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

COMPLETE COPY OF FINAL VALIDATION PACKAGE TO:

Kathy Wendt H4-21

COMMENTS:

SDG KP0114 SAF-RC-075

Waste Site: 100-D-65

Date: 3 August 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Ground and Remaining Sites – Soil Full Protocol - Waste Site 100-D-65
Subject: Radiochemistry - Data Package No. KP0114-EB

INTRODUCTION

This memo presents the results of data validation on Data Package No. KP0114 prepared by Eberline Services (EB). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1PVL2	7/18/12	Soil	C	See note 1
J1PVL3	7/18/12	Soil	C	See note 1
J1PVL4	7/18/12	Soil	C	See note 1
J1PVL5	7/18/12	Soil	C	See note 1
J1PVL6	7/18/12	Soil	C	See note 1
J1PVL7	7/18/12	Soil	C	See note 1
J1PVL8	7/18/12	Soil	C	See note 1
J1PVL9	7/18/12	Soil	C	See note 1
J1PVM0	7/18/12	Soil	C	See note 1
J1PVM1	7/18/12	Soil	C	See note 1
J1PVM2	7/18/12	Soil	C	See note 1
J1PVM3	7/18/12	Soil	C	See note 1
J1PVM4	7/18/12	Soil	C	See note 1

1 – Tritium, carbon-14, nickel-63,total strontium, alpha spectroscopy and gamma spectroscopy.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Data Requested by Client

DATA QUALITY PARAMETERS

· Holding Times

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months.

All holding times were acceptable.

· Preparation (Method) Blanks

Laboratory Blanks

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

All laboratory blank results were acceptable.

Field (Equipment) Blank

No equipment blanks were submitted for analysis.

· Accuracy

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is 70-130%. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% and tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

Due to the lack of an LCS analysis, all uranium-235 (aspec) results were qualified as estimates and flagged "J".

Due to the lack of a matrix spike analysis, all tritium and carbon-14 results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Laboratory Duplicates

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the contract required detection limit (CRDL) and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

Field Duplicates

One set of field duplicates (J1PVL2/J1PVM4) were submitted for analysis. Laboratory duplicates are compared using the same criteria as for laboratory results. All field duplicate results are acceptable.

Detection Levels

Reported analytical detection levels for undetected analytes are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. Fifty-four analytes exceeded the RQL. Under the WCH statement of work, no qualification is required. All other analytes met the RQL.

Completeness

Data package No. KP0114 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to the lack of an LCS analysis, all uranium-235 (aspec) results were qualified as estimates and flagged "J".

- Due to the lack of a matrix spike analysis, all tritium and carbon-14 results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

Fifty-four analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the WCH statement of work are as follows:

U - Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate, but is usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

Appendix 2

Summary of Data Qualification

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: KP0114	REVIEWER: ELR	Project: 100-D-65	PAGE_1_OF_1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Tritium Carbon-14	J	All	No MS analysis
Uranium-235 (aspec)	J	All	No LCS analysis

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-001 J1PVL2

DATA SHEET

SDG	7740	Client/Case no	Hanford SDG KP0114
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207063-01	Client sample id	J1PVL2
Dept sample id	7740-001	Location/Matrix	100-D-65 Outfall SOIL
Received	07/20/12	Collected/Weight	07/18/12 12:30 814 g
% solids	98.3	Custody/SAF No	RC-075-305 RC-075

r 8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.278	3.4	5.84	10.0	U J	H
Carbon 14	14762-75-5	-1.30	2.7	4.67	1.00	U J	C
Nickel 63	13981-37-8	0.184	1.6	2.80	30.0	U	NI_L
Total Strontium	SR-RAD	-0.023	0.15	0.308	1.00	U	SR
Uranium 233/234	U-233/234	0.676	0.27	0.167	1.00		U
Uranium 235	15117-96-1	0.079	0.11	0.202	1.00	U J	U
Uranium 238	U-238	0.589	0.22	0.167	1.00		U
Plutonium 238	13981-16-3	0.045	0.037	0.054	1.00	U	PU
Plutonium 239/240	PU-239/240	0.015	0.022	0.036	1.00	U	PU
Potassium 40	13966-00-2	10.1	1.3	0.815			GAM
Cobalt 60	10198-40-0	U		0.074	0.050	U	GAM
Cesium 137	10045-97-3	U		0.062	0.100	U	GAM
Europium 152	14683-23-9	U		0.206	0.100	U	GAM
Europium 154	15585-10-1	U		0.237	0.100	U	GAM
Europium 155	14391-16-3	U		0.152	0.100	U	GAM
Radium 226	13982-63-3	0.393	0.14	0.140	0.100		GAM
Radium 228	15262-20-1	0.528	0.22	0.239	0.200		GAM
Thorium 228	14274-82-9	0.682	0.13	0.135			GAM
Thorium 232	TH-232	0.528	0.22	0.239			GAM
Uranium 235	15117-96-1	U		0.406	0.300	U	GAM
Uranium 238	U-238	U		8.36	10.0	U	GAM
Americium 241	14596-10-2	U		0.087	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/27/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-002 J1PVL3

DATA SHEET

SDG	7740	Client/Case no	Hanford	SDG KP0114	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S207063-02	Client sample id	J1PVL3		
Dept sample id	7740-002	Location/Matrix	100-D-65 Outfall	SOIL	
Received	07/20/12	Collected/Weight	07/18/12 12:20	897 g	
% solids	98.1	Custody/SAF No	RC-075-305	RC-075	

8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	0	3.4	5.94	10.0	U J	H
Carbon 14	14762-75-5	-1.80	3.0	5.18	1.00	U J	C
Nickel 63	13981-37-8	-0.606	1.8	3.07	30.0	U	NI_L
Total Strontium	SR-RAD	-0.073	0.14	0.291	1.00	U	SR
Uranium 233/234	U-233/234	0.639	0.22	0.163	1.00		U
Uranium 235	15117-96-1	0.026	0.052	0.197	1.00	U J	U
Uranium 238	U-238	0.511	0.22	0.163	1.00		U
Plutonium 238	13981-16-3	-0.016	0.032	0.077	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.008	0.031	1.00	U	PU
Potassium 40	13966-00-2	10.9	1.4	0.720			GAM
Cobalt 60	10198-40-0	U		0.069	0.050	U	GAM
Cesium 137	10045-97-3	U		0.065	0.100	U	GAM
Europium 152	14683-23-9	U		0.185	0.100	U	GAM
Europium 154	15585-10-1	U		0.225	0.100	U	GAM
Europium 155	14391-16-3	U		0.134	0.100	U	GAM
Radium 226	13982-63-3	0.644	0.11	0.096	0.100		GAM
Radium 228	15262-20-1	0.744	0.29	0.233	0.200		GAM
Thorium 228	14274-82-9	0.792	0.12	0.125			GAM
Thorium 232	TH-232	0.744	0.29	0.233			GAM
Uranium 235	15117-96-1	U		0.310	0.300	U	GAM
Uranium 238	U-238	U		7.53	10.0	U	GAM
Americium 241	14596-10-2	U		0.153	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
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EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-003 J1PVL4

DATA SHEET

SDG	7740	Client/Case no	Hanford SDG KP0114
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207063-03	Client sample id	J1PVL4
Dept sample id	7740-003	Location/Matrix	100-D-65 Outfall SOIL
Received	07/20/12	Collected/Weight	07/18/12 12:10 739 g
% solids	96.1	Custody/SAF No	RC-075-305 RC-075

8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	0.170	3.1	5.38	10.0	U J	H
Carbon 14	14762-75-5	-1.25	2.6	4.47	1.00	U J	C
Nickel 63	13981-37-8	-0.085	1.9	3.24	30.0	U	NI_L
Total Strontium	SR-RAD	0.008	0.13	0.271	1.00	U	SR
Uranium 233/234	U-233/234	0.539	0.21	0.159	1.00		U
Uranium 235	15117-96-1	0.075	0.10	0.192	1.00	U J	U
Uranium 238	U-238	0.664	0.25	0.159	1.00		U
Plutonium 238	13981-16-3	0.015	0.023	0.043	1.00	U	PU
Plutonium 239/240	PU-239/240	0.015	0.023	0.037	1.00	U	PU
Potassium 40	13966-00-2	11.6	1.3	0.545			GAM
Cobalt 60	10198-40-0	U		0.059	0.050	U	GAM
Cesium 137	10045-97-3	U		0.078	0.100	U	GAM
Europium 152	14683-23-9	U		0.219	0.100	U	GAM
Europium 154	15585-10-1	U		0.240	0.100	U	GAM
Europium 155	14391-16-3	U		0.163	0.100	U	GAM
Radium 226	13982-63-3	0.566	0.15	0.128	0.100		GAM
Radium 228	15262-20-1	0.632	0.25	0.302	0.200		GAM
Thorium 228	14274-82-9	0.654	0.11	0.092			GAM
Thorium 232	TH-232	0.632	0.25	0.302			GAM
Uranium 235	15117-96-1	U		0.403	0.300	U	GAM
Uranium 238	U-238	U		8.24	10.0	U	GAM
Americium 241	14596-10-2	U		0.099	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/27/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-004 J1PVL5

DATA SHEET

SDG	7740	Client/Case no	Hanford	SDG KP0114	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S207063-04	Client sample id	J1PVL5		
Dept sample id	7740-004	Location/Matrix	100-D-65 Outfall	SOIL	
Received	07/20/12	Collected/Weight	07/18/12 11:50	685 g	
% solids	96.3	Custody/SAF No	RC-075-305	RC-075	

✓ 8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	0.456	3.4	5.75	10.0	U J	H
Carbon 14	14762-75-5	-1.35	2.9	5.01	1.00	U J	C
Nickel 63	13981-37-8	0.188	1.7	2.85	30.0	U	NI_L
Total Strontium	SR-RAD	-0.004	0.13	0.251	1.00	U	SR
Uranium 233/234	U-233/234	0.626	0.23	0.141	1.00		U
Uranium 235	15117-96-1	0.045	0.045	0.171	1.00	U J	U
Uranium 238	U-238	0.792	0.26	0.141	1.00		U
Plutonium 238	13981-16-3	0.004	0.035	0.073	1.00	U	PU
Plutonium 239/240	PU-239/240	0.004	0.017	0.033	1.00	U	PU
Potassium 40	13966-00-2	10.9	1.3	0.721			GAM
Cobalt 60	10198-40-0	U		0.073	0.050	U	GAM
Cesium 137	10045-97-3	0.219	0.084	0.075	0.100		GAM
Europium 152	14683-23-9	0.247	0.13	0.182	0.100		GAM
Europium 154	15585-10-1	U		0.210	0.100	U	GAM
Europium 155	14391-16-3	U		0.185	0.100	U	GAM
Radium 226	13982-63-3	0.424	0.14	0.152	0.100		GAM
Radium 228	15262-20-1	0.825	0.31	0.271	0.200		GAM
Thorium 228	14274-82-9	0.768	0.14	0.148			GAM
Thorium 232	TH-232	0.825	0.31	0.271			GAM
Uranium 235	15117-96-1	U		0.414	0.300	U	GAM
Uranium 238	U-238	U		8.85	10.0	U	GAM
Americium 241	14596-10-2	U		0.304	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

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EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-005 J1PVL6

DATA SHEET

SDG	7740	Client/Case no	Hanford SDG KP0114
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207063-05	Client sample id	J1PVL6
Dept sample id	7740-005	Location/Matrix	100-D-65 Outfall SOIL
Received	07/20/12	Collected/Weight	07/18/12 10:40 693 g
% solids	95.7	Custody/SAF No	RC-075-305 RC-075

8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	1.02	3.4	5.82	10.0	U J	H
Carbon 14	14762-75-5	-1.17	2.8	4.86	1.00	U J	C
Nickel 63	13981-37-8	0.843	1.9	3.20	30.0	U	NI_L
Total Strontium	SR-RAD	0.025	0.12	0.241	1.00	U	SR
Uranium 233/234	U-233/234	0.675	0.24	0.148	1.00		U
Uranium 235	15117-96-1	0.047	0.047	0.178	1.00	U J	U
Uranium 238	U-238	0.829	0.28	0.148	1.00		U
Plutonium 238	13981-16-3	0.011	0.029	0.055	1.00	U	PU
Plutonium 239/240	PU-239/240	-0.007	0.014	0.039	1.00	U	PU
Potassium 40	13966-00-2	10.8	1.3	0.627			GAM
Cobalt 60	10198-40-0	U		0.073	0.050	U	GAM
Cesium 137	10045-97-3	0.166	0.080	0.082	0.100		GAM
Europium 152	14683-23-9	U		0.274	0.100	U	GAM
Europium 154	15585-10-1	U		0.211	0.100	U	GAM
Europium 155	14391-16-3	U		0.159	0.100	U	GAM
Radium 226	13982-63-3	0.454	0.13	0.126	0.100		GAM
Radium 228	15262-20-1	0.916	0.32	0.257	0.200		GAM
Thorium 228	14274-82-9	0.792	0.11	0.114			GAM
Thorium 232	TH-232	0.916	0.32	0.257			GAM
Uranium 235	15117-96-1	U		0.442	0.300	U	GAM
Uranium 238	U-238	U		8.73	10.0	U	GAM
Americium 241	14596-10-2	U		0.096	0.300	U	GAM

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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 KP0114

7740-006 J1PVL7

D A T A S H E E T

SDG	7740	Client/Case no	Hanford SDG_KP0114
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207063-06	Client sample id	J1PVL7
Dept sample id	7740-006	Location/Matrix	100-D-65 Outfall SOIL
Received	07/20/12	Collected/Weight	07/18/12 10:25 744 g
% solids	96.3	Custody/SAF No	RC-075-305 RC-075

8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	-1.86	3.1	5.58	10.0	U J	H
Carbon 14	14762-75-5	-0.341	3.0	5.06	1.00	U J	C
Nickel 63	13981-37-8	-1.33	2.0	3.49	30.0	U	NI_L
Total Strontium	SR-RAD	-0.022	0.11	0.227	1.00	U	SR
Uranium 233/234	U-233/234	1.00	0.28	0.150	1.00		U
Uranium 235	15117-96-1	0.024	0.047	0.182	1.00	U J	U
Uranium 238	U-238	0.823	0.24	0.150	1.00		U
Plutonium 238	13981-16-3	0.009	0.026	0.053	1.00	U	PU
Plutonium 239/240	PU-239/240	0.030	0.026	0.033	1.00	U	PU
Potassium 40	13966-00-2	10.1	1.1	0.514			GAM
Cobalt 60	10198-40-0	U		0.063	0.050	U	GAM
Cesium 137	10045-97-3	U		0.072	0.100	U	GAM
Europium 152	14683-23-9	U		0.191	0.100	U	GAM
Europium 154	15585-10-1	U		0.193	0.100	U	GAM
Europium 155	14391-16-3	U		0.145	0.100	U	GAM
Radium 226	13982-63-3	0.431	0.13	0.127	0.100		GAM
Radium 228	15262-20-1	0.484	0.21	0.214	0.200		GAM
Thorium 228	14274-82-9	0.754	0.12	0.117			GAM
Thorium 232	TH-232	0.484	0.21	0.214			GAM
Uranium 235	15117-96-1	U		0.319	0.300	U	GAM
Uranium 238	U-238	U		7.39	10.0	U	GAM
Americium 241	14596-10-2	U		0.157	0.300	U	GAM

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Soil Full Protocol

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Version Ver 1.0
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Report date 07/27/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-007 J1PVL8

DATA SHEET

SDG	7740	Client/Case no	Hanford SDG KP0114
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207063-07	Client sample id	J1PVL8
Dept sample id	7740-007	Location/Matrix	100-D-65 Outfall SOIL
Received	07/20/12	Collected/Weight	07/18/12 10:10 690 g
% solids	96.3	Custody/SAF No	RC-075-305 RC-075

8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	0.909	3.4	5.74	10.0	U J	H
Carbon 14	14762-75-5	-1.01	3.1	5.25	1.00	U J	C
Nickel 63	13981-37-8	0.435	2.0	3.30	30.0	U	NI_L
Total Strontium	SR-RAD	0.001	0.12	0.236	1.00	U	SR
Uranium 233/234	U-233/234	0.491	0.21	0.157	1.00		U
Uranium 235	15117-96-1	0.025	0.050	0.190	1.00	U J	U
Uranium 238	U-238	0.921	0.29	0.157	1.00		U
Plutonium 238	13981-16-3	-0.030	0.030	0.074	1.00	U	PU
Plutonium 239/240	PU-239/240	-0.015	0.022	0.054	1.00	U	PU
Potassium 40	13966-00-2	12.2	1.2	0.472			GAM
Cobalt 60	10198-40-0	U		0.062	0.050	U	GAM
Cesium 137	10045-97-3	0.090	0.078	0.074	0.100		GAM
Europium 152	14683-23-9	U		0.207	0.100	U	GAM
Europium 154	15585-10-1	U		0.226	0.100	U	GAM
Europium 155	14391-16-3	U		0.166	0.100	U	GAM
Radium 226	13982-63-3	0.638	0.13	0.109	0.100		GAM
Radium 228	15262-20-1	0.683	0.27	0.274	0.200		GAM
Thorium 228	14274-82-9	0.684	0.10	0.080			GAM
Thorium 232	TH-232	0.683	0.27	0.274			GAM
Uranium 235	15117-96-1	U		0.353	0.300	U	GAM
Uranium 238	U-238	U		7.90	10.0	U	GAM
Americium 241	14596-10-2	U		0.090	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
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Version	3.06
Report date	07/27/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-008 J1PVL9

