/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*87 %*		*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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW70
1207060-04 (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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,2-Dichlorobenzene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,3-Dichlorobenzene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,4-Dichlorobenzene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,5-Trichlorophenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,6-Trichlorophenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dichlorophenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dimethylphenol	328	U	328	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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,6-Dinitrotoluene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chloronaphthalene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chlorophenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylnaphthalene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylphenol	328	U	328	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	328	U	328	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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Bromophenyl Phenyl Ether	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloro-3-methylphenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloroaniline	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chlorophenyl Phenyl Ether	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3- and/or 4-Methylphenol	328	U	328	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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthylene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Anthracene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benz[a]anthracene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[a] pyrene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[b] fluoranthene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[g,h,i] perylene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[k] fluoranthene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroethoxy) methane	328	U	328	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: KP0113	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW70
1207060-04 (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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroisopropyl) ether	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-ethylhexyl) phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Butyl Benzyl Phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Carbazole	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Chrysene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenz[a,h]anthracene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenzofuran	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Diethyl Phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dimethyl Phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-butyl Phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-octyl Phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluoranthene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluorene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobenzene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobutadiene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorocyclopentadiene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachloroethane	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Indeno[1,2,3-cd]pyrene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Isophorone	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Naphthalene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Nitrobenzene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodi-n-propylamine	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodiphenylamine	328	U	328	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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pyrene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Trichloro-1-propene	**246**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 4	**440**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 3	**402**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 2	**41500**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 1	**289**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Surrogate: 2-Fluorophenol	*52 %*		*25-121*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Phenol-d5	*53 %*		*24-113*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*56 %*		*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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW70

1207060-04 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*54 %*	*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	*62 %*	*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: KP0113	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW71
1207060-05 (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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,2-Dichlorobenzene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,3-Dichlorobenzene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
1,4-Dichlorobenzene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,5-Trichlorophenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4,6-Trichlorophenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dichlorophenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,4-Dimethylphenol	328	U	328	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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2,6-Dinitrotoluene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chloronaphthalene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Chlorophenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylnaphthalene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
2-Methylphenol	328	U	328	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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3,3'-Dichlorobenzidine	656	U	656	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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Bromophenyl Phenyl Ether	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloro-3-methylphenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chloroaniline	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
4-Chlorophenyl Phenyl Ether	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
3- and/or 4-Methylphenol	328	U	328	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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Acenaphthylene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Anthracene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benz[a]anthracene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[a] pyrene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[b] fluoranthene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[g,h,i] perylene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Benzo[k] fluoranthene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroethoxy) methane	328	U	328	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: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

J1PW71
1207060-05 (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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-chloroisopropyl) ether	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Bis(2-ethylhexyl) phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Butyl Benzyl Phthalate	**307**	J	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Carbazole	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Chrysene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenz[a,h]anthracene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dibenzofuran	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Diethyl Phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Dimethyl Phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-butyl Phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Di-n-octyl Phthalate	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluoranthene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Fluorene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobenzene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorobutadiene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachlorocyclopentadiene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Hexachloroethane	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Indeno[1,2,3-cd]pyrene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Isophorone	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Naphthalene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Nitrobenzene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodi-n-propylamine	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
N-Nitrosodiphenylamine	328	U	328	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	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Phenol	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Pyrene	328	U	328	ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Trichloro-1-propene	**312**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 3	**453**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 2	**41600**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 4	**494**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 1	**375**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Surrogate: 2-Fluorophenol	*60 %*		*25-121*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Phenol-d5	*58 %*		*24-113*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*54 %*		*23-120*			*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: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

J1PW71
1207060-05 (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	*53 %*	*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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW72
1207060-06 (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	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	659	U	659	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. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

J1PW72
1207060-06 (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	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:Trichloro-1-propene	**240**	J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 4	**415**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 3	**344**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 2	**39200**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
TIC:Aldol Condensate 1	**275**	A, B, J		ug/kg dry	1	L207184	07/30/2012	07/31/2012	8270C
Surrogate: 2-Fluorophenol	*46 %*		*25-121*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Phenol-d5	*55 %*		*24-113*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*63 %*		*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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

J1PW72
1207060-06 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*59 %*	*30-115*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*49 %*	*19-122*			*L207184*	*07/30/2012*	*07/31/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*68 %*	*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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

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. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

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 Reagent	298	A, J		ug/kg wet						
Aldol Condensate 1	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.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 15:24

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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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

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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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

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-MS2)		**Source: 1207060-01**	Prepared: 07/30/2012 Analyzed: 08/01/2012						
1,2,4-Trichlorobenzene	1180		ug/kg dry	2153.6	356 U	55	45-110		
1,2-Dichlorobenzene	1260		ug/kg dry	2153.6	356 U	59	45-105		
1,3-Dichlorobenzene	1200		ug/kg dry	2153.6	356 U	56	40-100		
1,4-Dichlorobenzene	1200		ug/kg dry	2153.6	356 U	56	35-105		
2,4,5-Trichlorophenol	1320		ug/kg dry	2153.6	356 U	61	30-140		
2,4,6-Trichlorophenol	933		ug/kg dry	2153.6	356 U	43	20-110		
2,4-Dichlorophenol	1360		ug/kg dry	2153.6	356 U	63	40-110		
2,4-Dimethylphenol	1390		ug/kg dry	2153.6	356 U	65	30-105		
2,4-Dinitrophenol	1520		ug/kg dry	2153.6	1780 U	70	25-130		
2,4-Dinitrotoluene	1610		ug/kg dry	2153.6	356 U	75	50-115		
2,6-Dinitrotoluene	1610		ug/kg dry	2153.6	356 U	75	40-120		
2-Chloronaphthalene	1430		ug/kg dry	2153.6	356 U	66	45-115		
2-Chlorophenol	1350		ug/kg dry	2153.6	356 U	63	45-105		
2-Methylnaphthalene	1260		ug/kg dry	2153.6	356 U	59	45-110		
2-Methylphenol	1410		ug/kg dry	2153.6	356 U	65	40-120		
2-Nitroaniline	1690		ug/kg dry	2153.6	1780 U	78	45-120		
2-Nitrophenol	1250		ug/kg dry	2153.6	356 U	58	40-110		
3,3'-Dichlorobenzidine	1470		ug/kg dry	2153.6	712 U	68	15-130		
3-Nitroaniline	1730		ug/kg dry	2153.6	1780 U	80	40-130		
4,6-Dinitro-2-methylphenol	1640		ug/kg dry	2153.6	356 U	76	20-140		
4-Bromophenyl Phenyl Ether	1570		ug/kg dry	2153.6	356 U	73	45-115		
4-Chloro-3-methylphenol	1450		ug/kg dry	2153.6	356 U	67	35-115		
4-Chloroaniline	912		ug/kg dry	2153.6	356 U	42	10-100		
4-Chlorophenyl Phenyl Ether	1520		ug/kg dry	2153.6	356 U	71	45-110		
3- and/or 4-Methylphenol	1490		ug/kg dry	2153.6	356 U	69	40-120		
4-Nitroaniline	1810		ug/kg dry	2153.6	1780 U	84	40-130		
4-Nitrophenol	633		ug/kg dry	2153.6	1780 U	29	15-140		
Acenaphthene	1470		ug/kg dry	2153.6	356 U	68	45-110		
Acenaphthylene	1530		ug/kg dry	2153.6	356 U	71	45-115		
Anthracene	1540		ug/kg dry	2153.6	356 U	71	45-130		
Benz[a]anthracene	1620		ug/kg dry	2153.6	356 U	75	45-130		
Benzo[a] pyrene	1640		ug/kg dry	2153.6	356 U	76	45-130		
Benzo[b] fluoranthene	1690		ug/kg dry	2153.6	356 U	78	40-130		
Benzo[g,h,i] perylene	1570		ug/kg dry	2153.6	356 U	73	45-125		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

