SAF-RC-149
300 Area D4 Waste Sites – Soil In-Process
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 9/4/12
INITIAL/DATE

COMMENTS:

SDG K3958 SAF-RC-149

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

INCLUDES ADD-ON TCLP METALS

Sample Location/Waste Site: UPR-300-4 (321) Stained Soil So. Excavation Slope

EBERLINE SERVICES

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August 14, 2012

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

Reference: **P.O. #S00W235A01**
Eberline Analytical S2-07-079-7746 SDG K3958

Dear Ms. Kessner:

Enclosed is the data report for six solid (soil) samples designated under SAF No. RC-149. The samples were received at Eberline Analytical on July 25, 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 K3958 was composed of six solid (soil) samples designated under SAF No. RC-149 with a Project Designation of: 300 Area D4 Waste Sites-Soil In-Process.

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 14, 2012.

2.0 ANALYSIS NOTES

2.1 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.2 Isotopic Uranium Analysis

The initial yields for samples J1PVN1 and J1PVN3 were less than acceptable therefore the two samples were reanalyzed with separate QC samples. No problems were encountered during the course of the analyses.

2.3 Isotopic Plutonium Analysis

The final plating solution from the alpha Pu chemistry was split prior to electroplating; half the solution was plated for alpha counting and the other half was used to prepare the beta Pu-241 planchet. As a consequence of splitting the plating solution, the apparent tracer yields are artificially low. No other problems were encountered during the course of the analyses.

2.4 Plutonium-241 Analysis

The final plating solution from the alpha Pu chemistry was split prior to electroplating; half the solution was plated for alpha counting and the other half was used to prepare the beta Pu-241 planchet. As a consequence of splitting the plating solution, the apparent tracer yields are artificially low. The recovery for the QC LCS was 78% less than the lower control limit of 80%. No other problems were encountered during the course of the analyses.

2.5 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

8/14/12
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 K3958

SDG	7698
Contact	Joseph Verville

Client	Hanford
Contract	No. S00W235A01
Case no	SDG_K3958

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

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Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	08/14/12

SDG 7698
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3958

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-149
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/14/12

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 K3958

SDG 7698
Contact Joseph Verville

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3958

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
S207079-01	J1PVM9	UPR-300-4[321]SSSE Slope	SOIL		RC-149	RC-149-093	07/18/12 08:57
S207079-02	J1PVN0	UPR-300-4[321]SSSE Slope	SOIL		RC-149	RC-149-093	07/18/12 09:09
S207079-03	J1PVN1	UPR-300-4[321]SSSE Slope	SOIL		RC-149	RC-149-093	07/18/12 09:21
S207079-04	J1PVN2	UPR-300-4[321]SSSE Slope	SOIL		RC-149	RC-149-093	07/18/12 09:38
S207079-05	J1PVN3	UPR-300-4[321]SSSE Slope	SOIL		RC-149	RC-149-093	07/18/12 09:47
S207079-06	J1PVN4	UPR-300-4[321]SSSE Slope	SOIL		RC-149	RC-149-093	07/18/12 09:58
S207079-07	Lab Control Sample		SOIL		RC-149		
S207079-08	Method Blank		SOIL		RC-149		
S207079-09	Duplicate (S207079-01)	UPR-300-4[321]SSSE Slope	SOIL		RC-149		07/18/12 08:57
S207079-10	Lab Control Sample		SOIL		RC-149		
S207079-11	Method Blank		SOIL		RC-149		
S207079-12	Duplicate (S207079-03)	UPR-300-4[321]SSSE Slope	SOIL		RC-149		07/18/12 09:21

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

SDG 7698
Contact Joseph Verville

QC SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3958

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
7698	RC-149-093	J1PVM9	SOIL	96.1	1291 g		07/25/12	7	S207079-01	7698-001
		J1PVN0	SOIL	95.6	1283 g		07/25/12	7	S207079-02	7698-002
		J1PVN1	SOIL	93.1	1297 g		07/25/12	7	S207079-03	7698-003
		J1PVN2	SOIL	92.3	1185 g		07/25/12	7	S207079-04	7698-004
		J1PVN3	SOIL	93.1	1215 g		07/25/12	7	S207079-05	7698-005
		J1PVN4	SOIL	90.0	1187 g		07/25/12	7	S207079-06	7698-006
		Method Blank	SOIL						S207079-08	7698-008
		Method Blank	SOIL						S207079-11	7698-011
		Lab Control Sample	SOIL						S207079-07	7698-007
		Lab Control Sample	SOIL						S207079-10	7698-010
		Duplicate (S207079-01)	SOIL	96.6	1291 g		07/25/12	7	S207079-09	7698-009
		Duplicate (S207079-03)	SOIL	93.1	1297 g		07/25/12	7	S207079-12	7698-012

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

SDG 7698
Contact Joseph Verville

PREP BATCH SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3958

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
PU	SOIL	Plutonium, Isotopic in Solids	7732-137	8.0	6			1	1	1/1		
U	SOIL	Uranium, Isotopic in Solids	7732-137	8.0	4			1	1	1/1		
			7732-137B	8.0	2			1	1	1/1		
Beta Counting												
SR	SOIL	Total Strontium in Solids	7732-137	10.4	6			1	1	1/1		
Gamma Spectroscopy												
GAM	SOIL	Gamma Scan	7732-137	7.0	6			1	1	1/1		
Liquid Scintillation Counting												
PU_L	SOIL	Plutonium 241 in Solids	7732-137	12.4	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-149
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

SDG 7698
Contact Joseph Verville

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A01
Case no SDG K3958

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	MATRIX SAF No	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
S207079-01	J1PVM9		7698-001	GAM		08/02/12	08/06/12	CSS	Gamma Scan
07/18/12	UPR-300-4[321]	SSSE Slope SOIL	7698-001	PU		08/09/12	08/09/12	BW	Plutonium, Isotopic in Solids
07/25/12	RC-149-093	RC-149	7698-001	PU_L		08/08/12	08/10/12	BW	Plutonium 241 in Solids
			7698-001	SR		08/07/12	08/09/12	BW	Total Strontium in Solids
			7698-001	U		08/07/12	08/08/12	BW	Uranium, Isotopic in Solids
S207079-02	J1PVN0		7698-002	GAM		08/02/12	08/06/12	CSS	Gamma Scan
07/18/12	UPR-300-4[321]	SSSE Slope SOIL	7698-002	PU		08/09/12	08/09/12	BW	Plutonium, Isotopic in Solids
07/25/12	RC-149-093	RC-149	7698-002	PU_L		08/08/12	08/10/12	BW	Plutonium 241 in Solids
			7698-002	SR		08/07/12	08/09/12	BW	Total Strontium in Solids
			7698-002	U		08/07/12	08/08/12	BW	Uranium, Isotopic in Solids
S207079-03	J1PVN1		7698-003	GAM		08/02/12	08/06/12	CSS	Gamma Scan
07/18/12	UPR-300-4[321]	SSSE Slope SOIL	7698-003	PU		08/09/12	08/09/12	BW	Plutonium, Isotopic in Solids
07/25/12	RC-149-093	RC-149	7698-003	PU_L		08/08/12	08/10/12	BW	Plutonium 241 in Solids
			7698-003	SR		08/07/12	08/09/12	BW	Total Strontium in Solids
			7698-003	U	A1	08/10/12	08/13/12	BW	Uranium, Isotopic in Solids
S207079-04	J1PVN2		7698-004	GAM		08/02/12	08/06/12	CSS	Gamma Scan
07/18/12	UPR-300-4[321]	SSSE Slope SOIL	7698-004	PU		08/09/12	08/09/12	BW	Plutonium, Isotopic in Solids
07/25/12	RC-149-093	RC-149	7698-004	PU_L		08/08/12	08/10/12	BW	Plutonium 241 in Solids
			7698-004	SR		08/07/12	08/09/12	BW	Total Strontium in Solids
			7698-004	U		08/07/12	08/08/12	BW	Uranium, Isotopic in Solids
S207079-05	J1PVN3		7698-005	GAM		08/02/12	08/06/12	CSS	Gamma Scan
07/18/12	UPR-300-4[321]	SSSE Slope SOIL	7698-005	PU		08/09/12	08/09/12	BW	Plutonium, Isotopic in Solids
07/25/12	RC-149-093	RC-149	7698-005	PU_L		08/09/12	08/10/12	BW	Plutonium 241 in Solids
			7698-005	SR		08/07/12	08/09/12	BW	Total Strontium in Solids
			7698-005	U	A1	08/10/12	08/13/12	BW	Uranium, Isotopic in Solids
S207079-06	J1PVN4		7698-006	GAM		08/02/12	08/06/12	CSS	Gamma Scan
07/18/12	UPR-300-4[321]	SSSE Slope SOIL	7698-006	PU		08/09/12	08/09/12	BW	Plutonium, Isotopic in Solids
07/25/12	RC-149-093	RC-149	7698-006	PU_L		08/09/12	08/10/12	BW	Plutonium 241 in Solids
			7698-006	SR		08/07/12	08/09/12	BW	Total Strontium in Solids
			7698-006	U		08/07/12	08/08/12	BW	Uranium, Isotopic in Solids

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

SDG 7698
Contact Joseph Verville

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A01
Case no SDG K3958

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
S207079-07	Lab Control Sample			7698-007	GAM		08/02/12	08/06/12	CSS	Gamma Scan
			SOIL	7698-007	PU		08/09/12	08/09/12	BW	Plutonium, Isotopic in Solids
		RC-149		7698-007	PU_L		08/09/12	08/10/12	BW	Plutonium 241 in Solids
				7698-007	SR		08/07/12	08/09/12	BW	Total Strontium in Solids
				7698-007	U		08/07/12	08/08/12	BW	Uranium, Isotopic in Solids
S207079-08	Method Blank			7698-008	GAM		08/02/12	08/06/12	CSS	Gamma Scan
			SOIL	7698-008	PU		08/09/12	08/09/12	BW	Plutonium, Isotopic in Solids
		RC-149		7698-008	PU_L		08/09/12	08/10/12	BW	Plutonium 241 in Solids
				7698-008	SR		08/07/12	08/09/12	BW	Total Strontium in Solids
				7698-008	U		08/09/12	08/09/12	BW	Uranium, Isotopic in Solids
S207079-09	Duplicate (S207079-01)			7698-009	GAM		08/02/12	08/06/12	CSS	Gamma Scan
07/18/12	UPR-300-4[321]SSSE Slope		SOIL	7698-009	PU		08/09/12	08/09/12	BW	Plutonium, Isotopic in Solids
07/25/12		RC-149		7698-009	PU_L		08/09/12	08/10/12	BW	Plutonium 241 in Solids
				7698-009	SR		08/07/12	08/09/12	BW	Total Strontium in Solids
				7698-009	U		08/07/12	08/08/12	BW	Uranium, Isotopic in Solids
S207079-10	Lab Control Sample			7698-010	U		08/10/12	08/13/12	BW	Uranium, Isotopic in Solids
			SOIL							
		RC-149								
S207079-11	Method Blank			7698-011	U		08/10/12	08/13/12	BW	Uranium, Isotopic in Solids
			SOIL							
		RC-149								
S207079-12	Duplicate (S207079-03)			7698-012	U		08/10/12	08/13/12	BW	Uranium, Isotopic in Solids
07/18/12	UPR-300-4[321]SSSE Slope		SOIL							
07/25/12		RC-149								

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

SDG 7698
Contact Joseph Verville

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A01
Case no SDG K3958

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
GAM	RC-149	Gamma Scan	GAMMA_GS	6			1	1	1	9
PU	RC-149	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	6			1	1	1	9
PU_L	RC-149	Plutonium 241 in Solids	PU241_IE_LSC	6			1	1	1	9
SR	RC-149	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	6			1	1	1	9
U	RC-149	Uranium, Isotopic in Solids	UISO_PLATE_AEA	6			2	2	2	12
TOTALS				30			6	6	6	48

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-008 Method Blank

METHOD BLANK

SDG	7698	Client/Case no	Hanford	SDG_K3958	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S207079-08	Client sample id	Method Blank		
Dept sample id	7698-008	Material/Matrix		SOIL	
		SAF No	RC-149		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.001	0.13	0.273	1.00	U	SR
Uranium 233/234	U-233/234	0.020	0.039	0.149	1.00	U	U
Uranium 235	15117-96-1	0	0.047	0.181	1.00	U	U
Uranium 238	U-238	0	0.039	0.149	1.00	U	U
Plutonium 238	13981-16-3	0.037	0.15	0.283	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.074	0.283	1.00	U	PU
Plutonium 241	14119-32-5	-0.307	7.3	12.3	15.0	U	PU_L
Potassium 40	13966-00-2	U		0.553		U	GAM
Cobalt 60	10198-40-0	U		0.048	0.050	U	GAM
Zinc 65	13982-39-3	U		0.104		U	GAM
Niobium 94	14681-63-1	U		0.052		U	GAM
Ruthenium 106	13967-48-1	U		0.383		U	GAM
Antimony 125	14234-35-6	U		0.101		U	GAM
Cesium 134	13967-70-9	U		0.051		U	GAM
Cesium 137	10045-97-3	U		0.051	0.100	U	GAM
Cerium 144	14762-78-8	U		0.184		U	GAM
Europium 152	14683-23-9	U		0.138	0.100	U	GAM
Europium 154	15585-10-1	U		0.144	0.100	U	GAM
Europium 155	14391-16-3	U		0.108	0.100	U	GAM
Radium 226	13982-63-3	U		0.088	0.100	U	GAM
Radium 228	15262-20-1	U		0.238	0.200	U	GAM
Thorium 228	14274-82-9	U		0.069		U	GAM
Thorium 232	TH-232	U		0.238		U	GAM
Uranium 235	15117-96-1	U		0.231	0.300	U	GAM
Uranium 238	U-238	U		5.64	10.0	U	GAM
Americium 241	14596-10-2	U		0.146	0.300	U	GAM

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-008 Method Blank

BLANK, cont.

SDG	7698	Client/Case no	Hanford	SDG_K3958	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S207079-08	Client sample id	Method Blank		
Dept sample id	7698-008	Material/Matrix		SOIL	
		SAF No	RC-149		

QC-BLANK #82215

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-011 Method Blank

METHOD BLANK

SDG	7698	Client/Case no	Hanford SDG K3958
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207079-11	Client sample id	Method Blank
Dept sample id	7698-011	Material/Matrix	SOIL
		SAF No	RC-149

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	1.19	2.4	9.13	1.00	U	U
Uranium 235	15117-96-1	0	2.9	11.1	1.00	U	U
Uranium 238	U-238	1.19	2.4	9.13	1.00	U	U

QC-BLANK #82302

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-007 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7698
Contact Joseph Verville

Client/Case no Hanford SDG K3958
Contract No. S00W235A01

Lab sample id S207079-07
Dept sample id 7698-007

Client sample id Lab Control Sample
Material/Matrix SOIL
SAF No RC-149

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
Total Strontium	7.94	0.53	0.273	1.00		SR	8.44	0.34	94	82-118	80-120
Uranium 233/234	10.4	0.44	0.069	1.00		U	10.7	0.43	97	85-115	80-120
Uranium 238	10.1	0.43	0.065	1.00		U	10.7	0.43	94	86-114	80-120
Plutonium 238	9.97	1.4	0.276	1.00		PU	11.3	0.45	88	78-122	80-120
Plutonium 239/240	11.7	1.5	0.276	1.00		PU	13.2	0.53	89	79-121	80-120
Plutonium 241	231	11	12.4	15.0		PU_L	298	12	78	83-117	80-120
Cobalt 60	1.41	0.13	0.072	0.050		GAM	1.67	0.067	84	84-116	80-120
Cesium 137	1.68	0.13	0.081	0.100		GAM	1.95	0.078	86	85-115	80-120

QC-LCS #82214

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-010 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7698
Contact Joseph Verville
Client/Case no Hanford SDG K3958
Contract No. S00W235A01

Lab sample id S207079-10
Dept sample id 7698-010
Client sample id Lab Control Sample
Material/Matrix SOIL
SAF No RC-149

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
Uranium 233/234	556	67	12.9	1.00		U	591	24	94	79-121	80-120
Uranium 238	591	71	11.1	1.00		U	591	24	100	78-122	80-120

QC-LCS #82301

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-009 J1PVM9

DUPLICATE

SDG	7698			Client/Case no	Hanford SDG K3958
Contact	Joseph Verville			Contract	No. S00W235A01
	DUPLICATE		ORIGINAL		
Lab sample id	S207079-09	Lab sample id	S207079-01	Client sample id	J1PVM9
Dept sample id	7698-009	Dept sample id	7698-001	Location/Matrix	UPR-300-4[321]SSSE Slope SOIL
		Received	07/25/12	Collected/Weight	07/18/12 08:57 1291 g
% solids	96.6	% solids	96.1	Custody/SAF No	RC-149-093 RC-149

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
Total Strontium	0.301	0.15	0.240	1.00		SR	0.274	0.16	0.261		9	116	0.2
Uranium 233/234	2.55	0.19	0.051	1.00		U	2.65	0.55	0.178		4	38	0.3
Uranium 235	0.185	0.049	0.033	1.00		U	0.197	0.17	0.215	U	6	140	0.1
Uranium 238	5.36	0.29	0.044	1.00		U	5.47	0.82	0.178		2	29	0.2
Plutonium 238	-0.031	0.062	0.236	1.00	U	PU	0.063	0.13	0.240	U	-		1.3
Plutonium 239/240	0.062	0.12	0.236	1.00	U	PU	0.126	0.13	0.240	U	-		0.7
Plutonium 241	-0.079	7.6	12.7	15.0	U	PU_L	8.91	7.2	11.7	U	-		1.7
Potassium 40	9.00	0.28	0.148			GAM	9.99	0.50	0.207		10	17	1.8
Cobalt 60	U		0.014	0.050	U	GAM	U		0.022	U	-		0.6
Zinc 65	U		0.038		U	GAM	U		0.057	U	-		0.6
Niobium 94	U		0.011		U	GAM	U		0.020	U	-		0.8
Ruthenium 106	U		0.110		U	GAM	U		0.187	U	-		0.7
Antimony 125	U		0.030		U	GAM	U		0.051	U	-		0.7
Cesium 134	U		0.016		U	GAM	U		0.031	U	-		0.9
Cesium 137	U		0.013	0.100	U	GAM	U		0.022	U	-		0.7
Cerium 144	U		0.080		U	GAM	U		0.122	U	-		0.6
Europium 152	U		0.036	0.100	U	GAM	U		0.057	U	-		0.6
Europium 154	U		0.045	0.100	U	GAM	U		0.071	U	-		0.6
Europium 155	U		0.047	0.100	U	GAM	U		0.075	U	-		0.6
Radium 226	0.366	0.029	0.028	0.100		GAM	0.380	0.045	0.039		4	26	0.4
Radium 228	0.530	0.065	0.060	0.200		GAM	0.552	0.11	0.109		4	38	0.3
Thorium 228	0.668	0.028	0.026			GAM	0.542	0.033	0.030		21	18	3.4
Thorium 232	0.530	0.065	0.060			GAM	0.552	0.11	0.109		4	38	0.3
Uranium 235	U		0.106	0.300	U	GAM	U		0.238	U	-		1.0
Uranium 238	U		2.46	10.0	U	GAM	U		8.14	U	-		1.3
Americium 241	U		0.116	0.300	U	GAM	U		0.150	U	-		0.4

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-009 J1PVM9

DUPLICATE, cont.

SDG	7698			Client/Case no	Hanford SDG K3958
Contact	Joseph Verville			Contract	No. S00W235A01
	DUPLICATE		ORIGINAL		
Lab sample id	S207079-09	Lab sample id	S207079-01	Client sample id	J1PVM9
Dept sample id	7698-009	Dept sample id	7698-001	Location/Matrix	UPR-300-4[321]SSSE Slope SOIL
		Received	07/25/12	Collected/Weight	07/18/12 08:57 1291 g
% solids	96.6	% solids	96.1	Custody/SAF No	RC-149-093 RC-149

QC-DUP#1 82216

300 Area D4 Waste Sites-Soil In-Pocess

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-012 J1PVN1

DUPLICATE

SDG	7698			Client/Case no	Hanford SDG K3958
Contact	Joseph Verville			Contract	No. S00W235A01
	DUPLICATE		ORIGINAL		
Lab sample id	S207079-12	Lab sample id	S207079-03	Client sample id	J1PVN1
Dept sample id	7698-012	Dept sample id	7698-003	Location/Matrix	UPR-300-4[321]SSSE Slope SOIL
		Received	07/25/12	Collected/Weight	07/18/12 09:21 1297 g
% solids	93.1	% solids	93.1	Custody/SAF No	RC-149-093 RC-149

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
Uranium 233/234	8820	800	67.6	1.00		U	9600	930	86.4		8	26	1.0
Uranium 235	634	110	24.7	1.00		U	766	130	41.9		19	40	1.4
Uranium 238	18300	1600	63.6	1.00		U	19800	1900	74.5		8	26	0.9

QC-DUP#3 82303

300 Area D4 Waste Sites-Soil In-Pocess

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-001 J1PVM9

DATA SHEET

SDG	7698	Client/Case no	Hanford SDG_K3958
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207079-01	Client sample id	J1PVM9
Dept sample id	7698-001	Location/Matrix	UPR-300-4[321]SSSE Slope SOIL
Received	07/25/12	Collected/Weight	07/18/12 08:57 1291 g
% solids	96.1	Custody/SAF No	RC-149-093 RC-149

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.274	0.16	0.261	1.00		SR
Uranium 233/234	U-233/234	2.65	0.55	0.178	1.00		U
Uranium 235	15117-96-1	0.197	0.17	0.215	1.00	U	U
Uranium 238	U-238	5.47	0.82	0.178	1.00		U
Plutonium 238	13981-16-3	0.063	0.13	0.240	1.00	U	PU
Plutonium 239/240	PU-239/240	0.126	0.13	0.240	1.00	U	PU
Plutonium 241	14119-32-5	8.91	7.2	11.7	15.0	U	PU_L
Potassium 40	13966-00-2	9.99	0.50	0.207			GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Zinc 65	13982-39-3	U		0.057		U	GAM
Niobium 94	14681-63-1	U		0.020		U	GAM
Ruthenium 106	13967-48-1	U		0.187		U	GAM
Antimony 125	14234-35-6	U		0.051		U	GAM
Cesium 134	13967-70-9	U		0.031		U	GAM
Cesium 137	10045-97-3	U		0.022	0.100	U	GAM
Cerium 144	14762-78-8	U		0.122		U	GAM
Europium 152	14683-23-9	U		0.057	0.100	U	GAM
Europium 154	15585-10-1	U		0.071	0.100	U	GAM
Europium 155	14391-16-3	U		0.075	0.100	U	GAM
Radium 226	13982-63-3	0.380	0.045	0.039	0.100		GAM
Radium 228	15262-20-1	0.552	0.11	0.109	0.200		GAM
Thorium 228	14274-82-9	0.542	0.033	0.030			GAM
Thorium 232	TH-232	0.552	0.11	0.109			GAM
Uranium 235	15117-96-1	U		0.238	0.300	U	GAM
Uranium 238	U-238	U		8.14	10.0	U	GAM
Americium 241	14596-10-2	U		0.150	0.300	U	GAM

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-001 J1PVM9

DATA SHEET, cont

SDG	7698	Client/Case no	Hanford	SDG K3958	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S207079-01	Client sample id	J1PVM9		
Dept sample id	7698-001	Location/Matrix	UPR-300-4[321]SSSE Slope	SOIL	
Received	07/25/12	Collected/Weight	07/18/12 08:57	1291 g	
% solids	96.1	Custody/SAF No	RC-149-093	RC-149	

300 Area D4 Waste Sites-Soil In-Pocess

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-002 J1PVN0

DATA SHEET

SDG	7698	Client/Case no	Hanford SDG_K3958
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207079-02	Client sample id	J1PVN0
Dept sample id	7698-002	Location/Matrix	UPR-300-4[321]SSSE Slope SOIL
Received	07/25/12	Collected/Weight	07/18/12 09:09 1283 g
% solids	95.6	Custody/SAF No	RC-149-093 RC-149