DATA SHEET

SDG	7740	Client/Case no	Hanford SDG KP0114
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207063-08	Client sample id	J1PVL9
Dept sample id	7740-008	Location/Matrix	100-D-65 Outfall SOIL
Received	07/20/12	Collected/Weight	07/18/12 10:00 843 g
% solids	97.5	Custody/SAF No	RC-075-305 RC-075

8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	0.365	3.4	5.75	10.0	U J	H
Carbon 14	14762-75-5	-1.87	2.7	4.73	1.00	U J	C
Nickel 63	13981-37-8	-1.37	2.0	3.60	30.0	U	NI_L
Total Strontium	SR-RAD	0.063	0.12	0.227	1.00	U	SR
Uranium 233/234	U-233/234	0.422	0.18	0.170	1.00		U
Uranium 235	15117-96-1	0.027	0.054	0.206	1.00	U J	U
Uranium 238	U-238	0.667	0.23	0.170	1.00		U
Plutonium 238	13981-16-3	-0.009	0.026	0.063	1.00	U	PU
Plutonium 239/240	PU-239/240	0.009	0.009	0.033	1.00	U	PU
Potassium 40	13966-00-2	10.0	1.2	0.723			GAM
Cobalt 60	10198-40-0	U		0.069	0.050	U	GAM
Cesium 137	10045-97-3	U		0.059	0.100	U	GAM
Europium 152	14683-23-9	U		0.171	0.100	U	GAM
Europium 154	15585-10-1	U		0.194	0.100	U	GAM
Europium 155	14391-16-3	U		0.163	0.100	U	GAM
Radium 226	13982-63-3	0.401	0.13	0.134	0.100		GAM
Radium 228	15262-20-1	0.498	0.28	0.282	0.200		GAM
Thorium 228	14274-82-9	0.646	0.11	0.112			GAM
Thorium 232	TH-232	0.498	0.28	0.282			GAM
Uranium 235	15117-96-1	U		0.356	0.300	U	GAM
Uranium 238	U-238	U		7.64	10.0	U	GAM
Americium 241	14596-10-2	U		0.266	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/27/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-009 J1PVM0

DATA SHEET

SDG	7740	Client/Case no	Hanford SDG KP0114
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207063-09	Client sample id	J1PVM0
Dept sample id	7740-009	Location/Matrix	100-D-65 Outfall SOIL
Received	07/20/12	Collected/Weight	07/18/12 09:50 740 g
% solids	95.7	Custody/SAF No	RC-075-305 RC-075

8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	-1.09	3.2	5.71	10.0	U J	H
Carbon 14	14762-75-5	-0.318	2.8	4.71	1.00	U J	C
Nickel 63	13981-37-8	1.21	2.0	3.28	30.0	U	NI_L
Total Strontium	SR-RAD	0.061	0.12	0.235	1.00	U	SR
Uranium 233/234	U-233/234	0.475	0.22	0.165	1.00		U
Uranium 235	15117-96-1	0	0.052	0.200	1.00	U J	U
Uranium 238	U-238	0.626	0.22	0.165	1.00		U
Plutonium 238	13981-16-3	0	0.020	0.042	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.007	0.026	1.00	U	PU
Potassium 40	13966-00-2	10.5	1.3	0.936			GAM
Cobalt 60	10198-40-0	U		0.072	0.050	U	GAM
Cesium 137	10045-97-3	0.102	0.080	0.083	0.100		GAM
Europium 152	14683-23-9	U		0.255	0.100	U	GAM
Europium 154	15585-10-1	U		0.284	0.100	U	GAM
Europium 155	14391-16-3	U		0.169	0.100	U	GAM
Radium 226	13982-63-3	0.437	0.14	0.132	0.100		GAM
Radium 228	15262-20-1	0.446	0.26	0.297	0.200		GAM
Thorium 228	14274-82-9	0.737	0.11	0.111			GAM
Thorium 232	TH-232	0.446	0.26	0.297			GAM
Uranium 235	15117-96-1	U		0.456	0.300	U	GAM
Uranium 238	U-238	U		8.34	10.0	U	GAM
Americium 241	14596-10-2	U		0.102	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/27/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-010 J1PVM1

DATA SHEET

SDG	7740	Client/Case no	Hanford	SDG KP0114
Contact	Joseph Verville	Contract	No. S00W235A01	
Lab sample id	S207063-10	Client sample id	J1PVM1	
Dept sample id	7740-010	Location/Matrix	100-D-65 Outfall	SOIL
Received	07/20/12	Collected/Weight	07/18/12 09:35	600 g
% solids	95.5	Custody/SAF No	RC-075-305	RC-075

✓ 8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	1.14	3.3	5.55	10.0	U J	H
Carbon 14	14762-75-5	-1.29	2.7	4.61	1.00	U J	C
Nickel 63	13981-37-8	-0.386	1.9	3.25	30.0	U	NI_L
Total Strontium	SR-RAD	-0.024	0.12	0.248	1.00	U	SR
Uranium 233/234	U-233/234	0.315	0.18	0.172	1.00		U
Uranium 235	15117-96-1	0	0.054	0.208	1.00	U J	U
Uranium 238	U-238	0.719	0.28	0.172	1.00		U
Plutonium 238	13981-16-3	0.003	0.026	0.050	1.00	U	PU
Plutonium 239/240	PU-239/240	0.007	0.007	0.025	1.00	U	PU
Potassium 40	13966-00-2	10.5	1.1	0.418			GAM
Cobalt 60	10198-40-0	U		0.059	0.050	U	GAM
Cesium 137	10045-97-3	U		0.050	0.100	U	GAM
Europium 152	14683-23-9	U		0.155	0.100	U	GAM
Europium 154	15585-10-1	U		0.209	0.100	U	GAM
Europium 155	14391-16-3	U		0.139	0.100	U	GAM
Radium 226	13982-63-3	0.343	0.12	0.123	0.100		GAM
Radium 228	15262-20-1	0.520	0.31	0.316	0.200		GAM
Thorium 228	14274-82-9	0.630	0.11	0.104			GAM
Thorium 232	TH-232	0.520	0.31	0.316			GAM
Uranium 235	15117-96-1	U		0.314	0.300	U	GAM
Uranium 238	U-238	U		7.66	10.0	U	GAM
Americium 241	14596-10-2	U		0.149	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id	EBRLNE
Protocol	Hanford1
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EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-011 J1PVM2

DATA SHEET

SDG	7740	Client/Case no	Hanford	SDG KP0114	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S207063-11	Client sample id	J1PVM2		
Dept sample id	7740-011	Location/Matrix	100-D-65 Outfall	SOIL	
Received	07/20/12	Collected/Weight	07/18/12 09:20	589 g	
% solids	86.1	Custody/SAF No	RC-075-305	RC-075	

r 8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	0	3.1	5.29	10.0	U J	H
Carbon 14	14762-75-5	-0.291	2.5	4.32	1.00	U J	C
Nickel 63	13981-37-8	-0.165	2.4	4.18	30.0	U	NI_L
Total Strontium	SR-RAD	-0.011	0.13	0.258	1.00	U	SR
Uranium 233/234	U-233/234	0.752	0.28	0.174	1.00		U
Uranium 235	15117-96-1	0.028	0.055	0.211	1.00	U J	U
Uranium 238	U-238	0.661	0.23	0.174	1.00		U
Plutonium 238	13981-16-3	0.006	0.019	0.042	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.013	0.030	1.00	U	PU
Potassium 40	13966-00-2	12.0	1.4	0.787			GAM
Cobalt 60	10198-40-0	U		0.081	0.050	U	GAM
Cesium 137	10045-97-3	U		0.115	0.100	U	GAM
Europium 152	14683-23-9	U		0.236	0.100	U	GAM
Europium 154	15585-10-1	U		0.241	0.100	U	GAM
Europium 155	14391-16-3	U		0.342	0.100	U	GAM
Radium 226	13982-63-3	0.625	0.16	0.147	0.100		GAM
Radium 228	15262-20-1	0.992	0.29	0.278	0.200		GAM
Thorium 228	14274-82-9	0.702	0.12	0.109			GAM
Thorium 232	TH-232	0.992	0.29	0.278			GAM
Uranium 235	15117-96-1	U		0.425	0.300	U	GAM
Uranium 238	U-238	U		10.2	10.0	U	GAM
Americium 241	14596-10-2	U		0.108	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id	EBRLNE
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EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-012 J1PVM3

DATA SHEET

SDG	7740	Client/Case no	Hanford SDG KP0114
Contact	Joseph Verville	Contract	No. S00W235A01
Lab sample id	S207063-12	Client sample id	J1PVM3
Dept sample id	7740-012	Location/Matrix	100-D-65 Outfall SOIL
Received	07/20/12	Collected/Weight	07/18/12 08:55 582 g
% solids	89.7	Custody/SAF No	RC-075-305 RC-075

8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	-1.58	3.3	5.85	10.0	U J	H
Carbon 14	14762-75-5	-0.792	2.8	4.84	1.00	U J	C
Nickel 63	13981-37-8	-0.962	1.9	3.32	30.0	U	NI_L
Total Strontium	SR-RAD	-0.006	0.11	0.236	1.00	U	SR
Uranium 233/234	U-233/234	0.391	0.19	0.176	1.00		U
Uranium 235	15117-96-1	0	0.056	0.213	1.00	U J	U
Uranium 238	U-238	0.322	0.19	0.176	1.00		U
Plutonium 238	13981-16-3	-0.012	0.031	0.062	1.00	U	PU
Plutonium 239/240	PU-239/240	0	0.015	0.037	1.00	U	PU
Potassium 40	13966-00-2	9.14	1.1	0.749			GAM
Cobalt 60	10198-40-0	U		0.063	0.050	U	GAM
Cesium 137	10045-97-3	U		0.067	0.100	U	GAM
Europium 152	14683-23-9	U		0.171	0.100	U	GAM
Europium 154	15585-10-1	U		0.195	0.100	U	GAM
Europium 155	14391-16-3	U		0.161	0.100	U	GAM
Radium 226	13982-63-3	0.371	0.11	0.115	0.100		GAM
Radium 228	15262-20-1	0.382	0.28	0.288	0.200		GAM
Thorium 228	14274-82-9	0.488	0.11	0.108			GAM
Thorium 232	TH-232	0.382	0.28	0.288			GAM
Uranium 235	15117-96-1	U		0.353	0.300	U	GAM
Uranium 238	U-238	U		7.96	10.0	U	GAM
Americium 241	14596-10-2	U		0.275	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id	EBRLNE
Protocol	Hanford1
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EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-013 J1PVM4

DATA SHEET

SDG	7740	Client/Case no	Hanford	SDG KP0114	
Contact	Joseph Verville	Contract	No. S00W235A01		
Lab sample id	S207063-13	Client sample id	J1PVM4		
Dept sample id	7740-013	Location/Matrix	100-D-65 Outfall	SOIL	
Received	07/20/12	Collected/Weight	07/18/12 12:30	817 g	
% solids	98.5	Custody/SAF No	RC-075-305	RC-075	

8/2/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	-0.679	3.1	5.36	10.0	U J	H
Carbon 14	14762-75-5	-1.41	2.6	4.42	1.00	U J	C
Nickel 63	13981-37-8	-0.695	1.8	3.11	30.0	U	NI_L
Total Strontium	SR-RAD	-0.009	0.12	0.254	1.00	U	SR
Uranium 233/234	U-233/234	0.410	0.19	0.174	1.00		U
Uranium 235	15117-96-1	0	0.055	0.211	1.00	U J	U
Uranium 238	U-238	0.524	0.23	0.174	1.00		U
Plutonium 238	13981-16-3	0	0.022	0.049	1.00	U	PU
Plutonium 239/240	PU-239/240	-0.007	0.007	0.035	1.00	U	PU
Potassium 40	13966-00-2	11.4	0.46	0.248			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	U		0.020	0.100	U	GAM
Europium 152	14683-23-9	U		0.066	0.100	U	GAM
Europium 154	15585-10-1	U		0.070	0.100	U	GAM
Europium 155	14391-16-3	U		0.048	0.100	U	GAM
Radium 226	13982-63-3	0.352	0.053	0.046	0.100		GAM
Radium 228	15262-20-1	0.511	0.098	0.095	0.200		GAM
Thorium 228	14274-82-9	0.601	0.038	0.033			GAM
Thorium 232	TH-232	0.511	0.098	0.095			GAM
Uranium 235	15117-96-1	U		0.149	0.300	U	GAM
Uranium 238	U-238	U		2.62	10.0	U	GAM
Americium 241	14596-10-2	U		0.029	0.300	U	GAM

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
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Report date	07/27/12

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group KP0114 was composed of thirteen soil samples designated under SAF No. RC-075 with a Project Designation of: 100-D/DR Burial Grounds & Remaining Sites – Soil Full Protocol.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist. The results were transmitted to WCH via e-mail on July 27, 2012.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.4 Isotopic Strontium Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.6 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.7 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

7/27/12

Joseph Verville
Client Services Manager

Date

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-075-305	Page 1 of 6
Collector ~~Q Stone~~ J Smith 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code ~~8L~~ 8B 7-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall KP0114 (7740)		SAF No. RC-075	Data Turnaround ~~21~~ 7 Days 7-18-12
Ice Chest No. SML-363	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED Ex	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110440		Bill of Lading/Air Bill No. SEE OSPL	

~~POSSIBLE SAMPLE~~ HAZARDS/REMARKS
~~None~~ Potential Radioactivity DA 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (SCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	Nickel-63; Strontium-89,90 -- Total Sr

7-18-12

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL2	SOIL	7-18-12	1230								X	X	X
J1PVL3	SOIL	7-18-12	1220								X	X	X
J1PVL4	SOIL	7-18-12	1210								X	X	X
J1PVL5	SOIL	7-18-12	1150								X	X	X
J1PVL6	SOIL	7-18-12	1040								X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] James Smith	7-18-12 1340	Dwoolery [signature]	7-18-12 1340
Relinquished By/Removed From	Date/Time	Received By/Stored In 1060 #3	Date/Time 1600
Dwoolery [signature]	7-18-12 1600	[signature] Dennis Newman	7-18-12
Relinquished By/Removed From WCH	Date/Time 1225	Received By/Stored In	Date/Time
[signature] Dennis Newman	7/19/12	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX		[signature]	07/20/12 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

KP0114

REVIEWED BY [signature] DATE 7/19/12

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

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

WCH-EE-011

2 D 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-075-305	Page 1 of 6
Collector ~~Q Stowe~~ SMITH J D 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code 8E 8B D 7-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall	KP0114 (7740)	SAF No. RC-075	Data Turnaround 21 Days 7 D 7-18-12
Ice Chest No. SML-363	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED Ex	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110440		Bill of Lading/Air Bill No. SEE OSPL	

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential Radioactivity DA 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation				None	None								
Type of Container				G/P	G/P								
No. of Container(s)				0	0								
Volume				125mL	125mL								
SAMPLE ANALYSIS				Isotopic Plutonium	Isotopic Uranium								
Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL2	SOIL	7-18-12	1230	X	X								
J1PVL3	SOIL	7-18-12	1220	X	X								
J1PVL4	SOIL	7-18-12	1210	X	X								
J1PVL5	SOIL	7-18-12	1150	X	X								
J1PVL6	SOIL	7-18-12	1040	X	X								

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: [signature] Jason Smith Date/Time: 7-18-12 1340	Received By/Stored In: DWOOLERY D Date/Time: 7-18-12 1340	KP0114
Relinquished By/Removed From: DWOOLERY D Date/Time: 7-18-12 1600	Received By/Stored In: 1060 #3 D. Newman Dennis Newman Date/Time: 7-18-12 1600	REVIEWED BY DWShea DATE 7/19/12
Relinquished By/Removed From: WCH Dennis Newman Date/Time: 1225 7/19/12	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: FED EX Date/Time:	Received By/Stored In: [signature] Date/Time: 07/20/12 0920	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

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

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

WCH-EE-011

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3 D 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-075-305	Page ~~1~~ of 6
Collector ~~Q Stowe~~ J. Smith D 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code ~~8L~~ 8B D 7-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall KP0114 (7740)		SAF No. RC-075	Data Turnaround ~~21~~ 7 Days D 7-18-12
Ice Chest No. SML-363	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110440		Bill of Lading/Air Bill No. SEE OSPL	

~~POSSIBLE SAMPLE~~ HAZARDS/REMARKS
~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	Nickel-63; Strontium-89,90 -- Total Sr

7-18-12

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL7	SOIL	7-18-12	1025								X	X	X
J1PVL8	SOIL	7-18-12	1010								X	X	X
J1PVL9	SOIL	7-18-12	1000								X	X	X
J1PVM0	SOIL	7-18-12	0950								X	X	X
J1PVM1	SOIL	7-18-12	0935								X	X	X

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Jason Smith 7-18-12	1340	Dwoolbry 7-18-12	1340
Relinquished By/Removed From	Date/Time	Received By/Stored In 1060 #3	Date/Time 1600
Dwoolbry 7-18-12	1600	Dennis Newman 7-18-12	
Relinquished By/Removed From WCH	Date/Time 7/19/12	Received By/Stored In	Date/Time
Dennis Newman	1225	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX		[illegible]	07/20/12 0930
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

KP0114

REVIEWED BY M Shea DATE 7/19/12

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

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4 D 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-075-305	Page 2 of 6
Collector ~~Q Stowe~~ J Smith D 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code ~~8L~~ 8B D 7-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall KP0114 (7740)		SAF No. RC-075	Data Turnaround ~~21~~ 7 Days D 7-18-12
Ice Chest No. SML-363	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110 440		Bill of Lading/Air Bill No. SEE OSPL	