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-MS2)		**Source: 1207060-01**	Prepared: 07/30/2012 Analyzed: 08/01/2012						
Benzo[k] fluoranthene	1610		ug/kg dry	2153.6	356 U	75	45-125		
Bis(2-chloroethoxy) methane	1290		ug/kg dry	2153.6	356 U	60	45-110		
Bis(2-chloroethyl) ether	1290		ug/kg dry	2153.6	356 U	60	40-110		
Bis(2-chloroisopropyl) ether	1320		ug/kg dry	2153.6	356 U	61	30-115		
Bis(2-ethylhexyl) phthalate	1760		ug/kg dry	2153.6	356 U	82	40-145		
Butyl Benzyl Phthalate	1670		ug/kg dry	2153.6	356 U	77	50-125		
Carbazole	2120		ug/kg dry	2153.6	356 U	99	40-140		
Chrysene	1670		ug/kg dry	2153.6	356 U	78	45-130		
Dibenz[a,h]anthracene	1590		ug/kg dry	2153.6	356 U	74	45-125		
Dibenzofuran	1490		ug/kg dry	2153.6	356 U	69	45-120		
Diethyl Phthalate	1560		ug/kg dry	2153.6	356 U	73	50-125		
Dimethyl Phthalate	1490		ug/kg dry	2153.6	356 U	69	45-130		
Di-n-butyl Phthalate	1450		ug/kg dry	2153.6	356 U	67	50-130		
Di-n-octyl Phthalate	1820		ug/kg dry	2153.6	356 U	85	40-150		
Fluoranthene	1530		ug/kg dry	2153.6	356 U	71	45-130		
Fluorene	1520		ug/kg dry	2153.6	356 U	71	45-120		
Hexachlorobenzene	1590		ug/kg dry	2153.6	356 U	74	45-130		
Hexachlorobutadiene	1300		ug/kg dry	2153.6	356 U	60	45-105		
Hexachlorocyclopentadiene	880		ug/kg dry	2153.6	356 U	41	10-100		
Hexachloroethane	1180		ug/kg dry	2153.6	356 U	55	35-110		
Indeno[1,2,3-cd]pyrene	1580		ug/kg dry	2153.6	356 U	73	45-130		
Isophorone	1270		ug/kg dry	2153.6	356 U	59	40-110		
Naphthalene	1340		ug/kg dry	2153.6	356 U	62	40-110		
Nitrobenzene	1250		ug/kg dry	2153.6	356 U	58	40-105		
N-Nitrosodi-n-propylamine	1640		ug/kg dry	2153.6	356 U	76	30-130		
N-Nitrosodiphenylamine	1580		ug/kg dry	2153.6	356 U	73	50-120		
Pentachlorophenol	1380		ug/kg dry	2153.6	1780 U	64	25-120		
Phenanthrene	1560		ug/kg dry	2153.6	356 U	72	50-120		
Phenol	1400		ug/kg dry	2153.6	356 U	65	40-115		
Pyrene	1590		ug/kg dry	2153.6	356 U	74	45-125		
Surrogate: 2-Fluorophenol	*1820*		*ug/kg dry*	*2692.0*		*68*	*25-121*		
Surrogate: Phenol-d5	*1910*		*ug/kg dry*	*2692.0*		*71*	*24-113*		
Surrogate: Nitrobenzene-d5	*1190*		*ug/kg dry*	*1794.7*		*66*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1290*		*ug/kg dry*	*1794.7*		*72*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1170*		*ug/kg dry*	*2692.0*		*43*	*19-122*		
Surrogate: p-Terphenyl-d14	*1450*		*ug/kg dry*	*1794.7*		*81*	*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-MSD2)		**Source: 1207060-01**	Prepared: 07/30/2012 Analyzed: 08/01/2012						
1,2,4-Trichlorobenzene	1610		ug/kg dry	2164.2	356 U	74	45-110	30	40
1,2-Dichlorobenzene	1650		ug/kg dry	2164.2	356 U	76	45-105	26	40
1,3-Dichlorobenzene	1590		ug/kg dry	2164.2	356 U	73	40-100	28	40
1,4-Dichlorobenzene	1600		ug/kg dry	2164.2	356 U	74	35-105	28	40
2,4,5-Trichlorophenol	1930		ug/kg dry	2164.2	356 U	89	30-140	37	40
2,4,6-Trichlorophenol	1460		ug/kg dry	2164.2	356 U	67	20-110	43*	40
2,4-Dichlorophenol	1800		ug/kg dry	2164.2	356 U	83	40-110	28	40
2,4-Dimethylphenol	1610		ug/kg dry	2164.2	356 U	74	30-105	14	40
2,4-Dinitrophenol	2490		ug/kg dry	2164.2	1780 U	115	25-130	48*	40
2,4-Dinitrotoluene	2040		ug/kg dry	2164.2	356 U	94	50-115	23	40
2,6-Dinitrotoluene	2040		ug/kg dry	2164.2	356 U	94	40-120	23	40
2-Chloronaphthalene	1840		ug/kg dry	2164.2	356 U	85	45-115	25	40
2-Chlorophenol	1780		ug/kg dry	2164.2	356 U	82	45-105	27	40
2-Methylnaphthalene	1620		ug/kg dry	2164.2	356 U	75	45-110	24	40
2-Methylphenol	1870		ug/kg dry	2164.2	356 U	86	40-120	27	40
2-Nitroaniline	2150		ug/kg dry	2164.2	1780 U	99	45-120	24	40
2-Nitrophenol	1670		ug/kg dry	2164.2	356 U	77	40-110	28	40
3,3'-Dichlorobenzidine	1800		ug/kg dry	2164.2	712 U	83	15-130	20	40
3-Nitroaniline	2160		ug/kg dry	2164.2	1780 U	100	40-130	22	40
4,6-Dinitro-2-methylphenol	2370		ug/kg dry	2164.2	356 U	110	20-140	36	40
4-Bromophenyl Phenyl Ether	1940		ug/kg dry	2164.2	356 U	90	45-115	21	40
4-Chloro-3-methylphenol	1860		ug/kg dry	2164.2	356 U	86	35-115	24	40
4-Chloroaniline	1240		ug/kg dry	2164.2	356 U	57	10-100	30	40
4-Chlorophenyl Phenyl Ether	1890		ug/kg dry	2164.2	356 U	88	45-110	21	40
3- and/or 4-Methylphenol	1930		ug/kg dry	2164.2	356 U	89	40-120	25	40
4-Nitroaniline	2260		ug/kg dry	2164.2	1780 U	104	40-130	21	40
4-Nitrophenol	929		ug/kg dry	2164.2	1780 U	43	15-140	37	40
Acenaphthene	1840		ug/kg dry	2164.2	356 U	85	45-110	22	40
Acenaphthylene	1910		ug/kg dry	2164.2	356 U	88	45-115	22	40
Anthracene	1810		ug/kg dry	2164.2	356 U	84	45-130	16	40
Benz[a]anthracene	2050		ug/kg dry	2164.2	356 U	95	45-130	23	40
Benzo[a] pyrene	2040		ug/kg dry	2164.2	356 U	94	45-130	21	40
Benzo[b] fluoranthene	2100		ug/kg dry	2164.2	356 U	97	40-130	21	40
Benzo[g,h,i] perylene	1950		ug/kg dry	2164.2	356 U	90	45-125	21	40
Benzo[k] fluoranthene	2040		ug/kg dry	2164.2	356 U	94	45-125	23	40
Bis(2-chloroethoxy) methane	1670		ug/kg dry	2164.2	356 U	77	45-110	25	40