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.530	0.16	0.224	1.00		SR
Uranium 233/234	U-233/234	290	27	1.16	1.00		U
Uranium 235	15117-96-1	17.6	2.2	0.399	1.00		U
Uranium 238	U-238	304	28	1.06	1.00		U
Plutonium 238	13981-16-3	0	0.16	0.428	1.00	U	PU
Plutonium 239/240	PU-239/240	0.116	0.16	0.296	1.00	U	PU
Plutonium 241	14119-32-5	-0.887	7.1	11.8	15.0	U	PU_L
Potassium 40	13966-00-2	9.44	0.42	0.175			GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Zinc 65	13982-39-3	U		0.040		U	GAM
Niobium 94	14681-63-1	U		0.017		U	GAM
Ruthenium 106	13967-48-1	U		0.183		U	GAM
Antimony 125	14234-35-6	U		0.052		U	GAM
Cesium 134	13967-70-9	U		0.030		U	GAM
Cesium 137	10045-97-3	U		0.022	0.100	U	GAM
Cerium 144	14762-78-8	U		0.232		U	GAM
Europium 152	14683-23-9	U		0.063	0.100	U	GAM
Europium 154	15585-10-1	U		0.060	0.100	U	GAM
Europium 155	14391-16-3	U		0.144	0.100	U	GAM
Radium 226	13982-63-3	0.398	0.046	0.046	0.100		GAM
Radium 228	15262-20-1	0.541	0.096	0.099	0.200		GAM
Thorium 228	14274-82-9	0.539	0.032	0.035			GAM
Thorium 232	TH-232	0.541	0.096	0.099			GAM
Uranium 235	15117-96-1	3.32	0.24	0.290	0.300		GAM
Uranium 238	U-238	70.6	3.9	2.76	10.0		GAM
Americium 241	14596-10-2	U		0.225	0.300	U	GAM

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-002 J1PVN0

DATA SHEET, cont

SDG	7698	Client/Case no	Hanford	SDG K3958
Contact	Joseph Verville	Contract	No. S00W235A01	
Lab sample id	S207079-02	Client sample id	J1PVN0	
Dept sample id	7698-002	Location/Matrix	UPR-300-4[321]SSSE Slope	SOIL
Received	07/25/12	Collected/Weight	07/18/12 09:09	1283 g
% solids	95.6	Custody/SAF No	RC-149-093	RC-149

300 Area D4 Waste Sites-Soil In-Pocess

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-003 J1PVN1

DATA SHEET

SDG	7698	Client/Case no	Hanford SDG_K3958
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207079-03	Client sample id	J1PVN1
Dept sample id	7698-003	Location/Matrix	UPR-300-4[321]SSSE Slope SOIL
Received	07/25/12	Collected/Weight	07/18/12 09:21 1297 g
% solids	93.1	Custody/SAF No	RC-149-093 RC-149

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.254	0.27	0.489	1.00	U	SR
Uranium 233/234	U-233/234	9600	930	86.4	1.00		U
Uranium 235	15117-96-1	766	130	41.9	1.00		U
Uranium 238	U-238	19800	1900	74.5	1.00		U
Plutonium 238	13981-16-3	0	0.097	0.369	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.097	0.369	1.00	U	PU
Plutonium 241	14119-32-5	10.6	6.2	9.95	15.0		PU_L
Potassium 40	13966-00-2	6.54	0.80	0.785			GAM
Cobalt 60	10198-40-0	U		0.069	0.050	U	GAM
Zinc 65	13982-39-3	U		0.144		U	GAM
Niobium 94	14681-63-1	U		0.112		U	GAM
Ruthenium 106	13967-48-1	U		1.40		U	GAM
Antimony 125	14234-35-6	U		0.426		U	GAM
Cesium 134	13967-70-9	U		0.639		U	GAM
Cesium 137	10045-97-3	U		0.155	0.100	U	GAM
Cerium 144	14762-78-8	U		1.54		U	GAM
Europium 152	14683-23-9	U		0.554	0.100	U	GAM
Europium 154	15585-10-1	U		0.209	0.100	U	GAM
Europium 155	14391-16-3	U		0.875	0.100	U	GAM
Radium 226	13982-63-3	0.397	0.20	0.272	0.100		GAM
Radium 228	15262-20-1	0.337	0.28	0.373	0.200	U	GAM
Thorium 228	14274-82-9	0.916	0.21	0.299			GAM
Thorium 232	TH-232	0.337	0.28	0.373		U	GAM
Uranium 235	15117-96-1	195	1.2	1.39	0.300		GAM
Uranium 238	U-238	7210	33	11.5	10.0		GAM
Americium 241	14596-10-2	U		26.1	0.300	U	GAM

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-003 J1PVN1

DATA SHEET, cont

SDG	7698	Client/Case no	Hanford	SDG_K3958
Contact	Joseph Verville	Contract	No. S00W235A01	
Lab sample id	S207079-03	Client sample id	J1PVN1	
Dept sample id	7698-003	Location/Matrix	UPR-300-4[321]SSSE Slope	SOIL
Received	07/25/12	Collected/Weight	07/18/12 09:21	1297 g
% solids	93.1	Custody/SAF No	RC-149-093	RC-149

300 Area D4 Waste Sites-Soil In-Pocess

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-004 J1PVN2

DATA SHEET

SDG	7698	Client/Case no	Hanford SDG K3958
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207079-04	Client sample id	J1PVN2
Dept sample id	7698-004	Location/Matrix	UPR-300-4[321]SSSE Slope SOIL
Received	07/25/12	Collected/Weight	07/18/12 09:38 1185 g
% solids	92.3	Custody/SAF No	RC-149-093 RC-149

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.121	0.16	0.286	1.00	U	SR
Uranium 233/234	U-233/234	22.1	2.4	0.512	1.00		U
Uranium 235	15117-96-1	3.44	0.71	0.248	1.00		U
Uranium 238	U-238	74.2	6.9	0.494	1.00		U
Plutonium 238	13981-16-3	0.031	0.12	0.299	1.00	U	PU
Plutonium 239/240	PU-239/240	0.062	0.063	0.239	1.00	U	PU
Plutonium 241	14119-32-5	1.53	7.0	11.7	15.0	U	PU_L
Potassium 40	13966-00-2	12.3	0.66	0.240			GAM
Cobalt 60	10198-40-0	U		0.029	0.050	U	GAM
Zinc 65	13982-39-3	U		0.064		U	GAM
Niobium 94	14681-63-1	U		0.024		U	GAM
Ruthenium 106	13967-48-1	U		0.261		U	GAM
Antimony 125	14234-35-6	U		0.077		U	GAM
Cesium 134	13967-70-9	U		0.050		U	GAM
Cesium 137	10045-97-3	U		0.030	0.100	U	GAM
Cerium 144	14762-78-8	U		0.218		U	GAM
Europium 152	14683-23-9	U		0.091	0.100	U	GAM
Europium 154	15585-10-1	U		0.090	0.100	U	GAM
Europium 155	14391-16-3	U		0.122	0.100	U	GAM
Radium 226	13982-63-3	0.407	0.064	0.065	0.100		GAM
Radium 228	15262-20-1	0.867	0.14	0.136	0.200		GAM
Thorium 228	14274-82-9	0.801	0.047	0.041			GAM
Thorium 232	TH-232	0.867	0.14	0.136			GAM
Uranium 235	15117-96-1	0.770	0.21	0.278	0.300		GAM
Uranium 238	U-238	47.0	4.9	3.86	10.0		GAM
Americium 241	14596-10-2	U		0.105	0.300	U	GAM

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

DATA SHEET, cont

SDG	7698	Client/Case no	Hanford	SDG_K3958
Contact	Joseph Verville	Contract	No. S00W235A01	
Lab sample id	S207079-04	Client sample id	J1PVN2	
Dept sample id	7698-004	Location/Matrix	UPR-300-4[321]SSSE Slope	SOIL
Received	07/25/12	Collected/Weight	07/18/12 09:38	1185 g
% solids	92.3	Custody/SAF No	RC-149-093	RC-149

300 Area D4 Waste Sites-Soil In-Pocess

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-005 J1PVN3

DATA SHEET

SDG	7698	Client/Case no	Hanford SDG K3958
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207079-05	Client sample id	J1PVN3
Dept sample id	7698-005	Location/Matrix	UPR-300-4[321]SSSE Slope SOIL
Received	07/25/12	Collected/Weight	07/18/12 09:47 1215 g
% solids	93.1	Custody/SAF No	RC-149-093 RC-149

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.774	0.33	0.506	1.00		SR
Uranium 233/234	U-233/234	7540	710	67.7	1.00		U
Uranium 235	15117-96-1	538	98	25.3	1.00		U
Uranium 238	U-238	17000	1500	60.5	1.00		U
Plutonium 238	13981-16-3	0.079	0.16	0.302	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.079	0.302	1.00	U	PU
Plutonium 241	14119-32-5	9.16	5.4	8.79	15.0		PU_L
Potassium 40	13966-00-2	9.43	2.3	1.91			GAM
Cobalt 60	10198-40-0	U		0.159	0.050	U	GAM
Zinc 65	13982-39-3	U		0.347		U	GAM
Niobium 94	14681-63-1	U		0.274		U	GAM
Ruthenium 106	13967-48-1	U		3.31		U	GAM
Antimony 125	14234-35-6	U		0.940		U	GAM
Cesium 134	13967-70-9	U		0.804		U	GAM
Cesium 137	10045-97-3	U		0.383	0.100	U	GAM
Cerium 144	14762-78-8	U		3.59		U	GAM
Europium 152	14683-23-9	U		1.14	0.100	U	GAM
Europium 154	15585-10-1	U		0.564	0.100	U	GAM
Europium 155	14391-16-3	U		2.46	0.100	U	GAM
Radium 226	13982-63-3	U		0.692	0.100	U	GAM
Radium 228	15262-20-1	U		1.01	0.200	U	GAM
Thorium 228	14274-82-9	0.738	0.52	0.738			GAM
Thorium 232	TH-232	U		1.01		U	GAM
Uranium 235	15117-96-1	150	5.0	5.64	0.300		GAM
Uranium 238	U-238	6220	89	36.4	10.0		GAM
Americium 241	14596-10-2	U		5.21	0.300	U	GAM

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

D A T A S H E E T , c o n t

SDG	7698	Client/Case no	Hanford SDG K3958
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207079-05	Client sample id	J1PVN3
Dept sample id	7698-005	Location/Matrix	UPR-300-4[321]SSSE Slope SOIL
Received	07/25/12	Collected/Weight	07/18/12 09:47 1215 g
% solids	93.1	Custody/SAF No	RC-149-093 RC-149

300 Area D4 Waste Sites-Soil In-Pocess

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-006 J1PVN4

DATA SHEET

SDG	7698	Client/Case no	Hanford SDG_K3958
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207079-06	Client sample id	J1PVN4
Dept sample id	7698-006	Location/Matrix	UPR-300-4[321]SSSE Slope SOIL
Received	07/25/12	Collected/Weight	07/18/12 09:58 1187 g
% solids	90.0	Custody/SAF No	RC-149-093 RC-149

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.317	0.16	0.253	1.00		SR
Uranium 233/234	U-233/234	9.73	1.2	0.258	1.00		U
Uranium 235	15117-96-1	0.734	0.29	0.216	1.00		U
Uranium 238	U-238	13.5	1.6	0.258	1.00		U
Plutonium 238	13981-16-3	-0.039	0.15	0.426	1.00	U	PU
Plutonium 239/240	PU-239/240	0.038	0.077	0.294	1.00	U	PU
Plutonium 241	14119-32-5	5.08	7.4	12.2	15.0	U	PU_L
Potassium 40	13966-00-2	11.8	0.23	0.099			GAM
Cobalt 60	10198-40-0	U		0.010	0.050	U	GAM
Zinc 65	13982-39-3	U		0.027		U	GAM
Niobium 94	14681-63-1	U		0.009		U	GAM
Ruthenium 106	13967-48-1	U		0.078		U	GAM
Antimony 125	14234-35-6	U		0.022		U	GAM
Cesium 134	13967-70-9	U		0.015		U	GAM
Cesium 137	10045-97-3	U		0.010	0.100	U	GAM
Cerium 144	14762-78-8	U		0.057		U	GAM
Europium 152	14683-23-9	U		0.026	0.100	U	GAM
Europium 154	15585-10-1	U		0.037	0.100	U	GAM
Europium 155	14391-16-3	U		0.038	0.100	U	GAM
Radium 226	13982-63-3	0.478	0.026	0.023	0.100		GAM
Radium 228	15262-20-1	0.784	0.048	0.046	0.200		GAM
Thorium 228	14274-82-9	0.895	0.022	0.020			GAM
Thorium 232	TH-232	0.784	0.048	0.046			GAM
Uranium 235	15117-96-1	0.210	0.046	0.064	0.300		GAM
Uranium 238	U-238	6.04	1.6	1.50	10.0		GAM
Americium 241	14596-10-2	U		0.044	0.300	U	GAM

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

7698-006 J1PVN4

DATA SHEET, cont

SDG	7698	Client/Case no	Hanford	SDG K3958
Contact	Joseph Verville	Contract	No. S00W235A01	
Lab sample id	S207079-06	Client sample id	J1PVN4	
Dept sample id	7698-006	Location/Matrix	UPR-300-4[321]SSSE Slope	SOIL
Received	07/25/12	Collected/Weight	07/18/12 09:58	1187 g
% solids	90.0	Custody/SAF No	RC-149-093	RC-149

300 Area D4 Waste Sites-Soil In-Pocess

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

Test	PU
Matrix	SOIL
SDG	7698
Contact	Joseph Verville

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. S00W235A01
Contract	SDG K3958

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 238		Plutonium 239/240	
Preparation batch 7732-137								
S207079-01			7698-001	J1PVM9	U		U	
S207079-02			7698-002	J1PVN0	U		U	
S207079-03			7698-003	J1PVN1	U		U	
S207079-04			7698-004	J1PVN2	U		U	
S207079-05			7698-005	J1PVN3	U		U	
S207079-06			7698-006	J1PVN4	U		U	
S207079-07			7698-007	Lab Control Sample	ok		ok	
S207079-08			7698-008	Method Blank	U		U	
S207079-09			7698-009	Duplicate (S207079-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.00		1.00	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7732-137			2σ prep error 8.0 %	Reference Lab Notebook No. 7732 pg.137												
S207079-01			J1PVM9	0.240	0.500			48		150			22	08/08/12	08/09	SS-030
S207079-02			J1PVN0	0.428	0.500			45		138			22	08/08/12	08/09	SS-063
S207079-03			J1PVN1	0.369	0.500			34		138			22	08/08/12	08/09	SS-065
S207079-04			J1PVN2	0.299	0.500			49		149			22	08/08/12	08/09	SS-061
S207079-05			J1PVN3	0.302	0.500			41		138			22	08/08/12	08/09	SS-066
S207079-06			J1PVN4	0.426	0.500			44		143			22	08/08/12	08/09	SS-063
S207079-07			Lab Control Sample	0.276	0.500			44		144				08/08/12	08/09	SS-065
S207079-08			Method Blank	0.283	0.500			43		144				08/08/12	08/09	SS-066
S207079-09			Duplicate (S207079-01)	0.236	0.500			43		167			22	08/08/12	08/09	SS-030
Nominal values and limits from method				1.00	0.500			30-110		100	100		180			

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

Test	PU
Matrix	SOIL
SDG	7698
Contact	Joseph Verville

LAB METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. S00W235A01
Contract	SDG K3958

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

AVERAGES ± 2 SD	MDA	0.318	±	0.146
FOR 9 SAMPLES	YIELD	43	±	9

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

Test U	Matrix SOIL
SDG 7698	
Contact Joseph Verville	

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. S00W235A01	
Contract SDG K3958	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 7732-137											
S207079-01			7698-001	J1PVM9	2.65	U	5.47	48	12	4	3
S207079-02			7698-002	J1PVN0	290	17.6	304	95	12	6	1
S207079-04			7698-004	J1PVN2	22.1	3.44	74.2	30	4	5	1
S207079-06			7698-006	J1PVN4	9.73	0.734	13.5	72	12	5	2
S207079-07			7698-007	Lab Control Sample	ok		ok				
S207079-08			7698-008	Method Blank	U	U	U				
S207079-09			7698-009	Duplicate (S207079-01)	ok	ok	ok	48	4	3	1
Preparation batch 7732-137B											
S207079-03		A1	7698-003	J1PVN1	9600	766	19800	48	7	4	1
S207079-05		A1	7698-005	J1PVN3	7540	538	17000	44	6	3	1
S207079-10			7698-010	Lab Control Sample	ok		ok				
S207079-11			7698-011	Method Blank	1.19 U	U	1.19 U				
S207079-12			7698-012	Duplicate (S207079-03)	ok	ok	ok	48	6	3	1
Nominal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00	100		4	
							Averages	54		4	

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

Test	U
Matrix	SOIL
SDG	7698
Contact	Joseph Verville

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. S00W235A01
Contract	SDG K3958

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7732-137			2σ prep error 8.0 %	Reference Lab Notebook No. 7732 pg.137												
S207079-01			J1PVM9	0.215	0.500			87		110			20	08/07/12	08/07	SS-043
S207079-02			J1PVN0	1.16	0.500			98		887			20	08/07/12	08/07	SS-047
S207079-04			J1PVN2	0.512	0.500			76		110			20	08/07/12	08/07	SS-055
S207079-06			J1PVN4	0.258	0.500			89		111			20	08/07/12	08/07	SS-058
S207079-07			Lab Control Sample	0.069	0.500			95		887				08/07/12	08/07	SS-055
S207079-08			Method Blank	0.181	0.500			99		119				08/07/12	08/09	SS-005
S207079-09			Duplicate (S207079-01)	0.051	0.500			91		888			20	08/07/12	08/07	SS-058
Preparation batch 7732-137B			2σ prep error 8.0 %	Reference Lab Notebook No. 7732 pg.137												
S207079-03		A1	J1PVN1	86.4	0.0050			87		954			23	08/10/12	08/10	SS-047
S207079-05		A1	J1PVN3	67.7	0.0050			84		954			23	08/10/12	08/10	SS-048
S207079-10			Lab Control Sample	12.9	0.0100			94		104				08/10/12	08/10	SS-011
S207079-11			Method Blank	11.1	0.0100			98		105				08/10/12	08/10	SS-013
S207079-12			Duplicate (S207079-03)	67.6	0.0050			94		954			23	08/10/12	08/10	SS-049
Nominal values and limits from method				1.00	0.500			30-110		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 1
	CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 5
	CP-008	Heavy Element Electroplating, rev 13

AVERAGES ± 2 SD	MDA	20.7	± 65.4
FOR 12 SAMPLES	YIELD	91	± 14

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

Test	SR
Matrix	SOIL
SDG	7698
Contact	Joseph Verville

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client	Hanford
Contract	No. S00W235A01
Contract	SDG K3958

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Total Strontium
Preparation batch 7732-137					
S207079-01			7698-001	J1PVM9	0.274
S207079-02			7698-002	J1PVN0	0.530
S207079-03			7698-003	J1PVN1	U
S207079-04			7698-004	J1PVN2	U
S207079-05			7698-005	J1PVN3	0.774
S207079-06			7698-006	J1PVN4	0.317
S207079-07			7698-007	Lab Control Sample	ok
S207079-08			7698-008	Method Blank	U
S207079-09			7698-009	Duplicate (S207079-01)	ok
Nominal values and limits from method				RDLs (pCi/g)	1.00

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7732-137			2σ prep error 10.4 % Reference Lab Notebook No. 7732 pg.137													
S207079-01			J1PVM9	0.261	1.00			84		100			20	08/07/12	08/07	GRB-221
S207079-02			J1PVN0	0.224	1.00			94		100			20	08/07/12	08/07	GRB-222
S207079-03			J1PVN1	0.489	0.500			89		100			20	08/07/12	08/07	GRB-223
S207079-04			J1PVN2	0.286	1.00			82		100			20	08/07/12	08/07	GRB-224
S207079-05			J1PVN3	0.506	0.500			93		100			20	08/07/12	08/07	GRB-229
S207079-06			J1PVN4	0.253	1.00			90		100			20	08/07/12	08/07	GRB-230
S207079-07			Lab Control Sample	0.273	1.00			87		100				08/07/12	08/07	GRB-231
S207079-08			Method Blank	0.273	1.00			95		100				08/07/12	08/07	GRB-228
S207079-09			Duplicate (S207079-01)	0.240	1.00			93		100			20	08/07/12	08/07	GRB-232
Nominal values and limits from method				1.00	1.00			40-110		100			180			

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

Test SR	Matrix SOIL
SDG 7698	
Contact Joseph Verville	

LAB METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOLIDS

BETA COUNTING

Client Hanford	
Contract No. S00W235A01	
Contract SDG K3958	

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

AVERAGES ± 2 SD	MDA	0.312	±	0.214
FOR 9 SAMPLES	YIELD	90	±	9

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

Test GAM Matrix SOIL	Client Hanford
SDG 7698	Contract No. S00W235A01
Contact Joseph Verville	Contract SDG K3958

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60		Cesium 137	
Preparation batch 7732-137								
S207079-01			7698-001	J1PVM9	U		U	
S207079-02			7698-002	J1PVN0	U		U	
S207079-03			7698-003	J1PVN1	U		U	
S207079-04			7698-004	J1PVN2	U		U	
S207079-05			7698-005	J1PVN3	U		U	
S207079-06			7698-006	J1PVN4	U		U	
S207079-07			7698-007	Lab Control Sample	ok		ok	
S207079-08			7698-008	Method Blank	U		U	
S207079-09			7698-009	Duplicate (S207079-01)	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.100	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7732-137			2σ prep error 7.0 % Reference Lab Notebook No. 7732 pg.137													
S207079-01			J1PVM9	0.022	678					105			15	07/31/12	08/02	MB,08,00
S207079-02			J1PVN0	0.017	758					115			15	07/31/12	08/02	02,02,00
S207079-03			J1PVN1	0.069	152					891			15	07/31/12	08/02	JR,03,00
S207079-04			J1PVN2	0.029	482					115			15	07/31/12	08/02	MB,06,00
S207079-05			J1PVN3	0.159	145					114			15	07/31/12	08/02	JR,08,00
S207079-06			J1PVN4	0.010	576					901			15	07/31/12	08/02	02,04,00
S207079-07			Lab Control Sample	0.072	150					115				07/31/12	08/02	01,03,00
S207079-08			Method Blank	0.048	150					116				07/31/12	08/02	01,04,00
S207079-09			Duplicate (S207079-01)	0.014	678					901			15	07/31/12	08/02	MB,05,00
Nominal values and limits from method				0.050	150					100			180			

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

AVERAGES ± 2 SD	MDA	0.049 ± 0.095
FOR 9 SAMPLES	YIELD	±

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

Test	PU L Matrix SOIL
SDG	7698
Contact	Joseph Verville

LAB METHOD SUMMARY

PLUTONIUM 241 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. S00W235A01
Contract	SDG K3958

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Plutonium 241
Preparation batch 7732-137					
S207079-01			7698-001	J1PVM9	U
S207079-02			7698-002	J1PVN0	U
S207079-03			7698-003	J1PVN1	10.6
S207079-04			7698-004	J1PVN2	U
S207079-05			7698-005	J1PVN3	9.16
S207079-06			7698-006	J1PVN4	U
S207079-07			7698-007	Lab Control Sample	LOW
S207079-08			7698-008	Method Blank	U
S207079-09			7698-009	Duplicate (S207079-01)	- U
Nominal values and limits from method				RDLs (pCi/g)	15.0

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7732-137			2σ prep error 12.4 % Reference Lab Notebook No. 7732 pg.137													
S207079-01			J1PVM9	11.7	0.500			46		100			21	08/08/12	08/08	LSC-004
S207079-02			J1PVN0	11.8	0.500			46		100			21	08/08/12	08/08	LSC-004
S207079-03			J1PVN1	9.95	0.500			54		100			21	08/08/12	08/08	LSC-004
S207079-04			J1PVN2	11.7	0.500			46		100			21	08/08/12	08/08	LSC-004
S207079-05			J1PVN3	8.79	0.500			61		100			22	08/08/12	08/09	LSC-004
S207079-06			J1PVN4	12.2	0.500			44		100			22	08/08/12	08/09	LSC-004
S207079-07			Lab Control Sample	12.4	0.500			44		100				08/08/12	08/09	LSC-004
S207079-08			Method Blank	12.3	0.500			44		100				08/08/12	08/09	LSC-004
S207079-09			Duplicate (S207079-01)	12.7	0.500			43		100			22	08/08/12	08/09	LSC-004
Nominal values and limits from method				15.0	0.500			30-110		50			180			

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/12

EBERLINE ANALYTICAL-RICHMOND

SAMPLE DELIVERY GROUP K3958

Test	PU L
Matrix	SOIL
SDG	7698
Contact	Joseph Verville

LAB METHOD SUMMARY, cont.

PLUTONIUM 241 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. S00W235A01
Contract	SDG K3958

PROCEDURES	REFERENCE	PU241_IE_LSC
	SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 1
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 12
	RP-948	Plutonium-241 by Liquid Scintillation Counting, rev 4

AVERAGES ± 2 SD	MDA	11.5	±	2.58
FOR 9 SAMPLES	YIELD	48	±	12

Lab id	EBRLNE
Protocol	RC-149
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	08/14/12

SDG 7698
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3958

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-149
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/14/12

SDG 7698
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3958

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/14/12

SDG 7698
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3958

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/14/12

SDG 7698
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3958

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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Protocol RC-149
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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.