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential Radioactivity DN 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	None	None										
Type of Container	G/P	G/P										
No. of Container(s)	0	0										
Volume	125mL	125mL										
SAMPLE ANALYSIS	Isotopic Plutonium	Isotopic Uranium										

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL7	SOIL	7-18-12	1025	X	X								
J1PVL8	SOIL	7-18-12	1010	X	X								
J1PVL9	SOIL	7-18-12	1000	X	X								
J1PVM0	SOIL	7-18-12	0950	X	X								
J1PVM1	SOIL	7-18-12	0935	X	X								

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Jason Smith	Date/Time: 7-18-12 1340	Received By/Stored In: DW001627	Date/Time: 7-18-12 1340
Relinquished By/Removed From: DW001627	Date/Time: 7-18-12 1600	Received By/Stored In: 1060 #3 Dennis Newman	Date/Time: 7-18-12 1600
Relinquished By/Removed From: WCH Dennis Newman	Date/Time: 1225 7/19/12	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time:	Received By/Stored In: F NATHANAMAN	Date/Time: 07/20/12 0920
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

KP0114

REVIEWED BY MWShea DATE 7/19/12

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

5 ∅ 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 1 of 6

Collector ~~Q Stowe~~ J Smith D 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall KP0114 (7740)		SAF No. RC-075
Ice Chest No. SML-363	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED Ex
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110440		Bill of Lading/Air Bill No. SEE OSPL

Price Code ~~8L~~ 8B D 7-18-12

Data Turnaround ~~21~~ 7 Days D 7-18-12

POSSIBLE SAMPLE HAZARDS/REMARKS

~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage

Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	Nickel-63; Strontium-89,90 -- Total Sr

7-18-12

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVM2	SOIL	7-18-12	0920								X	X	X
J1PVM3	SOIL	7-18-12	0855								X	X	X
J1PVM4	SOIL	7-18-12	1230								X	X	X
~~J1PVM5~~ D 7-18-12	SOIL	~~7-18-12~~ D 7-18-12											

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: [signature] Larson Smith	Date/Time: 7-18-12 1340	Received By/Stored In: DWOOLERY [signature]	Date/Time: 7-18-12 1340
Relinquished By/Removed From: DWOOLERY [signature]	Date/Time: 7-18-12 1600	Received By/Stored In: 1060 #3 Dennis Newman	Date/Time: 1600 7-18-12
Relinquished By/Removed From: WCH Dennis Newman	Date/Time: 1225 7/19/12	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: FED EX	Date/Time:	Received By/Stored In: [signature]	Date/Time: 07/20/12 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

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

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

REVIEWED BY [signature] DATE 7/19/12

KP0114

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

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

WCH-EE-011

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Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-075-305	Page 6 of 6
Collector ~~Q Stone~~ J SMITH 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code 8L 80 7-18-12 / Data Turnaround ~~21~~ 7 Days 7-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall KP0114 (7740)		SAF No. RC-075	
Ice Chest No. SML-363	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110 440		Bill of Lading/Air Bill No. SEE OSPL	

POSSIBLE SAMPLE HAZARDS/REMARKS

~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage

Cool at 4 deg C

Preservation	None	None										
Type of Container	G/P	G/P										
No. of Container(s)	0	0										
Volume	125mL	125mL										
SAMPLE ANALYSIS	Isotopic Plutonium	Isotopic Uranium										
Sample No. / Matrix * / Sample Date / Sample Time												
J1PVM2 / SOIL / 7-18-12 / 0920	X	X										
J1PVM3 / SOIL / 7-18-12 / 0855	X	X										
J1PVM4 / SOIL / 7-18-12 / 1230	X	X										
~~J1PVM5~~ 7-18-12 / SOIL / 7-18-12												

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From	Received By/Stored In	
Jason Smith	DWOOLEY	7-18-12 1340
Relinquished By/Removed From	Received By/Stored In	
DWOOLEY	1060, #3	7-18-12 1600
Relinquished By/Removed From	Received By/Stored In	
WCH Dennis Newman	Dennis Newman	7/18/12 1600
Relinquished By/Removed From	Received By/Stored In	
Dennis Newman	Fed EX	7/19/12 1225
Relinquished By/Removed From	Received By/Stored In	
FED EX	[illegible]	07/20/12 0920
Relinquished By/Removed From	Received By/Stored In	
Relinquished By/Removed From	Received By/Stored In	

SPECIAL INSTRUCTIONS

KP0114

REVIEWED BY Mwshea DATE 7/19/12

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

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Appendix 5

Data Validation Supporting Documentation

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-65			DATA PACKAGE: KP0114		
VALIDATOR: ELR		LAB: EB		DATE: 8/2/12	
			SDG: KP0114		

ANALYSES PERFORMED				
☐ Gross Alpha/Beta	☒ Strontium-90	☐ Technetium-99	☒ Alpha Spectroscopy	☒ Gamma Spectroscopy
☐ Total Uranium	☐ Radium-22	☒ Tritium	X C14	X Ni-63

SAMPLES/MATRIX				
JIPVL2	JIPVL3	JIPVL4	JIPVL5	JIPVL6
JIPVL7	JIPVL8	JIPVL9	JIPVM0	JIPVM1
JIPVM2	JIPVM4			
				Soil

1. Completeness ..... ☐ N/A

Technical verification forms present? ..... Yes (No) N/A

Comments: _____

2. Initial Calibration (Levels D, E) ..... ☒ N/A

Instruments/detectors calibrated? ..... Yes No N/A

Initial calibration acceptable? ..... Yes No N/A

Standards NIST traceable? ..... Yes No N/A

Standards Expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments: _____

3. Continuing Calibration (Levels D, E) ☒ N/A

Calibration checked within required frequency? ..... Yes No N/A

Calibration check acceptable? ..... Yes No N/A

Calibration check standards traceable? ..... Yes No N/A

Calibration check standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments: _____

_____

_____

_____

_____

4. Background Counts (Levels D, E) ..... ☒ N/A

Background Counts checked within required frequency? ..... Yes No N/A

Background Counts acceptable? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments: _____

_____

_____

_____

_____

5. Blanks (Levels B, C, D, E) ..... ☐ N/A

Method blank analyzed within required frequency? ..... Yes No N/A

Method blank results acceptable? ..... Yes No N/A

Analytes detected in method blank? ..... Yes No N/A

Field blank(s) analyzed? ..... Yes No N/A

Field blank results acceptable? ..... Yes No N/A

Analytes detected in field blank(s)? ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments: no FB

6. Laboratory Control Samples or Blank Spike Samples (Levels C, D, E) ..... ☐ N/A

LCS /BSS analyzed within required frequency? ..... Yes No N/A

LCS/BSS recoveries acceptable? ..... Yes No N/A

LCS/BSS traceable? (Levels D,E) ..... Yes No N/A

LCS/BSS expired? (Levels D,E) ..... Yes No N/A

LCS/BSS levels correct? (Levels D,E) ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments: no U-235 (spec) LCS - July

7. Chemical Carrier Recovery (Levels C, D, E) ..... ☒ N/A

Chemical carrier added? ..... Yes No N/A

Chemical recovery acceptable? ..... Yes No N/A

Chemical carrier traceable? (Levels D, E) ..... Yes No N/A

Chemical carrier expired? (Levels D, E) ..... Yes No N/A

Transcription/Calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

8. Tracer Recovery (Levels C, D, E) ..... ☐ N/A

Tracer added? ..... Yes No N/A

Tracer recovery acceptable? ..... Yes No N/A

Tracer traceable? (Levels D, E) ..... Yes No N/A

Tracer expired? (Levels D, E) ..... Yes No N/A

Transcription/Calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

9. Matrix Spikes (Levels C, D, E) ..... ☐ N/A

Matrix spike analyzed? ..... Yes No N/A

Spike recoveries acceptable? ..... Yes No N/A

Spike source traceable? (Levels D, E) ..... Yes No N/A

Spike source expired? Levels D, E) ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments: no 3H or C14 MS — Jul

10. Duplicates (Levels C, D, E) ..... ☐ N/A

Duplicates Analyzed at required frequency? ..... Yes No N/A

RPD Values Acceptable? ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments: _____

11. Field QC Samples (Levels C, D E) ..... ☐ N/A

Field duplicate sample(s) analyzed? ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split sample(s) analyzed? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: no FS or PAS

12. Holding Times (All levels)

Are sample holding times acceptable? ..... Yes No N/A

Comments: _____

13. Results and Detection Limits (All Levels) ☐ N/A

Results reported for all required sample analyses? Yes No N/A

Results supported in raw data?(Levels D, E) Yes No N/A

Results Acceptable? (Levels D, E) Yes No N/A

Transcription/Calculation errors? (Levels D, E) Yes No N/A

MDA's meet required detection limits? Yes No N/A

Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: 54 am

5 5 4 4 5 4 5 4 3 5 5 5

Appendix 6

Additional Documentation Requested by Client

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-015 Method Blank

METHOD BLANK

SDG	7740	Client/Case no	Hanford	SDG_KP0114
Contact	Joseph Verville	Contract	No. S00W235A01	
Lab sample id	S207063-15	Client sample id	Method Blank	
Dept sample id	7740-015	Material/Matrix		SOIL
		SAF No	RC-075	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.485	3.6	6.12	10.0	U	H
Carbon 14	14762-75-5	-2.01	2.9	4.97	1.00	U	C
Nickel 63	13981-37-8	-0.487	1.6	2.85	30.0	U	NI_L
Total Strontium	SR-RAD	-0.012	0.11	0.232	1.00	U	SR
Uranium 233/234	U-233/234	0	0.050	0.190	1.00	U	U
Uranium 235	15117-96-1	0	0.060	0.229	1.00	U	U
Uranium 238	U-238	0	0.050	0.190	1.00	U	U
Plutonium 238	13981-16-3	-0.013	0.013	0.045	1.00	U	PU
Plutonium 239/240	PU-239/240	-0.003	0.007	0.026	1.00	U	PU
Potassium 40	13966-00-2	U		0.215		U	GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Cesium 137	10045-97-3	U		0.018	0.100	U	GAM
Europium 152	14683-23-9	U		0.051	0.100	U	GAM
Europium 154	15585-10-1	U		0.052	0.100	U	GAM
Europium 155	14391-16-3	U		0.036	0.100	U	GAM
Radium 226	13982-63-3	U		0.040	0.100	U	GAM
Radium 228	15262-20-1	U		0.074	0.200	U	GAM
Thorium 228	14274-82-9	U		0.027		U	GAM
Thorium 232	TH-232	U		0.074		U	GAM
Uranium 235	15117-96-1	U		0.088	0.300	U	GAM
Uranium 238	U-238	U		2.11	10.0	U	GAM
Americium 241	14596-10-2	U		0.021	0.300	U	GAM

QC-BLANK #82186

Lab id	EBRLNE
Protocol	Hanford1
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/27/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-014

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7740

Contact Joseph Verville

Client/Case no Hanford SDG KP0114

Contract No. S00W235A01

Lab sample id S207063-14

Dept sample id 7740-014

Client sample id Lab Control Sample

Material/Matrix SOIL

SAF No RC-075

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	633	17	6.53	10.0		H	650	26	97	84-116	80-120
Carbon 14	2150	43	10.6	1.00		C	2130	85	101	83-117	80-120
Nickel 63	237	6.2	2.82	30.0		NI_L	258	10	92	83-117	80-120
Total Strontium	8.16	0.52	0.261	1.00		SR	8.44	0.34	97	81-119	80-120
Uranium 233/234	10.7	1.4	0.278	1.00		U	10.7	0.43	100	76-124	80-120
Uranium 238	11.0	1.4	0.278	1.00		U	10.7	0.43	103	76-124	80-120
Plutonium 238	10.8	0.47	0.036	1.00		PU	11.3	0.45	96	86-114	80-120
Plutonium 239/240	11.9	0.50	0.031	1.00		PU	13.2	0.53	90	86-114	80-120
Cobalt 60	1.55	0.051	0.022	0.050		GAM	1.57	0.063	99	87-113	80-120
Cesium 137	1.83	0.049	0.032	0.100		GAM	1.82	0.073	100	87-113	80-120

QC-LCS #82185

Lab id EBRLNE

Protocol Hanford1

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 07/27/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP KP0114

7740-016 J1PVL2

DUPLICATE

SDG	7740			Client/Case no	Hanford SDG KP0114
Contact	Joseph Verville			Contract	No. S00W235A01
DUPLICATE		ORIGINAL			
Lab sample id	S207063-16	Lab sample id	S207063-01	Client sample id	J1PVL2
Dept sample id	7740-016	Dept sample id	7740-001	Location/Matrix	100-D-65 Outfall SOIL
		Received	07/20/12	Collected/Weight	07/18/12 12:30 814 g
% solids	98.3	% solids	98.3	Custody/SAF No	RC-075-305 RC-075

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Tritium	-0.552	3.3	5.80	10.0	U	H	0.278	3.4	5.84	U	-		0.4
Carbon 14	-1.15	2.7	4.60	1.00	U	C	-1.30	2.7	4.67	U	-		0.1
Nickel 63	-1.15	1.8	3.12	30.0	U	NI_L	0.184	1.6	2.80	U	-		1.1
Total Strontium	0.023	0.11	0.227	1.00	U	SR	-0.023	0.15	0.308	U	-		0.5
Uranium 233/234	0.399	0.20	0.153	1.00		U	0.676	0.27	0.167		52	95	1.6
Uranium 235	0.121	0.097	0.185	1.00	U	U	0.079	0.11	0.202	U	-		0.6
Uranium 238	0.778	0.25	0.153	1.00		U	0.589	0.22	0.167		28	75	1.1
Plutonium 238	0.015	0.025	0.047	1.00	U	PU	0.045	0.037	0.054	U	-		1.3
Plutonium 239/240	0.003	0.012	0.024	1.00	U	PU	0.015	0.022	0.036	U	-		1.0
Potassium 40	11.7	0.41	0.222			GAM	10.1	1.3	0.815		15	24	1.8
Cobalt 60	U		0.020	0.050	U	GAM	U		0.074	U	-		1.4
Cesium 137	U		0.020	0.100	U	GAM	U		0.062	U	-		1.3
Europium 152	U		0.057	0.100	U	GAM	U		0.206	U	-		1.4
Europium 154	U		0.063	0.100	U	GAM	U		0.237	U	-		1.4
Europium 155	U		0.055	0.100	U	GAM	U		0.152	U	-		1.2
Radium 226	0.402	0.044	0.041	0.100		GAM	0.393	0.14	0.140		2	57	0.1
Radium 228	0.602	0.11	0.099	0.200		GAM	0.528	0.22	0.239		13	67	0.6
Thorium 228	0.530	0.033	0.029			GAM	0.682	0.13	0.135		25	36	2.1
Thorium 232	0.602	0.11	0.099			GAM	0.528	0.22	0.239		13	67	0.6
Uranium 235	U		0.120	0.300	U	GAM	U		0.406	U	-		1.3
Uranium 238	U		2.43	10.0	U	GAM	U		8.36	U	-		1.4
Americium 241	U		0.088	0.300	U	GAM	U		0.087	U	-		0.

QC-DUP#1 82187

100-D/DR Burial Grounds & Remaining Sites-
Soil Full Protocol

Lab id EBRLNE
Protocol Hanford1
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 07/27/12

DUPLICATES
Page 1
SUMMARY DATA SECTION
Page 12

Date: 3 August 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Ground and Remaining Sites – Soil Full Protocol - Waste Site 100-D-65
Subject: Inorganics - Data Package No. KP0114-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. KP0114 prepared by Lionville Laboratories Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1PVL2	7/18/12	Soil	C	See note 1
J1PVL3	7/18/12	Soil	C	See note 1
J1PVL4	7/18/12	Soil	C	See note 1
J1PVL5	7/18/12	Soil	C	See note 1
J1PVL6	7/18/12	Soil	C	See note 1
J1PVL7	7/18/12	Soil	C	See note 1
J1PVL8	7/18/12	Soil	C	See note 1
J1PVL9	7/18/12	Soil	C	See note 1
J1PVM0	7/18/12	Soil	C	See note 1
J1PVM1	7/18/12	Soil	C	See note 1
J1PVM2	7/18/12	Soil	C	See note 1
J1PVM3	7/18/12	Soil	C	See note 1
J1PVM4	7/18/12	Soil	C	See note 1
J1PVM5	7/18/12	Soil	C	See note 1

1 - ICP metals (6010B) mercury by 7471A.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 6 months for ICP metals and 28 days for mercury.

All holding times were acceptable.

Preparation (Method) Blanks

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "UJ". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

All preparation blank results were acceptable.

Field (Equipment) Blank

One field blank (J1PVM5) was submitted for analysis. Aluminum, barium, iron, lead, magnesium, manganese, potassium, silicon, sodium, vanadium and zinc were detected in the equipment blank. Under the WCH statement of work, no qualification is required.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

Due to a matrix spike recovery outside QC limits, all antimony (31.3%) results were qualified as estimates and flagged "J".

Due to a matrix spike recovery outside QC limits, all calcium (156%) results were qualified as estimates and flagged "J".

Due to LCS recoveries outside QC limits, all detected aluminum (165%) and silicon (162%) results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J1PVL2/J1PVM4) were submitted for analysis. Laboratory duplicates are compared using the same criteria as for laboratory results. All field duplicate results are acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 100 Area RQLs to ensure that laboratory detection levels meet the required criteria. All results met the RQL.