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 15:24

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-MSD2)	**Source: 1207060-01**		Prepared: 07/30/2012 Analyzed: 08/01/2012						
Bis(2-chloroethyl) ether	1680		ug/kg dry	2164.2	356 U	77	40-110	25	40
Bis(2-chloroisopropyl) ether	1650		ug/kg dry	2164.2	356 U	76	30-115	22	40
Bis(2-ethylhexyl) phthalate	2190		ug/kg dry	2164.2	356 U	101	40-145	21	40
Butyl Benzyl Phthalate	2050		ug/kg dry	2164.2	356 U	95	50-125	20	40
Carbazole	2510		ug/kg dry	2164.2	356 U	116	40-140	16	40
Chrysene	2090		ug/kg dry	2164.2	356 U	96	45-130	22	40
Dibenz[a,h]anthracene	1990		ug/kg dry	2164.2	356 U	92	45-125	22	40
Dibenzofuran	1820		ug/kg dry	2164.2	356 U	84	45-120	19	40
Diethyl Phthalate	1910		ug/kg dry	2164.2	356 U	88	50-125	19	40
Dimethyl Phthalate	1870		ug/kg dry	2164.2	356 U	87	45-130	23	40
Di-n-butyl Phthalate	1660		ug/kg dry	2164.2	356 U	77	50-130	13	40
Di-n-octyl Phthalate	2250		ug/kg dry	2164.2	356 U	104	40-150	21	40
Fluoranthene	1810		ug/kg dry	2164.2	356 U	84	45-130	16	40
Fluorene	1870		ug/kg dry	2164.2	356 U	86	45-120	20	40
Hexachlorobenzene	1950		ug/kg dry	2164.2	356 U	90	45-130	20	40
Hexachlorobutadiene	1760		ug/kg dry	2164.2	356 U	81	45-105	30	40
Hexachlorocyclopentadiene	1110		ug/kg dry	2164.2	356 U	51	10-100	22	40
Hexachloroethane	1630		ug/kg dry	2164.2	356 U	75	35-110	32	40
Indeno[1,2,3-cd]pyrene	1960		ug/kg dry	2164.2	356 U	90	45-130	21	40
Isophorone	1630		ug/kg dry	2164.2	356 U	75	40-110	24	40
Naphthalene	1680		ug/kg dry	2164.2	356 U	78	40-110	22	40
Nitrobenzene	1680		ug/kg dry	2164.2	356 U	77	40-105	29	40
N-Nitrosodi-n-propylamine	2050		ug/kg dry	2164.2	356 U	95	30-130	21	40
N-Nitrosodiphenylamine	1870		ug/kg dry	2164.2	356 U	87	50-120	16	40
Pentachlorophenol	1850		ug/kg dry	2164.2	1780 U	86	25-120	29	40
Phenanthrene	1850		ug/kg dry	2164.2	356 U	85	50-120	17	40
Phenol	1760		ug/kg dry	2164.2	356 U	81	40-115	22	40
Pyrene	1920		ug/kg dry	2164.2	356 U	89	45-125	18	40
Surrogate: 2-Fluorophenol	*2270*		*ug/kg dry*	*2705.3*		*84*	*25-121*		
Surrogate: Phenol-d5	*2310*		*ug/kg dry*	*2705.3*		*85*	*24-113*		
Surrogate: Nitrobenzene-d5	*1490*		*ug/kg dry*	*1803.5*		*82*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1580*		*ug/kg dry*	*1803.5*		*87*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1820*		*ug/kg dry*	*2705.3*		*67*	*19-122*		
Surrogate: p-Terphenyl-d14	*1690*		*ug/kg dry*	*1803.5*		*94*	*18-137*		

PREPARATION BENCH SHEET

L207184

Lionville Laboratory

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

000000070

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

000000071

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		

7/31/12 1514

Extracts Relinquished By Date

7/31/12 1320

Extracts Received By Date

PCBS

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/03/2012 05:32

Analytical Report for Polychlorinated Biphenyls by SW846 8082

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW67	1207060-01	Soil	07/24/2012 09:00	07/27/2012 15:00
J1PW68	1207060-02	Soil	07/24/2012 10:03	07/27/2012 15:00
J1PW69	1207060-03	Soil	07/24/2012 10:14	07/27/2012 15:00
J1PW70	1207060-04	Soil	07/24/2012 14:09	07/27/2012 15:00
J1PW71	1207060-05	Soil	07/24/2012 14:47	07/27/2012 15:00
J1PW72	1207060-06	Soil	07/24/2012 15:16	07/27/2012 15:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Case Narrative

Client: WC-HANFORD RC-148 KP0113
LVL #: 1207060

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

PCBs

Six (6) soil samples were collected on 07-24-2012.