SDG 7698
Contact Joseph Verville

GUIDE, cont.

Client Hanford
Contract No. S00W235A01
Case no SDG_K3958

DATA SHEET

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

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

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

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/14/12

SDG 7698
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3958

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-149
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/14/12

SDG 7698
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3958

DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

Lab id EBRLNE
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DUPLICATE

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

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

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

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

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

SDG 7698
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG K3958

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-149
Version Ver 1.0
Form DVD-RG
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Report date 08/14/12

MATRIX SPIKE

for the recovery.

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

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

SDG 7698
Contact Joseph Verville

REPORT GUIDE

Client Hanford
Contract No. S00W235A01
Case no SDG_K3958

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

Lab id EBRLNE
Protocol RC-149
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/14/12

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-149-093	Page 1 of 4

Collector M. Simonds	Company Contact Joan Kessner Telephone No. 509-375-4688 K3958	Project Coordinator KESSNER, JH	Price Code 8L Data Turnaround 21 Days
Project Designation 300 Area D4 Waste Sites - Soil In-Process	Sampling Location UPR-300-4 [321] Stained Soil So. Excavation Slope (7698)	SAF No. RC-149	
Ice Chest No. RCC-07-008	Field Logbook No. EL-1663-02 COA RUP3042600	Method of Shipment FedEx/Hand Deliever	
Shipped To EBERLINE SERVICES ~~LIONVILLE~~ 7/18/12	Offsite Property No. NA	Bill of Lading/Air Bill No. See ~~OSPC~~ RSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive DOT LTD QTY AJ 7-23-12

Special Handling and/or Storage

~~Cool 4C~~ NONE AJ 7-18-12

AJ 7-23-12

Preservation	Cool 4C	Cool 4C	None	Cool 4C	Freeze	Cool 4C	None	None	None	None
Type of Container	G/P	G/P	G/P	aG	G*	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	3	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	40mL	60mL	500mL	60mL	60mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	pH - 9045	TPH-Diesel Range - WTPH-D +	VOA - 5035/8260 (TCL)	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Isotopic Uranium	Isotopic Plutonium	Strontium-89,90 -- Total Sr
Sample No. / Matrix * / Sample Date / Sample Time				RCF						
J1PVM9 / SOIL / 7/18/12 / 0857				33978			✓	✓	✓	✓
J1PVN0 / SOIL / 7/18/12 / 0909				33979			✓	✓	✓	✓
J1PVN1 / SOIL / 7/18/12 / 0921				33980			✓	✓	✓	✓
J1PVN2 / SOIL / 7/18/12 / 0938				33981			✓	✓	✓	✓
J1PVN3 / SOIL / 7/18/12 / 0947				33982			✓	✓	✓	✓

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MIRANDA SIMONDS	7-18-12 1335	DAVID BECKER	7/18/12 1335
DAVID BECKER	7/18/12 1600	1060#3 Dennis Newman	7-18-12 1600
1060 #3 Dennis Newman	0715 7/23/12	1060 #3 A. Freier	7/23/12 0715
WCH A. Freier	1145 7-23-12	Fed Ex	
Fed Ex		M. NEWMAN	07/23/12 0930

SPECIAL INSTRUCTIONS

~~Please Note: For the samples designated for TCLP Metals Analysis - Leach and Hold until further direction is provided.~~ 7/18/12

(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}

REVIEWED BY JSB DATE 7-23-12

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-149-093	Page 3 of 4

Collector M. Simonds	Company Contact Joan Kessner	Telephone No. 509-375-4688 K3958	Project Coordinator KESSNER, JH
Project Designation 300 Area D4 Waste Sites - Soil In-Process	Sampling Location UPR-300-4 [321] Stained Soil So. Excavation Slope (7698)		SAF No. RC-149
Ice Chest No. RCC-07-008	Field Logbook No. EL-1663-02	COA RUP3042600	Method of Shipment (FedEx)/Hand Deliever
Shipped To (EBERLINE SERVICES) ~~LIONVILLE~~ 7/18/12	Offsite Property No. NA		Bill of Lading/Air Bill No. See OSPC AJ 7-23-12 See RSR

Price Code 8L

Data Turnaround 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive DOT LTD QTY

Special Handling and/or Storage

~~Cooling~~ NONE AJ 7-18-12

Preservation	None	None										
Type of Container	G/P	G/P										
No. of Container(s)	1	1										
Volume	60mL	60g										
SAMPLE ANALYSIS	Plutonium-241	RCF GEA Shipping Screen										
Sample No. / Matrix * / Sample Date / Sample Time					RCF							
J1PVM9 / SOIL / 7/18/12 / 0857	✓		33978									
J1PVN0 / SOIL / 7/18/12 / 0909	✓		33979									
J1PVN1 / SOIL / 7/18/12 / 0921	✓		33980									
J1PVN2 / SOIL / 7/18/12 / 0938	✓		33981									
J1PVN3 / SOIL / 7/18/12 / 0947	✓		33982									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MIRANDA SIMONDS	7/18/12 1335	DAVID BECKER	7/18/12 1335
DAVID BECKER	7/18/12 1600	1060 #3	1600
1060 #3 Dennis Newman	0715 7/23/12	Dennis Newman	7-18-12
Dennis Newman	7-23-12	A. Freier	0715 7-23-12
A. Freier	1145 7-23-12	Fed Ex	
Fed Ex		Freier/Newman	07/25/12 0920

SPECIAL INSTRUCTIONS

~~Please Note: For the samples designated for TCLP Metals Analysis~~ - Leach and Hold until further direction is provided.

7/18/12

REVIEWED BY JEB DATE 7-23-12

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-149-093	Page 2 of 4

Collector M. Simonds	Company Contact Joan Kessner Telephone No. 509-375-4688 K3958	Project Coordinator KESSNER, JH	Price Code 8L Data Turnaround 21 Days
Project Designation 300 Area D4 Waste Sites - Soil In-Process	Sampling Location UPR-300-4 [321] Stained Soil So. Excavation Slope (7698)	SAF No. RC-149	
Ice Chest No. RCC-07-008	Field Logbook No. EL-1663-02 COA RUP3042600	Method of Shipment FedEx/Hand Deliever	
Shipped To EBERLINE SERVICES ~~LIONVILLE~~ 7/18/12	Offsite Property No. NA	Bill of Lading/Air Bill No. ~~See OSPC~~ AJ 7-23-12 See RSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive ~~DOT Limits~~ DOT LTD QTY AJ 7-23-12

Special Handling and/or Storage

~~Cool 4C~~ NONE AJ 7-18-12

Preservation	Cool 4C	Cool 4C	None	Cool 4C	Freeze	Cool 4C	None	None	None	None
Type of Container	G/P	G/P	G/P	aG	Gs	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	3	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	40mL	60mL	500mL	60mL	60mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	pH - 9045	TPH-Diesel Range - WTPH-D +	VOA - 5035/8260 (TCL)	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Isotopic Uranium	Isotopic Plutonium	Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
								KCF					
J1PVN4	SOIL	7/18/12	0958					33983		✓	✓	✓	✓
~~J1PVN5~~	~~SOIL~~												
J1PVN6	~~SOIL~~												

7/18/12

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: Michael Simonds — Date/Time 7/18/12 1335	Received By/Stored In: David Becker — Date/Time 7/18/12 1335
Relinquished By/Removed From: David Becker — Date/Time 7/18/12 1600	Received By/Stored In: 1060#3 Dennis Newman — Date/Time 7-18-12 1600
Relinquished By/Removed From: 1060#3 Dennis Newman — Date/Time 0715 7/23/12	Received By/Stored In: A. Freier — Date/Time 7/23/12 0715
Relinquished By/Removed From: WCH A. Freier — Date/Time 1145 7-23-12	Received By/Stored In: Fed Ex — Date/Time
Relinquished By/Removed From: FED EX — Date/Time	Received By/Stored In: M HUTTAWSMAN — Date/Time 07/25/12 0920
Relinquished By/Removed From: — Date/Time	Received By/Stored In: — Date/Time

SPECIAL INSTRUCTIONS

~~Please Note:~~ For the samples designated for TCLP Metals Analysis - Leach and Hold until further direction is provided. 7/18/12

(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, Cesium-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}

REVIEWED BY RT DATE 7-23-12

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-149-093	Page 4 of 4

Collector M. Simonds	Company Contact Joan Kessner	Telephone No. 509-375-4688 K3958	Project Coordinator KESSNER, JH
Project Designation 300 Area D4 Waste Sites - Soil In-Process	Sampling Location UPR-300-4 [321] Stained Soil So. Excavation Slope (7698)		SAF No. RC-149
Ice Chest No. RCC-07-008	Field Logbook No. EL-1663-02	COA RUP3042600	Method of Shipment FedEx/Hand Deliever
Shipped To EBERLINE SERVICES ~~LIONVILLE~~ 7/18/12	Offsite Property No. NA		Bill of Lading/Air Bill No. ~~See OSPC~~ AJ 7-23-12 See RSR

Price Code 8L

Data Turnaround 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive DOT LTD QTY AJ 7-23-12

Special Handling and/or Storage

~~Cool 4C~~ NONE AJ 7-18-12

Preservation	None	None										
Type of Container	G/P	G/P										
No. of Container(s)	1	1										
Volume	60mL	60g										
SAMPLE ANALYSIS	Plutonium-241	RCF GEA Shipping Screen										

Sample No.	Matrix *	Sample Date	Sample Time			RCF							
J1PVN4	SOIL	7/18/12	0958	✓		33983							
~~J1PVN5~~	~~SOIL~~												
J1PVN6	~~SOIL~~												

7/18/12

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MIRANDA SIMONDS	7/18/12 1335	DAVID BECKER	7/18/12 1335
DAVID BECKER	7/18/12 1600	1060#2 Dennis Newman	7-18-12 1600
1960 #3 Dennis Newman	0715 7/23/12	A. Freier	0715 7/23/12
WCH A. Freier	1145 7-23-12	Fed Ex	
Fed Ex			07/23/12 09

SPECIAL INSTRUCTIONS

~~Please Note: For the samples designated for TCLP Metals Analysis - Leach and Hold until further direction is provided.~~ 7/18/12

REVIEWED BY JEB DATE 7-23-12

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

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: W.C. HANFORD City RICHLAND State WA

Date/Time received 07/25/12 0930 CoC No. RC-149-093

Container I.D. No. RCC-07-008 Requested TAT (Days) 21 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 6 Sample Matrix S
7. Number of containers per sample: 5 (Or see CoC _____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] 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: 0800

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
JIPVN1	1900	0.052					
JIPVN3	2100	0.008					
OTHERS	<80						

Ion Chamber Ser. No. 4011 Calibration date 11 JULY 12

Alpha Meter Ser. No. _____ Calibration date _____

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

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

16 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 #	1207051
SDG #	K3958
SAF #	RC-149
Date Received	07/24/12
# Samples	6
Matrix	SOIL
Volatiles	X
Semivolatiles	X
Pest/PCB	
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 106 pages.

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

CHAIN OF CUSTODY

Lionville Laboratory Use Only

1207051

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-149

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager Arlette Johnson

QC SW Del SW TAT 21 days

Date Rec'd 7-24-12 Date Due 8.14.12

Refrigerator #		ABCD	E			F			G		H		I	J		
		F001	1			1			1		1		1	1		
#/Type Container	Liquid															
	Solid	4	1aql			1aql			1aql		1aql		1aql	1aql		
Volume	Liquid															
	Solid	40	60			60			60		60		60	40		
Preservatives		—	—			—			—		—		—	—		
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	TPH-D			Metal + Hg	CN	IC Anions	NO2/NO3	PH	% Moisture		
		Lionville Laboratory Use Only														
		8260	8270			Dev/Hot			Met/Hg		Anions	NO2/NO3	pH	% Moisture		

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260	8270			Dev/Hot			Met/Hg		Anions	NO2/NO3	pH	% Moisture		
01	JIPVM9			S	7.18.12	0857	X	X			X			X		X	X	X	X		
02	JIPVN0					0909	X	X			X			X		X	X	X	X		
03	JIPVN1					0921	X	X			X			X		X	X	X	X		
04	JIPVN2					0938	X	X			X			X		X	X	X	X		
05	JIPVN3					0947	X	X			X			X		X	X	X	X		
06	JIPVN4					0958	X	X			X			X		X	X	X	X		

Special Instructions:
① Met = HSL + B, Li, Mo, Si, W, Zr (NOR)

Special Instructions:
1. Did Not Receive Original C.O.C.s.
2. Did Not Receive VOA samples #01 - #06.
3.
4.
5. Rec'd C.O.C.s + VOA samples #01-#06 @ 15:40.
6.

Relinquished by	Received by	Date	Time
FedEx	[signature]	7.24.12	10:10
FedEx	[signature]	7.24.12	15:40

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

000000003

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-149-093	Page 1 of ~~4~~ 2

Collector M. Simonds	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 300 Area D4 Waste Sites - Soil In-Process	Sampling Location UPR-300-4 [321] Stained Soil So. Excavation Slope		SAF No. RC-149
Ice Chest No. WCH-11-030	Field Logbook No. EL-1663-02	COA RUP3042600	Method of Shipment (FedEx) Hand Deliever
Shipped To ~~EBERLINE SERVICES~~ (LIONVILLE) RCB 7/18/12	Offsite Property No. NA		Bill of Lading/Air Bill No. See ~~OSPC~~ RSR

Price Code **8L** — Data Turnaround **21 Days** (CKB 7/18/12)

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive L DOT ~~Limits~~ LTD QTY AJ 7-23-12

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	None	Cool 4C	Freeze (AJ 7-23-12)	Cool 4C	None	None	None	None	None
Type of Container	G/P	G/P	G/P	aG	Gs*	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	3	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	40mL	60mL	500mL	60mL	60mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	pH - 9045	TPH-Diesel Range - WTPH-D +	VOA - 5035/8260 (TCL)	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Isotopic Uranium	Isotopic Plutonium	Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time								RCF		
J1PVM9	SOIL	7/18/12	0857	✓	✓	✓	✓	✓	✓		33978		
J1PVN0	SOIL	7/18/12	0909	✓	✓	✓	✓	✓	✓		33979		
J1PVN1	SOIL	7/18/12	0921	✓	✓	✓	✓	✓	✓		33980		
J1PVN2	SOIL	7/18/12	0938	✓	✓	✓	✓	✓	✓		33981		
J1PVN3	SOIL	7/18/12	0947	✓	✓	✓	✓	✓	✓		33982		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MIRANDA SIMONDS	7-18-12 1335	DAVID BECKER	7/18/12 1335
DAVID BECKER	7/18/12 1600	A.F. Dennis Newman (1060#3)	1600 7-18-12
Dennis Newman	7/23/12 0715	A. Freier	0715 7-23-12
A. Freier	7-23-12 1140 (WCH)	Fed Ex	
Fed Ex	7-24-12 10:10		7-24-12 10:10
Fed Ex	7-24-12 15:40		7-24-12 15:40

SPECIAL INSTRUCTIONS

~~Please Note: For the samples designated for TCLP Metals Analysis~~ Leach and Hold until further direction is provided. (RCB 7/18/12)

(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}

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

REVIEWED BY JEB DATE 7-23-12

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

WCH-EE-011

0000000004

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-149-093	Page 2 of ~~1~~ 2

Collector M. Simonds	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 21 Days		
Project Designation 300 Area D4 Waste Sites - Soil In-Process	Sampling Location UPR-300-4 [321] Stained Soil So. Excavation Slope		SAF No. RC-149
Ice Chest No. WCH-11-030	Field Logbook No. EL-1663-02	COA RUP3042600	Method of Shipment FedEx/Hand Deliever
Shipped To ~~EBERLINE SERVICES~~ LIONVILLE	Offsite Property No. NA		Bill of Lading/Air Bill No. See ~~OSPC~~ RSR

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive LDOT ~~Limits~~ LTD QTY AJ 7-23-12

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	None	Cool 4C	Freeze AJ 7-23-12	Cool 4C	None	None	None	None	None
Type of Container	G/P	G/P	G/P	aG	Gs*	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	3	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	40mL	60mL	500mL	60mL	60mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	pH - 9045	TPH-Diesel Range - WTPH-D +	VOA - 5035/8260 (TCL)	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Isotopic Uranium	Isotopic Plutonium	Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVN4	SOIL	7/18/12	0958	✓	✓	✓	✓	✓	✓		RCF 33983		
J1PVN5	SOIL												
J1PVN6	SOIL												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Miranda Simonds	7/18/12 1335	David Becker	7/18/12 1335
David Becker	7/18/12 1600	1060#3 Dennis Newman	7-18-12 1600
1060#3 Dennis Newman	7/23/12 0715	A. Freier	7-23-12 0715
LOC.H A. Freier	7-23-12 1140	Fed Ex	
Fed Ex	7-24-12 10:10	D. Smith	7-24-12 10:10
Fed Ex	7-24-12 15:40	D. Smith	7-25-12 15:40

SPECIAL INSTRUCTIONS

Please Note: For the samples designated for TCLP Metals Analysis - Leach and Hold until further direction is provided.

(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}

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

REVIEWED BY JEB DATE 7-23-12

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

WCH-EE-011

0000000005

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAF/SOW/Release #: RC-149

Date: 7-24-12

LvL Batch #: 1207051

Sample Custodian: D. [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7986 5176 9122 7938 2113 0079
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?	7-24-12 ☑ Yes	☑ No	Did Not Receive C.O.C. 7/24/12 Rec'd COCs @ 15:40
5. Samples received cooled or ambient?	Temp 2-8 °C		Cooler # RC-07-015 WCH-11-030
How was the temperature taken?	☑ IR 9.1 °C	☐ 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 7-24-12	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☑ No 7-24-12	
All samples received on COC?	☑ Yes	☑ No	Did Not Receive VOA samples #01-#06 Rec'd VOA samples @ 15:40 on 7/24/12
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☑ No	VOA samples @ 9.1. Rec'd
12. Samples received within hold times?	☑ Yes	☑ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A 7/25/12 NO_2, NO_3, PO_4-O rec'd outside recommended hold time.
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☐ Yes	☑ No See above	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A
Person Contacted OB		Date 7-24-12	

SR-002-B.doc

000000006

VOLATILES

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

Analytical Report for Volatile Organic Compounds by SW846 8260B

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PVM9	1207051-01	Soil	07/18/2012 08:57	07/24/2012 10:10
J1PVN0	1207051-02	Soil	07/18/2012 09:09	07/24/2012 10:10
J1PVN1	1207051-03	Soil	07/18/2012 09:21	07/24/2012 10:10
J1PVN2	1207051-04	Soil	07/18/2012 09:38	07/24/2012 10:10
J1PVN3	1207051-05	Soil	07/18/2012 09:47	07/24/2012 10:10
J1PVN4	1207051-06	Soil	07/18/2012 09:58	07/24/2012 10:10

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-149 K3958
LVL #: 1207051

W.O. #: 60049-001-001-0001-00
Date Received: 07-24-2012

GC/MS VOLATILE

Six (6) soil samples were collected on 07-18-2012.

The samples and associated QC samples were prepared and analyzed 07-25-2012 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. Discrepancies from the sample acceptance policy have been recorded on the Sample Receipt Checklist.

2. Samples were analyzed within hold time.

3. Non-target compounds were detected in sample J1PVN1.

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

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

6. All blank spike recoveries were within QC 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		

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.

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.

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/02/2012 11:28

J1PVM9
1207051-01 (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	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2,2-Tetrachloroethane	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2-Trichloroethane	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethane	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethane	5.46	U	5.46	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethene (total)	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloropropane	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Butanone	10.9	U	10.9	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Hexanone	10.9	U	10.9	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
4-Methyl-2-pentanone	10.9	U	10.9	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Acetone	10.9	U	10.9	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Benzene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromodichloromethane	5.46	U	5.46	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromoform	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromomethane	9.10	U	9.10	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Disulfide	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Tetrachloride	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chlorobenzene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroethane	9.10	U	9.10	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroform	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloromethane	9.10	U	9.10	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,2-Dichloroethene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,3-Dichloropropene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Dibromochloromethane	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Ethylbenzene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Methylene Chloride	**2.95**	B, J	5.46	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Styrene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Tetrachloroethene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,2-Dichloroethene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Toluene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,3-Dichloropropene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Trichloroethene	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Vinyl chloride	9.10	U	9.10	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Xylenes, total	4.55	U	4.55	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*91 %*		*60-130*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

J1PVM9
1207051-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*89 %*	*72-117*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*94 %*	*72-144*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

J1PVN0
1207051-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2,2-Tetrachloroethane	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2-Trichloroethane	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethane	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethane	5.77	U	5.77	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethene (total)	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloropropane	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Butanone	11.5	U	11.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Hexanone	11.5	U	11.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
4-Methyl-2-pentanone	11.5	U	11.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Acetone	11.5	U	11.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Benzene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromodichloromethane	5.77	U	5.77	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromoform	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromomethane	9.62	U	9.62	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Disulfide	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Tetrachloride	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chlorobenzene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroethane	9.62	U	9.62	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroform	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloromethane	9.62	U	9.62	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,2-Dichloroethene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,3-Dichloropropene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Dibromochloromethane	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Ethylbenzene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Methylene Chloride	**2.88**	B, J	5.77	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Styrene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Tetrachloroethene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,2-Dichloroethene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Toluene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,3-Dichloropropene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Trichloroethene	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Vinyl chloride	9.62	U	9.62	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Xylenes, total	4.81	U	4.81	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*94 %*		*60-130*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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J1PVN0
1207051-02 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*91 %*	*72-117*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*91 %*	*72-144*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

J1PVN1
1207051-03 (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	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2,2-Tetrachloroethane	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2-Trichloroethane	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethane	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethane	5.38	U	5.38	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethene (total)	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloropropane	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Butanone	10.8	U	10.8	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Hexanone	10.8	U	10.8	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
4-Methyl-2-pentanone	10.8	U	10.8	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Acetone	10.8	U	10.8	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Benzene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromodichloromethane	5.38	U	5.38	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromoform	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromomethane	8.97	U	8.97	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Disulfide	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Tetrachloride	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chlorobenzene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroethane	8.97	U	8.97	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroform	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloromethane	8.97	U	8.97	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,2-Dichloroethene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,3-Dichloropropene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Dibromochloromethane	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Ethylbenzene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Methylene Chloride	**3.25**	B, J	5.38	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Styrene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Tetrachloroethene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,2-Dichloroethene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Toluene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,3-Dichloropropene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Trichloroethene	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Vinyl chloride	8.97	U	8.97	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Xylenes, total	4.49	U	4.49	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
TIC:Unknown 2	**29.0**	J		ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

J1PVN1
1207051-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
TIC:Unknown 3	**27.9**	J		ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
TIC:Unknown 1	**20.2**	J		ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
TIC:Unknown 5	**32.9**	J		ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
TIC:Unknown 4	**30.4**	J		ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*92 %*		*60-130*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*
Surrogate: Toluene-d8	*90 %*		*72-117*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*91 %*		*72-144*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

J1PVN2
1207051-04 (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	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2,2-Tetrachloroethane	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2-Trichloroethane	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethane	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethane	6.50	U	6.50	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethene (total)	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloropropane	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Butanone	13.0	U	13.0	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Hexanone	13.0	U	13.0	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
4-Methyl-2-pentanone	13.0	U	13.0	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Acetone	13.0	U	13.0	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Benzene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromodichloromethane	6.50	U	6.50	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromoform	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromomethane	10.8	U	10.8	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Disulfide	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Tetrachloride	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chlorobenzene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroethane	10.8	U	10.8	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroform	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloromethane	10.8	U	10.8	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,2-Dichloroethene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,3-Dichloropropene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Dibromochloromethane	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Ethylbenzene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Methylene Chloride	**3.48**	B, J	6.50	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Styrene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Tetrachloroethene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,2-Dichloroethene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Toluene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,3-Dichloropropene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Trichloroethene	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Vinyl chloride	10.8	U	10.8	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Xylenes, total	5.42	U	5.42	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*89 %*		*60-130*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

J1PVN2
1207051-04 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*91 %*	*72-117*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*94 %*	*72-144*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

J1PVN3
1207051-05 (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	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2,2-Tetrachloroethane	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2-Trichloroethane	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethane	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethane	6.29	U	6.29	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethene (total)	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloropropane	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Butanone	12.6	U	12.6	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Hexanone	12.6	U	12.6	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
4-Methyl-2-pentanone	12.6	U	12.6	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Acetone	12.6	U	12.6	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Benzene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromodichloromethane	6.29	U	6.29	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromoform	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromomethane	10.5	U	10.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Disulfide	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Tetrachloride	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chlorobenzene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroethane	10.5	U	10.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroform	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloromethane	10.5	U	10.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,2-Dichloroethene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,3-Dichloropropene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Dibromochloromethane	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Ethylbenzene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Methylene Chloride	**3.42**	B, J	6.29	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Styrene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Tetrachloroethene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,2-Dichloroethene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Toluene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,3-Dichloropropene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Trichloroethene	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Vinyl chloride	10.5	U	10.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Xylenes, total	5.24	U	5.24	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*90 %*		*60-130*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