- **Completeness**

Data package No. KP0114 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to method blank contamination, the calcium result in sample J1PVM5 was qualified as undetected and flagged "UJ".
- Due to a matrix spike recovery outside QC limits, all antimony (31.3%) results were qualified as estimates and flagged "J".
- Due to a matrix spike recovery outside QC limits, all calcium (156%) results were qualified as estimates and flagged "J".
- Due to LCS recoveries outside QC limits, all detected aluminum (165%) and silicon (162%) results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*, March 2008.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

INORGANIC DATA QUALIFICATION SUMMARY*

SDG: KP0114	REVIEWER: ELR	Project: 100-D-65	PAGE 1 OF 1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Antimony	J	All	MS recovery
Calcium	J	All	MS recovery
Aluminum Silicon	J	All	LCS recovery

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

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-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVL2
1207048-01 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**5960**	J	4.49	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.539	U J	0.539	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	**1.99**		0.898	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	**46.1**		0.449	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	**0.195**		0.180	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	**0.897**		1.80	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	**0.0705**		0.180	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	**6670**	J	89.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	**11.1**		0.180	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	**5.50**		1.80	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	**12.2**		0.898	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	**16900**		18.0	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	**2.60**		0.449	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	**3990**		67.4	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	**235**		4.49	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	1.80	U	1.80	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	**10.5**		3.59	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	**858**		359	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.269	U	0.269	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	**496**	J	1.80	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.180	U	0.180	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	**324**		44.9	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	**44.4**		2.25	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	**32.4**		8.98	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0258	U	0.0258	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVL3
1207048-02 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	6750	J	4.62	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.554	UJ	0.554	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	2.61		0.923	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	58.6		0.462	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	0.237		0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	1.30		1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	0.0920		0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	7680	J	92.3	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	10.3		0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	5.85		1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	12.1		0.923	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	17900		18.5	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	3.16		0.462	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	4170		69.2	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	253		4.62	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	0.363		1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	10.5		3.69	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	1040		369	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.277	U	0.277	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	655	J	1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.185	U	0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	328		46.2	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	46.9		2.31	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	36.2		9.23	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0261	U	0.0261	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVL4
1207048-03 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**6230**	J	4.48	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.538	U J	0.538	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	**2.45**		0.896	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	**56.6**		0.448	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	**0.240**		0.179	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	**1.43**		1.79	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	**0.0859**		0.179	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	**8230**	J	89.6	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	**9.19**		0.179	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	**5.58**		1.79	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	**12.5**		0.896	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	**18500**		17.9	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	**3.38**		0.448	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	**3830**		67.2	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	**247**		4.48	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	**0.257**		1.79	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	**8.50**		3.59	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	**1080**		359	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.269	U	0.269	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	**838**	J	1.79	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.179	U	0.179	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	**318**		44.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	**47.9**		2.24	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	**37.4**		8.96	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0260	U	0.0260	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVL5
1207048-04 (Soil)

✓ 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	7990	J	4.99	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.599	U J	0.599	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	2.75		0.998	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	65.9		0.499	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	0.313		0.200	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	1.33		2.00	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	0.116		0.200	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	7740	J	99.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	10.1		0.200	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	6.82		2.00	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	15.2		0.998	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	20300		20.0	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	4.08		0.499	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	4490		74.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	285		4.99	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	0.359		2.00	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	8.67		3.99	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	1100		399	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.299	U	0.299	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	575	J	2.00	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.200	U	0.200	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	341		49.9	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	47.7		2.49	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	44.0		9.98	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0235	B	0.0275	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVL6
1207048-05 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	8240	J	4.44	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.533	U J	0.533	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	2.87		0.888	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	65.1		0.444	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	0.310		0.178	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	1.42		1.78	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	0.113		0.178	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	9450	J	88.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	10.8		0.178	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	6.14		1.78	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	14.5		0.888	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	18800		17.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	4.25		0.444	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	4500		66.6	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	252		4.44	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	0.238		1.78	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	8.85		3.55	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	1120		355	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.266	U	0.266	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	478	J	1.78	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.178	U	0.178	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	402		44.4	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	47.6		2.22	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	43.7		8.88	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0223	B	0.0262	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVL7
1207048-06 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	6380	J	4.63	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.556	U J	0.556	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	2.00		0.927	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	58.7		0.463	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	0.264		0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	1.54		1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	0.109		0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	7260	J	92.7	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	8.35		0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	6.37		1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	12.8		0.927	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	20000		18.5	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	3.29		0.463	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	4090		69.5	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	264		4.63	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	0.231		1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	7.70		3.71	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	1020		371	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.278	U	0.278	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	556	J	1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.185	U	0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	305		46.3	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	53.5		2.32	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	44.3		9.27	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0275	U	0.0275	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVL8
1207048-07 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	7930	J	4.64	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.556	UJ	0.556	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	3.03		0.927	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	72.0		0.464	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	0.308		0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	1.56		1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	0.115		0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	7270	J	92.7	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	12.3		0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	6.47		1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	13.5		0.927	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	19500		18.5	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	3.91		0.464	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	4610		69.5	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	273		4.64	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	0.217		1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	11.5		3.71	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	1320		371	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.278	U	0.278	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	531	J	1.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.185	U	0.185	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	245		46.4	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	49.1		2.32	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	44.3		9.27	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0260	U	0.0260	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVL9
1207048-08 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	6330	J	4.65	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.558	U J	0.558	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	1.94		0.931	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	56.3		0.465	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	0.244		0.186	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	1.33		1.86	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	0.0946		0.186	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	6820	J	93.1	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	7.97		0.186	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	6.33		1.86	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	12.7		0.931	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	19100		18.6	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	3.01		0.465	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	3930		69.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	252		4.65	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	0.204		1.86	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	7.22		3.72	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	1100		372	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.279	U	0.279	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	630	J	1.86	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.186	U	0.186	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	364		46.5	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	51.5		2.33	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	40.4		9.31	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0249	U	0.0249	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

K 8/2/12

J1PVM0
1207048-09 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	8170	J	4.84	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.580	U J	0.580	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	2.69		0.967	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	67.3		0.484	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	0.312		0.193	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	1.51		1.93	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	0.109		0.193	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	7620	J	96.7	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	11.4		0.193	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	6.48		1.93	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	14.2		0.967	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	18200		19.3	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	4.08		0.484	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	4970		72.5	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	259		4.84	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	0.197		1.93	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	10.7		3.87	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	1200		387	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.290	U J	0.290	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	463		1.93	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.193	U	0.193	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	319		48.4	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	45.1		2.42	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	43.0		9.67	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0187	B	0.0285	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVM1
1207048-10 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	6300	J	4.82	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.578	U J	0.578	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	2.06		0.963	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	56.5		0.482	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	0.224		0.193	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	0.651		1.93	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	0.0752		0.193	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	6500	J	96.3	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	9.91		0.193	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	6.56		1.93	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	11.6		0.963	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	18000		19.3	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	3.00		0.482	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	5160		72.2	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	271		4.82	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	1.93	U	1.93	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	13.0		3.85	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	860		385	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.289	U	0.289	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	562	J	1.93	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.193	U	0.193	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	295		48.2	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	48.0		2.41	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	37.9		9.63	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0260	U	0.0260	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVM2
1207048-11 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	7740	J	5.06	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.607	U J	0.607	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	2.54		1.01	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	76.8		0.506	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	0.317		0.202	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	1.92		2.02	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	0.136		0.202	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	5100	J	101	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	11.3		0.202	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	6.93		2.02	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	13.2		1.01	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	20100		20.2	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	4.09		0.506	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	4410		75.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	282		5.06	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	2.02	U	2.02	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	9.39		4.04	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	1420		404	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.303	U	0.303	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	616	J	2.02	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.202	U	0.202	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	247		50.6	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	50.9		2.53	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	45.9		10.1	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0298	U	0.0298	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Exton, PA 19341
Phone: 610-280-3000
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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVM3
1207048-12 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**6070**	J	5.79	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.695	U J	0.695	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	**1.98**		1.16	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	**65.8**		0.579	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	**0.226**		0.232	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	**0.673**		2.32	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	**0.106**		0.232	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	**6900**	J	116	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	**9.80**		0.232	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	**6.99**		2.32	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	**12.8**		1.16	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	**20300**		23.2	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	**3.17**		0.579	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	**5110**		86.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	**309**		5.79	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	**0.234**		2.32	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	**10.8**		4.63	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	**772**		463	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.347	U	0.347	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	**592**	J	2.32	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.232	U	0.232	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	**316**		57.9	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	**59.8**		2.89	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	**49.2**		11.6	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0313	U	0.0313	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

J1PVM4
1207048-13 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**5610**	J	4.15	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.498	U J	0.498	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	**2.25**		0.830	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	**51.8**		0.415	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	**0.194**		0.166	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	**0.858**		1.66	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	**0.0857**		0.166	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	**7050**	J	83.0	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	**9.72**		0.166	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	**5.15**		1.66	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	**10.4**		0.830	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	**15400**		16.6	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	**2.51**		0.415	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	**4080**		62.3	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	**229**		4.15	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	**0.167**		1.66	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	**8.87**		3.32	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	**869**		332	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.249	U	0.249	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	**476**	J	1.66	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.166	U	0.166	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	**263**		41.5	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	**41.4**		2.08	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	**32.8**		8.30	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0265	U	0.0265	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/27/2012 07:52

J1PVM5

1207048-14 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**247**	J	3.79	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Antimony	0.455	U J	0.455	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Arsenic	0.758	U	0.758	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Barium	**2.12**		0.379	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Beryllium	0.152	U	0.152	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Boron	1.52	U	1.52	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cadmium	0.152	U	0.152	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Calcium	**39.9**	~~U~~ J	75.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Chromium	0.152	U	0.152	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Cobalt	1.52	U	1.52	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Copper	0.758	U	0.758	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Iron	**316**		15.2	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Lead	**0.422**		0.379	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Magnesium	**30.9**		56.8	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Manganese	**5.62**		3.79	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Molybdenum	1.52	U	1.52	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Nickel	3.03	U	3.03	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Potassium	**55.3**		303	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Selenium	0.227	U	0.227	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silicon	**160**	J	1.52	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Silver	0.152	U	0.152	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Sodium	**8.64**		37.9	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Vanadium	**0.277**		1.89	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Zinc	**1.39**		7.58	mg/kg dry	1	L207132	07/24/2012	07/24/2012	6010B
Mercury	0.0237	U	0.0237	mg/kg dry	1	L207131	07/23/2012	07/24/2012	7471A

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Client: WC-HANFORD RC-075
LVL#: 1207048
SDG/SAF#: KP0114/RC-075

W.O.#: 60049-001-001-0001-00
Date Received: 07-20-12

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 14 soil samples.

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

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

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

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

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

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

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

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

10. The matrix spike (MS) recoveries for 11 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

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.

following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J1PVL2	Aluminum	22,000	80.1
	Antimony	100	86.2
	Boron	100	90.1
	Calcium	20,800	91.2
	Chromium	100	89.8
	Copper	100	90.0
	Iron	42,000	55.2
	Lead	100	83.4
	Manganese*	0	0
	Nickel	100	83.1
	Silicon	2,600	137.7

* The PDS for Manganese was inadvertently not spiked.

12. The duplicate analyses for 1 analtye was 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.

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

7/27/12
Date

rgc/07-048hg%

2 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-075-305	Page 1 of ~~2~~ 3
Collector ~~Q Stowe~~ J Smith 2 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code ~~8L~~ 8B 2 7-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075	Data Turnaround ~~21~~ 7 Days 2 7-18-12
Ice Chest No. RCC-08-028	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSPL	

POSSIBLE SAMPLE ~~HAZARDS/REMARKS~~
~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium-3	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL2	SOIL	7-18-12	1230	X	X	X	X	X	X	X	X		
J1PVL3	SOIL	7-18-12	1220	X	X	X	X	X	X	X			
J1PVL4	SOIL	7-18-12	1210	X	X	X	X	X	X	X			
J1PVL5	SOIL	7-18-12	1150	X	X	X	X	X	X	X			
J1PVL6	SOIL	7-18-12	~~1140~~	X	X	X	X	X	X	X			

7-18-12

CHAIN OF POSSESSION	Sign/Print Names 1040 2 7-18-12	
Relinquished By/Removed From: Jason Smith Date/Time: 1340 7/18/12	Received By/Stored In: Dwoolbry Date/Time: 7-18-12 1340	
Relinquished By/Removed From: Dwoolbry Date/Time: 7-18-12 1600	Received By/Stored In: 1060 #3 Date/Time: 7/18/12 Dennis Newman 1600	
Relinquished By/Removed From: WCH Date/Time: 1245 Dennis Newman 7/19/12	Received By/Stored In: Fed Ex Date/Time:	
Relinquished By/Removed From: Fed Ex Date/Time: 7.20.12 1000	Received By/Stored In: [signature] Date/Time: 7.20.12 1000	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Actions by 300 per Skessner

REVIEWED BY MWShea DATE 7/19/12

KP0114

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

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

WCH-EE-011

00000005

28

27-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-075-305	Page 2 of 3
Collector ~~Q Stowe~~ J Smith 27-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code ~~8L~~ 8B 27-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075	Data Turnaround ~~21~~ 7 Days 27-18-12
Ice Chest No. RCC-08-022	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED Ex	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSPL	

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - FB	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL7	SOIL	7-18-12	1025	X	X	X	X	X	X	X			
J1PVL8	SOIL	7-18-12	1010	X	X	X	X	X	X	X			
J1PVL9	SOIL	7-18-12	1000	X	X	X	X	X	X	X			
J1PVM0	SOIL	7-18-12	0950	X	X	X	X	X	X	X			
J1PVM1	SOIL	7-18-12	0935	X	X	X	X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Jason Smith	7/18/12 1340	DWOOLERT	7-18-12 1340
DWOOLERT	7-18-12 1600	106043	1600
WCH	1245	Dennis Newman	7-18-12
Dennis Newman	7/19/12		
FED EX	7-20-12 / 10:00	D Smith	7-20-12 / 10:00

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Mangarese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

REVIEWED BY DWShea DATE 7/19/12

anions by 300 per J Kessner

KP0114

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

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

WCH-EE-011

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000000006

D 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-075-305	Page 1 of 63
Collector ~~Q Stowe~~ J Smith D 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code ~~8L~~ 8B D 7-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075	Data Turnaround ~~21~~ 7 Days
Ice Chest No. RCC-08-~~028~~ 022 7/19/12	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX D 7-18-12	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSEL	

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container			G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)			1	1	1	1	1	1	1	1	1	0
Volume			125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS			See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - FB	Nickel-63; Strontium-89,90 -- Total Sr
Sample No.	Matrix *	Sample Date	Sample Time									
J1PVM2	SOIL	7-18-12	0920	X	X	X	X	X	X	X		
J1PVM3	SOIL	7-18-12	0855	X	X	X	X	X	X	X		
J1PVM4	SOIL	7-18-12	1230	X	X	X	X	X	X	X		
J1PVM5	SOIL	7-18-12	1230	X			X					

7-18-12

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: [signature] Jason Smith	Date/Time: 7-18-12 1340	Received By/Stored In: Dwoolery [signature]	Date/Time: 7-18-12 1340
Relinquished By/Removed From: Dwoolery [signature]	Date/Time: 7-18-12 1600	Received By/Stored In: 1060 #3 Dennis Newman	Date/Time: 7/18/12 1600
Relinquished By/Removed From: WCH Dennis Newman	Date/Time: 7/19/12 1245	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 7.20.12/1000	Received By/Stored In: [signature] D Smith	Date/Time: 7.20.12/1000
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Anions by 300 per J Kessner

KP0114

REVIEWED BY DWShea DATE 7/19/12

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

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

WCH-EE-011

000000007

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Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-65			DATA PACKAGE:		
VALIDATOR: ELR		LAB: LLI		DATE: 8/2/12	
			SDG:		

ANALYSES PERFORMED

SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		

SAMPLES/MATRIX

J1PVL2	J1PVL3	J1PVL4	J1PVL5	J1PVL6
J1PVL7	J1PVL8	J1PVL9	J1PVM0	J1PVM1
J1PVM2	J1PVM3	J1PVM4	J1PVM5	
				SOIL

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes No N/A

Comments:

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No N/A

Initial calibrations acceptable? ..... Yes No N/A

ICP interference checks acceptable? ..... Yes No N/A

ICV and CCV checks performed on all instruments? ..... Yes No N/A

ICV and CCV checks acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: ~~Calcium - MS - UJ~~ 8/5/06

FB - 11 detects no FB

4. ACCURACY (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: antimony (31.3%) calcium (156%) — J all (MS)
LCS - aluminum (165%) silicon (162%) — J all

no PAS

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes No N/A

Duplicate results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

6. ICP QUALITY CONTROL (Levels D and E)

ICP serial dilution samples analyzed? ..... Yes No N/A

ICP serial dilution %D values acceptable? ..... Yes No N/A

ICP post digestion spike required? ..... Yes No N/A

ICP post digestion spike values acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

7. FURNACE AA QUALITY CONTROL (Levels D and E)

Duplicate injections performed as required? ..... Yes No N/A

Duplicate injection %RSD values acceptable? ..... Yes No N/A

Analytical spikes performed as required? ..... Yes No N/A

Analytical spike recoveries acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

MSA performed as required? ..... Yes No N/A

MSA results acceptable? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments: _____

8. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

Appendix 6

Additional Documentation Requested by Client

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-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207131 - SW 7471A Prep										
Blank (L207131-BLK1)				Prepared: 07/23/2012 Analyzed: 07/24/2012						
Mercury	0.0281	U	0.0281	mg/kg wet						
Duplicate (L207131-DUP1)		Source: 1207048-01		Prepared: 07/23/2012 Analyzed: 07/24/2012						
Mercury	0.0251	U	0.0251	mg/kg dry		0.0258 U				20
Matrix Spike (L207131-MS1)		Source: 1207048-01		Prepared: 07/23/2012 Analyzed: 07/24/2012						
Mercury	0.149		0.0251	mg/kg dry	0.13947	0.0258 U	107	75-125		20
Reference (L207131-SRM1)				Prepared: 07/23/2012 Analyzed: 07/24/2012						
Mercury	1.23		0.0290	mg/kg wet	1.2900		95.3	62.6-138		
Batch L207132 - SW 3050B										
Blank (L207132-BLK1)				Prepared & Analyzed: 07/24/2012						
Aluminum	4.90	U	4.90	mg/kg wet						
Antimony	0.588	U	0.588	mg/kg wet						
Arsenic	0.980	U	0.980	mg/kg wet						
Barium	0.490	U	0.490	mg/kg wet						
Beryllium	0.196	U	0.196	mg/kg wet						
Boron	1.96	U	1.96	mg/kg wet						
Cadmium	0.196	U	0.196	mg/kg wet						
Calcium	7.86		98.0	mg/kg wet						
Chromium	0.196	U	0.196	mg/kg wet						
Cobalt	1.96	U	1.96	mg/kg wet						
Copper	0.980	U	0.980	mg/kg wet						
Iron	19.6	U	19.6	mg/kg wet						
Lead	0.490	U	0.490	mg/kg wet						
Magnesium	73.5	U	73.5	mg/kg wet						
Manganese	4.90	U	4.90	mg/kg wet						
Molybdenum	1.96	U	1.96	mg/kg wet						
Nickel	3.92	U	3.92	mg/kg wet						
Potassium	392	U	392	mg/kg wet						
Selenium	0.294	U	0.294	mg/kg wet						
Silicon	1.96	U	1.96	mg/kg wet						
Silver	0.196	U	0.196	mg/kg wet						
Sodium	49.0	U	49.0	mg/kg wet						
Vanadium	2.45	U	2.45	mg/kg wet						
Zinc	9.80	U	9.80	mg/kg wet						

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-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 07:52

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207132 - SW 3050B										
Duplicate (L207132-DUP1)		**Source: 1207048-01**		Prepared & Analyzed: 07/24/2012						
Aluminum	6020		4.82	mg/kg dry		5960			0.965	20
Antimony	0.578	U	0.578	mg/kg dry		0.539 U				20
Arsenic	2.31		0.964	mg/kg dry		1.99			15.1	20
Barium	61.5		0.482	mg/kg dry		46.1			28.6*	20
Beryllium	0.208		0.193	mg/kg dry		0.195			6.46	20
Boron	0.991		1.93	mg/kg dry		0.897			9.87	20
Cadmium	0.0850		0.193	mg/kg dry		0.0705			18.6	20
Calcium	6690		96.4	mg/kg dry		6670			0.390	20
Chromium	10.4		0.193	mg/kg dry		11.1			6.78	20
Cobalt	5.75		1.93	mg/kg dry		5.50			4.44	20
Copper	12.0		0.964	mg/kg dry		12.2			1.62	20
Iron	19400		19.3	mg/kg dry		16900			13.6	20
Lead	2.75		0.482	mg/kg dry		2.60			5.42	20
Magnesium	4210		72.3	mg/kg dry		3990			5.50	20
Manganese	266		4.82	mg/kg dry		235			12.5	20
Molybdenum	0.210		1.93	mg/kg dry		1.80 U				20
Nickel	9.46		3.85	mg/kg dry		10.5			10.9	20
Potassium	861		385	mg/kg dry		858			0.397	20
Selenium	0.289	U	0.289	mg/kg dry		0.269 U				20
Silicon	531		1.93	mg/kg dry		496			6.91	20
Silver	0.193	U	0.193	mg/kg dry		0.180 U				20
Sodium	289		48.2	mg/kg dry		324			11.5	20
Vanadium	51.4		2.41	mg/kg dry		44.4			14.5	20
Zinc	35.3		9.64	mg/kg dry		32.4			8.61	20
Matrix Spike (L207132-MS1)		**Source: 1207048-01**		Prepared & Analyzed: 07/24/2012						
Aluminum	6830		4.42	mg/kg dry	176.66	5960	494*	75-125		
Antimony	13.8		0.530	mg/kg dry	44.164	0.539 U	31.3*	75-125		
Arsenic	142		0.883	mg/kg dry	176.66	1.99	79.3	75-125		
Barium	205		0.442	mg/kg dry	176.66	46.1	89.9	75-125		
Beryllium	3.74		0.177	mg/kg dry	4.4164	0.195	80.3	75-125		
Boron	65.8		1.77	mg/kg dry	88.328	0.897	73.4*	75-125		
Cadmium	3.80		0.177	mg/kg dry	4.4164	0.0705	84.4	75-125		
Calcium	10100		88.3	mg/kg dry	2208.2	6670	156*	75-125		
Chromium	24.4		0.177	mg/kg dry	17.666	11.1	74.9*	75-125		
Cobalt	38.8		1.77	mg/kg dry	44.164	5.50	75.4	75-125		
Copper	27.8		0.883	mg/kg dry	22.082	12.2	70.7*	75-125		

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/27/2012 07:52

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207132 - SW 3050B									
Matrix Spike (L207132-MS1)		**Source: 1207048-01**		Prepared & Analyzed: 07/24/2012					
Iron	17400	17.7	mg/kg dry	88.328	16900	491*	75-125		
Lead	34.6	0.442	mg/kg dry	44.164	2.60	72.5*	75-125		
Magnesium	5920	66.2	mg/kg dry	2208.2	3990	87.4	75-125		
Manganese	311	4.42	mg/kg dry	44.164	235	173*	75-125		
Molybdenum	69.9	1.77	mg/kg dry	88.328	1.80 U	79.1	75-125		
Nickel	42.3	3.53	mg/kg dry	44.164	10.5	71.9*	75-125		
Potassium	2680	353	mg/kg dry	2208.2	858	82.3	75-125		
Selenium	133	0.265	mg/kg dry	176.66	0.269 U	75.4	75-125		
Silicon	650	1.77	mg/kg dry	88.328	496	174*	75-125		
Silver	3.35	0.177	mg/kg dry	4.4164	0.180 U	75.9	75-125		
Sodium	2120	44.2	mg/kg dry	2208.2	324	81.1	75-125		
Vanadium	82.8	2.21	mg/kg dry	44.164	44.4	86.9	75-125		
Zinc	69.4	8.83	mg/kg dry	44.164	32.4	84.0	75-125		
Reference (L207132-SRM1)				Prepared & Analyzed: 07/24/2012					
Aluminum	11000	14.2	mg/kg wet	6670.0		165	0-200.89		
Antimony	50.2	1.70	mg/kg wet	53.000		94.6	0-235.8		
Arsenic	113	2.83	mg/kg wet	114.00		99.2	82.8-117.54		
Barium	295	1.42	mg/kg wet	307.00		96.2	79.8-120.2		
Beryllium	104	0.566	mg/kg wet	108.00		96.0	82.8-117.6		
Boron	79.8	5.66	mg/kg wet	85.100		93.8	67.5-132.8		
Cadmium	219	0.566	mg/kg wet	225.00		97.4	83.6-116.4		
Calcium	3310	283	mg/kg wet	3360.0		98.6	83.3-116.9		
Chromium	83.2	0.566	mg/kg wet	77.200		108	73.3-126.4		
Cobalt	158	5.66	mg/kg wet	166.00		95.4	80.7-118.7		
Copper	259	2.83	mg/kg wet	271.00		95.7	80.8-119.2		
Iron	8280	56.6	mg/kg wet	8420.0		98.3	78.6-121.1		
Lead	177	1.42	mg/kg wet	190.00		93.0	81.6-118.4		
Magnesium	8450	212	mg/kg wet	8570.0		98.5	83.2-116.7		
Manganese	728	14.2	mg/kg wet	965.00		75.5	69.3-130.5		
Molybdenum	236	5.66	mg/kg wet	235.00		100	76.2-123.8		
Nickel	218	11.3	mg/kg wet	221.00		98.6	79.6-120.8		
Potassium	13500	1130	mg/kg wet	14400		94.0	81.9-118.1		
Selenium	187	0.849	mg/kg wet	187.00		100	75.9-124.6		
Silicon	1310	5.66	mg/kg wet	807.00		162	0-219.3		
Silver	79.7	0.566	mg/kg wet	83.500		95.4	82.7-117.1		
Sodium	9000	142	mg/kg wet	9730.0		92.5	82.5-117.2		

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/27/2012 07:52

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207132 - SW 3050B									
Reference (L207132-SRM1)			Prepared & Analyzed: 07/24/2012						
Vanadium	103	7.08	mg/kg wet	98.700		104	75.9-123.6		
Zinc	194	28.3	mg/kg wet	199.00		97.3	78.4-121.6		

Date: 3 August 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Ground and Remaining Sites – Soil Full Protocol - Waste Site 100-D-65
Subject: Pesticide/PCB - Data Package No. KP0114-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. KP0114 prepared by Lionville Laboratories Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1PVL2	7/18/12	Soil	C	See note 1
J1PVL3	7/18/12	Soil	C	See note 1
J1PVL4	7/18/12	Soil	C	See note 1
J1PVL5	7/18/12	Soil	C	See note 1
J1PVL6	7/18/12	Soil	C	See note 1
J1PVL7	7/18/12	Soil	C	See note 1
J1PVL8	7/18/12	Soil	C	See note 1
J1PVL9	7/18/12	Soil	C	See note 1
J1PVM0	7/18/12	Soil	C	See note 1
J1PVM1	7/18/12	Soil	C	See note 1
J1PVM2	7/18/12	Soil	C	See note 1
J1PVM3	7/18/12	Soil	C	See note 1
J1PVM4	7/18/12	Soil	C	See note 1

1 – Pesticides by 8081A and PCBs by 8082.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Data Requested by Client

DATA QUALITY OBJECTIVES

Holding Times

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Pesticide samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction. Holding times are not applicable to PCB analytes.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

Method Blanks

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

Accuracy

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

Matrix spike/matrix spike duplicate analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify

sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in duplicate using five compounds for which percent recoveries must be within a range of 50-150% or within laboratory control limits. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Undetected sample results with spike recoveries below control limits are qualified as estimates and flagged "UJ". Undetected sample results are not qualified if the spike recovery is above control limits. Sample results greater than five times the spike concentration require no qualification.

Due to a matrix spike recovery outside QC limits, all endrin aldehyde (47.4%) results were qualified as estimates and flagged "J".

Due to the lack of a matrix spike, matrix spike duplicate and LCS analysis, all toxaphene results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the contract required quantitation limit (CRQL) are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

Due to a surrogate recovery outside QC limits, all PCB results in samples J1PVL7 were qualified as estimates and flagged "J".

All other surrogate results were acceptable.

Precision

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Samples results must be within RPD limits of +/-30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected

sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

Due to RPDs outside QC limits, all endrin aldehyde (49.4%) and endosulfan sulfate (39.6%) results were qualified as estimates and flagged "J".

Due to the lack of a matrix spike and matrix spike duplicate analysis, all toxaphene results were qualified as estimates and flagged "J".

All other laboratory results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1PVL2/J1PVM4) were submitted for analysis. Laboratory duplicates are compared using the same criteria as for laboratory results. All field duplicate results are acceptable.

Analytical Detection Levels

Reported analytical detection levels are compared against the required quantitation limits (RQL's) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

Completeness

Data package No. KP0114 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to the lack of a matrix spike, matrix spike duplicate and LCS analysis, all toxaphene results were qualified as estimates and flagged "J".

- Due to a matrix spike recovery outside QC limits, all endrin aldehyde (47.4%) results were qualified as estimates and flagged "J".

- Due to RPDs outside QC limits, all endrin aldehyde (49.4%) and endosulfan sulfate (39.6%) results were qualified as estimates and flagged "J".

- Due to a surrogate recovery outside QC limits, all PCB results in samples J1PVL7 were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*, March 2008.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the same quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

PESTICIDE/PCB DATA QUALIFICATION SUMMARY*

SDG: KP0114	REVIEWER: ELR	Project: 100-D-65	PAGE 1 OF 1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Toxaphene	J	All	No MS, MSD or LCS analysis
Endrin Aldehyde	J	All	MS recovery
Endrin Aldehyde Endosulfan sulfate	J	All	RPD
All PCB analytes	J	J1PVL7	Surrogate

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

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-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/25/2012 11:34

J1PVL2
1207048-01 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
beta-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
delta-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Aldrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor epoxide	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-Chlordane	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
alpha-Chlordane	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan I	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDE	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Dieldrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDD	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan II	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDT	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin aldehyde	1.36	U J	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan sulfate	1.36	U J	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Methoxychlor	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin ketone	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Toxaphene	13.6	U J	13.6	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*70.5 %*		*28-166*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*88.7 %*		*37-153*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/25/2012 11:34

J1PVL3
1207048-02 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-BHC	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
beta-BHC	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
delta-BHC	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Aldrin	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor epoxide	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-Chlordane	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
alpha-Chlordane	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan I	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDE	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Dieldrin	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDD	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan II	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDT	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin aldehyde	1.33	U J	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan sulfate	1.33	U J	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Methoxychlor	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin ketone	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Toxaphene	13.3	U J	13.3	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*71.4 %*		*28-166*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*85.5 %*		*37-153*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/25/2012 11:34

J1PVL4
1207048-03 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
beta-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
delta-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Aldrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor epoxide	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-Chlordane	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
alpha-Chlordane	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan I	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDE	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Dieldrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDD	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan II	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDT	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin aldehyde	1.36	U J	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan sulfate	1.36	U J	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Methoxychlor	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin ketone	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Toxaphene	13.6	U J	13.6	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*61.9 %*		*28-166*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*82.8 %*		*37-153*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*

000000080

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/25/2012 11:34

J1PVL5
1207048-04 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
beta-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
delta-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Aldrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor epoxide	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-Chlordane	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
alpha-Chlordane	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan I	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDE	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Dieldrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDD	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan II	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDT	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin aldehyde	1.36	U J	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan sulfate	1.36	U J	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Methoxychlor	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin ketone	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Toxaphene	13.6	U J	13.6	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*70.3 %*		*28-166*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*86.9 %*		*37-153*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/25/2012 11:34

J1PVL6
1207048-05 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-BHC	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
beta-BHC	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
delta-BHC	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Aldrin	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor epoxide	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-Chlordane	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
alpha-Chlordane	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan I	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDE	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Dieldrin	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDD	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan II	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDT	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin aldehyde	1.37	U J	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan sulfate	1.37	U J	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Methoxychlor	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin ketone	1.37	U	1.37	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Toxaphene	13.7	U J	13.7	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*63.2 %*		*28-166*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*81.1 %*		*37-153*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*

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Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/25/2012 11:34

J1PVL7
1207048-06 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-BHC	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
beta-BHC	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
delta-BHC	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Aldrin	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Heptachlor epoxide	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
gamma-Chlordane	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
alpha-Chlordane	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan I	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDE	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Dieldrin	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDD	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan II	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
4,4'-DDT	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin aldehyde	1.32	U J	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endosulfan sulfate	1.32	U J	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Methoxychlor	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Endrin ketone	1.32	U	1.32	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Toxaphene	13.2	U J	13.2	ug/kg dry	4	L207137	07/23/2012	07/24/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*81.3 %*		*28-166*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*90.7 %*		*37-153*			*L207137*	*07/23/2012*	*07/24/2012*	*8081A*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/25/2012 11:34

J1PVL8
1207048-07 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-BHC	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
beta-BHC	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
delta-BHC	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Aldrin	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor epoxide	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-Chlordane	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
alpha-Chlordane	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan I	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDE	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Dieldrin	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDD	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan II	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDT	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin aldehyde	1.39	U J	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan sulfate	1.39	U J	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Methoxychlor	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin ketone	1.39	U	1.39	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Toxaphene	13.9	U J	13.9	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*70.0 %*		*28-166*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*85.1 %*		*37-153*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*

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J1PVL9
1207048-08 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-BHC	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
beta-BHC	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
delta-BHC	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Aldrin	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor epoxide	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-Chlordane	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
alpha-Chlordane	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan I	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDE	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Dieldrin	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDD	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan II	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDT	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin aldehyde	1.33	U J	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan sulfate	1.33	U J	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Methoxychlor	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin ketone	1.33	U	1.33	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Toxaphene	13.3	U J	13.3	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*70.3 %*		*28-166*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*83.8 %*		*37-153*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*

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J1PVM0
1207048-09 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
beta-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
delta-BHC	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Aldrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor epoxide	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-Chlordane	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
alpha-Chlordane	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan I	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDE	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Dieldrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDD	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan II	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDT	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin aldehyde	1.36	U J	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan sulfate	1.36	U J	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Methoxychlor	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin ketone	1.36	U	1.36	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Toxaphene	13.6	U J	13.6	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*71.1 %*		*28-166*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*94.0 %*		*37-153*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/25/2012 11:34

J1PVM1
1207048-10 (Soil) 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-BHC	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
beta-BHC	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
delta-BHC	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Aldrin	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor epoxide	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-Chlordane	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
alpha-Chlordane	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan I	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDE	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Dieldrin	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDD	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan II	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDT	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin aldehyde	1.44	U J	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan sulfate	1.44	U J	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Methoxychlor	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin ketone	1.44	U	1.44	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Toxaphene	14.4	U J	14.4	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*83.6 %*		*28-166*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*88.1 %*		*37-153*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*