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

Iain Daniels
LvL Laboratory Manager

8/7/12
Date

r:\group\data\2012\pcb\wc hanford\1207060jes.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.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 05:32

J1PW67
1207060-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	14.3	U	14.3	ug/kg dry	1	L207193	07/30/2012	08/01/2012	8082
Aroclor 1221	14.3	U	14.3	ug/kg dry	1	L207193	07/30/2012	08/01/2012	8082
Aroclor 1232	14.3	U	14.3	ug/kg dry	1	L207193	07/30/2012	08/01/2012	8082
Aroclor 1242	14.3	U	14.3	ug/kg dry	1	L207193	07/30/2012	08/01/2012	8082
Aroclor 1248	14.3	U	14.3	ug/kg dry	1	L207193	07/30/2012	08/01/2012	8082
Aroclor 1254	**11.1**	J	14.3	ug/kg dry	1	L207193	07/30/2012	08/01/2012	8082
Aroclor 1260	**6.05**	J	14.3	ug/kg dry	1	L207193	07/30/2012	08/01/2012	8082
Aroclor 1262	14.3	U	14.3	ug/kg dry	1	L207193	07/30/2012	08/01/2012	8082
Aroclor 1268	14.3	U	14.3	ug/kg dry	1	L207193	07/30/2012	08/01/2012	8082
Surrogate: Decachlorobiphenyl	*83 %*		*43-144*			*L207193*	*07/30/2012*	*08/01/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*74 %*		*52-141*			*L207193*	*07/30/2012*	*08/01/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/03/2012 05:32

J1PW68
1207060-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**90.1**		14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**27.0**		14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*75 %*		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*79 %*		*52-141*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/03/2012 05:32

J1PW69
1207060-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**14.3**		14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**7.14**	J	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	14.0	U	14.0	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*89 %*		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*91 %*		*52-141*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/03/2012 05:32

J1PW70
1207060-04 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.3	U	13.3	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	13.3	U	13.3	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	13.3	U	13.3	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	13.3	U	13.3	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	13.3	U	13.3	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**16.0**		13.3	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**3.91**	J	13.3	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	13.3	U	13.3	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	13.3	U	13.3	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*85 %*		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*66 %*		*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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 05:32

J1PW71
1207060-05 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**31.9**		13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**10.7**	J	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*84 %*		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*84 %*		*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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 05:32

J1PW72
1207060-06 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1221	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1232	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1242	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1248	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1254	**103**		13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1260	**22.0**		13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1262	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Aroclor 1268	13.1	U	13.1	ug/kg dry	1	L207193	07/30/2012	08/02/2012	8082
Surrogate: Decachlorobiphenyl	*83 %*		*43-144*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*83 %*		*52-141*			*L207193*	*07/30/2012*	*08/02/2012*	*8082*

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: KP0113 Project Manager: Joan Kessner	**Reported:** 08/03/2012 05:32

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-MS2)		**Source: 1207060-01**		Prepared: 07/30/2012 Analyzed: 08/01/2012						
Aroclor 1016	122		14.6	ug/kg dry	183.06	14.3 U	66	50-138		
Aroclor 1260	140		14.6	ug/kg dry	183.06	6.05	73	50-148		
Surrogate: Decachlorobiphenyl	*30.0*			*ug/kg dry*	*36.611*		*82*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*29.3*			*ug/kg dry*	*36.615*		*80*	*52-141*		
Matrix Spike Dup (L207193-MSD2)		**Source: 1207060-01**		Prepared: 07/30/2012 Analyzed: 08/01/2012						
Aroclor 1016	112		14.4	ug/kg dry	180.00	14.3 U	62	50-138	7	40
Aroclor 1260	131		14.4	ug/kg dry	180.00	6.05	69	50-148	5	40
Surrogate: Decachlorobiphenyl	*28.2*			*ug/kg dry*	*36.000*		*78*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*27.5*			*ug/kg dry*	*36.003*		*76*	*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

Solvent 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

000000084

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		

Screened 08.01.12
Cu lot # G16W031

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/01/2012 20:35

Analytical Report for Extractable Petroleum Hydrocarbons by SW846 8015

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW67	1207060-01	Soil	07/24/2012 09:00	07/27/2012 15:00
J1PW68	1207060-02	Soil	07/24/2012 10:03	07/27/2012 15:00
J1PW69	1207060-03	Soil	07/24/2012 10:14	07/27/2012 15:00
J1PW70	1207060-04	Soil	07/24/2012 14:09	07/27/2012 15:00
J1PW71	1207060-05	Soil	07/24/2012 14:47	07/27/2012 15:00
J1PW72	1207060-06	Soil	07/24/2012 15:16	07/27/2012 15:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
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Case Narrative

Client: WC-HANFORD RC-148 KP0113
LVL #: 1207060

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

DIESEL RANGE ORGANICS

Six (6) soil samples were collected on 07-24-2012.

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

8/1/12
Date

r:\group\data\2012\dro\wc hanford\1207060jes.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.