J1PVN3
1207051-05 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
Surrogate: Toluene-d8	*88 %*	*72-117*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*96 %*	*72-144*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

J1PVN4
1207051-06 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2,2-Tetrachloroethane	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1,2-Trichloroethane	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethane	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,1-Dichloroethene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethane	8.09	U	8.09	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloroethene (total)	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
1,2-Dichloropropane	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Butanone	16.2	U	16.2	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
2-Hexanone	16.2	U	16.2	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
4-Methyl-2-pentanone	16.2	U	16.2	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Acetone	16.2	U	16.2	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Benzene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromodichloromethane	8.09	U	8.09	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromoform	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Bromomethane	13.5	U	13.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Disulfide	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Carbon Tetrachloride	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chlorobenzene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroethane	13.5	U	13.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloroform	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Chloromethane	13.5	U	13.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,2-Dichloroethene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
cis-1,3-Dichloropropene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Dibromochloromethane	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Ethylbenzene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Methylene Chloride	**4.68**	B, J	8.09	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Styrene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Tetrachloroethene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,2-Dichloroethene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Toluene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
trans-1,3-Dichloropropene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Trichloroethene	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Vinyl chloride	13.5	U	13.5	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Xylenes, total	6.74	U	6.74	ug/kg dry	1	L207198	07/25/2012	07/25/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*89 %*		*60-130*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

J1PVN4
1207051-06 (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*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*94 %*	*72-144*			*L207198*	*07/25/2012*	*07/25/2012*	*8260B*

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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 L207198 - SW 5035A										
Blank (L207198-BLK1)				Prepared & Analyzed: 07/25/2012						
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	2.01	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	*44.1*			*ug/kg wet*	*50.000*		*88*	*60-130*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

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 L207198 - SW 5035A									
Blank (L207198-BLK1)			Prepared & Analyzed: 07/25/2012						
Surrogate: Toluene-d8	*46.0*		*ug/kg wet*	*50.000*		*92*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*47.3*		*ug/kg wet*	*50.000*		*95*	*72-144*		
LCS (L207198-BS1)			Prepared & Analyzed: 07/25/2012						
1,1,1-Trichloroethane	47.5	5.00	ug/kg wet	50.000		95	65-130		
1,1,2,2-Tetrachloroethane	39.7	5.00	ug/kg wet	50.000		79	50-130		
1,1,2-Trichloroethane	43.8	5.00	ug/kg wet	50.000		88	60-125		
1,1-Dichloroethane	43.1	5.00	ug/kg wet	50.000		86	70-130		
1,1-Dichloroethene	42.4	5.00	ug/kg wet	50.000		85	60-130		
1,2-Dichloroethane	43.6	6.00	ug/kg wet	50.000		87	60-130		
1,2-Dichloroethene (total)	89.1	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	50.8	12.0	ug/kg wet	50.000		102	20-200		
2-Hexanone	44.2	12.0	ug/kg wet	50.000		88	20-200		
4-Methyl-2-pentanone	37.6	12.0	ug/kg wet	50.000		75	40-150		
Acetone	60.8	12.0	ug/kg wet	50.000		122	15-240		
Benzene	44.4	5.00	ug/kg wet	50.000		89	75-125		
Bromodichloromethane	44.6	6.00	ug/kg wet	50.000		89	65-135		
Bromoform	44.9	5.00	ug/kg wet	50.000		90	60-130		
Bromomethane	44.5	10.0	ug/kg wet	50.000		89	40-150		
Carbon Disulfide	42.3	5.00	ug/kg wet	50.000		85	55-140		
Carbon Tetrachloride	48.6	5.00	ug/kg wet	50.000		97	60-135		
Chlorobenzene	45.9	5.00	ug/kg wet	50.000		92	70-125		
Chloroethane	48.5	10.0	ug/kg wet	50.000		97	50-150		
Chloroform	44.1	5.00	ug/kg wet	50.000		88	70-130		
Chloromethane	42.2	10.0	ug/kg wet	50.000		84	40-130		
cis-1,2-Dichloroethene	43.4	5.00	ug/kg wet	50.000		87	70-125		
cis-1,3-Dichloropropene	41.1	5.00	ug/kg wet	50.000		82	70-125		
Dibromochloromethane	43.7	5.00	ug/kg wet	50.000		87	65-125		
Ethylbenzene	46.3	5.00	ug/kg wet	50.000		93	70-125		
Methylene Chloride	36.7	6.00	ug/kg wet	50.000		73	45-140		
Styrene	46.1	5.00	ug/kg wet	50.000		92	70-125		
Tetrachloroethene	48.7	5.00	ug/kg wet	50.000		97	60-130		
trans-1,2-Dichloroethene	45.7	5.00	ug/kg wet	50.000		91	65-130		
Toluene	44.5	5.00	ug/kg wet	50.000		89	70-125		
trans-1,3-Dichloropropene	46.1	5.00	ug/kg wet	50.000		92	65-125		
Trichloroethene	45.4	5.00	ug/kg wet	50.000		91	70-130		

LIONVILLE LABORATORY
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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

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 L207198 - SW 5035A									
LCS (L207198-BS1)			Prepared & Analyzed: 07/25/2012						
Vinyl chloride	45.8	10.0	ug/kg wet	50.000		92	50-150		
Xylenes, total	139	5.00	ug/kg wet	150.00		93	70-125		
Surrogate: 1,2-Dichloroethane-d4	*45.4*		*ug/kg wet*	*50.000*		*91*	*60-130*		
Surrogate: Toluene-d8	*45.5*		*ug/kg wet*	*50.000*		*91*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*46.0*		*ug/kg wet*	*50.000*		*92*	*72-144*		
Matrix Spike (L207198-MS1)	**Source: 1207051-01**		Prepared & Analyzed: 07/25/2012						
1,1,1-Trichloroethane	51.5	5.17	ug/kg dry	51.714	4.55 U	100	65-130		
1,1,2,2-Tetrachloroethane	40.5	5.17	ug/kg dry	51.714	4.55 U	78	50-130		
1,1,2-Trichloroethane	45.0	5.17	ug/kg dry	51.714	4.55 U	87	60-125		
1,1-Dichloroethane	46.7	5.17	ug/kg dry	51.714	4.55 U	90	70-130		
1,1-Dichloroethene	44.5	5.17	ug/kg dry	51.714	4.55 U	86	60-130		
1,2-Dichloroethane	46.7	6.21	ug/kg dry	51.714	5.46 U	90	60-130		
1,2-Dichloroethene (total)	92.4	5.17	ug/kg dry	103.43	4.55 U	89	75-125		
1,2-Dichloropropane	43.7	5.17	ug/kg dry	51.714	4.55 U	84	70-130		
2-Butanone	51.8	12.4	ug/kg dry	51.714	10.9 U	100	20-200		
2-Hexanone	48.3	12.4	ug/kg dry	51.714	10.9 U	93	20-200		
4-Methyl-2-pentanone	37.7	12.4	ug/kg dry	51.714	10.9 U	73	40-150		
Acetone	66.2	12.4	ug/kg dry	51.714	10.9 U	128	15-240		
Benzene	47.0	5.17	ug/kg dry	51.714	4.55 U	91	75-125		
Bromodichloromethane	46.8	6.21	ug/kg dry	51.714	5.46 U	90	65-135		
Bromoform	48.3	5.17	ug/kg dry	51.714	4.55 U	93	60-130		
Bromomethane	40.6	10.3	ug/kg dry	51.714	9.10 U	79	40-150		
Carbon Disulfide	45.3	5.17	ug/kg dry	51.714	4.55 U	88	55-140		
Carbon Tetrachloride	52.1	5.17	ug/kg dry	51.714	4.55 U	101	60-135		
Chlorobenzene	48.2	5.17	ug/kg dry	51.714	4.55 U	93	70-125		
Chloroethane	48.2	10.3	ug/kg dry	51.714	9.10 U	93	50-150		
Chloroform	48.0	5.17	ug/kg dry	51.714	4.55 U	93	70-130		
Chloromethane	43.5	10.3	ug/kg dry	51.714	9.10 U	84	40-130		
cis-1,2-Dichloroethene	45.1	5.17	ug/kg dry	51.714	4.55 U	87	70-125		
cis-1,3-Dichloropropene	42.4	5.17	ug/kg dry	51.714	4.55 U	82	70-125		
Dibromochloromethane	46.4	5.17	ug/kg dry	51.714	4.55 U	90	65-125		
Ethylbenzene	49.8	5.17	ug/kg dry	51.714	4.55 U	96	70-125		
Methylene Chloride	38.3	6.21	ug/kg dry	51.714	2.95	68	45-140		
Styrene	45.9	5.17	ug/kg dry	51.714	4.55 U	89	70-125		
Tetrachloroethene	51.8	5.17	ug/kg dry	51.714	4.55 U	100	60-130		
trans-1,2-Dichloroethene	47.3	5.17	ug/kg dry	51.714	4.55 U	92	65-130		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

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 L207198 - SW 5035A									
Matrix Spike (L207198-MS1)		**Source: 1207051-01**	Prepared & Analyzed: 07/25/2012						
Toluene	47.3	5.17	ug/kg dry	51.714	4.55 U	91	70-125		
trans-1,3-Dichloropropene	46.1	5.17	ug/kg dry	51.714	4.55 U	89	65-125		
Trichloroethene	49.0	5.17	ug/kg dry	51.714	4.55 U	95	70-130		
Vinyl chloride	43.6	10.3	ug/kg dry	51.714	9.10 U	84	50-150		
Xylenes, total	146	5.17	ug/kg dry	155.14	4.55 U	94	70-125		
Surrogate: 1,2-Dichloroethane-d4	*47.1*		*ug/kg dry*	*51.714*		*91*	*60-130*		
Surrogate: Toluene-d8	*47.9*		*ug/kg dry*	*51.714*		*93*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*46.2*		*ug/kg dry*	*51.714*		*89*	*72-144*		
Matrix Spike Dup (L207198-MSD1)		**Source: 1207051-01**	Prepared & Analyzed: 07/25/2012						
1,1,1-Trichloroethane	55.7	5.52	ug/kg dry	55.198	4.55 U	101	65-130	1	20
1,1,2,2-Tetrachloroethane	44.9	5.52	ug/kg dry	55.198	4.55 U	81	50-130	4	20
1,1,2-Trichloroethane	50.7	5.52	ug/kg dry	55.198	4.55 U	92	60-125	5	20
1,1-Dichloroethane	49.4	5.52	ug/kg dry	55.198	4.55 U	90	70-130	0.8	20
1,1-Dichloroethene	47.1	5.52	ug/kg dry	55.198	4.55 U	85	60-130	1	20
1,2-Dichloroethane	50.7	6.62	ug/kg dry	55.198	5.46 U	92	60-130	2	20
1,2-Dichloroethene (total)	101	5.52	ug/kg dry	110.40	4.55 U	91	75-125	2	20
1,2-Dichloropropane	46.6	5.52	ug/kg dry	55.198	4.55 U	84	70-130	0.1	20
2-Butanone	54.6	13.2	ug/kg dry	55.198	10.9 U	99	20-200	1	20
2-Hexanone	55.2	13.2	ug/kg dry	55.198	10.9 U	100	20-200	7	20
4-Methyl-2-pentanone	43.7	13.2	ug/kg dry	55.198	10.9 U	79	40-150	8	20
Acetone	67.2	13.2	ug/kg dry	55.198	10.9 U	122	15-240	5	20
Benzene	49.7	5.52	ug/kg dry	55.198	4.55 U	90	75-125	0.9	20
Bromodichloromethane	51.9	6.62	ug/kg dry	55.198	5.46 U	94	65-135	4	20
Bromoform	54.2	5.52	ug/kg dry	55.198	4.55 U	98	60-130	5	20
Bromomethane	46.5	11.0	ug/kg dry	55.198	9.10 U	84	40-150	7	20
Carbon Disulfide	47.8	5.52	ug/kg dry	55.198	4.55 U	87	55-140	1	20
Carbon Tetrachloride	55.3	5.52	ug/kg dry	55.198	4.55 U	100	60-135	0.5	20
Chlorobenzene	52.6	5.52	ug/kg dry	55.198	4.55 U	95	70-125	2	20
Chloroethane	52.4	11.0	ug/kg dry	55.198	9.10 U	95	50-150	2	20
Chloroform	51.4	5.52	ug/kg dry	55.198	4.55 U	93	70-130	0.3	20
Chloromethane	46.2	11.0	ug/kg dry	55.198	9.10 U	84	40-130	0.5	20
cis-1,2-Dichloroethene	50.0	5.52	ug/kg dry	55.198	4.55 U	91	70-125	4	20
cis-1,3-Dichloropropene	46.3	5.52	ug/kg dry	55.198	4.55 U	84	70-125	2	20
Dibromochloromethane	50.9	5.52	ug/kg dry	55.198	4.55 U	92	65-125	3	20
Ethylbenzene	53.5	5.52	ug/kg dry	55.198	4.55 U	97	70-125	0.5	20
Methylene Chloride	43.1	6.62	ug/kg dry	55.198	2.95	73	45-140	6	20

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/02/2012 11:28

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 L207198 - SW 5035A									
Matrix Spike Dup (L207198-MSD1)		**Source: 1207051-01**	Prepared & Analyzed: 07/25/2012						
Styrene	50.4	5.52	ug/kg dry	55.198	4.55 U	91	70-125	3	20
Tetrachloroethene	55.1	5.52	ug/kg dry	55.198	4.55 U	100	60-130	0.3	20
trans-1,2-Dichloroethene	50.7	5.52	ug/kg dry	55.198	4.55 U	92	65-130	0.3	20
Toluene	51.8	5.52	ug/kg dry	55.198	4.55 U	94	70-125	3	20
trans-1,3-Dichloropropene	51.5	5.52	ug/kg dry	55.198	4.55 U	93	65-125	4	20
Trichloroethene	51.7	5.52	ug/kg dry	55.198	4.55 U	94	70-130	1	20
Vinyl chloride	47.7	11.0	ug/kg dry	55.198	9.10 U	86	50-150	3	20
Xylenes, total	159	5.52	ug/kg dry	165.59	4.55 U	96	70-125	2	20
Surrogate: 1,2-Dichloroethane-d4	*51.2*		*ug/kg dry*	*55.198*		*93*	*60-130*		
Surrogate: Toluene-d8	*51.6*		*ug/kg dry*	*55.198*		*94*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*51.9*		*ug/kg dry*	*55.198*		*94*	*72-144*		

PREPARATION BENCH SHEET

L207198

Lionville Laboratory

Printed: 7/31/2012 11:38:26AM

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
1207051-01	8260B TCL VOC	07/25/2012 15:02	5.76	5				5	WC-Hanford, Inc.	
1207051-02	8260B TCL VOC	07/25/2012 15:35	5.47	5				5	WC-Hanford, Inc.	
1207051-03	8260B TCL VOC	07/25/2012 17:13	6.84	5				5	WC-Hanford, Inc.	
1207051-04	8260B TCL VOC	07/25/2012 17:46	5.02	5				5	WC-Hanford, Inc.	
1207051-05	8260B TCL VOC	07/25/2012 18:19	5.5	5				5	WC-Hanford, Inc.	
1207051-06	8260B TCL VOC	07/25/2012 18:51	4.56	5				5	WC-Hanford, Inc.	
L207198-BLK1	QC	07/25/2012 14:21	5	5				5		
L207198-BS1	QC	07/25/2012 13:48	5	5	1200958		5	5		
L207198-MS1	QC	07/25/2012 16:08	5.07	5	1200958	1207051-01	5	5		
L207198-MSD1	QC	07/25/2012 16:40	4.75	5	1200958	1207051-01	5	5		

R 8/1/12

Extracts Relinquished By Date NARuschling Extracts Received By Date

SEMIVOLATILES

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

Analytical Report for Semivolatile Organic Compounds by SW846 8270C

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PVM9	1207051-01	Soil	07/18/2012 08:57	07/24/2012 10:10
J1PVN0	1207051-02	Soil	07/18/2012 09:09	07/24/2012 10:10
J1PVN1	1207051-03	Soil	07/18/2012 09:21	07/24/2012 10:10
J1PVN2	1207051-04	Soil	07/18/2012 09:38	07/24/2012 10:10
J1PVN3	1207051-05	Soil	07/18/2012 09:47	07/24/2012 10:10
J1PVN4	1207051-06	Soil	07/18/2012 09:58	07/24/2012 10:10

LIONVILLE LABORATORY
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Case Narrative

Client: WC-HANFORD RC-149 K3958
LVL #: 1207051

W.O. #: 60049-001-001-0001-00
Date Received: 07-24-2012

SEMIVOLATILE

Six (6) soil samples were collected on 07-18-2012.

The samples and associated QC samples were extracted 07-25-2012 and analyzed 07-28,30-2012 and 08-03-2012 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. Discrepancies from the sample acceptance policy have been recorded on the Sample Receipt Checklist.

2. Samples were extracted and analyzed within holding time.

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

4. All obtainable surrogate recoveries were within acceptance criteria.

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

6. All blank spike recoveries were within acceptance criteria.

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

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

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

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

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

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

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

Iain Daniels
LvL Laboratory Manager

8/14/12
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: 9.63 CALIBRATION: 120800 3

>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:	K3958
Client:	WC-Hanford, Inc.	Project:	RC-149
Sequence:	2080021	Instrument:	HP5972N
Matrix:	Solid	Calibration:	1208003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	2080021-TUN1	N072701.D	07/27/12 14:06
Cal Standard	2080021-CAL5	N072703.D	07/27/12 15:24
Cal Standard	2080021-CAL1	N072704.D	07/27/12 16:12
Cal Standard	2080021-CAL2	N072705.D	07/27/12 16:59
Cal Standard	2080021-CAL3	N072706.D	07/27/12 17:46
Cal Standard	2080021-CAL4	N072707.D	07/27/12 18:32
Secondary Cal Check	2080021-SCV1	N072708.D	07/27/12 19:19
J1PVN2	1207051-04	N072716.D	07/28/12 01:33

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: 7.84 CALIBRATION: 1208016

>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	✓ OK	Hexachlorobenzene		2-Fluorobiphenyl
	2,4,6-Trichlorophenol	PASSIMINATE	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:	K3958
Client:	WC-Hanford, Inc.	Project:	RC-149
Sequence:	2080055	Instrument:	HP5972N
Matrix:	Solid	Calibration:	1208016

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	2080055-TUN1	N073001.D	07/30/12 14:36
Cal Standard	2080055-CAL5	N073003.D	07/30/12 16:09
Cal Standard	2080055-CAL1	N073004.D	07/30/12 16:57
Cal Standard	2080055-CAL2	N073005.D	07/30/12 17:43
Cal Standard	2080055-CAL3	N073006.D	07/30/12 18:30
Cal Standard	2080055-CAL4	N073007.D	07/30/12 19:17
Secondary Cal Check	2080055-SCV1	N073008.D	07/30/12 20:03
J1PVN3	1207051-05	N073009.D	07/30/12 20:51
J1PVN4	1207051-06	N073010.D	07/30/12 21:38
J1PVN1	1207051-03	N073011.D	07/30/12 22:25

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: 9.74 CALIBRATION: 1208005

>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:	K3958
Client:	WC-Hanford, Inc.	Project:	RC-149
Sequence:	2080024	Instrument:	HP5972D
Matrix:	Solid	Calibration:	1208005

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	2080024-TUN1	D080301.D	08/03/12 11:45
Cal Standard	2080024-CAL5	D080303.D	08/03/12 13:04
Cal Standard	2080024-CAL1	D080304.D	08/03/12 13:53
Cal Standard	2080024-CAL2	D080305.D	08/03/12 14:42
Cal Standard	2080024-CAL3	D080306.D	08/03/12 15:31
Cal Standard	2080024-CAL4	D080307.D	08/03/12 16:20
Secondary Cal Check	2080024-SCV1	D080308.D	08/03/12 17:09
LCS	L207153-BS1	D080310.D	08/03/12 18:47
Blank	L207153-BLK1	D080311.D	08/03/12 19:36
J1PVM9	1207051-01	D080312.D	08/03/12 20:26
J1PVM9	L207153-MS1	D080313.D	08/03/12 21:15
J1PVM9	L207153-MSD1	D080314.D	08/03/12 22:04
J1PVN0	1207051-02	D080315.D	08/03/12 22:54

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-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVM9
1207051-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
1,2-Dichlorobenzene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
1,3-Dichlorobenzene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
1,4-Dichlorobenzene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4,5-Trichlorophenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4,6-Trichlorophenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4-Dichlorophenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4-Dimethylphenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4-Dinitrophenol	1670	U	1670	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4-Dinitrotoluene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,6-Dinitrotoluene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Chloronaphthalene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Chlorophenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Methylnaphthalene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Methylphenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Nitroaniline	1670	U	1670	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Nitrophenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
3,3'-Dichlorobenzidine	670	U	670	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
3-Nitroaniline	1670	U	1670	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4,6-Dinitro-2-methylphenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Bromophenyl Phenyl Ether	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Chloro-3-methylphenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Chloroaniline	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Chlorophenyl Phenyl Ether	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
3- and/or 4-Methylphenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Nitroaniline	1670	U	1670	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Nitrophenol	1670	U	1670	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Acenaphthene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Acenaphthylene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Anthracene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Benz[a]anthracene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Benzo[a] pyrene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Benzo[b] fluoranthene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Benzo[g,h,i] perylene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Benzo[k] fluoranthene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Bis(2-chloroethoxy) methane	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVM9
1207051-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Bis(2-chloroisopropyl) ether	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Bis(2-ethylhexyl) phthalate	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Butyl Benzyl Phthalate	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Carbazole	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Chrysene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Dibenz[a,h]anthracene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Dibenzofuran	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Diethyl Phthalate	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Dimethyl Phthalate	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Di-n-butyl Phthalate	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Di-n-octyl Phthalate	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Fluoranthene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Fluorene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Hexachlorobenzene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Hexachlorobutadiene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Hexachlorocyclopentadiene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Hexachloroethane	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Indeno[1,2,3-cd]pyrene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Isophorone	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Naphthalene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Nitrobenzene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
N-Nitrosodi-n-propylamine	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
N-Nitrosodiphenylamine	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Pentachlorophenol	1670	U	1670	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Phenanthrene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Phenol	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Pyrene	335	U	335	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
TIC:Trichloro-1-propene	**678**	B, J		ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
TIC:Aldol Condensate 3	**441**	A, B, J		ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
TIC:Aldol Condensate 4	**394**	A, B, J		ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
TIC:Aldol Condensate 2	**20600**	A, B, J		ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
TIC:Aldol Condensate 1	**1010**	A, B, J		ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Surrogate: 2-Fluorophenol	*75 %*		*25-121*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*
Surrogate: Phenol-d5	*75 %*		*24-113*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*75 %*		*23-120*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVM9

1207051-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*73 %*	*30-115*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*72 %*	*19-122*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*87 %*	*18-137*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN0
1207051-02 (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	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
1,2-Dichlorobenzene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
1,3-Dichlorobenzene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
1,4-Dichlorobenzene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4,5-Trichlorophenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4,6-Trichlorophenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4-Dichlorophenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4-Dimethylphenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4-Dinitrophenol	1740	U	1740	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,4-Dinitrotoluene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2,6-Dinitrotoluene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Chloronaphthalene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Chlorophenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Methylnaphthalene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Methylphenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Nitroaniline	1740	U	1740	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
2-Nitrophenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
3,3'-Dichlorobenzidine	695	U	695	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
3-Nitroaniline	1740	U	1740	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4,6-Dinitro-2-methylphenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Bromophenyl Phenyl Ether	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Chloro-3-methylphenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Chloroaniline	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Chlorophenyl Phenyl Ether	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
3- and/or 4-Methylphenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Nitroaniline	1740	U	1740	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
4-Nitrophenol	1740	U	1740	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Acenaphthene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Acenaphthylene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Anthracene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Benz[a]anthracene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Benzo[a] pyrene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Benzo[b] fluoranthene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Benzo[g,h,i] perylene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Benzo[k] fluoranthene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Bis(2-chloroethoxy) methane	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN0
1207051-02 (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	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Bis(2-chloroisopropyl) ether	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Bis(2-ethylhexyl) phthalate	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Butyl Benzyl Phthalate	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Carbazole	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Chrysene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Dibenz[a,h]anthracene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Dibenzofuran	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Diethyl Phthalate	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Dimethyl Phthalate	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Di-n-butyl Phthalate	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Di-n-octyl Phthalate	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Fluoranthene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Fluorene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Hexachlorobenzene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Hexachlorobutadiene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Hexachlorocyclopentadiene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Hexachloroethane	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Indeno[1,2,3-cd]pyrene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Isophorone	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Naphthalene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Nitrobenzene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
N-Nitrosodi-n-propylamine	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
N-Nitrosodiphenylamine	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Pentachlorophenol	1740	U	1740	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Phenanthrene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Phenol	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Pyrene	347	U	347	ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
TIC:Trichloro-1-propene	**1220**	B, J		ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
TIC:Aldol Condensate 3	**1050**	A, B, J		ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
TIC:Aldol Condensate 2	**35000**	A, B, J		ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
TIC:Aldol Condensate 4	**920**	A, B, J		ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
TIC:Aldol Condensate 1	**1670**	A, B, J		ug/kg dry	1	L207153	07/25/2012	08/03/2012	8270C
Surrogate: 2-Fluorophenol	*84 %*		*25-121*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*
Surrogate: Phenol-d5	*80 %*		*24-113*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*78 %*		*23-120*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*