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J1PVM2
1207048-11 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-BHC	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
beta-BHC	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
delta-BHC	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Aldrin	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor epoxide	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-Chlordane	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
alpha-Chlordane	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan I	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDE	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Dieldrin	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDD	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan II	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDT	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin aldehyde	1.53	U J	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan sulfate	1.53	U J	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Methoxychlor	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin ketone	1.53	U	1.53	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Toxaphene	15.3	U J	15.3	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*73.2 %*		*28-166*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*91.6 %*		*37-153*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/25/2012 11:34

J1PVM3
1207048-12 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-BHC	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
beta-BHC	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
delta-BHC	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Aldrin	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor epoxide	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-Chlordane	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
alpha-Chlordane	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan I	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDE	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Dieldrin	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDD	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan II	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDT	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin aldehyde	1.60	U J	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan sulfate	1.60	U J	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Methoxychlor	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin ketone	1.60	U	1.60	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Toxaphene	16.0	U	16.0	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*73.0 %*		*28-166*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*92.9 %*		*37-153*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/25/2012 11:34

J1PVM4
1207048-13 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-BHC	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
beta-BHC	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
delta-BHC	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Aldrin	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Heptachlor epoxide	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
gamma-Chlordane	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
alpha-Chlordane	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan I	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDE	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Dieldrin	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDD	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan II	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
4,4'-DDT	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin aldehyde	1.35	U J	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endosulfan sulfate	1.35	U J	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Methoxychlor	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Endrin ketone	1.35	U	1.35	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Toxaphene	13.5	U J	13.5	ug/kg dry	4	L207137	07/23/2012	07/25/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*84.1 %*		*28-166*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*106 %*		*37-153*			*L207137*	*07/23/2012*	*07/25/2012*	*8081A*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	**Reported:** 07/26/2012 10:33

J1PVL2
1207048-01 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*72 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*80 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 10:33

J1PVL3
1207048-02 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*90 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*92 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 10:33

J1PVL4
1207048-03 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*70 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*74 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 10:33

J1PVL5
1207048-04 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*80 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*82 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 10:33

J1PVL6
1207048-05 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.8	U	13.8	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	13.8	U	13.8	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	13.8	U	13.8	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	13.8	U	13.8	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	13.8	U	13.8	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	13.8	U	13.8	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	13.8	U	13.8	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	13.8	U	13.8	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	13.8	U	13.8	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*68 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*72 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 10:33

J1PVL7
1207048-06 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.3	U	13.3	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	13.3	U	13.3	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	13.3	U	13.3	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	13.3	U	13.3	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	13.3	U	13.3	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	13.3	U	13.3	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	13.3	U	13.3	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	13.3	U	13.3	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	13.3	U	13.3	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*43 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*48 % **		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 10:33

J1PVL8
1207048-07 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	14.0	U	14.0	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	14.0	U	14.0	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	14.0	U	14.0	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	14.0	U	14.0	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	14.0	U	14.0	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	14.0	U	14.0	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	14.0	U	14.0	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	14.0	U	14.0	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	14.0	U	14.0	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*77 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*80 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 10:33

J1PVL9
1207048-08 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	13.4	U	13.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*84 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*80 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 10:33

J1PVM0
1207048-09 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	13.7	U	13.7	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*78 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*76 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 10:33

J1PVM1
1207048-10 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	14.5	U	14.5	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	14.5	U	14.5	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	14.5	U	14.5	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	14.5	U	14.5	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	14.5	U	14.5	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	14.5	U	14.5	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	14.5	U	14.5	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	14.5	U	14.5	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	14.5	U	14.5	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*79 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*75 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 10:33

J1PVM2
1207048-11 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	15.4	U	15.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	15.4	U	15.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	15.4	U	15.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	15.4	U	15.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	15.4	U	15.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	15.4	U	15.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	15.4	U	15.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	15.4	U	15.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	15.4	U	15.4	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*80 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*78 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 10:33

J1PVM3
1207048-12 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	16.1	U	16.1	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	16.1	U	16.1	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	16.1	U	16.1	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	16.1	U	16.1	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	16.1	U	16.1	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	16.1	U	16.1	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	16.1	U	16.1	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	16.1	U	16.1	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	16.1	U	16.1	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*84 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*82 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 10:33

J1PVM4
1207048-13 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.6	U	13.6	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1221	13.6	U	13.6	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1232	13.6	U	13.6	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1242	13.6	U	13.6	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1248	13.6	U	13.6	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1254	13.6	U	13.6	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1260	13.6	U	13.6	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1262	13.6	U	13.6	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Aroclor 1268	13.6	U	13.6	ug/kg dry	1	L207137	07/23/2012	07/25/2012	8082
Surrogate: Decachlorobiphenyl	*82 %*		*43-144*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*82 %*		*52-141*			*L207137*	*07/23/2012*	*07/25/2012*	*8082*

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-075 KP0114
LVL #: 1207048

W.O. #: 60049-001-001-0001-00
Date Received: 07-20-2012

CHLORINATED PESTICIDES

Thirteen (13) soil samples were collected on 07-18-2012.

The samples and associated QC samples were extracted 07-23-2012 and analyzed 07-24,25-2012 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 8081A for client specified target compounds. All samples received Copper-Sulfur cleanup based on SW846 method 3660A.

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

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

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

3. The samples required a 4-fold instrument dilution due to the nature of the matrix. Reporting limits have been adjusted to reflect the necessary dilutions.

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. Two (2) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC118) has been enclosed.

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

9. All initial calibrations associated with this data set 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.

10. Per SW846 Method 8000B, the attached table lists compounds where the % difference or drift was greater than 15%, and the mean across all compounds are considered to have greater uncertainty.

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

Iain Daniels
LvL Laboratory Manager

7/27/12
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12GC118

Initiator: Robert Carden
Date: 7/20/12
Client: WCHanford Reports
KPOIM

Batch: M07048
Samples: J1PV22MS
Method: SW846/MCAWW/CLP/

Parameter: Pest
Matrix: Soil
Prep Batch: L 207137

1. Reason for SDR

a. COC Discrepancy
__ Tech Profile Error
__ Transcription Error
__ Client Request
__ Wrong Test Code
__ Sampler Error on C-O-C
__ Other _____

b. General Discrepancy
__ Missing Sample/Extract
__ Hold Time Exceeded
__ Improper Bottle Type
__ Container Broken
__ Insufficient Sample
__ Not Amenable to Analysis
__ Wrong Sample Pulled
__ Preservation Wrong
__ Label ID's Illegible
__ Received Past Hold

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Endrin aldehyde + Endosulfan sulfate spike recoveries below QC acceptance criteria in MS (MSD OK, BS OK, unspiked sample ND for cmpds)

2. Known or Probable Causes(s)

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

Other Description:

Narrate ID.

7/27/12

4. Project Manager Instructions...signature/date:
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: 7/27/12
__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

Other Explanation:

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

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

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

QA-139-A-0208

000000075

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-075 KP0114
LVL #: 1207048

W.O. #: 60049-001-001-0001-00
Received: 07-20-2012

PCBs

Thirteen (13) soil samples were collected on 07-18-2012.

The samples and associated QC samples were extracted 07-23-2012 and analyzed 07-24,25-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8082. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on SW846 methods 3660A and 3665A.

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

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. One (1) of thirty-four (34) surrogate recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC117) has been enclosed.
4. The method blank was below the reporting limits for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. The samples are reported on a dry weight basis.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or a designee as verified by the following signature.

Iain Daniels
LvL Laboratory Manager

7/25/12
Date

r:\group\data\2012\pcb\wc hanford\1207048jcs.doc

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12GC117

Initiator: Robert Carden
Date: 7/26/12
Client: WC Hanford KC075 KP0114

Batch: 1207048
Samples: J1PVL7
Method: ~~SW846/MCAWW/CLP/~~

Parameter: PCB
Matrix: Soil
Prep Batch: L207137

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

TCMX Surrogate recovery marginally below QC acceptance criteria in sample J1PVL7 at 49% (52-141%)

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

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

Narrate
JD
7/27/12

4. Project Manager Instructions...signature/date: _____
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: JS 7/27/12 Other Explanation:
__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

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

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

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

QA-139-A-0208

2 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 1 of ~~4~~ 3

Collector ~~Q Stowe~~ J Smith 2 7-18-12	Company Contact J Kessner / Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code ~~8L~~ 8B 2 7-18-12 / Data Turnaround ~~21~~ 7 Days 2 7-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall	SAF No. RC-075	
Ice Chest No. RCC-08-028	Field Logbook No. EL-1607-14 / COA 000D652000	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469	Bill of Lading/Air Bill No. SEE OSPL	

POSSIBLE SAMPLE ~~HAZARDS/REMARKS~~
~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - 13	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL2	SOIL	7-18-12	1230	X	X	X	X	X	X	X			
J1PVL3	SOIL	7-18-12	1220	X	X	X	X	X	X	X			
J1PVL4	SOIL	7-18-12	1210	X	X	X	X	X	X	X			
J1PVL5	SOIL	7-18-12	1150	X	X	X	X	X	X	X			
J1PVL6	SOIL	7-18-12	~~1140~~	X	X	X	X	X	X	X			

7-18-12

CHAIN OF POSSESSION — Sign/Print Names 1040 2 7-18-12

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Jason Smith	7/18/12 1340	DWOOLBRY	7-18-12 1340
DWOOLBRY	7-18-12 1600	Dennis Newman 1060 #3	7/18/12 1600
WCH Dennis Newman	7/19/12 1245	Fed Ex	
Fed Ex	7.20.12 1000	[signature]	7.20.12 1000

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Mangarese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)

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

Attorney by 300 per J Kessner

REVIEWED BY MWShea DATE 7/19/12

KP0114

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

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

WCH-EE-011

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2-7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 2 of 13

Collector ~~Q Stowe~~ J Smith 2 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code 8L 8B 2-7-18-12	Data Turnaround 21 Days 2-7-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075		
Ice Chest No. RCC-08-022	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSPL		

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - 7D	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL7	SOIL	7-18-12	1025	X	X	X	X	X	X	X			
J1PVL8	SOIL	7-18-12	1010	X	X	X	X	X	X	X			
J1PVL9	SOIL	7-18-12	1000	X	X	X	X	X	X	X			
J1PVM0	SOIL	7-18-12	0950	X	X	X	X	X	X	X			
J1PVM1	SOIL	7-18-12	0935	X	X	X	X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Jose Jesus Smith 7/18/12 1340	Received By/Stored In: D WOOLBERT 7-18-12 1340	Date/Time
Relinquished By/Removed From: D WOOLBERT 7-18-12 1600	Received By/Stored In: 1060 #3 Dennis Newman 7-18-12 1600	Date/Time
Relinquished By/Removed From: WCH Dennis Newman 7/19/12 1245	Received By/Stored In:	Date/Time
Relinquished By/Removed From: Fed Ex 7-20-12 10:00	Received By/Stored In: D Smith 7-20-12 10:00	Date/Time
Relinquished By/Removed From:	Received By/Stored In:	Date/Time
Relinquished By/Removed From:	Received By/Stored In:	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) (Mercury)
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

REVIEWED BY Dows Hen DATE 7/19/12

entry by 300 per J Kessner
KP0114

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

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D 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 1 of 3

Collector ~~Q Stowe~~ J Smith D 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075
Ice Chest No. RCC-08-~~028~~ 022 7/19/12	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSEL

Price Code ~~8L~~ 8B D 7-18-12

Data Turnaround ~~21~~ 7 Days D 7-18-12

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - 1B	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVM2	SOIL	7-18-12	0920	X	X	X	X	X	X	X			
J1PVM3	SOIL	7-18-12	0855	X	X	X	X	X	X	X			
J1PVM4	SOIL	7-18-12	1230	X	X	X	X	X	X	X			
J1PVM5	SOIL	7-18-12	1230	X			X						

7-18-12

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Jason Smith	Date/Time: 7-18-12 1340	Received By/Stored In: Dwoolery	Date/Time: 7-18-12 1340
Relinquished By/Removed From: Dwoolery	Date/Time: 7-18-12 1600	Received By/Stored In: 1060 #3 Dennis Newman	Date/Time: 7/18/12 1600
Relinquished By/Removed From: WCH Dennis Newman	Date/Time: 7/19/12 1245	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 7.20.12/1000	Received By/Stored In: D Smith	Date/Time: 7.20.12/1000
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Anions by 300 per J Kessner

KP0114

REVIEWED BY DWShea DATE 7/19/12

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

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

WCH-EE-011

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000000007

Appendix 5

Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 100-D-65		DATA PACKAGE: KP0114	
VALIDATOR: ELR	LAB: LLI	DATE: 8/2/12	
		SDG: KP0114	

ANALYSES PERFORMED

SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		

SAMPLES/MATRIX

J1PVL2	J1PVL3	J1PVL4	J1PVL5	J1PVL6
J1PVL7	J1PVL8	J1PVL9	J1PVL10	J1PVM2
J1PVM3	J1PVM4			
				Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes No N/A

Comments:

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations acceptable? ..... Yes No N/A

Continuing calibrations acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

DDT and endrin breakdowns acceptable? ..... Yes No N/A

Comments:

PCB DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A

Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: no FB

4. ACCURACY (Levels C, D, and E)

Surrogates analyzed? ..... Yes No N/A

Surrogate recoveries acceptable? ..... Yes No N/A

Surrogates traceable? (Levels D, E) ..... Yes No N/A

Surrogates expired? (Levels D, E) ..... Yes No N/A

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: endrin aldehyde – MS (47.4%) – J all

no tox MS/MSD/LCS – J all

PCB – surr J – L7 – J all no PAS

PCB DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes No N/A

Duplicate results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: endrin aldehyde (49.4%) & endosulfan sulfate (39.6%) - JCL

6. SYSTEM PERFORMANCE (Levels D and E)

Chromatographic performance acceptable? ..... Yes No N/A

Positive results resolved acceptably? ..... Yes No N/A

Comments:

7. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments:

PCB DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) ..... Yes No N/A

Compound quantitation acceptable? (Levels D, E) ..... Yes No N/A

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (or other absorbent) cleanup performed? ..... Yes No N/A

Lot check performed? ..... Yes No N/A

Check recoveries acceptable? ..... Yes No N/A

GPC cleanup performed? ..... Yes No N/A

GPC check performed? ..... Yes No N/A

GPC check recoveries acceptable? ..... Yes No N/A

GPC calibration performed? ..... Yes No N/A

GPC calibration check performed? ..... Yes No N/A

GPC calibration check retention times acceptable? ..... Yes No N/A

Check/calibration materials traceable? ..... Yes No N/A

Check/calibration materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 10:33

Polychlorinated Biphenyls by SW846 8082 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207137 - SW 3540C										
Blank (L207137-BLK2)				Prepared: 07/23/2012 Analyzed: 07/24/2012						
Aroclor 1016	13.3	U	13.3	ug/kg wet						
Aroclor 1221	13.3	U	13.3	ug/kg wet						
Aroclor 1232	13.3	U	13.3	ug/kg wet						
Aroclor 1242	13.3	U	13.3	ug/kg wet						
Aroclor 1248	13.3	U	13.3	ug/kg wet						
Aroclor 1254	13.3	U	13.3	ug/kg wet						
Aroclor 1260	13.3	U	13.3	ug/kg wet						
Aroclor 1262	13.3	U	13.3	ug/kg wet						
Aroclor 1268	13.3	U	13.3	ug/kg wet						
Surrogate: Decachlorobiphenyl	*29.9*			*ug/kg wet*	*33.333*		*90*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*28.0*			*ug/kg wet*	*33.337*		*84*	*52-141*		
LCS (L207137-BS2)				Prepared: 07/23/2012 Analyzed: 07/24/2012						
Aroclor 1016	108		13.3	ug/kg wet	166.67		65	50-138		
Aroclor 1260	125		13.3	ug/kg wet	166.67		75	50-148		
Surrogate: Decachlorobiphenyl	*28.3*			*ug/kg wet*	*33.333*		*85*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*26.4*			*ug/kg wet*	*33.337*		*79*	*52-141*		
Matrix Spike (L207137-MS2)		**Source: 1207048-01**		Prepared: 07/23/2012 Analyzed: 07/25/2012						
Aroclor 1016	129		14.0	ug/kg dry	175.60	13.7 U	73	50-138		
Aroclor 1260	146		14.0	ug/kg dry	175.60	13.7 U	83	50-148		
Surrogate: Decachlorobiphenyl	*29.9*			*ug/kg dry*	*35.120*		*85*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*30.3*			*ug/kg dry*	*35.124*		*86*	*52-141*		
Matrix Spike Dup (L207137-MSD2)		**Source: 1207048-01**		Prepared: 07/23/2012 Analyzed: 07/25/2012						
Aroclor 1016	100		14.1	ug/kg dry	176.66	13.7 U	57	50-138	26	40
Aroclor 1260	115		14.1	ug/kg dry	176.66	13.7 U	65	50-148	24	40
Surrogate: Decachlorobiphenyl	*21.8*			*ug/kg dry*	*35.331*		*62*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*22.3*			*ug/kg dry*	*35.335*		*63*	*52-141*		