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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/01/2012 20:35

Extractable Petroleum Hydrocarbons by SW846 8015
Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW67 (1207060-01) Soil								
Surrogate: p-Terphenyl	*71 %*	*39-129*			*L207183*	*07/30/2012*	*08/01/2012*	*8015M*
Diesel Range Organics	2200 J	3550	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
Motor Oil	4960 J	10700	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
J1PW68 (1207060-02) Soil								
Surrogate: p-Terphenyl	*85 %*	*39-129*			*L207183*	*07/30/2012*	*08/01/2012*	*8015M*
Diesel Range Organics	4800	3500	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
Motor Oil	10200 J	10500	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
J1PW69 (1207060-03) Soil								
Surrogate: p-Terphenyl	*65 %*	*39-129*			*L207183*	*07/30/2012*	*08/01/2012*	*8015M*
Diesel Range Organics	13600	3440	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
Motor Oil	37700	10300	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
J1PW70 (1207060-04) Soil								
Surrogate: p-Terphenyl	*74 %*	*39-129*			*L207183*	*07/30/2012*	*08/01/2012*	*8015M*
Diesel Range Organics	2530 J	3340	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
Motor Oil	3990 J	10000	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
J1PW71 (1207060-05) Soil								
Surrogate: p-Terphenyl	*87 %*	*39-129*			*L207183*	*07/30/2012*	*08/01/2012*	*8015M*
Diesel Range Organics	6800	3290	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
Motor Oil	11000	9880	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
J1PW72 (1207060-06) Soil								
Surrogate: p-Terphenyl	*86 %*	*39-129*			*L207183*	*07/30/2012*	*08/01/2012*	*8015M*
Diesel Range Organics	2650 J	3330	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M
Motor Oil	4360 J	10000	ug/kg dry	1	L207183	07/30/2012	08/01/2012	8015M

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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/01/2012 20:35

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-MS2)	**Source: 1207060-01**		Prepared: 07/30/2012 Analyzed: 08/01/2012						
Diesel Range Organics	47300	3600	ug/kg dry	72023	2200	63	42-133		
Surrogate: p-Terphenyl	*5170*		*ug/kg dry*	*7202.3*		*72*	*39-129*		
Matrix Spike Dup (L207183-MSD2)	**Source: 1207060-01**		Prepared: 07/30/2012 Analyzed: 08/01/2012						
Diesel Range Organics	52800	3630	ug/kg dry	72522	2200	70	42-133	11	40
Surrogate: p-Terphenyl	*5770*		*ug/kg dry*	*7252.2*		*80*	*39-129*		

PREPARATION BENCH SHEET

L207183

Lionville Laboratory

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

000000091

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		

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

S Shah 07.31.12 13:20
Extracts Received By — Date

METALS

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

WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW67	1207060-01	Soil	07/24/2012 09:00	07/27/2012 15:00
J1PW68	1207060-02	Soil	07/24/2012 10:03	07/27/2012 15:00
J1PW69	1207060-03	Soil	07/24/2012 10:14	07/27/2012 15:00
J1PW70	1207060-04	Soil	07/24/2012 14:09	07/27/2012 15:00
J1PW71	1207060-05	Soil	07/24/2012 14:47	07/27/2012 15:00
J1PW72	1207060-06	Soil	07/24/2012 15:16	07/27/2012 15:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Case Narrative

Client: WC-HANFORD RC-148
LVL#: 1207060
SDG/SAF#: KP0113/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 6 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 15 analytes were outside the 75-125% control limits.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J1PW67	Aluminum	22,000	91.8
	Antimony	100	95.8
	Boron	100	95.1
	Cobalt	100	92.4
	Copper	100	104.4
	Iron	62,000	70.9
	Lead	100	87.6
	Magnesium	21,600	81.4
	Manganese	1,000	77.1
	Nickel	100	93.9
	Selenium	100	95.7
	Silicon	2,600	140.0
	Silver	100	89.5
	Uranium	500	80.7
	Vanadium	1,000	80.5
	Zinc	1,100	81.2

12. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limit criteria. The ± 20% RPD control limit applies to sample results greater than ten times the MDL. The sample result for Arsenic, Boron, and Molybdenum was less than ten times the MDL.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

8/7/12
Date

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: KP0113 Project Manager: Joan Kessner	**Reported:** 08/02/2012 09:10

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

264 Welsh Pool Road
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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

J1PW67
1207060-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**6360**		4.29	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.515	U	0.515	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**3.61**		0.859	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**64.6**		0.429	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.228**		0.172	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**1.79**		1.72	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.0824**	B	0.172	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**4200**		85.9	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**8.54**		0.172	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**5.15**		1.72	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**18.3**		0.859	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**17100**		17.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**3.63**		0.429	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**6.61**		2.15	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3600**		64.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**286**		4.29	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.330**	B	1.72	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**8.29**		3.44	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**1250**		344	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.258	U	0.258	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**650**		1.72	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.172	U	0.172	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**179**		42.9	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	**3.06**	B	17.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**45.9**		2.15	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**39.9**		8.59	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**16.2**		2.15	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0260	U	0.0260	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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

J1PW68
1207060-02 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**7250**		4.09	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.491	U	0.491	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**1.93**		0.818	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**85.5**		0.409	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.284**		0.164	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**1.25**	B	1.64	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.103**	B	0.164	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**4730**		81.8	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**15.4**		0.164	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**4.71**		1.64	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**57.1**		0.818	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**17200**		16.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**5.85**		0.409	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**6.86**		2.05	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3440**		61.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**261**		4.09	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.272**	B	1.64	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**7.84**		3.27	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**1340**		327	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.245	U	0.245	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**278**		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	**1340**		40.9	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	**34.6**		16.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**41.1**		2.05	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**41.0**		8.18	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**27.5**		2.05	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	**0.251**		0.0290	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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

J1PW69
1207060-03 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**5370**		4.23	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.508	U	0.508	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.33**		0.846	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**70.6**		0.423	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.209**		0.169	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**0.883**	B	1.69	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.0772**	B	0.169	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**3290**		84.6	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**7.12**		0.169	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**4.82**		1.69	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**10.2**		0.846	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**15500**		16.9	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**4.29**		0.423	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**5.38**		2.12	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**2920**		63.5	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**252**		4.23	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.243**	B	1.69	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**7.02**		3.39	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**1050**		339	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.254	U	0.254	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**467**		1.69	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.169	U	0.169	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**178**		42.3	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	**1.72**	B	16.9	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**41.8**		2.12	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**33.2**		8.46	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**17.3**		2.12	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.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

J1PW70
1207060-04 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**6030**		3.69	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.443	U	0.443	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.94**		0.738	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**58.2**		0.369	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.213**		0.148	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**1.13**	B	1.48	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.0690**	B	0.148	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**10300**		73.8	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**9.41**		0.148	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**4.83**		1.48	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**9.74**		0.738	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**15800**		14.8	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**3.90**		0.369	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**7.02**		1.85	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3780**		55.4	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**249**		3.69	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.198**	B	1.48	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**8.64**		2.95	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**964**		295	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.222	U	0.222	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**525**		1.48	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.148	U	0.148	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**191**		36.9	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	**2.72**	B	14.8	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**41.9**		1.85	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**31.6**		7.38	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**13.6**		1.85	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0258	U	0.0258	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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