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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN0

1207051-02 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*78 %*	*30-115*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*76 %*	*19-122*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*96 %*	*18-137*			*L207153*	*07/25/2012*	*08/03/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN1
1207051-03 (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	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
1,2-Dichlorobenzene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
1,3-Dichlorobenzene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
1,4-Dichlorobenzene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4,5-Trichlorophenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4,6-Trichlorophenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dichlorophenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dimethylphenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dinitrophenol	2050	U	2050	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dinitrotoluene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,6-Dinitrotoluene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Chloronaphthalene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Chlorophenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Methylnaphthalene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Methylphenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Nitroaniline	2050	U	2050	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Nitrophenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
3,3'-Dichlorobenzidine	820	U	820	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
3-Nitroaniline	2050	U	2050	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4,6-Dinitro-2-methylphenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Bromophenyl Phenyl Ether	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Chloro-3-methylphenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Chloroaniline	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Chlorophenyl Phenyl Ether	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
3- and/or 4-Methylphenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Nitroaniline	2050	U	2050	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Nitrophenol	2050	U	2050	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Acenaphthene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Acenaphthylene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Anthracene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benz[a]anthracene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[a] pyrene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[b] fluoranthene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[g,h,i] perylene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[k] fluoranthene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Bis(2-chloroethoxy) methane	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C

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WC-Hanford, Inc.	Project: RC-149	
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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN1
1207051-03 (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	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Bis(2-chloroisopropyl) ether	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Bis(2-ethylhexyl) phthalate	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Butyl Benzyl Phthalate	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Carbazole	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Chrysene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Dibenz[a,h]anthracene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Dibenzofuran	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Diethyl Phthalate	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Dimethyl Phthalate	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Di-n-butyl Phthalate	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Di-n-octyl Phthalate	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Fluoranthene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Fluorene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachlorobenzene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachlorobutadiene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachlorocyclopentadiene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachloroethane	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Indeno[1,2,3-cd]pyrene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Isophorone	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Naphthalene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Nitrobenzene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
N-Nitrosodi-n-propylamine	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
N-Nitrosodiphenylamine	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Pentachlorophenol	2050	U	2050	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Phenanthrene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Phenol	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Pyrene	410	U	410	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Unknown 1	**697**	J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 4	**486**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 3	**542**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 2	**44500**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 1	**1420**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Surrogate: 2-Fluorophenol	*57 %*		*25-121*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: Phenol-d5	*59 %*		*24-113*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*58 %*		*23-120*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN1
1207051-03 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*59 %*	*30-115*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*42 %*	*19-122*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*90 %*	*18-137*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN2
1207051-04 (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	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
1,2-Dichlorobenzene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
1,3-Dichlorobenzene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
1,4-Dichlorobenzene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2,4,5-Trichlorophenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2,4,6-Trichlorophenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2,4-Dichlorophenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2,4-Dimethylphenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2,4-Dinitrophenol	1760	U	1760	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2,4-Dinitrotoluene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2,6-Dinitrotoluene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2-Chloronaphthalene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2-Chlorophenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2-Methylnaphthalene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2-Methylphenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2-Nitroaniline	1760	U	1760	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
2-Nitrophenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
3,3'-Dichlorobenzidine	705	U	705	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
3-Nitroaniline	1760	U	1760	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
4,6-Dinitro-2-methylphenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
4-Bromophenyl Phenyl Ether	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
4-Chloro-3-methylphenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
4-Chloroaniline	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
4-Chlorophenyl Phenyl Ether	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
3- and/or 4-Methylphenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
4-Nitroaniline	1760	U	1760	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
4-Nitrophenol	1760	U	1760	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Acenaphthene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Acenaphthylene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Anthracene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Benz[a]anthracene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Benzo[a] pyrene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Benzo[b] fluoranthene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Benzo[g,h,i] perylene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Benzo[k] fluoranthene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Bis(2-chloroethoxy) methane	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN2
1207051-04 (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	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Bis(2-chloroisopropyl) ether	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Bis(2-ethylhexyl) phthalate	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Butyl Benzyl Phthalate	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Carbazole	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Chrysene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Dibenz[a,h]anthracene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Dibenzofuran	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Diethyl Phthalate	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Dimethyl Phthalate	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Di-n-butyl Phthalate	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Di-n-octyl Phthalate	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Fluoranthene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Fluorene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Hexachlorobenzene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Hexachlorobutadiene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Hexachlorocyclopentadiene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Hexachloroethane	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Indeno[1,2,3-cd]pyrene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Isophorone	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Naphthalene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Nitrobenzene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
N-Nitrosodi-n-propylamine	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
N-Nitrosodiphenylamine	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Pentachlorophenol	1760	U	1760	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Phenanthrene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Phenol	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Pyrene	353	U	353	ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
TIC:Unknown 1	**1010**	J		ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
TIC:Aldol Condensate 4	**961**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
TIC:Aldol Condensate 3	**623**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
TIC:Aldol Condensate 2	**51000**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
TIC:Aldol Condensate 1	**2310**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/28/2012	8270C
Surrogate: 2-Fluorophenol	*61 %*		*25-121*			*L207153*	*07/25/2012*	*07/28/2012*	*8270C*
Surrogate: Phenol-d5	*62 %*		*24-113*			*L207153*	*07/25/2012*	*07/28/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*61 %*		*23-120*			*L207153*	*07/25/2012*	*07/28/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN2
1207051-04 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*70 %*	*30-115*			*L207153*	*07/25/2012*	*07/28/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*46 %*	*19-122*			*L207153*	*07/25/2012*	*07/28/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*85 %*	*18-137*			*L207153*	*07/25/2012*	*07/28/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN3
1207051-05 (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	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
1,2-Dichlorobenzene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
1,3-Dichlorobenzene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
1,4-Dichlorobenzene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4,5-Trichlorophenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4,6-Trichlorophenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dichlorophenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dimethylphenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dinitrophenol	1870	U	1870	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dinitrotoluene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,6-Dinitrotoluene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Chloronaphthalene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Chlorophenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Methylnaphthalene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Methylphenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Nitroaniline	1870	U	1870	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Nitrophenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
3,3'-Dichlorobenzidine	749	U	749	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
3-Nitroaniline	1870	U	1870	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4,6-Dinitro-2-methylphenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Bromophenyl Phenyl Ether	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Chloro-3-methylphenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Chloroaniline	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Chlorophenyl Phenyl Ether	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
3- and/or 4-Methylphenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Nitroaniline	1870	U	1870	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Nitrophenol	1870	U	1870	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Acenaphthene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Acenaphthylene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Anthracene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benz[a]anthracene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[a] pyrene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[b] fluoranthene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[g,h,i] perylene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[k] fluoranthene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Bis(2-chloroethoxy) methane	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN3
1207051-05 (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	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Bis(2-chloroisopropyl) ether	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Bis(2-ethylhexyl) phthalate	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Butyl Benzyl Phthalate	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Carbazole	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Chrysene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Dibenz[a,h]anthracene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Dibenzofuran	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Diethyl Phthalate	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Dimethyl Phthalate	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Di-n-butyl Phthalate	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Di-n-octyl Phthalate	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Fluoranthene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Fluorene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachlorobenzene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachlorobutadiene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachlorocyclopentadiene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachloroethane	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Indeno[1,2,3-cd]pyrene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Isophorone	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Naphthalene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Nitrobenzene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
N-Nitrosodi-n-propylamine	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
N-Nitrosodiphenylamine	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Pentachlorophenol	1870	U	1870	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Phenanthrene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Phenol	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Pyrene	375	U	375	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Unknown 1	**1770**	J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 4	**3710**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 2	**47800**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 3	**4550**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 1	**2070**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Surrogate: 2-Fluorophenol	*69 %*		*25-121*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: Phenol-d5	*74 %*		*24-113*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*62 %*		*23-120*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN3
1207051-05 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*78 %*	*30-115*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*55 %*	*19-122*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*100 %*	*18-137*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN4
1207051-06 (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	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
1,2-Dichlorobenzene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
1,3-Dichlorobenzene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
1,4-Dichlorobenzene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4,5-Trichlorophenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4,6-Trichlorophenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dichlorophenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dimethylphenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dinitrophenol	2000	U	2000	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,4-Dinitrotoluene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2,6-Dinitrotoluene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Chloronaphthalene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Chlorophenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Methylnaphthalene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Methylphenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Nitroaniline	2000	U	2000	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
2-Nitrophenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
3,3'-Dichlorobenzidine	798	U	798	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
3-Nitroaniline	2000	U	2000	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4,6-Dinitro-2-methylphenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Bromophenyl Phenyl Ether	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Chloro-3-methylphenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Chloroaniline	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Chlorophenyl Phenyl Ether	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
3- and/or 4-Methylphenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Nitroaniline	2000	U	2000	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
4-Nitrophenol	2000	U	2000	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Acenaphthene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Acenaphthylene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Anthracene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benz[a]anthracene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[a] pyrene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[b] fluoranthene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[g,h,i] perylene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Benzo[k] fluoranthene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Bis(2-chloroethoxy) methane	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C

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WC-Hanford, Inc.	Project: RC-149	
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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN4
1207051-06 (Soil)

Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Bis(2-chloroethyl) ether	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Bis(2-chloroisopropyl) ether	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Bis(2-ethylhexyl) phthalate	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Butyl Benzyl Phthalate	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Carbazole	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Chrysene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Dibenz[a,h]anthracene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Dibenzofuran	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Diethyl Phthalate	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Dimethyl Phthalate	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Di-n-butyl Phthalate	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Di-n-octyl Phthalate	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Fluoranthene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Fluorene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachlorobenzene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachlorobutadiene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachlorocyclopentadiene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Hexachloroethane	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Indeno[1,2,3-cd]pyrene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Isophorone	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Naphthalene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Nitrobenzene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
N-Nitrosodi-n-propylamine	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
N-Nitrosodiphenylamine	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Pentachlorophenol	2000	U	2000	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Phenanthrene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Phenol	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Pyrene	399	U	399	ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Unknown 1	**1640**	J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 4	**3890**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 3	**4370**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 2	**56700**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
TIC:Aldol Condensate 1	**2500**	A, B, J		ug/kg dry	1	L207153	07/25/2012	07/30/2012	8270C
Surrogate: 2-Fluorophenol	*70 %*		*25-121*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: Phenol-d5	*77 %*		*24-113*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*61 %*		*23-120*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

J1PVN4
1207051-06 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*83 %*	*30-115*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*57 %*	*19-122*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*101 %*	*18-137*			*L207153*	*07/25/2012*	*07/30/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-149	
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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

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 L207153 - SW 3540C										
Blank (L207153-BLK1)				Prepared: 07/25/2012 Analyzed: 08/03/2012						
1,2,4-Trichlorobenzene	330	U	330	ug/kg wet						
1,2-Dichlorobenzene	330	U	330	ug/kg wet						
1,3-Dichlorobenzene	330	U	330	ug/kg wet						
1,4-Dichlorobenzene	330	U	330	ug/kg wet						
2,4,5-Trichlorophenol	330	U	330	ug/kg wet						
2,4,6-Trichlorophenol	330	U	330	ug/kg wet						
2,4-Dichlorophenol	330	U	330	ug/kg wet						
2,4-Dimethylphenol	330	U	330	ug/kg wet						
2,4-Dinitrophenol	1650	U	1650	ug/kg wet						
2,4-Dinitrotoluene	330	U	330	ug/kg wet						
2,6-Dinitrotoluene	330	U	330	ug/kg wet						
2-Chloronaphthalene	330	U	330	ug/kg wet						
2-Chlorophenol	330	U	330	ug/kg wet						
2-Methylnaphthalene	330	U	330	ug/kg wet						
2-Methylphenol	330	U	330	ug/kg wet						
2-Nitroaniline	1650	U	1650	ug/kg wet						
2-Nitrophenol	330	U	330	ug/kg wet						
3,3'-Dichlorobenzidine	660	U	660	ug/kg wet						
3-Nitroaniline	1650	U	1650	ug/kg wet						
4,6-Dinitro-2-methylphenol	330	U	330	ug/kg wet						
4-Bromophenyl Phenyl Ether	330	U	330	ug/kg wet						
4-Chloro-3-methylphenol	330	U	330	ug/kg wet						
4-Chloroaniline	330	U	330	ug/kg wet						
4-Chlorophenyl Phenyl Ether	330	U	330	ug/kg wet						
3- and/or 4-Methylphenol	330	U	330	ug/kg wet						
4-Nitroaniline	1650	U	1650	ug/kg wet						
4-Nitrophenol	1650	U	1650	ug/kg wet						
Acenaphthene	330	U	330	ug/kg wet						
Acenaphthylene	330	U	330	ug/kg wet						
Anthracene	330	U	330	ug/kg wet						
Benz[a]anthracene	330	U	330	ug/kg wet						
Benzo[a] pyrene	330	U	330	ug/kg wet						
Benzo[b] fluoranthene	330	U	330	ug/kg wet						
Benzo[g,h,i] perylene	330	U	330	ug/kg wet						
Benzo[k] fluoranthene	330	U	330	ug/kg wet						
Bis(2-chloroethoxy) methane	330	U	330	ug/kg wet						

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WC-Hanford, Inc.	Project: RC-149	
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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

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 L207153 - SW 3540C										
Blank (L207153-BLK1)				Prepared: 07/25/2012 Analyzed: 08/03/2012						
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						
Trichloro-1-propene TICS	474	J		ug/kg wet						
Aldol Condensate 4	1110	A, J		ug/kg wet						
Aldol Condensate 3	1000	A, J		ug/kg wet						
Aldol Condensate 2 BG 8/14/12	27400	A, J		ug/kg wet						
Aldol Condensate 1	1160	A, J		ug/kg wet						
Surrogate: 2-Fluorophenol	*1530*			*ug/kg wet*	*2500.0*		*61*	*25-121*		
Surrogate: Phenol-d5	*1510*			*ug/kg wet*	*2500.0*		*60*	*24-113*		
Surrogate: Nitrobenzene-d5	*994*			*ug/kg wet*	*1666.7*		*60*	*23-120*		

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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

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 L207153 - SW 3540C										
Blank (L207153-BLK1)				Prepared: 07/25/2012 Analyzed: 08/03/2012						
Surrogate: 2-Fluorobiphenyl	*990*			*ug/kg wet*	*1666.7*		*59*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1110*			*ug/kg wet*	*2500.0*		*45*	*19-122*		
Surrogate: p-Terphenyl-d14	*1260*			*ug/kg wet*	*1666.7*		*75*	*18-137*		
LCS (L207153-BS1)				Prepared: 07/25/2012 Analyzed: 08/03/2012						
1,2,4-Trichlorobenzene	1450		330	ug/kg wet	2000.0		73	45-110		
1,2-Dichlorobenzene	1430		330	ug/kg wet	2000.0		71	45-105		
1,3-Dichlorobenzene	1380		330	ug/kg wet	2000.0		69	40-100		
1,4-Dichlorobenzene	1400		330	ug/kg wet	2000.0		70	35-105		
2,4,5-Trichlorophenol	1780		330	ug/kg wet	2000.0		89	30-140		
2,4,6-Trichlorophenol	1370		330	ug/kg wet	2000.0		69	20-110		
2,4-Dichlorophenol	1550		330	ug/kg wet	2000.0		78	40-110		
2,4-Dimethylphenol	1380		330	ug/kg wet	2000.0		69	30-105		
2,4-Dinitrophenol	678	J	1650	ug/kg wet	2000.0		34	25-130		
2,4-Dinitrotoluene	1700		330	ug/kg wet	2000.0		85	50-115		
2,6-Dinitrotoluene	1700		330	ug/kg wet	2000.0		85	40-120		
2-Chloronaphthalene	1480		330	ug/kg wet	2000.0		74	45-115		
2-Chlorophenol	1460		330	ug/kg wet	2000.0		73	45-105		
2-Methylnaphthalene	1430		330	ug/kg wet	2000.0		72	45-110		
2-Methylphenol	1500		330	ug/kg wet	2000.0		75	40-120		
2-Nitroaniline	1730		1650	ug/kg wet	2000.0		86	45-120		
2-Nitrophenol	1400		330	ug/kg wet	2000.0		70	40-110		
3,3'-Dichlorobenzidine	1750		660	ug/kg wet	2000.0		88	15-130		
3-Nitroaniline	1990		1650	ug/kg wet	2000.0		99	40-130		
4,6-Dinitro-2-methylphenol	951		330	ug/kg wet	2000.0		48	20-140		
4-Bromophenyl Phenyl Ether	1650		330	ug/kg wet	2000.0		82	45-115		
4-Chloro-3-methylphenol	1770		330	ug/kg wet	2000.0		88	35-115		
4-Chloroaniline	1240		330	ug/kg wet	2000.0		62	10-100		
4-Chlorophenyl Phenyl Ether	1560		330	ug/kg wet	2000.0		78	45-110		
3- and/or 4-Methylphenol	1570		330	ug/kg wet	2000.0		78	40-120		
4-Nitroaniline	2100		1650	ug/kg wet	2000.0		105	40-130		
4-Nitrophenol	1570	J	1650	ug/kg wet	2000.0		79	15-140		
Acenaphthene	1490		330	ug/kg wet	2000.0		74	45-110		
Acenaphthylene	1280		330	ug/kg wet	2000.0		64	45-115		
Anthracene	1560		330	ug/kg wet	2000.0		78	45-130		
Benz[a]anthracene	1680		330	ug/kg wet	2000.0		84	45-130		
Benzo[a] pyrene	1730		330	ug/kg wet	2000.0		87	45-130		

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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

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 L207153 - SW 3540C										
LCS (L207153-BS1)				Prepared: 07/25/2012 Analyzed: 08/03/2012						
Benzo[b] fluoranthene	1720		330	ug/kg wet	2000.0		86	40-130		
Benzo[g,h,i] perylene	1850		330	ug/kg wet	2000.0		93	45-125		
Benzo[k] fluoranthene	1740		330	ug/kg wet	2000.0		87	45-125		
Bis(2-chloroethoxy) methane	1410		330	ug/kg wet	2000.0		70	45-110		
Bis(2-chloroethyl) ether	1370		330	ug/kg wet	2000.0		68	40-110		
Bis(2-chloroisopropyl) ether	1350		330	ug/kg wet	2000.0		68	30-115		
Bis(2-ethylhexyl) phthalate	1630		330	ug/kg wet	2000.0		82	40-145		
Butyl Benzyl Phthalate	1580		330	ug/kg wet	2000.0		79	50-125		
Carbazole	2190		330	ug/kg wet	2000.0		109	40-140		
Chrysene	1730		330	ug/kg wet	2000.0		86	45-130		
Dibenz[a,h]anthracene	1930		330	ug/kg wet	2000.0		96	45-125		
Dibenzofuran	1540		330	ug/kg wet	2000.0		77	45-120		
Diethyl Phthalate	1580		330	ug/kg wet	2000.0		79	50-125		
Dimethyl Phthalate	1520		330	ug/kg wet	2000.0		76	45-130		
Di-n-butyl Phthalate	1440		330	ug/kg wet	2000.0		72	50-130		
Di-n-octyl Phthalate	1640		330	ug/kg wet	2000.0		82	40-150		
Fluoranthene	1630		330	ug/kg wet	2000.0		82	45-130		
Fluorene	1560		330	ug/kg wet	2000.0		78	45-120		
Hexachlorobenzene	1670		330	ug/kg wet	2000.0		84	45-130		
Hexachlorobutadiene	1630		330	ug/kg wet	2000.0		81	45-105		
Hexachlorocyclopentadiene	452		330	ug/kg wet	2000.0		23	10-100		
Hexachloroethane	1380		330	ug/kg wet	2000.0		69	35-110		
Indeno[1,2,3-cd]pyrene	1880		330	ug/kg wet	2000.0		94	45-130		
Isophorone	1290		330	ug/kg wet	2000.0		64	40-110		
Naphthalene	1500		330	ug/kg wet	2000.0		75	40-110		
Nitrobenzene	1390		330	ug/kg wet	2000.0		70	40-105		
N-Nitrosodi-n-propylamine	1620		330	ug/kg wet	2000.0		81	30-130		
N-Nitrosodiphenylamine	1650		330	ug/kg wet	2000.0		82	50-120		
Pentachlorophenol	1300	J	1650	ug/kg wet	2000.0		65	25-120		
Phenanthrene	1590		330	ug/kg wet	2000.0		80	50-120		
Phenol	1470		330	ug/kg wet	2000.0		74	40-115		
Pyrene	1570		330	ug/kg wet	2000.0		78	45-125		
Surrogate: 2-Fluorophenol	*2000*			*ug/kg wet*	*2500.0*		*80*	*25-121*		
Surrogate: Phenol-d5	*1900*			*ug/kg wet*	*2500.0*		*76*	*24-113*		
Surrogate: Nitrobenzene-d5	*1300*			*ug/kg wet*	*1666.7*		*78*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1310*			*ug/kg wet*	*1666.7*		*79*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1880*			*ug/kg wet*	*2500.0*		*75*	*19-122*		

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Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

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 L207153 - SW 3540C									
LCS (L207153-BS1)			Prepared: 07/25/2012 Analyzed: 08/03/2012						
Surrogate: p-Terphenyl-d14	*1390*		*ug/kg wet*	*1666.7*		*83*	*18-137*		
Matrix Spike (L207153-MS1)		**Source: 1207051-01**	Prepared: 07/25/2012 Analyzed: 08/03/2012						
1,2,4-Trichlorobenzene	1630		ug/kg dry	2051.7	335 U	79	45-110		
1,2-Dichlorobenzene	1590		ug/kg dry	2051.7	335 U	77	45-105		
1,3-Dichlorobenzene	1530		ug/kg dry	2051.7	335 U	75	40-100		
1,4-Dichlorobenzene	1570		ug/kg dry	2051.7	335 U	77	35-105		
2,4,5-Trichlorophenol	2090		ug/kg dry	2051.7	335 U	102	30-140		
2,4,6-Trichlorophenol	1740		ug/kg dry	2051.7	335 U	85	20-110		
2,4-Dichlorophenol	1840		ug/kg dry	2051.7	335 U	90	40-110		
2,4-Dimethylphenol	1530		ug/kg dry	2051.7	335 U	75	30-105		
2,4-Dinitrophenol	2570		ug/kg dry	2051.7	1670 U	125	25-130		
2,4-Dinitrotoluene	1930		ug/kg dry	2051.7	335 U	94	50-115		
2,6-Dinitrotoluene	1930		ug/kg dry	2051.7	335 U	94	40-120		
2-Chloronaphthalene	1660		ug/kg dry	2051.7	335 U	81	45-115		
2-Chlorophenol	1670		ug/kg dry	2051.7	335 U	82	45-105		
2-Methylnaphthalene	1590		ug/kg dry	2051.7	335 U	78	45-110		
2-Methylphenol	1720		ug/kg dry	2051.7	335 U	84	40-120		
2-Nitroaniline	1990		ug/kg dry	2051.7	1670 U	97	45-120		
2-Nitrophenol	1610		ug/kg dry	2051.7	335 U	78	40-110		
3,3'-Dichlorobenzidine	1710		ug/kg dry	2051.7	670 U	83	15-130		
3-Nitroaniline	2190		ug/kg dry	2051.7	1670 U	107	40-130		
4,6-Dinitro-2-methylphenol	2520		ug/kg dry	2051.7	335 U	123	20-140		
4-Bromophenyl Phenyl Ether	1940		ug/kg dry	2051.7	335 U	95	45-115		
4-Chloro-3-methylphenol	2080		ug/kg dry	2051.7	335 U	101	35-115		
4-Chloroaniline	1270		ug/kg dry	2051.7	335 U	62	10-100		
4-Chlorophenyl Phenyl Ether	1800		ug/kg dry	2051.7	335 U	88	45-110		
3- and/or 4-Methylphenol	1800		ug/kg dry	2051.7	335 U	88	40-120		
4-Nitroaniline	2190		ug/kg dry	2051.7	1670 U	107	40-130		
4-Nitrophenol	2030		ug/kg dry	2051.7	1670 U	99	15-140		
Acenaphthene	1700		ug/kg dry	2051.7	335 U	83	45-110		
Acenaphthylene	1470		ug/kg dry	2051.7	335 U	72	45-115		
Anthracene	1670		ug/kg dry	2051.7	335 U	82	45-130		
Benz[a]anthracene	1960		ug/kg dry	2051.7	335 U	95	45-130		
Benzo[a] pyrene	1950		ug/kg dry	2051.7	335 U	95	45-130		
Benzo[b] fluoranthene	1990		ug/kg dry	2051.7	335 U	97	40-130		
Benzo[g,h,i] perylene	2120		ug/kg dry	2051.7	335 U	103	45-125		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/14/2012 09:11