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/25/2012 11:34

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207137 - SW 3540C										
Blank (L207137-BLK1)				Prepared: 07/23/2012 Analyzed: 07/24/2012						
alpha-BHC	0.330	U	0.330	ug/kg wet						
gamma-BHC	0.330	U	0.330	ug/kg wet						
beta-BHC	0.330	U	0.330	ug/kg wet						
delta-BHC	0.330	U	0.330	ug/kg wet						
Heptachlor	0.330	U	0.330	ug/kg wet						
Aldrin	0.330	U	0.330	ug/kg wet						
Heptachlor epoxide	0.330	U	0.330	ug/kg wet						
gamma-Chlordane	0.330	U	0.330	ug/kg wet						
alpha-Chlordane	0.330	U	0.330	ug/kg wet						
Endosulfan I	0.330	U	0.330	ug/kg wet						
4,4'-DDE	0.330	U	0.330	ug/kg wet						
Dieldrin	0.330	U	0.330	ug/kg wet						
Endrin	0.330	U	0.330	ug/kg wet						
4,4'-DDD	0.330	U	0.330	ug/kg wet						
Endosulfan II	0.330	U	0.330	ug/kg wet						
4,4'-DDT	0.330	U	0.330	ug/kg wet						
Endrin aldehyde	0.330	U	0.330	ug/kg wet						
Endosulfan sulfate	0.330	U	0.330	ug/kg wet						
Methoxychlor	0.330	U	0.330	ug/kg wet						
Endrin ketone	0.330	U	0.330	ug/kg wet						
Toxaphene	3.30	U	3.30	ug/kg wet						
Surrogate: Tetrachloro-meta-xylene	*27.3*			*ug/kg wet*	*33.337*		*82.0*	*28-166*		
Surrogate: Decachlorobiphenyl	*31.5*			*ug/kg wet*	*33.333*		*94.6*	*37-153*		
LCS (L207137-BS1)				Prepared: 07/23/2012 Analyzed: 07/24/2012						
alpha-BHC	30.5		0.330	ug/kg wet	33.333		91.5	65-145		
gamma-BHC	29.8		0.330	ug/kg wet	33.333		89.3	70-143		
beta-BHC	26.1		0.330	ug/kg wet	33.333		78.4	75-143		
delta-BHC	30.3		0.330	ug/kg wet	33.333		90.8	65-143		
Heptachlor	31.1		0.330	ug/kg wet	33.333		93.4	70-139		
Aldrin	29.5		0.330	ug/kg wet	33.333		88.6	70-143		
Heptachlor epoxide	29.8		0.330	ug/kg wet	33.333		89.3	71-138		
gamma-Chlordane	29.5		0.330	ug/kg wet	33.333		88.4	71-137		
alpha-Chlordane	28.5		0.330	ug/kg wet	33.333		85.4	72-136		
Endosulfan I	30.7		0.330	ug/kg wet	33.333		92.2	72-139		
4,4'-DDE	31.2		0.330	ug/kg wet	33.333		93.5	70-154		
Dieldrin	31.6		0.330	ug/kg wet	33.333		94.8	73-143		

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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-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/25/2012 11:34

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207137 - SW 3540C										
LCS (L207137-BS1)				Prepared: 07/23/2012 Analyzed: 07/24/2012						
Endrin	32.3		0.330	ug/kg wet	33.333		97.0	74-137		
4,4'-DDD	35.4		0.330	ug/kg wet	33.333		106	52-153		
Endosulfan II	34.4		0.330	ug/kg wet	33.333		103	72-139		
4,4'-DDT	32.1		0.330	ug/kg wet	33.333		96.4	58-148		
Endrin aldehyde	26.7		0.330	ug/kg wet	33.333		80.2	49-129		
Endosulfan sulfate	31.2		0.330	ug/kg wet	33.333		93.5	66-139		
Methoxychlor	35.8		0.330	ug/kg wet	33.333		107	50-144		
Endrin ketone	30.8		0.330	ug/kg wet	33.333		92.5	70-139		
Surrogate: Tetrachloro-meta-xylene	*27.4*			*ug/kg wet*	*33.337*		*82.2*	*28-166*		
Surrogate: Decachlorobiphenyl	*30.8*			*ug/kg wet*	*33.333*		*92.5*	*37-153*		
Matrix Spike (L207137-MS1)		**Source: 1207048-01**		Prepared: 07/23/2012 Analyzed: 07/24/2012						
alpha-BHC	27.5	D	1.33	ug/kg dry	33.500	1.36 U	82.0	65-145		
gamma-BHC	28.7	D	1.33	ug/kg dry	33.500	1.36 U	85.8	70-143		
beta-BHC	28.6	D	1.33	ug/kg dry	33.500	1.36 U	85.3	75-143		
delta-BHC	23.9	D	1.33	ug/kg dry	33.500	1.36 U	71.2	65-143		
Heptachlor	31.1	D	1.33	ug/kg dry	33.500	1.36 U	92.8	70-139		
Aldrin	28.4	D	1.33	ug/kg dry	33.500	1.36 U	84.7	70-143		
Heptachlor epoxide	30.8	D	1.33	ug/kg dry	33.500	1.36 U	91.8	71-138		
gamma-Chlordane	30.6	D	1.33	ug/kg dry	33.500	1.36 U	91.2	71-137		
alpha-Chlordane	30.4	D	1.33	ug/kg dry	33.500	1.36 U	90.6	72-136		
Endosulfan I	31.2	D	1.33	ug/kg dry	33.500	1.36 U	93.2	72-139		
4,4'-DDE	33.1	D	1.33	ug/kg dry	33.500	1.36 U	98.9	70-154		
Dieldrin	31.5	D	1.33	ug/kg dry	33.500	1.36 U	94.0	73-143		
Endrin	34.1	D	1.33	ug/kg dry	33.500	1.36 U	102	74-137		
4,4'-DDD	36.2	D	1.33	ug/kg dry	33.500	1.36 U	108	52-153		
Endosulfan II	35.5	D	1.33	ug/kg dry	33.500	1.36 U	106	72-139		
4,4'-DDT	31.7	D	1.33	ug/kg dry	33.500	1.36 U	94.6	58-148		
Endrin aldehyde	15.9	D	1.33	ug/kg dry	33.500	1.36 U	47.4*	49-129		
Endosulfan sulfate	20.0	D	1.33	ug/kg dry	33.500	1.36 U	59.7*	66-139		
Methoxychlor	40.1	D	1.33	ug/kg dry	33.500	1.36 U	120	50-144		
Endrin ketone	33.6	D	1.33	ug/kg dry	33.500	1.36 U	100	70-139		
Surrogate: Tetrachloro-meta-xylene	*24.3*			*ug/kg dry*	*33.503*		*72.6*	*28-166*		
Surrogate: Decachlorobiphenyl	*34.0*			*ug/kg dry*	*33.500*		*101*	*37-153*		

264 Welsh Pool Road
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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/25/2012 11:34

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207137 - SW 3540C										
Matrix Spike Dup (L207137-MSD1)		**Source: 1207048-01**		Prepared: 07/23/2012 Analyzed: 07/24/2012						
alpha-BHC	29.0	D	1.40	ug/kg dry	35.331	1.36 U	82.1	65-145	0.122	40
gamma-BHC	29.6	D	1.40	ug/kg dry	35.331	1.36 U	83.9	70-143	2.24	40
beta-BHC	28.8	D	1.40	ug/kg dry	35.331	1.36 U	81.6	75-143	4.43	40
delta-BHC	25.0	D	1.40	ug/kg dry	35.331	1.36 U	70.9	65-143	0.422	40
Heptachlor	31.6	D	1.40	ug/kg dry	35.331	1.36 U	89.3	70-139	3.84	40
Aldrin	28.4	D	1.40	ug/kg dry	35.331	1.36 U	80.4	70-143	5.21	40
Heptachlor epoxide	30.6	D	1.40	ug/kg dry	35.331	1.36 U	86.5	71-138	5.95	40
gamma-Chlordane	29.8	D	1.40	ug/kg dry	35.331	1.36 U	84.3	71-137	7.86	40
alpha-Chlordane	29.7	D	1.40	ug/kg dry	35.331	1.36 U	84.0	72-136	7.56	40
Endosulfan I	30.7	D	1.40	ug/kg dry	35.331	1.36 U	87.0	72-139	6.88	40
4,4'-DDE	31.5	D	1.40	ug/kg dry	35.331	1.36 U	89.2	70-154	10.3	40
Dieldrin	30.8	D	1.40	ug/kg dry	35.331	1.36 U	87.2	73-143	7.51	40
Endrin	33.2	D	1.40	ug/kg dry	35.331	1.36 U	93.9	74-137	8.07	40
4,4'-DDD	35.2	D	1.40	ug/kg dry	35.331	1.36 U	99.6	52-153	8.28	40
Endosulfan II	34.4	D	1.40	ug/kg dry	35.331	1.36 U	97.3	72-139	8.46	40
4,4'-DDT	31.7	D	1.40	ug/kg dry	35.331	1.36 U	89.7	58-148	5.32	40
Endrin aldehyde	27.7	D	1.40	ug/kg dry	35.331	1.36 U	78.5	49-129	49.4*	40
Endosulfan sulfate	31.5	D	1.40	ug/kg dry	35.331	1.36 U	89.2	66-139	39.6	40
Methoxychlor	39.1	D	1.40	ug/kg dry	35.331	1.36 U	111	50-144	7.64	40
Endrin ketone	32.1	D	1.40	ug/kg dry	35.331	1.36 U	90.9	70-139	9.73	40
Surrogate: Tetrachloro-meta-xylene	*26.6*			*ug/kg dry*	*35.335*		*75.3*	*28-166*		
Surrogate: Decachlorobiphenyl	*31.6*			*ug/kg dry*	*35.331*		*89.5*	*37-153*		

Date: 3 August 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Ground and Remaining Sites – Soil Full Protocol - Waste Site 100-D-65
Subject: Polyaromatic Hydrocarbon - Data Package No. KP0114-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. KP0114 prepared by Lionville Laboratories Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1PVL2	7/18/12	Soil	C	See note 1
J1PVL3	7/18/12	Soil	C	See note 1
J1PVL4	7/18/12	Soil	C	See note 1
J1PVL5	7/18/12	Soil	C	See note 1
J1PVL6	7/18/12	Soil	C	See note 1
J1PVL7	7/18/12	Soil	C	See note 1
J1PVL8	7/18/12	Soil	C	See note 1
J1PVL9	7/18/12	Soil	C	See note 1
J1PVM0	7/18/12	Soil	C	See note 1
J1PVM1	7/18/12	Soil	C	See note 1
J1PVM2	7/18/12	Soil	C	See note 1
J1PVM3	7/18/12	Soil	C	See note 1
J1PVM4	7/18/12	Soil	C	See note 1

1.– Polyaromatic hydrocarbons by 8310.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Data Requested by Client

DATA QUALITY OBJECTIVES

Holding Times

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

Method Blanks

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

All method blank results were acceptable.

Field (equipment) Blanks

No field blanks were submitted for analysis.

Accuracy

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

Matrix spike/matrix spike duplicate analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in

duplicate using five compounds for which percent recoveries must be within a range of 50-150% or within laboratory control limits. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Undetected sample results with spike recoveries below control limits are qualified as estimates and flagged "UJ". Undetected sample results are not qualified if the spike recovery is above control limits. Sample results greater than five times the spike concentration require no qualification.

Due to LCS recoveries outside QC limits, all naphthalene (271%) and anthracene (21%) results were qualified as estimates and flagged "J".

Due to matrix spike recoveries outside QC limits, all naphthalene (241%) and anthracene (22%) results were qualified as estimates and flagged "J".

Due to matrix spike duplicate recoveries outside QC limits, all naphthalene (244%) and anthracene (22%) results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the contract required quantitation limit (CRQL) are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

All surrogate results were acceptable.

Precision

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Samples results must be within RPD limits of +/-30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of

specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

All laboratory results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1PVL2/J1PVM4) were submitted for analysis. Laboratory duplicates are compared using the same criteria as for laboratory results. All field duplicate results are acceptable.

Analytical Detection Levels

Reported analytical detection levels are compared against the required quantitation limits (RQL's) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

Completeness

Data package No. KP0114 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to LCS recoveries outside QC limits, all naphthalene (271%) and anthracene (21%) results were qualified as estimates and flagged "J".
- Due to matrix spike recoveries outside QC limits, all naphthalene (241%) and anthracene (22%) results were qualified as estimates and flagged "J".
- Due to matrix spike duplicate recoveries outside QC limits, all naphthalene (244%) and anthracene (22%) results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All

other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*, March 2008.

DOE/RL-96-22, Rev. 5, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the same quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

POLYAROMATIC HYDROCARBON DATA QUALIFICATION SUMMARY*

SDG: KP0114	REVIEWER: ELR	Project: 100-D-65	PAGE 1 OF 1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Naphthalene Anthracene	J	All	LCS, MS and MSD recovery

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/27/2012 09:24

J1PVL2
1207048-01 (Soil)

✓ 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**2.99**	J J	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	3.51	U	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	**7.38**		3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	3.51	U	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	**1.39**	J	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.51	U J	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**5.97**		3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**3.48**	J	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	**3.86**		3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	**3.30**	J	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	**3.30**	J	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	**2.56**	J	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	**1.07**	J	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	**2.13**	J	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.51	U	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	**2.63**	J	3.51	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*89 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 09:24

J1PVL3
1207048-02 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**7.20**	J	3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	**2.66**	J	3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	3.20	U	3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	3.20	U	3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	**5.41**		3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.20	U J	3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**16.8**		3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**6.10**		3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	**13.4**		3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	**8.05**		3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	**7.68**		3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	**5.14**		3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	**3.01**	J	3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	**5.86**		3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.20	U	3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	**8.59**		3.20	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*89 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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-075 Project Number: KP0114 Project Manager: Joan Kessner	**Reported:** 07/27/2012 09:24

J1PVL4
1207048-03 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**9.47**	J	3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	3.43	U	3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	**6.73**		3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	3.43	U	3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	**3.74**		3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.43	U J	3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**8.27**		3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**5.78**		3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	**5.85**		3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	**3.23**	J	3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	**3.84**		3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	**2.59**	J	3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	**1.41**	J	3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	**2.51**	J	3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.43	U	3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	**2.97**	J	3.43	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*77 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	**Reported:** 07/27/2012 09:24

J1PVL5
1207048-04 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**2.52**	J J	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	**1.60**	J	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.40	U J	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**4.80**		3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**7.36**		3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	3.40	U	3.40	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*86 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/27/2012 09:24

J1PVL6
1207048-05 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**2.25**	J J	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	**1.87**	J	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.46	U J	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**7.07**		3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**7.25**		3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*87 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 09:24

J1PVL7
1207048-06 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**3.53**	J	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	**1.14**	J	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.35	U J	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**11.4**		3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**7.54**		3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	**0.905**	J	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	**1.09**	J	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	**1.22**	J	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*84 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

264 Welsh Pool Road
Exton, PA 19341
Phone: 610-280-3000
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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 09:24

J1PVL8
1207048-07 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**2.80**	J J	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	**0.917**	J	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.46	U J	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**4.24**		3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**9.78**		3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	3.46	U	3.46	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*83 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/27/2012 09:24

J1PVL9
1207048-08 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**2.32**	J J	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.35	U J	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**3.09**	J	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**7.08**		3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	3.35	U	3.35	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*83 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 09:24

J1PVM0
1207048-09 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**1.09**	J J	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	**1.48**	J	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.44	U J	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**5.98**		3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**7.34**		3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	3.44	U	3.44	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*77 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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Phone: 610-280-3000
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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	**Reported:** 07/27/2012 09:24

J1PVM1
1207048-10 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**2.07**	J J	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	3.53	U	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	**8.01**		3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	3.53	U	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	3.53	U	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.53	U J	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**3.38**	J	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**4.10**		3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	**2.90**	J	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	**3.41**	J	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	**3.98**		3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	**1.42**	J	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	3.53	U	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	**2.19**	J	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.53	U	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	**1.19**	J	3.53	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*93 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 09:24

J1PVM2
1207048-11 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**1.38**	J J	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	**2.00**	J	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.95	U J	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**13.1**		3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	3.95	U	3.95	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*88 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 09:24

J1PVM3
1207048-12 (Soil)

✓ 8/2/10

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	1.27	J J	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	4.14	U	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	4.14	U	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	4.14	U	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	4.14	U	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	4.14	U J	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	2.70	J	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	1.64	J	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	1.95	J	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	2.47	J	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	2.38	J	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	1.41	J	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	4.14	U	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	1.70	J	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	4.14	U	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	1.31	J	4.14	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*87 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 09:24

J1PVM4
1207048-13 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	**3.74**	J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthylene	3.39	U	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Acenaphthene	**3.80**		3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluorene	3.39	U	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Phenanthrene	**0.968**	J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Anthracene	3.39	U J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Fluoranthene	**3.28**	J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Indeno[1,2,3-cd]pyrene	**1.88**	J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Pyrene	**2.78**	J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benz[a]anthracene	**2.02**	J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Chrysene	**2.04**	J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[b] fluoranthene	**1.46**	J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[k] fluoranthene	3.39	U	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[a] pyrene	**1.17**	J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Dibenz[a,h]anthracene	3.39	U	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Benzo[g,h,i] perylene	**1.65**	J	3.39	ug/kg dry	1	L207122	07/20/2012	07/26/2012	8310
Surrogate: Triphenylene	*84 %*		*68-129*			*L207122*	*07/20/2012*	*07/26/2012*	*8310*

000000135

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-075 KP0114
LVL #: 1207048

W.O. #: 60049-001-001-0001-00
Date Received: 07-20-2012

POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)

Thirteen (13) soil samples were collected on 07-18-2012.

The samples and associated QC samples were extracted 07-20-2012 and analyzed 07-26-2012 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 8310.

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

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limits for all target compounds.
5. One (1) of sixteen (16) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC120) has been enclosed.
6. Two (2) of thirty-two (32) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC120) has been enclosed.
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.