J1PW71
1207060-05 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**5310**		3.91	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.469	U	0.469	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.35**		0.782	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**61.7**		0.391	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.197**		0.156	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**0.817**	B	1.56	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.0759**	B	0.156	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**4860**		78.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**8.64**		0.156	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**4.85**		1.56	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**9.23**		0.782	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**16500**		15.6	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**4.18**		0.391	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**5.78**		1.96	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3370**		58.7	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**253**		3.91	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.226**	B	1.56	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**7.44**		3.13	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**944**		313	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.235	U	0.235	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**337**		1.56	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.156	U	0.156	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**175**		39.1	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	15.6	U	15.6	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**45.5**		1.96	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**32.2**		7.82	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**14.9**		1.96	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.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

J1PW72
1207060-06 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**5500**		4.31	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Antimony	0.517	U	0.517	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Arsenic	**2.21**		0.862	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Barium	**59.7**		0.431	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Beryllium	**0.203**		0.172	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Boron	**0.856**	B	1.72	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cadmium	**0.0607**	B	0.172	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Calcium	**4660**		86.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Chromium	**7.21**		0.172	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Cobalt	**7.26**		1.72	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Copper	**8.33**		0.862	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Iron	**16400**		17.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lead	**2.85**		0.431	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Lithium	**6.50**		2.16	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Magnesium	**3420**		64.7	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Manganese	**295**		4.31	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Molybdenum	**0.211**	B	1.72	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Nickel	**7.55**		3.45	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Potassium	**978**		345	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Selenium	0.259	U	0.259	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silicon	**430**		1.72	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Silver	0.172	U	0.172	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Sodium	**166**		43.1	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Uranium	17.2	U	17.2	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Vanadium	**44.7**		2.16	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zinc	**32.0**		8.62	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Zirconium	**15.5**		2.16	mg/kg dry	1	L207191	07/30/2012	07/31/2012	6010B
Mercury	0.0257	U	0.0257	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: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

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: KP0113	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

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-DUP2)		**Source: 1207060-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
Aluminum	6200		4.43	mg/kg dry		6360			2.55	20
Antimony	0.532	U	0.532	mg/kg dry		0.515 U				20
Arsenic	2.27		0.887	mg/kg dry		3.61			45.7*	20
Barium	64.1		0.443	mg/kg dry		64.6			0.839	20
Beryllium	0.215		0.177	mg/kg dry		0.228			6.08	20
Boron	1.13	B	1.77	mg/kg dry		1.79			45.4*	20
Cadmium	0.0731	B	0.177	mg/kg dry		0.0824			12.0	20
Calcium	4320		88.7	mg/kg dry		4200			2.81	20
Chromium	8.82		0.177	mg/kg dry		8.54			3.22	20
Cobalt	4.56		1.77	mg/kg dry		5.15			12.1	20
Copper	9.72		0.887	mg/kg dry		18.3			61.2*	20
Iron	16300		17.7	mg/kg dry		17100			4.41	20
Lead	3.31		0.443	mg/kg dry		3.63			9.26	20
Lithium	6.94		2.22	mg/kg dry		6.61			4.89	20
Magnesium	3480		66.5	mg/kg dry		3600			3.60	20
Manganese	252		4.43	mg/kg dry		286			12.9	20
Molybdenum	0.205	B	1.77	mg/kg dry		0.330			46.9*	20
Nickel	7.65		3.55	mg/kg dry		8.29			7.97	20
Potassium	1200		355	mg/kg dry		1250			4.31	20
Selenium	0.266	U	0.266	mg/kg dry		0.258 U				20
Silicon	516		1.77	mg/kg dry		650			23.0*	20
Silver	0.177	U	0.177	mg/kg dry		0.172 U				20
Sodium	174		44.3	mg/kg dry		179			2.60	20
Uranium	2.90	B	17.7	mg/kg dry		3.06			5.46	20
Vanadium	42.8		2.22	mg/kg dry		45.9			7.03	20
Zinc	38.1		8.87	mg/kg dry		39.9			4.48	20
Zirconium	15.4		2.22	mg/kg dry		16.2			4.55	20

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2620 Fermi Avenue	Project Number: KP0113	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

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-MS2)		**Source: 1207060-01**	Prepared: 07/30/2012 Analyzed: 07/31/2012						
Aluminum	7510	4.43	mg/kg dry	177.33	6360	650*	75-125		
Antimony	18.4	0.532	mg/kg dry	44.332	0.515 U	41.5*	75-125		
Arsenic	138	0.887	mg/kg dry	177.33	3.61	75.6	75-125		
Barium	219	0.443	mg/kg dry	177.33	64.6	87.0	75-125		
Beryllium	3.65	0.177	mg/kg dry	4.4332	0.228	77.2	75-125		
Boron	63.0	1.77	mg/kg dry	88.664	1.79	69.1*	75-125		
Cadmium	3.51	0.177	mg/kg dry	4.4332	0.0824	77.4	75-125		
Calcium	6350	88.7	mg/kg dry	2216.6	4200	96.9	75-125		
Chromium	22.4	0.177	mg/kg dry	17.733	8.54	78.2	75-125		
Cobalt	37.2	1.77	mg/kg dry	44.332	5.15	72.3*	75-125		
Copper	28.4	0.887	mg/kg dry	22.166	18.3	45.5*	75-125		
Iron	16700	17.7	mg/kg dry	88.664	17100	-459*	75-125		
Lead	34.3	0.443	mg/kg dry	44.332	3.63	69.2*	75-125		
Lithium	77.5	2.22	mg/kg dry	88.664	6.61	80.0	75-125		
Magnesium	5180	66.5	mg/kg dry	2216.6	3600	71.1*	75-125		
Manganese	298	4.43	mg/kg dry	44.332	286	26.6*	75-125		
Molybdenum	67.6	1.77	mg/kg dry	88.664	0.330	75.8	75-125		
Nickel	40.1	3.55	mg/kg dry	44.332	8.29	71.9*	75-125		
Potassium	2990	355	mg/kg dry	2216.6	1250	78.6	75-125		
Selenium	130	0.266	mg/kg dry	177.33	0.258 U	73.5*	75-125		
Silicon	677	1.77	mg/kg dry	88.664	650	29.8*	75-125		
Silver	3.17	0.177	mg/kg dry	4.4332	0.172 U	71.6*	75-125		
Sodium	2020	44.3	mg/kg dry	2216.6	179	83.0	75-125		
Uranium	323	17.7	mg/kg dry	443.32	3.06	72.3*	75-125		
Vanadium	77.6	2.22	mg/kg dry	44.332	45.9	71.3*	75-125		
Zinc	69.9	8.87	mg/kg dry	44.332	39.9	67.7*	75-125		
Zirconium	354	2.22	mg/kg dry	443.32	16.2	76.3	75-125		