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 L207153 - SW 3540C									
Matrix Spike (L207153-MS1)	**Source: 1207051-01**		Prepared: 07/25/2012 Analyzed: 08/03/2012						
Benzo[k] fluoranthene	1980		ug/kg dry	2051.7	335 U	96	45-125		
Bis(2-chloroethoxy) methane	1590		ug/kg dry	2051.7	335 U	77	45-110		
Bis(2-chloroethyl) ether	1540		ug/kg dry	2051.7	335 U	75	40-110		
Bis(2-chloroisopropyl) ether	1530		ug/kg dry	2051.7	335 U	74	30-115		
Bis(2-ethylhexyl) phthalate	1900		ug/kg dry	2051.7	335 U	93	40-145		
Butyl Benzyl Phthalate	1840		ug/kg dry	2051.7	335 U	89	50-125		
Carbazole	2600		ug/kg dry	2051.7	335 U	127	40-140		
Chrysene	2040		ug/kg dry	2051.7	335 U	99	45-130		
Dibenz[a,h]anthracene	2250		ug/kg dry	2051.7	335 U	110	45-125		
Dibenzofuran	1750		ug/kg dry	2051.7	335 U	85	45-120		
Diethyl Phthalate	1800		ug/kg dry	2051.7	335 U	88	50-125		
Dimethyl Phthalate	1760		ug/kg dry	2051.7	335 U	86	45-130		
Di-n-butyl Phthalate	1590		ug/kg dry	2051.7	335 U	77	50-130		
Di-n-octyl Phthalate	1880		ug/kg dry	2051.7	335 U	92	40-150		
Fluoranthene	1870		ug/kg dry	2051.7	335 U	91	45-130		
Fluorene	1760		ug/kg dry	2051.7	335 U	86	45-120		
Hexachlorobenzene	1960		ug/kg dry	2051.7	335 U	96	45-130		
Hexachlorobutadiene	1820		ug/kg dry	2051.7	335 U	88	45-105		
Hexachlorocyclopentadiene	376		ug/kg dry	2051.7	335 U	18	10-100		
Hexachloroethane	1550		ug/kg dry	2051.7	335 U	75	35-110		
Indeno[1,2,3-cd]pyrene	2150		ug/kg dry	2051.7	335 U	105	45-130		
Isophorone	1480		ug/kg dry	2051.7	335 U	72	40-110		
Naphthalene	1650		ug/kg dry	2051.7	335 U	80	40-110		
Nitrobenzene	1600		ug/kg dry	2051.7	335 U	78	40-105		
N-Nitrosodi-n-propylamine	1800		ug/kg dry	2051.7	335 U	88	30-130		
N-Nitrosodiphenylamine	1870		ug/kg dry	2051.7	335 U	91	50-120		
Pentachlorophenol	1900		ug/kg dry	2051.7	1670 U	93	25-120		
Phenanthrene	1780		ug/kg dry	2051.7	335 U	87	50-120		
Phenol	1680		ug/kg dry	2051.7	335 U	82	40-115		
Pyrene	1740		ug/kg dry	2051.7	335 U	85	45-125		
Surrogate: 2-Fluorophenol	*2270*		*ug/kg dry*	*2564.6*		*88*	*25-121*		
Surrogate: Phenol-d5	*2170*		*ug/kg dry*	*2564.6*		*85*	*24-113*		
Surrogate: Nitrobenzene-d5	*1470*		*ug/kg dry*	*1709.7*		*86*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1480*		*ug/kg dry*	*1709.7*		*86*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*2570*		*ug/kg dry*	*2564.6*		*100*	*19-122*		
Surrogate: p-Terphenyl-d14	*1590*		*ug/kg dry*	*1709.7*		*93*	*18-137*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/14/2012 09:11

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 L207153 - SW 3540C									
Matrix Spike Dup (L207153-MSD1)	**Source: 1207051-01**		Prepared: 07/25/2012 Analyzed: 08/03/2012						
1,2,4-Trichlorobenzene	1560		ug/kg dry	2022.0	335 U	77	45-110	3	40
1,2-Dichlorobenzene	1560		ug/kg dry	2022.0	335 U	77	45-105	0.6	40
1,3-Dichlorobenzene	1500		ug/kg dry	2022.0	335 U	74	40-100	0.6	40
1,4-Dichlorobenzene	1530		ug/kg dry	2022.0	335 U	76	35-105	1	40
2,4,5-Trichlorophenol	2150		ug/kg dry	2022.0	335 U	106	30-140	4	40
2,4,6-Trichlorophenol	1750		ug/kg dry	2022.0	335 U	86	20-110	2	40
2,4-Dichlorophenol	1770		ug/kg dry	2022.0	335 U	87	40-110	3	40
2,4-Dimethylphenol	1380		ug/kg dry	2022.0	335 U	68	30-105	9	40
2,4-Dinitrophenol	1500		ug/kg dry	2022.0	1670 U	74	25-130	51*	40
2,4-Dinitrotoluene	1920		ug/kg dry	2022.0	335 U	95	50-115	0.9	40
2,6-Dinitrotoluene	1920		ug/kg dry	2022.0	335 U	95	40-120	0.9	40
2-Chloronaphthalene	1710		ug/kg dry	2022.0	335 U	84	45-115	4	40
2-Chlorophenol	1660		ug/kg dry	2022.0	335 U	82	45-105	0.9	40
2-Methylnaphthalene	1550		ug/kg dry	2022.0	335 U	77	45-110	1	40
2-Methylphenol	1660		ug/kg dry	2022.0	335 U	82	40-120	2	40
2-Nitroaniline	1980		ug/kg dry	2022.0	1670 U	98	45-120	0.7	40
2-Nitrophenol	1540		ug/kg dry	2022.0	335 U	76	40-110	3	40
3,3'-Dichlorobenzidine	1940		ug/kg dry	2022.0	670 U	96	15-130	14	40
3-Nitroaniline	2230		ug/kg dry	2022.0	1670 U	110	40-130	3	40
4,6-Dinitro-2-methylphenol	2070		ug/kg dry	2022.0	335 U	102	20-140	18	40
4-Bromophenyl Phenyl Ether	1860		ug/kg dry	2022.0	335 U	92	45-115	3	40
4-Chloro-3-methylphenol	1880		ug/kg dry	2022.0	335 U	93	35-115	8	40
4-Chloroaniline	1400		ug/kg dry	2022.0	335 U	69	10-100	11	40
4-Chlorophenyl Phenyl Ether	1790		ug/kg dry	2022.0	335 U	88	45-110	0.7	40
3- and/or 4-Methylphenol	1730		ug/kg dry	2022.0	335 U	85	40-120	3	40
4-Nitroaniline	2190		ug/kg dry	2022.0	1670 U	108	40-130	2	40
4-Nitrophenol	2210		ug/kg dry	2022.0	1670 U	109	15-140	10	40
Acenaphthene	1730		ug/kg dry	2022.0	335 U	86	45-110	3	40
Acenaphthylene	1510		ug/kg dry	2022.0	335 U	75	45-115	4	40
Anthracene	1730		ug/kg dry	2022.0	335 U	85	45-130	5	40
Benz[a]anthracene	1880		ug/kg dry	2022.0	335 U	93	45-130	3	40
Benzo[a] pyrene	1900		ug/kg dry	2022.0	335 U	94	45-130	1	40
Benzo[b] fluoranthene	1920		ug/kg dry	2022.0	335 U	95	40-130	2	40
Benzo[g,h,i] perylene	2030		ug/kg dry	2022.0	335 U	101	45-125	3	40
Benzo[k] fluoranthene	1890		ug/kg dry	2022.0	335 U	93	45-125	3	40
Bis(2-chloroethoxy) methane	1520		ug/kg dry	2022.0	335 U	75	45-110	3	40

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/14/2012 09:11

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 L207153 - SW 3540C									
Matrix Spike Dup (L207153-MSD1)	**Source: 1207051-01**		Prepared: 07/25/2012 Analyzed: 08/03/2012						
Bis(2-chloroethyl) ether	1520		ug/kg dry	2022.0	335 U	75	40-110	0.2	40
Bis(2-chloroisopropyl) ether	1500		ug/kg dry	2022.0	335 U	74	30-115	0.5	40
Bis(2-ethylhexyl) phthalate	1810		ug/kg dry	2022.0	335 U	89	40-145	4	40
Butyl Benzyl Phthalate	1760		ug/kg dry	2022.0	335 U	87	50-125	3	40
Carbazole	2350		ug/kg dry	2022.0	335 U	116	40-140	8	40
Chrysene	1960		ug/kg dry	2022.0	335 U	97	45-130	2	40
Dibenz[a,h]anthracene	2160		ug/kg dry	2022.0	335 U	107	45-125	3	40
Dibenzofuran	1750		ug/kg dry	2022.0	335 U	87	45-120	1	40
Diethyl Phthalate	1790		ug/kg dry	2022.0	335 U	88	50-125	0.6	40
Dimethyl Phthalate	1750		ug/kg dry	2022.0	335 U	86	45-130	0.9	40
Di-n-butyl Phthalate	1620		ug/kg dry	2022.0	335 U	80	50-130	4	40
Di-n-octyl Phthalate	1830		ug/kg dry	2022.0	335 U	90	40-150	1	40
Fluoranthene	1780		ug/kg dry	2022.0	335 U	88	45-130	4	40
Fluorene	1780		ug/kg dry	2022.0	335 U	88	45-120	3	40
Hexachlorobenzene	1910		ug/kg dry	2022.0	335 U	94	45-130	2	40
Hexachlorobutadiene	1730		ug/kg dry	2022.0	335 U	85	45-105	3	40
Hexachlorocyclopentadiene	340		ug/kg dry	2022.0	335 U	17	10-100	9	40
Hexachloroethane	1490		ug/kg dry	2022.0	335 U	74	35-110	2	40
Indeno[1,2,3-cd]pyrene	2050		ug/kg dry	2022.0	335 U	102	45-130	3	40
Isophorone	1400		ug/kg dry	2022.0	335 U	69	40-110	4	40
Naphthalene	1590		ug/kg dry	2022.0	335 U	79	40-110	2	40
Nitrobenzene	1520		ug/kg dry	2022.0	335 U	75	40-105	4	40
N-Nitrosodi-n-propylamine	1760		ug/kg dry	2022.0	335 U	87	30-130	0.6	40
N-Nitrosodiphenylamine	1820		ug/kg dry	2022.0	335 U	90	50-120	2	40
Pentachlorophenol	2210		ug/kg dry	2022.0	1670 U	109	25-120	17	40
Phenanthrene	1740		ug/kg dry	2022.0	335 U	86	50-120	0.8	40
Phenol	1640		ug/kg dry	2022.0	335 U	81	40-115	0.9	40
Pyrene	1730		ug/kg dry	2022.0	335 U	86	45-125	0.7	40
Surrogate: 2-Fluorophenol	*2230*		*ug/kg dry*	*2527.5*		*88*	*25-121*		
Surrogate: Phenol-d5	*2100*		*ug/kg dry*	*2527.5*		*83*	*24-113*		
Surrogate: Nitrobenzene-d5	*1360*		*ug/kg dry*	*1685.0*		*81*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1480*		*ug/kg dry*	*1685.0*		*88*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*2560*		*ug/kg dry*	*2527.5*		*101*	*19-122*		
Surrogate: p-Terphenyl-d14	*1510*		*ug/kg dry*	*1685.0*		*90*	*18-137*		

PREPARATION BENCH SHEET

L207153

Lionville Laboratory

Printed: 7/26/2012 11:35:40AM

000000072

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
1207051-01	8270C TCL SVOC	07/25/2012 14:23	31	1				500	WC-Hanford, Inc.	
1207051-02	8270C TCL SVOC	07/25/2012 14:23	30	1				500	WC-Hanford, Inc.	
1207051-03	8270C TCL SVOC	07/25/2012 14:23	29.63	1				500	WC-Hanford, Inc.	
1207051-04	8270C TCL SVOC	07/25/2012 14:23	30.56	1				500	WC-Hanford, Inc.	
1207051-05	8270C TCL SVOC	07/25/2012 14:23	30.48	1				500	WC-Hanford, Inc.	
1207051-06	8270C TCL SVOC	07/25/2012 14:23	30.5	1				500	WC-Hanford, Inc.	
1207053-01	8270C TCL SVOC	07/25/2012 14:23	5.41	10				500	ANR Pipeline	
1207054-01	8270C TCL SVOC	07/25/2012 14:23	5.83	10				500	WC-Hanford, Inc.	
L207153-BLK1	QC	07/25/2012 14:23	30	1				500		
L207153-BS1	QC	07/25/2012 14:23	30	1	1200337		600	500		
L207153-MS1	QC	07/25/2012 14:23	30.67	1	1200337	1207051-01	600	500		
L207153-MS2	QC	07/25/2012 14:23	5.74	10	1200337	1207053-01	600	500		
L207153-MS3	QC	07/25/2012 14:23	6.23	10	1200337	1207054-01	600	500		
L207153-MSD1	QC	07/25/2012 14:23	31.12	1	1200337	1207051-01	600	500		
L207153-MSD2	QC	07/25/2012 14:23	6.84	10	1200337	1207053-01	600	500		
L207153-MSD3	QC	07/25/2012 14:23	5.64	10	1200337	1207054-01	600	500		

Extracts Relinquished By 7/26/12 1135 Date

Extracts Received By 7/26/12 1150 Date

DIESEL

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/31/2012 20:18

Analytical Report for Extractable Petroleum Hydrocarbons by SW846 8015

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PVM9	1207051-01	Soil	07/18/2012 08:57	07/24/2012 10:10
J1PVN0	1207051-02	Soil	07/18/2012 09:09	07/24/2012 10:10
J1PVN1	1207051-03	Soil	07/18/2012 09:21	07/24/2012 10:10
J1PVN2	1207051-04	Soil	07/18/2012 09:38	07/24/2012 10:10
J1PVN3	1207051-05	Soil	07/18/2012 09:47	07/24/2012 10:10
J1PVN4	1207051-06	Soil	07/18/2012 09:58	07/24/2012 10:10

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Case Narrative

Client: WC-HANFORD RC-149 K3958
LVL #: 1207051

W.O. #: 60049-001-001-0001-00
Date Received: 07-24-2012

DIESEL RANGE ORGANICS

Six (6) soil samples were collected on 07-18-2012.

The samples and associated QC samples were extracted 07-25-2012 and analyzed 07-31-2012 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. Discrepancies from the sample acceptance policy have been recorded on the Sample Receipt Checklist.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limits for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. The samples were reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or a designee as verified by the following signature.

Iain Daniels
LvL Laboratory Manager

8/7/12
Date

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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-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/31/2012 20:18

Extractable Petroleum Hydrocarbons by SW846 8015
Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVM9 (1207051-01) Soil								
Surrogate: p-Terphenyl	*79 %*	*39-129*			*L207154*	*07/25/2012*	*07/31/2012*	*8015M*
Diesel Range Organics	3320 U	3320	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
Motor Oil	9980 U	9980	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
J1PVN0 (1207051-02) Soil								
Surrogate: p-Terphenyl	*77 %*	*39-129*			*L207154*	*07/25/2012*	*07/31/2012*	*8015M*
Diesel Range Organics	3470 U	3470	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
Motor Oil	10400 U	10400	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
J1PVN1 (1207051-03) Soil								
Surrogate: p-Terphenyl	*73 %*	*39-129*			*L207154*	*07/25/2012*	*07/31/2012*	*8015M*
Diesel Range Organics	3180 J	4020	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
Motor Oil	12100 U	12100	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
J1PVN2 (1207051-04) Soil								
Surrogate: p-Terphenyl	*82 %*	*39-129*			*L207154*	*07/25/2012*	*07/31/2012*	*8015M*
Diesel Range Organics	3630 U	3630	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
Motor Oil	10900 U	10900	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
J1PVN3 (1207051-05) Soil								
Surrogate: p-Terphenyl	*66 %*	*39-129*			*L207154*	*07/25/2012*	*07/31/2012*	*8015M*
Diesel Range Organics	3760 U	3760	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
Motor Oil	11300 U	11300	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
J1PVN4 (1207051-06) Soil								
Surrogate: p-Terphenyl	*80 %*	*39-129*			*L207154*	*07/25/2012*	*07/31/2012*	*8015M*
Diesel Range Organics	6170	4030	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M
Motor Oil	5840 J	12100	ug/kg dry	1	L207154	07/25/2012	07/31/2012	8015M

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 07/31/2012 20:18

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 L207154 - SW 3540C									
Blank (L207154-BLK1)			Prepared: 07/25/2012 Analyzed: 07/31/2012						
Diesel Range Organics	3330 U	3330	ug/kg wet						
Motor Oil	10000 U	10000	ug/kg wet						
Surrogate: p-Terphenyl	*4480*		*ug/kg wet*	*6666.7*		*67*	*39-129*		
LCS (L207154-BS1)			Prepared: 07/25/2012 Analyzed: 07/31/2012						
Diesel Range Organics	43200	3330	ug/kg wet	66667		65	42-133		
Surrogate: p-Terphenyl	*4870*		*ug/kg wet*	*6666.7*		*73*	*39-129*		
Matrix Spike (L207154-MS1)	**Source: 1207051-01**		Prepared: 07/25/2012 Analyzed: 07/31/2012						
Diesel Range Organics	49400	3320	ug/kg dry	66314	3320 U	74	42-133		
Surrogate: p-Terphenyl	*5670*		*ug/kg dry*	*6631.4*		*86*	*39-129*		
Matrix Spike Dup (L207154-MSD1)	**Source: 1207051-01**		Prepared: 07/25/2012 Analyzed: 07/31/2012						
Diesel Range Organics	47700	3370	ug/kg dry	67422	3320 U	71	42-133	5	40
Surrogate: p-Terphenyl	*5410*		*ug/kg dry*	*6742.2*		*80*	*39-129*		

PREPARATION BENCH SHEET

L207154

Lionville Laboratory

Printed: 7/26/2012 11:35:47AM

00000079

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
1207051-01	8015M DRO	07/25/2012 14:23	31.54	1				1000	WC-Hanford, Inc.	
1207051-02	8015M DRO	07/25/2012 14:23	30.3	1				1000	WC-Hanford, Inc.	
1207051-03	8015M DRO	07/25/2012 14:23	30.52	1				1000	WC-Hanford, Inc.	
1207051-04	8015M DRO	07/25/2012 14:23	30	1				1000	WC-Hanford, Inc.	
1207051-05	8015M DRO	07/25/2012 14:23	30.71	1				1000	WC-Hanford, Inc.	
1207051-06	8015M DRO	07/25/2012 14:23	30.52	1				1000	WC-Hanford, Inc.	
L207154-BLK1	QC	07/25/2012 14:23	30	1				1000		
L207154-BS1	QC	07/25/2012 14:23	30	1	1200846		1000	1000		
L207154-MS1	QC	07/25/2012 14:23	31.63	1	1200846	1207051-01	1000	1000		
L207154-MSD1	QC	07/25/2012 14:23	31.11	1	1200846	1207051-01	1000	1000		

7/26/12 1135
Extracts Relinquished By Date

07.26.12 11:45
Extracts Received By Date

METALS

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 09:59

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PVM9	1207051-01	Soil	07/18/2012 08:57	07/24/2012 10:10
J1PVN0	1207051-02	Soil	07/18/2012 09:09	07/24/2012 10:10
J1PVN1	1207051-03	Soil	07/18/2012 09:21	07/24/2012 10:10
J1PVN2	1207051-04	Soil	07/18/2012 09:38	07/24/2012 10:10
J1PVN3	1207051-05	Soil	07/18/2012 09:47	07/24/2012 10:10
J1PVN4	1207051-06	Soil	07/18/2012 09:58	07/24/2012 10:10

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Case Narrative

Client: WC-HANFORD RC-149
LVL#: 1207051
SDG/SAF#: K3958/RC-149

W.O.#: 60049-001-001-0001-00
Date Received: 07-24-11

METALS

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

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

1. This narrative covers the analyses of 6 soil samples.

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

   All samples were analyzed and reported with 3-fold dilutions for ICP metals due to sample matrix.

   Sample J1PVN1 was analyzed and reported with a 12-fold dilution and sample J1PVN3 was analyzed and reported with a 3-fold dilution for Mercury due to sample matrix.

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

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

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

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

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

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

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

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

10. The matrix spike (MS) recoveries for 5 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
J1PVM9	Aluminum	22,000	82.8
	Antimony	100	104.8
	Iron	42,000	61.9
	Manganese	1,000	75.3
	Vanadium	1,000	82.6

12. The duplicate analyses for 3 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 samples result for Arsenic, Beryllium, Chromium, and Cobalt 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

rgc/07-051hg%

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 09:59

Notes and Definitions

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

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/03/2012 09:59

J1PVM9
1207051-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**4680**		13.6	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Antimony	1.63	U	1.63	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Arsenic	**1.78**	B	2.71	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Barium	**66.5**		1.36	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Beryllium	**0.247**	B	0.542	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Boron	5.42	U	5.42	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cadmium	0.542	U	0.542	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Calcium	**5730**		271	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Chromium	**4.60**		0.542	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cobalt	**9.39**		5.42	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Copper	**14.8**		2.71	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Iron	**29200**		54.2	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lead	**2.63**		1.36	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lithium	**4.06**	B	6.78	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Magnesium	**3960**		203	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Manganese	**336**		13.6	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Molybdenum	5.42	U	5.42	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Nickel	**6.60**	B	10.8	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Potassium	**480**	B	1080	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Selenium	0.814	U	0.814	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silicon	**287**		5.42	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silver	0.542	U	0.542	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Sodium	**372**		136	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Uranium	54.2	U	54.2	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Vanadium	**85.3**		6.78	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zinc	**50.2**		27.1	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zirconium	**29.2**		6.78	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Mercury	0.0270	U	0.0270	mg/kg dry	1	L207148	07/25/2012	07/26/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/03/2012 09:59

J1PVN0
1207051-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**5030**		14.6	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Antimony	1.75	U	1.75	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Arsenic	**1.67**	B	2.92	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Barium	**61.7**		1.46	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Beryllium	**0.197**	B	0.585	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Boron	5.85	U	5.85	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cadmium	0.585	U	0.585	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Calcium	**5710**		292	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Chromium	**5.43**		0.585	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cobalt	**9.34**		5.85	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Copper	**22.4**		2.92	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Iron	**31300**		58.5	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lead	**3.18**		1.46	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lithium	**4.00**	B	7.31	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Magnesium	**4540**		219	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Manganese	**341**		14.6	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Molybdenum	**0.624**	B	5.85	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Nickel	**7.25**	B	11.7	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Potassium	**579**	B	1170	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Selenium	0.877	U	0.877	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silicon	**269**		5.85	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silver	0.585	U	0.585	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Sodium	**417**		146	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Uranium	**164**		58.5	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Vanadium	**78.0**		7.31	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zinc	**51.2**		29.2	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zirconium	**27.6**		7.31	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Mercury	**0.0882**		0.0256	mg/kg dry	1	L207148	07/25/2012	07/26/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/03/2012 09:59

J1PVN1
1207051-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**7130**		17.7	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Antimony	**1.26**	B	2.12	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Arsenic	**3.31**	B	3.54	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Barium	**129**		1.77	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Beryllium	**0.373**	B	0.708	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Boron	7.08	U	7.08	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cadmium	0.708	U	0.708	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Calcium	**5360**		354	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Chromium	**49.1**		0.708	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cobalt	**8.73**		7.08	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Copper	**89.3**		3.54	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Iron	**31200**		70.8	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lead	**10.0**		1.77	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lithium	**5.36**	B	8.85	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Magnesium	**3340**		265	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Manganese	**271**		17.7	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Molybdenum	7.08	U	7.08	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Nickel	**7.33**	B	14.2	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Potassium	**849**	B	1420	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Selenium	1.06	U	1.06	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silicon	**413**		7.08	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silver	0.708	U	0.708	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Sodium	**310**		177	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Uranium	**18300**		70.8	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Vanadium	**70.0**		8.85	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zinc	**48.9**		35.4	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zirconium	**18.9**		8.85	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Mercury	**11.1**		0.390	mg/kg dry	12	L207148	07/25/2012	07/26/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/03/2012 09:59

J1PVN2
1207051-04 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**6350**		14.8	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Antimony	1.78	U	1.78	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Arsenic	**2.40**	B	2.97	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Barium	**54.0**		1.48	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Beryllium	**0.231**	B	0.594	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Boron	5.94	U	5.94	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cadmium	0.594	U	0.594	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Calcium	**5080**		297	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Chromium	**7.67**		0.594	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cobalt	**7.83**		5.94	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Copper	**18.6**		2.97	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Iron	**28800**		59.4	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lead	**4.23**		1.48	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lithium	**4.77**	B	7.42	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Magnesium	**3620**		223	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Manganese	**298**		14.8	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Molybdenum	5.94	U	5.94	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Nickel	**6.46**	B	11.9	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Potassium	**670**	B	1190	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Selenium	0.890	U	0.890	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silicon	**366**		5.94	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silver	0.594	U	0.594	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Sodium	**386**		148	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Uranium	**74.1**		59.4	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Vanadium	**69.4**		7.42	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zinc	**46.7**		29.7	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zirconium	**28.9**		7.42	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Mercury	**0.122**		0.0280	mg/kg dry	1	L207148	07/25/2012	07/26/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/03/2012 09:59

J1PVN3
1207051-05 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**9430**		16.0	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Antimony	1.92	U	1.92	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Arsenic	**7.73**		3.20	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Barium	**224**		1.60	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Beryllium	**0.621**	B	0.641	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Boron	6.41	U	6.41	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cadmium	**0.312**	B	0.641	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Calcium	**6440**		320	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Chromium	**39.2**		0.641	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cobalt	**11.0**		6.41	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Copper	**82.0**		3.20	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Iron	**44400**		64.1	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lead	**12.3**		1.60	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lithium	**6.63**	B	8.01	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Magnesium	**3710**		240	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Manganese	**364**		16.0	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Molybdenum	6.41	U	6.41	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Nickel	**10.3**	B	12.8	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Potassium	**1240**	B	1280	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Selenium	0.961	U	0.961	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silicon	**430**		6.41	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silver	0.641	U	0.641	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Sodium	**375**		160	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Uranium	**21700**		64.1	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Vanadium	**62.1**		8.01	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zinc	**50.4**		32.0	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zirconium	**15.1**		8.01	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Mercury	**1.64**		0.0799	mg/kg dry	3	L207148	07/25/2012	07/26/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/03/2012 09:59

J1PVN4
1207051-06 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	**12500**		15.9	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Antimony	1.91	U	1.91	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Arsenic	**2.13**	B	3.18	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Barium	**87.6**		1.59	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Beryllium	**0.660**		0.636	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Boron	6.36	U	6.36	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cadmium	**0.191**	B	0.636	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Calcium	**5920**		318	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Chromium	**12.3**		0.636	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Cobalt	**9.42**		6.36	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Copper	**18.1**		3.18	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Iron	**28200**		63.6	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lead	**6.54**		1.59	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Lithium	**8.97**		7.95	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Magnesium	**5000**		238	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Manganese	**285**		15.9	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Molybdenum	6.36	U	6.36	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Nickel	**11.1**	B	12.7	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Potassium	**1270**		1270	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Selenium	0.954	U	0.954	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silicon	**505**		6.36	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Silver	0.636	U	0.636	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Sodium	**286**		159	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Uranium	**8.83**	B	63.6	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Vanadium	**63.8**		7.95	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zinc	**58.9**		31.8	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Zirconium	**27.4**		7.95	mg/kg dry	3	L207156	07/26/2012	07/30/2012	6010B
Mercury	**0.0123**	B	0.0291	mg/kg dry	1	L207148	07/25/2012	07/26/2012	7471A

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 09:59

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 L207148 - SW 7471A Prep										
Blank (L207148-BLK1)				Prepared: 07/25/2012 Analyzed: 07/26/2012						
Mercury	0.0281	U	0.0281	mg/kg wet						
Duplicate (L207148-DUP2)		**Source: 1207051-01**		Prepared: 07/25/2012 Analyzed: 07/26/2012						
Mercury	0.0278	U	0.0278	mg/kg dry		0.0270 U				20
Matrix Spike (L207148-MS2)		**Source: 1207051-01**		Prepared: 07/25/2012 Analyzed: 07/26/2012						
Mercury	0.149		0.0248	mg/kg dry	0.13799	0.0270 U	108	75-125		20
Reference (L207148-SRM1)				Prepared: 07/25/2012 Analyzed: 07/26/2012						
Mercury	1.22		0.0300	mg/kg wet	1.2900		94.6	62.6-138		
Batch L207156 - SW 3050B										
Blank (L207156-BLK1)				Prepared: 07/26/2012 Analyzed: 07/30/2012						
Aluminum	5.00	U	5.00	mg/kg wet						
Antimony	0.600	U	0.600	mg/kg wet						
Arsenic	1.00	U	1.00	mg/kg wet						
Barium	0.500	U	0.500	mg/kg wet						
Beryllium	0.200	U	0.200	mg/kg wet						
Boron	2.00	U	2.00	mg/kg wet						
Cadmium	0.200	U	0.200	mg/kg wet						
Calcium	100	U	100	mg/kg wet						
Chromium	0.200	U	0.200	mg/kg wet						
Cobalt	2.00	U	2.00	mg/kg wet						
Copper	1.00	U	1.00	mg/kg wet						
Iron	20.0	U	20.0	mg/kg wet						
Lead	0.500	U	0.500	mg/kg wet						
Lithium	2.50	U	2.50	mg/kg wet						
Magnesium	75.0	U	75.0	mg/kg wet						
Manganese	5.00	U	5.00	mg/kg wet						
Molybdenum	2.00	U	2.00	mg/kg wet						
Nickel	4.00	U	4.00	mg/kg wet						
Potassium	400	U	400	mg/kg wet						
Selenium	0.300	U	0.300	mg/kg wet						
Silicon	2.00	U	2.00	mg/kg wet						
Silver	0.200	U	0.200	mg/kg wet						
Sodium	50.0	U	50.0	mg/kg wet						
Uranium	20.0	U	20.0	mg/kg wet						
Vanadium	2.50	U	2.50	mg/kg wet						

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 09:59

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 L207156 - SW 3050B										
Blank (L207156-BLK1)				Prepared: 07/26/2012 Analyzed: 07/30/2012						
Zinc	10.0	U	10.0	mg/kg wet						
Zirconium	0.208	B	2.50	mg/kg wet						
Duplicate (L207156-DUP1)		**Source: 1207051-01**		Prepared: 07/26/2012 Analyzed: 07/30/2012						
Aluminum	4250		13.3	mg/kg dry		4680			9.48	20
Antimony	1.60	U	1.60	mg/kg dry		1.63 U				20
Arsenic	1.14	B	2.67	mg/kg dry		1.78			43.5*	20
Barium	55.1		1.33	mg/kg dry		66.5			18.7	20
Beryllium	0.187	B	0.533	mg/kg dry		0.247			27.6*	20
Boron	5.33	U	5.33	mg/kg dry		5.42 U				20
Cadmium	0.533	U	0.533	mg/kg dry		0.542 U				20
Calcium	5200		267	mg/kg dry		5730			9.78	20
Chromium	5.95		0.533	mg/kg dry		4.60			25.6*	20
Cobalt	7.65		5.33	mg/kg dry		9.39			20.4*	20
Copper	13.4		2.67	mg/kg dry		14.8			10.0	20
Iron	24400		53.3	mg/kg dry		29200			17.8	20
Lead	2.17		1.33	mg/kg dry		2.63			19.0	20
Lithium	3.74	B	6.67	mg/kg dry		4.06			8.26	20
Magnesium	3200		200	mg/kg dry		3960			21.1*	20
Manganese	283		13.3	mg/kg dry		336			17.1	20
Molybdenum	5.33	U	5.33	mg/kg dry		5.42 U				20
Nickel	6.20	B	10.7	mg/kg dry		6.60			6.25	20
Potassium	566	B	1070	mg/kg dry		480			16.4	20
Selenium	0.800	U	0.800	mg/kg dry		0.814 U				20
Silicon	263		5.33	mg/kg dry		287			8.94	20
Silver	0.533	U	0.533	mg/kg dry		0.542 U				20
Sodium	287		133	mg/kg dry		372			25.7*	20
Uranium	53.3	U	53.3	mg/kg dry		54.2 U				20
Vanadium	68.0		6.67	mg/kg dry		85.3			22.5*	20
Zinc	44.8		26.7	mg/kg dry		50.2			11.2	20
Zirconium	26.8		6.67	mg/kg dry		29.2			8.82	20

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-149 Project Number: K3958 Project Manager: Joan Kessner	**Reported:** 08/03/2012 09:59

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 L207156 - SW 3050B									
Matrix Spike (L207156-MS1)	**Source: 1207051-01**	Prepared: 07/26/2012 Analyzed: 07/30/2012							
Aluminum	6160	12.9	mg/kg dry	171.93	4680	864*	75-125		
Antimony	23.3	1.55	mg/kg dry	42.982	1.63 U	54.1*	75-125		
Arsenic	150	2.58	mg/kg dry	171.93	1.78	86.4	75-125		
Barium	220	1.29	mg/kg dry	171.93	66.5	89.3	75-125		
Beryllium	4.03	0.516	mg/kg dry	4.2982	0.247	87.9	75-125		
Boron	74.3	5.16	mg/kg dry	85.964	5.42 U	86.4	75-125		
Cadmium	4.38	0.516	mg/kg dry	4.2982	0.542 U	102	75-125		
Calcium	8360	258	mg/kg dry	2149.1	5730	122	75-125		
Chromium	18.3	0.516	mg/kg dry	17.193	4.60	80.0	75-125		
Cobalt	46.1	5.16	mg/kg dry	42.982	9.39	85.3	75-125		
Copper	37.1	2.58	mg/kg dry	21.491	14.8	104	75-125		
Iron	29200	51.6	mg/kg dry	85.964	29200	11.9*	75-125		
Lead	38.4	1.29	mg/kg dry	42.982	2.63	83.2	75-125		
Lithium	80.3	6.45	mg/kg dry	85.964	4.06	88.7	75-125		
Magnesium	5770	193	mg/kg dry	2149.1	3960	84.2	75-125		
Manganese	366	12.9	mg/kg dry	42.982	336	72.0*	75-125		
Molybdenum	74.7	5.16	mg/kg dry	85.964	5.42 U	86.9	75-125		
Nickel	42.4	10.3	mg/kg dry	42.982	6.60	83.4	75-125		
Potassium	2440	1030	mg/kg dry	2149.1	480	91.0	75-125		
Selenium	144	0.774	mg/kg dry	171.93	0.814 U	84.0	75-125		
Silicon	380	5.16	mg/kg dry	85.964	287	108	75-125		
Silver	3.50	0.516	mg/kg dry	4.2982	0.542 U	81.4	75-125		
Sodium	2530	129	mg/kg dry	2149.1	372	100	75-125		
Uranium	374	51.6	mg/kg dry	429.82	54.2 U	86.9	75-125		
Vanadium	116	6.45	mg/kg dry	42.982	85.3	71.6*	75-125		
Zinc	87.7	25.8	mg/kg dry	42.982	50.2	87.4	75-125		
Zirconium	410	6.45	mg/kg dry	429.82	29.2	88.6	75-125		

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/03/2012 09:59

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 L207156 - SW 3050B									
Reference (L207156-SRM1)			Prepared: 07/26/2012 Analyzed: 07/30/2012						
Aluminum	10200	14.7	mg/kg wet	6670.0		153	0-200.89		
Antimony	48.1	1.76	mg/kg wet	53.000		90.7	0-235.8		
Arsenic	117	2.94	mg/kg wet	114.00		102	82.8-117.54		
Barium	306	1.47	mg/kg wet	307.00		99.6	79.8-120.2		
Beryllium	103	0.588	mg/kg wet	108.00		95.1	82.8-117.6		
Boron	82.9	5.88	mg/kg wet	85.100		97.4	67.5-132.8		
Cadmium	219	0.588	mg/kg wet	225.00		97.3	83.6-116.4		
Calcium	3060	294	mg/kg wet	3360.0		90.9	83.3-116.9		
Chromium	77.4	0.588	mg/kg wet	77.200		100	73.3-126.4		
Cobalt	159	5.88	mg/kg wet	166.00		95.9	80.7-118.7		
Copper	273	2.94	mg/kg wet	271.00		101	80.8-119.2		
Iron	8170	58.8	mg/kg wet	8420.0		97.1	78.6-121.1		
Lead	183	1.47	mg/kg wet	190.00		96.3	81.6-118.4		
Lithium	121	7.35	mg/kg wet	114.00		106	50.9-148.2		
Magnesium	7460	221	mg/kg wet	8570.0		87.1	83.2-116.7		
Manganese	879	14.7	mg/kg wet	965.00		91.1	69.3-130.5		
Molybdenum	239	5.88	mg/kg wet	235.00		102	76.2-123.8		
Nickel	221	11.8	mg/kg wet	221.00		99.8	79.6-120.8		
Potassium	13600	1180	mg/kg wet	14400		94.6	81.9-118.1		
Selenium	191	0.882	mg/kg wet	187.00		102	75.9-124.6		
Silicon	855	5.88	mg/kg wet	807.00		106	0-219.3		
Silver	79.0	0.588	mg/kg wet	83.500		94.6	82.7-117.1		
Sodium	9290	147	mg/kg wet	9730.0		95.5	82.5-117.2		
Vanadium	102	7.35	mg/kg wet	98.700		104	75.9-123.6		
Zinc	194	29.4	mg/kg wet	199.00		97.5	78.4-121.6		

Lionville Laboratory

Logbook #: 1128

SAMPLE DIGESTION RECORD

Digestion Batch #: L207156
Date/Time Initiated: 7/25/12 1530
Date/Time Completed: 7/26/12 1300
Analyst: NW
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 #: B/4
Balance Cal Verification: Y NA
Temp: 97°
BLOCK 1 2 (circle one)
3

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/ TC	Texture	Color / Appearance	Artifact	Turb
1207051-01		0.58	50		TO	coarse	gray/dk gray granules	rocks	
L207156-DUP1		0.59	50						
MS1	0.5 ⊛	0.61	50						
1207051-02		0.54	50			coarse	dk gray, tan/big gran.	rocks	RAD
03		0.52	50			fine	tan/mud	rocks	RAD
04		0.55	50			coarse	dk. brown/big gran.	rocks	RAD
05		0.54	50			fine	brown/muddy	rocks	RAD
06		0.58	50			coarse	dk brown/clay	rocks	
1207054-07		0.51	50			coarse	brick red chunks,	N/A	
L207156-DUP2		0.52	50				blue fibers, olive		
MS2	0.5 ⊛	0.56	50				brown ceramic-like		
BLK1		0.50	50			coarse	white boiling chips		
SRM1	*	0.51	50			fine	pink sandy		

NW 7/25/12

Spiking IDs / Expiration Date:
MS#: 1200457
LCS#: 1101357 *

Reagent IDs:
HNO_3 L08023
HCl L01031
H_2O_2 K09A03
1:1 HNO_3 037-066-02
1:1 HCl

File ID#:

Data Review By/Date:
Rev 3/1/12

⊛ also 0.25 ml each of:
1200380 U
1200386 Zr

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

Page #:

Lionville Laboratory

MERCURY PREPARATION

Analyst: Mkl
Date 7/25/12
Start Time/Temp: 1830/94°
End Time/Temp: 1900/96°

Instrument ID: Hg 3.1
Balance # B14 /NA
Pipette Calibration (Daily) (Y)

Logbook # 1143
Prep Batch: L107148
Worksheet:
SOP No. ME-HgCVAA
BLOCK 1 (3) 2 (circle one)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
Blank				10 ml	50	
0.2 ug/l		0.100		10 ml	50	
1.0 ug/l		0.500		10 ml	50	
2.0 ug/l		1.000		10 ml	50	
5.0 ug/l		2.500		10 ml	50	
10.0 ug/l		5.000		10 ml	50	
ICV		0.125	2.5	10 ml	50	
CCV		0.250	5.0	10 ml	50	
ICB/CCB				10 ml	50	
L207148-BLK1				0.32	50	
SRM1		(*)	(*)	0.30	50	
1207049-01				0.20	50	
L207148-DUP1				0.31	50	
MS1		0.500	1.0	0.30	50	
1207051-01				0.35	50	
L207148-DUP2				0.34	50	
MS2		0.500	1.0	0.38	50	
1207051-02				0.37	50	RAD
03				0.34	50	
04				0.35	50	
05				0.39	50	
06				0.38	50	
1207054-01 w.c. MW 7/25/12				0.35	50	
L207148-DUP3				0.38	50	
MS3		0.500	1.0	0.38	50	
	MW 7/25/12					

Standard:	ID	Prep Date/Time
ICAL/MS	RI 1200588	7/25/12 1130
ICV/CCV/LCS	(I.V. 1200532)	N/A

Reviewed By/Date: RGG 7/31/12

se book # 1143, 1131 for std traceability information

Soil LCS True Value = 1.79 mg/Kg
Standard # 1101357 (*)

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

ME-HgCVAA-Prep0910

Page #:

000000096

INORGANICS

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

WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/13/2012 19:13

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PVM9	1207051-01	Soil	07/18/2012 08:57	07/24/2012 10:10
J1PVN0	1207051-02	Soil	07/18/2012 09:09	07/24/2012 10:10
J1PVN1	1207051-03	Soil	07/18/2012 09:21	07/24/2012 10:10
J1PVN2	1207051-04	Soil	07/18/2012 09:38	07/24/2012 10:10
J1PVN3	1207051-05	Soil	07/18/2012 09:47	07/24/2012 10:10
J1PVN4	1207051-06	Soil	07/18/2012 09:58	07/24/2012 10:10

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A division of Eberline Analytical Corporation

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Exton, Pennsylvania 19341
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Case Narrative

Client: WC-HANFORD RC-149 K3958
LVL#: 1207051 **Date Received:** 07-24-12

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. Results for soil or solid pH are measured in water at 25°C unless otherwise specified.

   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 exception of Nitrate, Nitrite and Orthophosphate that were received past hold.

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 and method criteria.

7. The matrix spike recoveries were within the 75-125% control limits.

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

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

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

for Iain Daniels
Laboratory Manager
Lionville Laboratory

8/15/12
Date

njp\i07-051

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 13 pages.

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/13/2012 19:13

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.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/13/2012 19:13

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier		LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVM9 (1207051-01) Soil										
%Solids	**95.4**			0.1	% by Weight	1	L207151	07/25/2012	07/25/2012	SM2540G
Bromide	1.0	U	1.0	5.2	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Chloride	1.0	U	1.0	5.2	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Fluoride	1.0	U	1.0	5.2	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate	1.0	U	1.0	5.2	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrite	1.0	U	1.0	5.2	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Orthophosphate	2.1	U	2.1	10.4	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Sulfate	**3.1**	B	1.0	5.2	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.14**	B	0.10	0.52	mg/kg dry	1	L207172	07/26/2012	07/26/2012	EPA 353.2
pH	**8.93**		0.10	0.10	pH Units	1	L208085	08/13/2012	08/13/2012	SW846 9045D
%Moisture	**4.65**			0.10	% by Weight	1	L207152	07/25/2012	07/25/2012	D2216
J1PVN0 (1207051-02) Soil										
%Solids	**95.0**			0.1	% by Weight	1	L207151	07/25/2012	07/25/2012	SM2540G
Bromide	0.9	U	0.9	4.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Chloride	0.9	U	0.9	4.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Fluoride	**2.8**	B	0.9	4.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate	**2.1**	B	0.9	4.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrite	0.9	U	0.9	4.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Orthophosphate	**30.2**		1.9	9.5	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Sulfate	**2.6**	B	0.9	4.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.60**		0.09	0.47	mg/kg dry	1	L207172	07/26/2012	07/26/2012	EPA 353.2
pH	**7.62**		0.10	0.10	pH Units	1	L208085	08/13/2012	08/13/2012	SW846 9045D
%Moisture	**5.02**			0.10	% by Weight	1	L207152	07/25/2012	07/25/2012	D2216

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/13/2012 19:13

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVN1 (1207051-03) Soil									
%Solids	**81.5**		0.1	% by Weight	1	L207151	07/25/2012	07/25/2012	SM2540G
Bromide	1.2 U	1.2	5.9	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Chloride	1.2 U	1.2	5.9	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Fluoride	**2.5** B	1.2	5.9	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate	**7.9**	1.2	5.9	mg/kg dry	1	L207168	03/12/2012	07/26/2012	EPA 300.0 (1993)
Nitrite	1.2 U	1.2	5.9	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Orthophosphate	**21.1**	2.4	11.8	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Sulfate	**12.4**	1.2	5.9	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**2.06**	0.12	0.59	mg/kg dry	1	L207172	07/26/2012	07/26/2012	EPA 353.2
pH	**6.56**	0.10	0.10	pH Units	1	L208085	08/13/2012	08/13/2012	SW846 9045D
%Moisture	**18.5**		0.10	% by Weight	1	L207152	07/25/2012	07/25/2012	D2216
J1PVN2 (1207051-04) Soil									
%Solids	**91.9**		0.1	% by Weight	1	L207151	07/25/2012	07/25/2012	SM2540G
Bromide	1.1 U	1.1	5.4	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Chloride	1.1 U	1.1	5.4	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Fluoride	1.1 U	1.1	5.4	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate	**8.2**	1.1	5.4	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrite	1.1 U	1.1	5.4	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Orthophosphate	**25.9**	2.2	10.8	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Sulfate	**8.7**	1.1	5.4	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**2.31**	0.11	0.54	mg/kg dry	1	L207172	07/26/2012	07/26/2012	EPA 353.2
pH	**7.53**	0.10	0.10	pH Units	1	L208085	08/13/2012	08/13/2012	SW846 9045D
%Moisture	**8.10**		0.10	% by Weight	1	L207152	07/25/2012	07/25/2012	D2216

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/13/2012 19:13

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier		LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVN3 (1207051-05) Soil										
%Solids	**86.7**			0.1	% by Weight	1	L207151	07/25/2012	07/25/2012	SM2540G
Bromide	1.1	U	1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Chloride	1.1	U	1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Fluoride	**4.7**	B	1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate	**1.7**	B	1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrite	1.1	U	1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Orthophosphate	**35.0**		2.3	11.4	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Sulfate	**14.9**		1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.48**	B	0.11	0.57	mg/kg dry	1	L207172	07/26/2012	07/26/2012	EPA 353.2
pH	**7.88**		0.10	0.10	pH Units	1	L208085	08/13/2012	08/13/2012	SW846 9045D
%Moisture	**13.3**			0.10	% by Weight	1	L207152	07/25/2012	07/25/2012	D2216
J1PVN4 (1207051-06) Soil										
%Solids	**81.3**			0.1	% by Weight	1	L207151	07/25/2012	07/25/2012	SM2540G
Bromide	1.1	U	1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Chloride	**7.1**		1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Fluoride	1.1	U	1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate	**30.4**		1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrite	1.1	U	1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Orthophosphate	2.3	U	2.3	11.5	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Sulfate	**19.3**		1.1	5.7	mg/kg dry	1	L207168	07/26/2012	07/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**7.34**		0.11	0.57	mg/kg dry	1	L207172	07/26/2012	07/26/2012	EPA 353.2
pH	**8.90**		0.10	0.10	pH Units	1	L208085	08/13/2012	08/13/2012	SW846 9045D
%Moisture	**18.7**			0.10	% by Weight	1	L207152	07/25/2012	07/25/2012	D2216

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/13/2012 19:13

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207151 - % Solids										
Duplicate (L207151-DUP1)		**Source: 1207051-01**		Prepared & Analyzed: 07/25/2012						
%Solids	94.9		0.1	% by Weight		95.4			0.4	20
Batch L207152 - Default Prep GenChem										
Duplicate (L207152-DUP1)		**Source: 1207051-01**		Prepared & Analyzed: 07/25/2012						
%Moisture	5.07		0.10	% by Weight		4.65			8.74	20
Batch L207168 - Default Prep GenChem										
Blank (L207168-BLK1)				Prepared & Analyzed: 07/26/2012						
Fluoride	1.0 U	1.0	5.0	mg/kg wet						
Chloride	3.8 B	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	1.9 B	1.0	5.0	mg/kg wet						
Nitrite	1.0 U	1.0	5.0	mg/kg wet						
LCS (L207168-BS1)				Prepared & Analyzed: 07/26/2012						
Fluoride	48.2	1.0	5.0	mg/kg wet	50.000		96.4	80-120		
Chloride	47.7	1.0	5.0	mg/kg wet	50.000		95.4	80-120		
Bromide	48.8	1.0	5.0	mg/kg wet	50.000		97.6	80-120		
Orthophosphate	50.2	2.0	10.0	mg/kg wet	50.000		100	80-120		
Sulfate	49.7	1.0	5.0	mg/kg wet	50.000		99.4	80-120		
Nitrate	49.1	1.0	5.0	mg/kg wet	50.000		98.2	80-120		
Nitrite	47.0	1.0	5.0	mg/kg wet	50.000		94.0	80-120		