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2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 09:10

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-DUP2)		**Source: 1207060-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
Mercury	0.0260	U	0.0260	mg/kg dry		0.0260 U				20
Matrix Spike (L207192-MS2)		**Source: 1207060-01**		Prepared: 07/30/2012 Analyzed: 07/31/2012						
Mercury	0.181		0.0267	mg/kg dry	0.14857	0.0260 U	122	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 #: 614
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, piece 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		0.65	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 K09B03
1:1 HNO_3 637-066-02
1:1 HCl

File ID#:

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

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

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

Page #:

Lionville Laboratory

MERCURY PREPARATION

Logbook # 1143

Analyst: [illegible]
Date 7/30/12
Start Time/Temp: 1830/95°
End Time/Temp: 1910/97°

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

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	
SPM1				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: Rec 8/1/12

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 #:

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Lionville Laboratory

MERCURY PREPARATION

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

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-BP3				0.36	50	
MS3		0.500	1.0	0.36	50	

PW 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 = see page 027 mg/Kg
Standard # see page 027

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

ME-HgCVAA-Prep0910

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INORGANICS

264 Welsh Pool Road
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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/09/2012 17:45

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PW67	1207060-01	Soil	07/24/2012 09:00	07/27/2012 15:00
J1PW68	1207060-02	Soil	07/24/2012 10:03	07/27/2012 15:00
J1PW69	1207060-03	Soil	07/24/2012 10:14	07/27/2012 15:00
J1PW70	1207060-04	Soil	07/24/2012 14:09	07/27/2012 15:00
J1PW71	1207060-05	Soil	07/24/2012 14:47	07/27/2012 15:00
J1PW72	1207060-06	Soil	07/24/2012 15:16	07/27/2012 15:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Case Narrative

Client: WC-HANFORD RC-148 KP0113
LVL#: 1207060 **Date Received:** 07-27-12

INORGANIC NARRATIVE

1. This narrative covers the analyses of 6 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 L207194-BS1 and BS2 for Cyanide that were below the 80-120% control limits at 73% and 79%, respectively; re-analyses for preparation batch L207194 were performed as the associated matrix spike recovery was below the 75-125% control limits. The LCS recovery for L208002-BS1 for Cyanide was below the 80-120% control limits at 73.0%, however L208002-BS2 was within the acceptance range.

7. The matrix spike recoveries were within the 75-125% control limits with the exception of L207194-MS1 for Cyanide at 44.2% for which re-analysis was performed. Matrix QC for preparation batch L208002 was performed on sample J1PW73 (SDG# KP0116).

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\i07-060

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.

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/09/2012 17:45

Notes and Definitions

U	Analyte included in the analysis, but not detected
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
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. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/09/2012 17:45

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier		LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW67 (1207060-01) Soil										
%Solids	**91.0**			0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
Bromide	1.0	U	1.0	5.2	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Chloride	1.0	U	1.0	5.2	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Fluoride	1.0	U	1.0	5.2	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate	**6.3**		1.0	5.2	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrite	1.0	U	1.0	5.2	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Orthophosphate	2.1	U	2.1	10.4	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**10.2**		1.0	5.2	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**1.53**		0.10	0.52	mg/kg dry	1	L208011	07/30/2012	08/01/2012	EPA 353.2
Cyanide	0.55	U	0.55	1.10	mg/kg dry	1	L207194	07/30/2012	08/01/2012	SW846 9014
Sulfide	44.0	U	44.0	110	mg/kg dry	1	L208008	07/31/2012	07/31/2012	SW846 9034
%Moisture	**9.04**			0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216
J1PW67 (1207060-01RE1) Soil										
Cyanide	0.55	U	0.55	1.10	mg/kg dry	1	L208036	08/06/2012	08/07/2012	SW846 9014
J1PW68 (1207060-02) Soil										
%Solids	**94.0**			0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
Bromide	1.1	U	1.1	5.3	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Chloride	**2.3**	B	1.1	5.3	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Fluoride	1.1	U	1.1	5.3	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate	**1.3**	B	1.1	5.3	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrite	1.1	U	1.1	5.3	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Orthophosphate	**4.6**	B	2.1	10.6	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**19.1**		1.1	5.3	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.55**		0.11	0.53	mg/kg dry	1	L208011	07/30/2012	08/01/2012	EPA 353.2
Cyanide	0.53	U	0.53	1.06	mg/kg dry	1	L207194	07/30/2012	08/01/2012	SW846 9014

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WC-Hanford, Inc.	Project: RC-148	
2620 Fermi Avenue	Project Number: KP0113	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/09/2012 17:45

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier		LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW68 (1207060-02) Soil										
Sulfide	42.6	U	42.6	106	mg/kg dry	1	L208008	07/31/2012	07/31/2012	SW846 9034
%Moisture	**6.00**			0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216
J1PW68 (1207060-02RE1) Soil										
Cyanide	0.52	U	0.52	1.05	mg/kg dry	1	L208036	08/06/2012	08/07/2012	SW846 9014
J1PW69 (1207060-03) Soil										
%Solids	**93.8**			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	**1.9**	B	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	**2.3**	B	2.0	10.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**12.1**		1.0	5.0	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.17**	B	0.10	0.50	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	L207194	07/30/2012	08/01/2012	SW846 9014
Sulfide	42.7	U	42.7	107	mg/kg dry	1	L208008	07/31/2012	07/31/2012	SW846 9034
%Moisture	**6.24**			0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216
J1PW69 (1207060-03RE1) Soil										
Cyanide	0.53	U	0.53	1.06	mg/kg dry	1	L208036	08/06/2012	08/07/2012	SW846 9014
J1PW70 (1207060-04) Soil										
%Solids	**99.6**			0.1	% by Weight	1	L207187	07/30/2012	07/31/2012	SM2540G
Bromide	1.0	U	1.0	4.8	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Chloride	**1.5**	B	1.0	4.8	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Fluoride	1.0	U	1.0	4.8	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate	**5.6**		1.0	4.8	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrite	1.0	U	1.0	4.8	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)

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-148 Project Number: KP0113 Project Manager: Joan Kessner	**Reported:** 08/09/2012 17:45