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Richland WA, 99354	Project Manager: Joan Kessner	08/13/2012 19:13

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207168 - Default Prep GenChem											
Duplicate (L207168-DUP1)		**Source: 1207051-01**			Prepared & Analyzed: 07/26/2012						
Fluoride	1.0	U	1.0	5.2	mg/kg dry		1.0 U				20
Chloride	1.0	U	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	2.1	U	2.1	10.4	mg/kg dry		2.1 U				20
Sulfate	3.0	B	1.0	5.2	mg/kg dry		3.1			3.82	20
Nitrate	1.0	U	1.0	5.2	mg/kg dry		1.0 U				20
Nitrite	1.0	U	1.0	5.2	mg/kg dry		1.0 U				20
Matrix Spike (L207168-MS1)		**Source: 1207051-01**			Prepared & Analyzed: 07/26/2012						
Fluoride	50.7		1.0	5.2	mg/kg dry	52.125	1.0 U	97.2	75-125		
Chloride	50.1		1.0	5.2	mg/kg dry	52.125	1.0 U	96.2	75-125		
Bromide	50.9		1.0	5.2	mg/kg dry	52.125	1.0 U	97.6	75-125		
Orthophosphate	50.6		2.1	10.4	mg/kg dry	52.125	2.1 U	97.0	75-125		
Sulfate	54.0		1.0	5.2	mg/kg dry	52.125	3.1	97.6	75-125		
Nitrate	53.1		1.0	5.2	mg/kg dry	52.125	1.0 U	102	75-125		
Nitrite	49.8		1.0	5.2	mg/kg dry	52.125	1.0 U	95.6	75-125		
Batch L207172 - Default Prep GenChem											
Blank (L207172-BLK1)					Prepared & Analyzed: 07/26/2012						
Nitrate/Nitrite as N	0.10	B	0.10	0.50	mg/kg wet						
LCS (L207172-BS1)					Prepared & Analyzed: 07/26/2012						
Nitrate/Nitrite as N	5.21		0.10	0.50	mg/kg wet	5.0000		104	90-110		
Duplicate (L207172-DUP1)		**Source: 1207051-01**			Prepared & Analyzed: 07/26/2012						
Nitrate/Nitrite as N	0.10	U	0.10	0.52	mg/kg dry		0.14				20

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2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/13/2012 19:13

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207172 - Default Prep GenChem										
Matrix Spike (L207172-MS1)		**Source: 1207051-01**		Prepared & Analyzed: 07/26/2012						
Nitrate/Nitrite as N	5.31	0.10	0.52	mg/kg dry	5.2125	0.14	99.1	75-125		
Batch L208085 - Default Prep GenChem										
Duplicate (L208085-DUP1)		**Source: 1207051-02**		Prepared & Analyzed: 08/13/2012						
pH	7.57	0.10	0.10	pH Units		7.62			0.658	20
Reference (L208085-SRM1)				Prepared & Analyzed: 08/13/2012						
pH	4.05	0.10	0.10	pH Units	4.0000		101	99-101		

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29 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 #	1207051
SDG #	K3958 ADDON
SAF #	RC-149
Date of Addon	08/21/12
# Samples	2
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	X
Inorganics	

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 17 pages.

CHAIN OF CUSTODY

** REVISION **

Lionville Laboratory Use Only: 1207051

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-149
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: Arlette Johnson
QC: STD Del: STD TAT: 21 days
Date Rec'd: 7-24-12 Date Due: 8-14-12

		ABCD	E			F			G		H		I	J		
Refrigerator #		F001	1			1			1		1		1	1		
#/Type Container	Liquid									USE AVAILABLE VOLUME						
	Solid	4	1 aql			1 aql			1 aql		1 aql		1 aql	1 aql		
Volume	Liquid															
	Solid	40	60			60			~~60~~		60		60	40		
Preservatives		—	—			—			—		—		—	—		
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	TPH-D			Metal + Hg	CN	IC Anions	NO2/NO3	PH	% Moisture		

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260	8270			DEC/NEC			Met/Hg	TCLP metals	Anions	NO2/NO3	pH	% moisture		
01	J1PVM9			S	7-18-12	0857	X	X			X			X		X	X	X	X		
02	J1PVN0					0909	X	X			X			X		X	X	X	X		
03	J1PVN1					0921	X	X			X			X	X	X	X	X	X		
04	J1PVN2					0938	X	X			X			X		X	X	X	X		
05	J1PVN3					0947	X	X			X			X	X	X	X	X	X		
06	J1PVN4					0958	X	X			X			X		X	X	X	X		

Special Instructions:
① Met = HSL + B, Li, Mo, Si, U, Zr (NOTL)

Special Instructions:
1. Did Not Receive Original C.O.C.s.
2. Did Not Receive VOA samples #01 - #06.
3.
4.
5. Rec'd C.O.C.s + VOA samples #01-#06 @ 15:40.
6. 8/21/12 TCLP metals added to samples -03 and -05 per client use available volume due 8/28/12

Relinquished by	Received by	Date	Time
FedEx	[illegible]	7-24-12	10:10
FedEx	[illegible]	7-24-12	15:40

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-149-093	Page 1 of ~~4~~ 2

Collector: M. Simonds	Company Contact: Joan Kessner; Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH	Price Code: 8L; Data Turnaround: 21 Days (CKB 7/18/12)
Project Designation: 300 Area D4 Waste Sites - Soil In-Process	Sampling Location: UPR-300-4 [321] Stained Soil So. Excavation Slope	SAF No.: RC-149	
Ice Chest No.: WCH-11-030	Field Logbook No.: EL-1663-02; COA: RUP3042600	Method of Shipment: (FedEx) Hand Deliver	
Shipped To: ~~EBERLINE SERVICES~~ (LIONVILLE) RCB 7/18/12	Offsite Property No.: NA	Bill of Lading/Air Bill No.: See ~~OSPC~~ RSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive L DOT ~~Limits~~ LTD QTY AJ 7-23-12

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	Cool 4C	None	Cool 4C	Freeze (AJ 7-23-12)	Cool 4C	None	None	None	None	None
Type of Container	G/P	G/P	G/P	aG	Gs*	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	3	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	40mL	60mL	500mL	60mL	60mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	pH - 9045	TPH-Diesel Range - WTPH-D +	VOA - 5035/8260 (TCL)	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Isotopic Uranium	Isotopic Plutonium	Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time								RCF		
J1PVM9	SOIL	7/18/12	0857	✓	✓	✓	✓	✓	✓		33978		
J1PVN0	SOIL	7/18/12	0909	✓	✓	✓	✓	✓	✓		33979		
J1PVN1	SOIL	7/18/12	0921	✓	✓	✓	✓	✓	✓		33980		
J1PVN2	SOIL	7/18/12	0938	✓	✓	✓	✓	✓	✓		33981		
J1PVN3	SOIL	7/18/12	0947	✓	✓	✓	✓	✓	✓		33982		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
MIRANDA SIMONDS	7-18-12 1335	DAVID BECKER	7/18/12 1335
DAVID BECKER	7/18/12 1600	106043 A.F. Dennis Newman	1600 7-18-12
Dennis Newman	7/23/12 0715	A. Freier	0715 7-23-12
A. Freier	WCH 1140 7-23-12	Fed Ex	
Fed Ex	7-24-12 10:10	D. Smith	7-24-12 10:10
Fed Ex	7-24-12 15:40	D. Smith	7-24-12 15:40

SPECIAL INSTRUCTIONS

~~Please Note:~~ For the samples designated for TCLP Metals ~~Analysis~~ Leach and Hold until further direction is provided. RCB 7/18/12

(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}

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

REVIEWED BY JEB DATE 7-23-12

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

WCH-EE-011

0000000004

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-149-093	Page 2 of ~~4~~ 2

Collector M. Simonds	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 8L	Data Turnaround 21 Days		
Project Designation 300 Area D4 Waste Sites - Soil In-Process	Sampling Location UPR-300-4 [321] Stained Soil So. Excavation Slope		SAF No. RC-149
Ice Chest No. WCH-11-030	Field Logbook No. EL-1663-02	COA RUP3042600	Method of Shipment FedEx/Hand Deliever
Shipped To ~~EBERLINE SERVICES~~ LIONVILLE	Offsite Property No. NA		Bill of Lading/Air Bill No. See ~~OSPC~~ RSR

POSSIBLE SAMPLE HAZARDS/REMARKS
Potential Radioactive LDOT ~~Limits~~ LTD QTY AJ 7-23-12

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	None	Cool 4C	Freeze AJ 7-23-12	Cool 4C	None	None	None	None
Type of Container	G/P	G/P	G/P	aG	Gs*	aG	G/P	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	3	1	1	1	1	1
Volume	60mL	60mL	60mL	60mL	40mL	60mL	500mL	60mL	60mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	IC Anions - 300.0; NO2/NO3 - 353.2	pH - 9045	TPH-Diesel Range - WTPH-D +	VOA - 5035/8260 (TCL)	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Isotopic Uranium	Isotopic Plutonium	Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVN4	SOIL	7/18/12	0958	✓	✓	✓	✓	✓	✓		RCE 83983		
~~J1PVN5~~	~~SOIL~~												
~~J1PVN6~~	~~SOIL~~												

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From Michael Simonds	Date/Time 7/18/12 1335	Received By/Stored In David Becker	Date/Time 7/18/12 1335
Relinquished By/Removed From David Becker	Date/Time 7/18/12 1600	Received By/Stored In 1060#3 Dennis Newman	Date/Time 7-18-12 1600
Relinquished By/Removed From 1060#3 Dennis Newman	Date/Time 0715 7/23/12	Received By/Stored In A. Freier	Date/Time 0715 7-23-12
Relinquished By/Removed From LOCH A. Freier	Date/Time 1140 7-23-12	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 7-24-12 10:10	Received By/Stored In D. Smith	Date/Time 7-24-12 10:10
Relinquished By/Removed From Fed Ex	Date/Time 7-24-12 15:40	Received By/Stored In D. Smith	Date/Time 7-25-12 15:40

SPECIAL INSTRUCTIONS
Please Note: For the samples designated for TCLP Metals Analysis - Leach and Hold until further direction is provided.

(1) ICP Metals - 6010TR (Client List) {Aluminum, Antimony, 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}

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

REVIEWED BY JEB DATE 7-23-12

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

WCH-EE-011

00000005

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford
Project/SAF/SOW/Release #: RC-149

Date: 7-24-12

LvL Batch #: 1207051

Sample Custodian: D. [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7986 5176 9122 7938 2113 0079
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~~ 7-24-12	☑ No	Did Not Receive C.o.C. 7/24/12 Rec'd COCs @ 15:40
5. Samples received cooled or ambient?	Temp 2-8 °C		Cooler # RC-07-015 WCH-11-030
How was the temperature taken?	☑ IR 9.1°C	☐ 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~~ 7-24-12	
8. Sample containers are intact?	☑ Yes	☐ No	7-24-12
9. All samples on COC received?	☑ Yes	~~☑ No~~	
All samples received on COC?	☑ Yes	☑ No	Did Not Receive VOA samples Rec'd VOA samples #01-#06 @ 15:40 on 7/24/12
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☑ No	VOA samples @ 9.1. Rec'd
12. Samples received within hold times?	~~☑ Yes~~	☑ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A 7/25/12 NO_2, NO_3, PO_4-O recv'd outside recommended hold time.
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☐ Yes	~~☑ No~~ See above	
16. Project Manager contacted concerning any discrepancies?	☑ Yes	☐ No	☐ N/A
Person Contacted OS		Date 7-24-12	

SR-002-B.doc

000000006

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

WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/29/2012 08:41

Analytical Report for TCLP Metals by SW846 1311 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PVN1	1207051-03	Soil	07/18/2012 09:21	07/24/2012 10:10
J1PVN3	1207051-05	Soil	07/18/2012 09:47	07/24/2012 10:10

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-149
LVL#: 1207051
SDG/SAF#: K3958/RC-149

W.O.#: 60049-001-001-0001-00
Date Received: 07-24-12

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 2 TCLP leachate samples.

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

   The TCLP leachate samples were analyzed and reported with 5-fold dilutions for ICP metals due to sample matrix.

3. All analyses were performed within the required holding times with the exception of the TCLP leachate sample for Mercury. The TCLP procedure for Mercury was performed outside the required holding time. The analyses of all Mercury leachates were performed within the required holding time.

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

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

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

7. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation, MB value less than 5% of the RCRA limit or samples were greater than 20X MB value}.

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

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

9. All laboratory control samples (LCS) were within the 80-120% control limits.

10. The TCLP extract from sample J1PVN1 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

    The matrix spike (MS) concentration for Mercury was equivalent to the regulatory level (200 ppb) as per SW846 method 1311. The required spike concentration is above the linear range of the instrument, resulting in a 50-fold dilution. The MS recovery was greater than 50% as per method criteria.

11. The TCLP leachate duplicate analyses for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. The ± 20% RPD control limit applies to sample results greater than ten times the MDL.

12. 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.

13. 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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

8/29/12
Date

alm/07-051tc

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

WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/29/2012 08:41

Notes and Definitions

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

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/29/2012 08:41

J1PVN1
1207051-03 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
TCLP Metals by SW846 1311 6000/7000 series									
Arsenic	0.0750	U	0.0750	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Barium	**0.138**		0.00500	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Cadmium	0.0150	U	0.0150	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Chromium	**0.00258**	B	0.0250	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Lead	0.0500	U	0.0500	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Selenium	0.100	U	0.100	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Silver	0.0300	U	0.0300	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Mercury	0.000200	U	0.000200	mg/L	1	L208232	08/24/2012	08/27/2012	7470

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Exton, PA 19341
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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/29/2012 08:41

J1PVN3
1207051-05 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
TCLP Metals by SW846 1311 6000/7000 series									
Arsenic	0.0750	U	0.0750	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Barium	**0.147**		0.00500	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Cadmium	0.0150	U	0.0150	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Chromium	**0.00328**	B	0.0250	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Lead	0.0500	U	0.0500	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Selenium	0.100	U	0.100	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Silver	0.0300	U	0.0300	mg/L	5	L208234	08/24/2012	08/28/2012	6010
Mercury	0.000200	U	0.000200	mg/L	1	L208232	08/24/2012	08/27/2012	7470

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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/29/2012 08:41

TCLP Metals by SW846 1311 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 L208232 - SW 7470A Prep										
Blank (L208232-BLK1)				Prepared: 08/24/2012 Analyzed: 08/27/2012						
Mercury	0.000200	U	0.000200	mg/L						
Blank (L208232-BLK2)				Prepared: 08/24/2012 Analyzed: 08/27/2012						
Mercury	0.000200	U	0.000200	mg/L						
LCS (L208232-BS1)				Prepared: 08/24/2012 Analyzed: 08/27/2012						
Mercury	0.00544		0.000200	mg/L	0.0050000		109	80-120		
Duplicate (L208232-DUP1)		**Source: 1207051-03**		Prepared: 08/24/2012 Analyzed: 08/27/2012						
Mercury	0.000200	U	0.000200	mg/L		0.000200 U				20
Matrix Spike (L208232-MS1)		**Source: 1207051-03**		Prepared: 08/24/2012 Analyzed: 08/28/2012						
Mercury	0.200		0.0100	mg/L	0.20000	0.000200 U	100	50-1000		
Batch L208234 - SW 3010A										
Blank (L208234-BLK1)				Prepared: 08/24/2012 Analyzed: 08/28/2012						
Arsenic	0.0150	U	0.0150	mg/L						
Barium	0.000477	B	0.00100	mg/L						
Cadmium	0.00300	U	0.00300	mg/L						
Chromium	0.00500	U	0.00500	mg/L						
Lead	0.0100	U	0.0100	mg/L						
Selenium	0.0200	U	0.0200	mg/L						
Silver	0.00600	U	0.00600	mg/L						
Blank (L208234-BLK2)				Prepared: 08/24/2012 Analyzed: 08/28/2012						
Arsenic	0.0750	U	0.0750	mg/L						
Barium	0.00500	U	0.00500	mg/L						
Cadmium	0.0150	U	0.0150	mg/L						
Chromium	0.0250	U	0.0250	mg/L						
Lead	0.0500	U	0.0500	mg/L						
Selenium	0.100	U	0.100	mg/L						
Silver	0.0300	U	0.0300	mg/L						

264 Welsh Pool Road
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WC-Hanford, Inc.	Project: RC-149	
2620 Fermi Avenue	Project Number: K3958	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/29/2012 08:41

TCLP Metals by SW846 1311 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 L208234 - SW 3010A										
LCS (L208234-BS1)				Prepared: 08/24/2012 Analyzed: 08/28/2012						
Arsenic	10.0		0.0150	mg/L	10.000		100	80-120		
Barium	4.96		0.00100	mg/L	5.0000		99.3	80-120		
Cadmium	0.212		0.00300	mg/L	0.25000		84.8	80-120		
Chromium	0.492		0.00500	mg/L	0.50000		98.3	80-120		
Lead	2.38		0.0100	mg/L	2.5000		95.0	80-120		
Selenium	9.65		0.0200	mg/L	10.000		96.5	80-120		
Silver	0.495		0.00600	mg/L	0.50000		99.1	80-120		
Duplicate (L208234-DUP1)		**Source: 1207051-03**		Prepared: 08/24/2012 Analyzed: 08/28/2012						
Arsenic	0.0750	U	0.0750	mg/L		0.0750 U				20
Barium	0.0702		0.00500	mg/L		0.138			64.9*	20
Cadmium	0.0150	U	0.0150	mg/L		0.0150 U				20
Chromium	0.00293	B	0.0250	mg/L		0.00258			12.5	20
Lead	0.0500	U	0.0500	mg/L		0.0500 U				20
Selenium	0.100	U	0.100	mg/L		0.100 U				20
Silver	0.0300	U	0.0300	mg/L		0.0300 U				20
Matrix Spike (L208234-MS1)		**Source: 1207051-03**		Prepared: 08/24/2012 Analyzed: 08/28/2012						
Arsenic	5.22		0.0750	mg/L	5.0000	0.0750 U	104	50-1000		
Barium	95.7		0.00500	mg/L	100.00	0.138	95.6	50-1000		
Cadmium	1.02		0.0150	mg/L	1.0000	0.0150 U	102	50-1000		
Chromium	5.05		0.0250	mg/L	5.0000	0.00258	101	50-1000		
Lead	4.82		0.0500	mg/L	5.0000	0.0500 U	96.4	50-1000		
Selenium	1.01		0.100	mg/L	1.0000	0.100 U	101	50-1000		
Silver	5.03		0.0300	mg/L	5.0000	0.0300 U	101	50-1000		

Lionville Laboratory

Logbook #: 1128

SAMPLE DIGESTION RECORD

Digestion Batch #: L208234
Date/Time Initiated: 8/24/12 1115
Date/Time Completed: 8/24/12 1810
Analyst: MW
Matrix (circle): Soil Water Other TCLP leach
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 #:
Balance Cal Verification: Y NA
Temp: 96
BLOCK 1 2 (circle one)
3

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/ TC	Texture	Color / Appearance	Artifact	Turb
1207051-03		50	50	<	TC	N/A	clear / colorless		
L208234-DUP1		50	50	<					
MS1	0.5	50	50						
1207051-05		50	50	<			clear/colorless		
1207054-01		50	50	<			clear/colorless		
L208234-DUP2		50	50	<					
MS2	0.5	50	50						
1208072-01		50	50	<			cloudy brown/nearly clear		
L208234-DUP3		50	50	<					
MS3	0.5	50	50						
BLK1		50	50				clear/colorless		
BS1	0.5	50	50						
1) BLK2		50	50	<					
2) BLK3		50	50	<					
3) BLK4		50	50	<					

MW 8/24/12

Spiking IDs / Expiration Date:
MS#: 1101384
1200388

LCS#: 1200453

Reagent IDs:
HNO_3 L08023
HCl
H_2O_2
1:1 HNO_3
1:1 HCl 637-069-01

File ID#:

Data Review By/Date: WM 8/28/12

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Signed\SPI\Metals Digestion log.doc

1) L208202 (1207051)
2) L207155 (1207054)
3) L208200 (1208072)

Page #:

Lionville Laboratory

MERCURY PREPARATION

Analyst: [illegible]
Date 8/24/12
Start Time/Temp: 1415/95°
End Time/Temp: 1615/97°

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

Logbook # 1153
Prep Batch: L208232
Worksheet: HG082701/HG082801
SOP No. ME-HgCVAA
BLOCK (1) 2 (circle one)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or (mL))	Final Sample Vol (mL)	Comments, % Solids, etc.
Blank2				35	35	
0.2 µg/l		0.070		35	35	
1.0 µg/l		0.350		35	35	
2.0 µg/l		0.700		35	35	
5.0 µg/l		1.750		35	35	
10.0 µg/l		3.500		35	35	
ICV		0.0875	2.5	35	35	
CCV		0.175	5.0	35	35	
ICB/CCB				35	35	
L208232-BLK1				35	35	
BS1		0.175	5.0	35	35	
BLK2				35	35	L208202
BLK3				35	35	L207155
BLK4				35	35	L208200
1207051-03				35	35	(L208220-BLK1)
L208232-DUP1				35	35	
MS1		0.700	200 *	35	35	
1207051-05				35	35	
1207054-01				35	35	(L207155-BLK1)
L208232-DUP2				35	35	
MS2		0.700	200 *	35	35	
1208072-01				35	35	(L208200-BLK1)
L208232-DUP3				35	35	
MS3		0.700	200 *	35	35	

pm 8/24/12

Standard:	ID	Prep Date/Time
ICAL/MS	RT 1200588	8/24/12 1130
ICV/CCV/LCS	(I.V. 1200532)	N/A

Reviewed By/Date: [illegible] 8/28/12

se book # 1153 18 for std traceability information

Soil LCS True Value = N/A mg/Kg
Standard #

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

* used 1200587 (10 µg/ml)

ME-HgCVAA-Prep0910

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Lionville Laboratory

TCLP EXTRACTION RECORD
(NON-VOLATILES)

LOGBOOK # 1116

Start Date: 8-22-12 Start Time: 13:02 Analyst: RH SOP: SPI-1311.1	End Date: 8-23-12 End Time: 7:00 Analyst: RH Method: 1311.1	Tumbler Speed: 30 RPM Leachate Batch #: L208202 Leachate Page: 1 of 1 Room Temp. (°C): Start 21 /Finish 21 **Room Temp. Acceptance Criteria:** **23°C ± 2°**

LvL #: 1207051-03 Client ID#: J1PVN1 pH After 5 Min: 5.87 pH After Acid/Heat: 1.67 Extraction Fluid/pH: #1 4.96 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 5.15	Initial Filtration Data and Comments: Solids: _____% / NA RAD II Initial Filtrate Added: _____
LvL #: 1207051-05 Client ID#: J1PVN3 pH After 5 Min: 5.72 pH After Acid/Heat: 1.65 Extraction Fluid/pH: #1 4.96 Sample Wt.(g): 25 Extract Fluid Vol.(mL): 500 pH After Extraction: 5.08	Initial Filtration Data and Comments: Solids: _____% / NA Initial Filtrate Added: _____
LvL # L208202 Client ID#: N/A pH After 5 Min: N/A pH After Acid/Heat: N/A Extraction Fluid/pH: N/A Sample Wt.(g): N/A Extract Fluid Vol.(mL): N/A pH After Extraction: N/A	Initial Filtration Data and Comments: Solids: _____% / NA Blank Initial Filtrate Added: _____
LvL #: _____ Client ID#: _____ pH After 5 Min: _____ pH After Acid/Heat: _____ Extraction Fluid/pH: _____ Sample Wt.(g): _____ Extract Fluid Vol.(mL): _____ pH After Extraction: _____	Initial Filtration Data and Comments: Solids: _____% / NA RH Initial Filtrate Added: _____

Standard	ID	Prep Date	Expir Date	pH Acceptance Criteria
Fluid #1	1201018	8/13/12	2/13/13 RH	4.93 ± 0.05
Fluid # 2				2.88 ± 0.05

SPI-1311.1-A-0310 Reviewed By/Date Qem 8/28/12 Page #