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier		LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW70 (1207060-04) Soil										
Sulfate	**47.4**		1.0	4.8	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**1.28**		0.10	0.48	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	40.2	U	40.2	100	mg/kg dry	1	L208008	07/31/2012	07/31/2012	SW846 9034
%Moisture	**0.42**			0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216
J1PW71 (1207060-05) 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	**1.8**	B	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	**2.0**	B	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	**12.1**		1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.46**	B	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	L208008	07/31/2012	07/31/2012	SW846 9034
%Moisture	**0.12**			0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216
J1PW72 (1207060-06) 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	**1.3**	B	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	**3.1**	B	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	**3.1**	B	1.9	9.7	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)
Sulfate	**15.3**		1.0	4.9	mg/kg dry	1	L208001	07/30/2012	07/30/2012	EPA 300.0 (1993)

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WC-Hanford, Inc.	Project: RC-148	
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Richland WA, 99354	Project Manager: Joan Kessner	08/09/2012 17:45

Wet Chemistry
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Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PW72 (1207060-06) Soil									
Nitrate/Nitrite as N	**0.72**	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	L208008	07/31/2012	07/31/2012	SW846 9034
%Moisture			0.10	% by Weight	1	L207190	07/30/2012	07/31/2012	D2216

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Wet Chemistry - Quality Control

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Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207187 - % Solids										
Duplicate (L207187-DUP2)	**Source: 1207060-01**			Prepared: 07/30/2012 Analyzed: 07/31/2012						
%Solids	91.1		0.1	% by Weight		91.0			0.1	20
Batch L207190 - Default Prep GenChem										
Duplicate (L207190-DUP2)	**Source: 1207060-01**			Prepared: 07/30/2012 Analyzed: 07/31/2012						
%Moisture	8.94		0.10	% by Weight		9.04			1.19	20
Batch L207194 - Default Prep GenChem										
Blank (L207194-BLK1)				Prepared: 07/30/2012 Analyzed: 08/01/2012						
Cyanide	0.50 U	0.50	1.00	mg/kg wet						
LCS (L207194-BS1)				Prepared: 07/30/2012 Analyzed: 08/01/2012						
Cyanide	1.46	0.50	1.00	mg/kg wet	2.0000		73.0*	80-120		
LCS (L207194-BS2)				Prepared: 07/30/2012 Analyzed: 08/01/2012						
Cyanide	7.90	0.50	1.00	mg/kg wet	10.000		79.0*	80-120		
Duplicate (L207194-DUP1)	**Source: 1207060-01**			Prepared: 07/30/2012 Analyzed: 08/01/2012						
Cyanide	0.55 U	0.55	1.10	mg/kg dry		0.55 U				20
Matrix Spike (L207194-MS1)	**Source: 1207060-01**			Prepared: 07/30/2012 Analyzed: 08/01/2012						
Cyanide	2.43	0.55	1.10	mg/kg dry	5.4972	0.55 U	44.2*	75-125		
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						

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Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208001 - Default Prep GenChem										
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		
Duplicate (L208001-DUP2)		**Source: 1207060-01**		Prepared & Analyzed: 07/30/2012						
Fluoride	1.0 U	1.0	5.2	mg/kg dry		1.0 U				20
Chloride	1.2 B	1.0	5.2	mg/kg dry		1.0 U				20
Bromide	1.0 U	1.0	5.2	mg/kg dry		1.0 U				20
Orthophosphate	3.0 B	2.1	10.5	mg/kg dry		2.1 U				20
Sulfate	11.1	1.0	5.2	mg/kg dry		10.2			8.82	20
Nitrate	6.9	1.0	5.2	mg/kg dry		6.3			8.85	20
Nitrite	1.0 U	1.0	5.2	mg/kg dry		1.0 U				20
Matrix Spike (L208001-MS2)		**Source: 1207060-01**		Prepared & Analyzed: 07/30/2012						
Fluoride	54.9	1.1	5.4	mg/kg dry	53.718	1.0 U	102	75-125		
Chloride	51.4	1.1	5.4	mg/kg dry	53.718	1.0 U	95.6	75-125		
Bromide	51.9	1.1	5.4	mg/kg dry	53.718	1.0 U	96.6	75-125		
Orthophosphate	51.9	2.1	10.7	mg/kg dry	53.718	2.1 U	96.6	75-125		
Sulfate	63.8	1.1	5.4	mg/kg dry	53.718	10.2	99.8	75-125		
Nitrate	58.4	1.1	5.4	mg/kg dry	53.718	6.3	97.0	75-125		
Nitrite	51.8	1.1	5.4	mg/kg dry	53.718	1.0 U	96.4	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						

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Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208002 - Default Prep GenChem										
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		
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		
Duplicate (L208008-DUP1)	**Source: 1207060-01**			Prepared & Analyzed: 07/31/2012						
Sulfide	44.0 U	44.0	110	mg/kg dry		44.0 U				20
Matrix Spike (L208008-MS1)	**Source: 1207060-01**			Prepared & Analyzed: 07/31/2012						
Sulfide	248	44.0	110	mg/kg dry	243.14	44.0 U	102	75-125		
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						

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Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208011 - Default Prep GenChem										
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-DUP2)	**Source: 1207060-01**			Prepared: 07/30/2012 Analyzed: 08/01/2012						
Nitrate/Nitrite as N	1.61	0.10	0.52	mg/kg dry		1.53			4.98	20
Matrix Spike (L208011-MS2)	**Source: 1207060-01**			Prepared: 07/30/2012 Analyzed: 08/01/2012						
Nitrate/Nitrite as N	7.17	0.11	0.54	mg/kg dry	5.3718	1.53	105	75-125		
Batch L208036 - Default Prep GenChem										
Blank (L208036-BLK1)				Prepared: 08/06/2011 Analyzed: 08/07/2012						
Cyanide	0.50 U	0.50	0.99	mg/kg wet						
LCS (L208036-BS1)				Prepared: 08/06/2011 Analyzed: 08/07/2012						
Cyanide	1.59	0.50	1.00	mg/kg wet	1.9920		80.0	80-120		
LCS (L208036-BS2)				Prepared: 08/06/2011 Analyzed: 08/07/2012						
Cyanide	9.39	0.50	0.99	mg/kg wet	9.9423		94.4	80-120		
Duplicate (L208036-DUP3)	**Source: 1207060-01RE1**			Prepared: 08/06/2011 Analyzed: 08/07/2012						
Cyanide	0.54 U	0.54	1.07	mg/kg dry		0.55 U				20
Matrix Spike (L208036-MS3)	**Source: 1207060-01RE1**			Prepared: 08/06/2011 Analyzed: 08/07/2012						
Cyanide	4.26	0.55	1.09	mg/kg dry	5.4644	0.55 U	78.0	75-125		