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. 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

7/27/12
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 120C120

Initiator: Robert Carden
Date: 7/27/12
Client: WC Hanford BC075 KP0114

Batch: 1207048
Samples: MS/MSD/BS
Method: SW846/MCAWW/CLP/

Parameter: PAH
Matrix: Soil
Prep Batch: L207122

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Spike recovery for naphthalene above qc acceptance criteria MS/MSD/BS.
Sample results may be biased high

2. Known or Probable Causes(s)

Possible spike mixture has elevated Naphthalene.

3. Discussion and Proposed Action

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

Other Description:

Positive bias does not impact the data since all samples are well below client required detection limit of 100 µg/Kg Narrate ID.

4. Project Manager Instructions...signature/date: 7/27/12

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: 7/27/12

Other Explanation:

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

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

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

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

QA-139-A-0208

@ 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 1 of ~~2~~ 3

Collector ~~Q Stowe~~ J Smith @ 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075
Ice Chest No. RCC-08-028	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSPL

Price Code ~~8L~~ 8B @ 7-18-12

Data Turnaround ~~21~~ 7 Days @ 7-18-12

POSSIBLE SAMPLE ~~HAZARDS/REMARKS~~
~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium-3	Nickel-63; Strontium-89,90 – Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL2	SOIL	7-18-12	1230	X	X	X	X	X	X	X			
J1PVL3	SOIL	7-18-12	1220	X	X	X	X	X	X	X			
J1PVL4	SOIL	7-18-12	1210	X	X	X	X	X	X	X			
J1PVL5	SOIL	7-18-12	1150	X	X	X	X	X	X	X			
J1PVL6	SOIL	7-18-12	~~1140~~	X	X	X	X	X	X	X			

7-18-12

CHAIN OF POSSESSION — Sign/Print Names 1040 @ 7-18-12

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] Jason Smith	7/18/12 1340	Dwoolbry [signature]	7-18-12 1340
Dwoolbry [signature]	7-18-12 1600	Dennis Newman 1060 #3	7/18/12 1600
Dennis Newman WCH	7/19/12 1245	Fed Ex	
Fed Ex	7.20.12 1000	[signature]	7.20.12 1000

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Mangarese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)
(2) Gamma Spec (Client List) (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

Actions by 300 per Skessner

REVIEWED BY MWShea DATE 7/19/12

KP0114

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

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

WCH-EE-011

000000005

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27-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 2 of 3

Collector ~~Q Stowe~~ J Smith 27-18-12	Company Contact J Kessner / Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code ~~8L~~ 8B 27-18-12 / Data Turnaround ~~21~~ 7 Days 27-18-12
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall	SAF No. RC-075	
Ice Chest No. RCC-08-022	Field Logbook No. EL-1607-14 / COA 000D652000	Method of Shipment FED Ex	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469	Bill of Lading/Air Bill No. SEE OSPL	

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - FD	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL7	SOIL	7-18-12	1025	X	X	X	X	X	X	X			
J1PVL8	SOIL	7-18-12	1010	X	X	X	X	X	X	X			
J1PVL9	SOIL	7-18-12	1000	X	X	X	X	X	X	X			
J1PVM0	SOIL	7-18-12	0950	X	X	X	X	X	X	X			
J1PVM1	SOIL	7-18-12	0935	X	X	X	X	X	X	X			

7-18-12

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] Jason Smith	7/18/12 1340	DWOOLERY [signature]	7-18-12 1340
DWOOLERY [signature]	7-18-12 1600	1060#3 Dennis Newman	1600 7-18-12
WCH Dennis Newman	1245 7/19/12		
[signature] EX	7-20-12 / 10:00	[signature] D Smith	7-20-12 / 10:00

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Mangarese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

anions by 300 per J Kessner

KP0114

REVIEWED BY DWShea DATE 7/19/12

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

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

WCH-EE-011

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000000006

D 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 1 of 3

Collector ~~Q Stowe~~ J Smith D 7-18-12	Company Contact J Kessner / Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code ~~8L~~ 8B D 7-18-12 / Data Turnaround ~~21~~ 7 Days
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall	SAF No. RC-075	
Ice Chest No. RCC-08-~~028~~ 022 7/19/12	Field Logbook No. EL-1607-14 / COA 000D652000	Method of Shipment FED EX D 7-18-12	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469	Bill of Lading/Air Bill No. SEE OSEL	

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - H3	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVM2	SOIL	7-18-12	0920	X	X	X	X	X	X	X			
J1PVM3	SOIL	7-18-12	0855	X	X	X	X	X	X	X			
J1PVM4	SOIL	7-18-12	1230	X	X	X	X	X	X	X			
J1PVM5	SOIL	7-18-12	1230	X			X						

7-18-12

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Jason Smith	Date/Time: 7-18-12 1340	Received By/Stored In: Dwoolery D	Date/Time: 7-18-12 1340
Relinquished By/Removed From: Dwoolery D	Date/Time: 7-18-12 1600	Received By/Stored In: 1060 #3 Dennis Newman	Date/Time: 7/18/12 1600
Relinquished By/Removed From: WCH Dennis Newman	Date/Time: 7/19/12 1245	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 7.20.12/1000	Received By/Stored In: D Smith	Date/Time: 7.20.12/1000
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Mangarese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Anions by 300 per J Kessner

KP0114

REVIEWED BY DWShea DATE 7/19/12

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

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

WCH-EE-011

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Appendix 5

Data Validation Supporting Documentation

GENERAL ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-65			DATA PACKAGE: KP0114		
VALIDATOR: PLR		LAB: LLI		DATE: 8/2/12	
			SDG: KP0114		
ANALYSES PERFORMED					
8015	8021	8141	8151	8315	8310
		WTPH-HCID	WTPH-G	WTPH-D	

SAMPLES/MATRIX:				
JIPVL2	JIPVL3	JIPVL4	JIPVL5	JIPVL6
JIPVL7	JIPVL8	JIPVL9	JIPVM0	JIPVM1
JIPVM2	JIPVM3	JIPVM4		
				Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments:

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

Initial calibrations acceptable? ..... Yes No (N/A)

Continuing calibrations acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Calculation check acceptable? ..... Yes No (N/A)

Comments:

GENERAL ORGANIC DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A

Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: no FB

4. ACCURACY (Levels C, D, and E)

Surrogates/system monitoring compounds analyzed? ..... Yes No N/A

Surrogate/system monitoring compound recoveries acceptable? ..... Yes No N/A

Surrogates traceable? (Levels D, E) ..... Yes No N/A

Surrogates expired? (Levels D, E) ..... Yes No N/A

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: LCS - naphthalene (281%) anthracene (21%) - J all
MS " (241%) " (22%) - J calp
MSD " (244%) " (22%) - J calp

no PAS

GENERAL ORGANIC DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes No N/A

Duplicate results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

6. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments: _____

GENERAL ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (or other aborbant) cleanup performed? ..... Yes No N/A

Lot check performed? ..... Yes No N/A

Check recoveries aceptable? ..... Yes No N/A

Check materials traceable? ..... Yes No N/A

Check materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

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-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 09:24

Polynuclear Aromatic Compounds by SW846 8310 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207122 - SW 3540C										
Blank (L207122-BLK1)				Prepared: 07/20/2012 Analyzed: 07/26/2012						
Naphthalene	3.33	U	3.33	ug/kg wet						
Acenaphthylene	3.33	U	3.33	ug/kg wet						
Acenaphthene	3.33	U	3.33	ug/kg wet						
Fluorene	3.33	U	3.33	ug/kg wet						
Phenanthrene	3.33	U	3.33	ug/kg wet						
Anthracene	3.33	U	3.33	ug/kg wet						
Fluoranthene	3.33	U	3.33	ug/kg wet						
Indeno[1,2,3-cd]pyrene	3.33	U	3.33	ug/kg wet						
Pyrene	3.33	U	3.33	ug/kg wet						
Benz[a]anthracene	3.33	U	3.33	ug/kg wet						
Chrysene	3.33	U	3.33	ug/kg wet						
Benzo[b] fluoranthene	3.33	U	3.33	ug/kg wet						
Benzo[k] fluoranthene	3.33	U	3.33	ug/kg wet						
Benzo[a] pyrene	3.33	U	3.33	ug/kg wet						
Dibenz[a,h]anthracene	3.33	U	3.33	ug/kg wet						
Benzo[g,h,i] perylene	3.33	U	3.33	ug/kg wet						
Surrogate: Triphenylene	*156*			*ug/kg wet*	*166.67*		*93*	*68-129*		
LCS (L207122-BS1)				Prepared: 07/20/2012 Analyzed: 07/26/2012						
Naphthalene	485		3.33	ug/kg wet	166.67		291*	0-127		
Acenaphthylene	124		3.33	ug/kg wet	166.67		74	50-140		
Acenaphthene	125		3.33	ug/kg wet	166.67		75	17-139		
Fluorene	130		3.33	ug/kg wet	166.67		78	28-145		
Phenanthrene	132		3.33	ug/kg wet	166.67		79	30-152		
Anthracene	35.6		3.33	ug/kg wet	166.67		21	19-171		
Fluoranthene	138		3.33	ug/kg wet	166.67		83	34-159		
Indeno[1,2,3-cd]pyrene	132		3.33	ug/kg wet	166.67		79	31-156		
Pyrene	131		3.33	ug/kg wet	166.67		79	33-152		
Benz[a]anthracene	124		3.33	ug/kg wet	166.67		74	32-157		
Chrysene	135		3.33	ug/kg wet	166.67		81	31-159		
Benzo[b] fluoranthene	137		3.33	ug/kg wet	166.67		82	33-164		
Benzo[k] fluoranthene	135		3.33	ug/kg wet	166.67		81	28-161		
Benzo[a] pyrene	106		3.33	ug/kg wet	166.67		63	29-149		
Dibenz[a,h]anthracene	125		3.33	ug/kg wet	166.67		75	27-153		
Benzo[g,h,i] perylene	123		3.33	ug/kg wet	166.67		74	32-157		
Surrogate: Triphenylene	*141*			*ug/kg wet*	*166.67*		*84*	*68-129*		

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/27/2012 09:24

Polynuclear Aromatic Compounds by SW846 8310 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207122 - SW 3540C									
Matrix Spike (L207122-MS1)		**Source: 1207048-01**	Prepared: 07/20/2012 Analyzed: 07/26/2012						
Naphthalene	412	3.38	ug/kg dry	169.32	2.99	241*	0-127		
Acenaphthylene	127	3.38	ug/kg dry	169.32	3.51 U	75	50-140		
Acenaphthene	158	3.38	ug/kg dry	169.32	7.38	89	17-139		
Fluorene	134	3.38	ug/kg dry	169.32	3.51 U	79	28-145		
Phenanthrene	135	3.38	ug/kg dry	169.32	1.39	79	30-152		
Anthracene	36.9	3.38	ug/kg dry	169.32	3.51 U	22	19-171		
Fluoranthene	145	3.38	ug/kg dry	169.32	5.97	82	34-159		
Indeno[1,2,3-cd]pyrene	133	3.38	ug/kg dry	169.32	3.48	76	31-156		
Pyrene	134	3.38	ug/kg dry	169.32	3.86	77	33-152		
Benz[a]anthracene	132	3.38	ug/kg dry	169.32	3.30	76	32-157		
Chrysene	137	3.38	ug/kg dry	169.32	3.30	79	31-159		
Benzo[b] fluoranthene	146	3.38	ug/kg dry	169.32	2.56	84	33-164		
Benzo[k] fluoranthene	135	3.38	ug/kg dry	169.32	1.07	79	28-161		
Benzo[a] pyrene	109	3.38	ug/kg dry	169.32	2.13	63	29-149		
Dibenz[a,h]anthracene	124	3.38	ug/kg dry	169.32	3.51 U	73	27-153		
Benzo[g,h,i] perylene	125	3.38	ug/kg dry	169.32	2.63	72	32-157		
Surrogate: Triphenylene	*144*		*ug/kg dry*	*169.32*		*85*	*68-129*		
Matrix Spike Dup (L207122-MSD1)		**Source: 1207048-01**	Prepared: 07/20/2012 Analyzed: 07/26/2012						
Naphthalene	415	3.38	ug/kg dry	169.10	2.99	244*	0-127	0.9	40
Acenaphthylene	131	3.38	ug/kg dry	169.10	3.51 U	77	50-140	3	40
Acenaphthene	129	3.38	ug/kg dry	169.10	7.38	72	17-139	22	40
Fluorene	131	3.38	ug/kg dry	169.10	3.51 U	78	28-145	2	40
Phenanthrene	139	3.38	ug/kg dry	169.10	1.39	81	30-152	3	40
Anthracene	36.9	3.38	ug/kg dry	169.10	3.51 U	22	19-171	0.00004	40
Fluoranthene	145	3.38	ug/kg dry	169.10	5.97	82	34-159	0.09	40
Indeno[1,2,3-cd]pyrene	136	3.38	ug/kg dry	169.10	3.48	78	31-156	3	40
Pyrene	138	3.38	ug/kg dry	169.10	3.86	80	33-152	3	40
Benz[a]anthracene	128	3.38	ug/kg dry	169.10	3.30	74	32-157	3	40
Chrysene	142	3.38	ug/kg dry	169.10	3.30	82	31-159	4	40
Benzo[b] fluoranthene	150	3.38	ug/kg dry	169.10	2.56	87	33-164	3	40
Benzo[k] fluoranthene	139	3.38	ug/kg dry	169.10	1.07	82	28-161	3	40
Benzo[a] pyrene	110	3.38	ug/kg dry	169.10	2.13	64	29-149	2	40
Dibenz[a,h]anthracene	127	3.38	ug/kg dry	169.10	3.51 U	75	27-153	2	40
Benzo[g,h,i] perylene	129	3.38	ug/kg dry	169.10	2.63	74	32-157	3	40
Surrogate: Triphenylene	*147*		*ug/kg dry*	*169.10*		*87*	*68-129*		

Date: 3 August 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Ground and Remaining Sites – Soil Full Protocol - Waste Site 100-D-65
Subject: Semivolatile Organic - Data Package No. KP0114-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. KP0114 prepared by Lionville Laboratories Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1PVL2	7/18/12	Soil	C	See note 1
J1PVL3	7/18/12	Soil	C	See note 1
J1PVL4	7/18/12	Soil	C	See note 1
J1PVL5	7/18/12	Soil	C	See note 1
J1PVL6	7/18/12	Soil	C	See note 1
J1PVL7	7/18/12	Soil	C	See note 1
J1PVL8	7/18/12	Soil	C	See note 1
J1PVL9	7/18/12	Soil	C	See note 1
J1PVM0	7/18/12	Soil	C	See note 1
J1PVM1	7/18/12	Soil	C	See note 1
J1PVM2	7/18/12	Soil	C	See note 1
J1PVM3	7/18/12	Soil	C	See note 1
J1PVM4	7/18/12	Soil	C	See note 1
J1PVM5	7/18/12	Soil	C	See note 1

1 – Semivolatile organics by 8270.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, September 2009). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Data Requested by Client

DATA QUALITY OBJECTIVES

Holding Times

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

Method Blanks

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

All method blank results were acceptable.

Field (equipment) Blanks

No field blank was submitted for analysis.

Accuracy

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

Matrix spike/matrix spike duplicate analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in

duplicate using five compounds for which percent recoveries must be within a range of 50-150% or within laboratory control limits. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Undetected sample results with spike recoveries below control limits are qualified as estimates and flagged "UJ". Undetected sample results are not qualified if the spike recovery is above control limits. Sample results greater than five times the spike concentration require no qualification.

Due to LCS recoveries outside QC limits, all 2,4-dinitrophenol (10%), 4,6-dinitro-2-methylphenol (19%), hexachlorocyclopentadiene (40%) and pentachlorophenol (25%) results were qualified as estimates and flagged "J".

Due to matrix spike recoveries outside QC limits, all 2,4,5-trichlorophenol (39%), 2,4,6-trichlorophenol (17%), 2,4-dinitrophenol (39%), 4-nitrophenol (42%), hexachlorocyclopentadiene (39%) and pentachlorophenol (34%) results were qualified as estimates and flagged "J".

Due to matrix spike duplicate recoveries outside QC limits, all 2,4,6-trichlorophenol (48%), 2,4-dinitrophenol (21%), 4,6-dinitro-2-methylphenol (38%), 4-chloroanaline (47%), 4-nitrophenol (46%), hexachlorocyclopentadiene (36%) and pentachlorophenol (26%) results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the contract required quantitation limit (CRQL) are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

Due to surrogate recoveries outside QC limits, all 2,4-dichlorophenol, 2,4,6-trichlorophenol, 2,4,5-trichlorophenol, pentachlorophenol, bis(2-chloroethyl)ether, bis(2-chloroisopropyl)ether, bis(2-chloroethoxy)methane, 4-chlorophenyl phenyl ether and 4-bromophenyl phenyl ether results in sample J1PVM3 were qualified as estimates and flagged "J".

Due to surrogate recoveries outside QC limits, all 2,4-dichlorophenol, 2,4,6-trichlorophenol, 2,4,5-trichlorophenol, pentachlorophenol, bis(2-chloroethyl)ether, bis(2-chloroisopropyl)ether, bis(2-chloroethoxy)methane, 4-chlorophenyl phenyl ether and 4-

bromophenyl phenyl ether results in sample J1PVM5 were qualified as rejected and flagged "UR".

All other surrogate results were acceptable.

Precision

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Samples results must be within RPD limits of +/-30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

Due to RPDs outside QC limits, all 2,4,5-trichlorophenol (42%), 2,4,6-trichlorophenol (98%), 2,4-dinitrophenol (59%) and 4,6-dinitro-2-methylphenol (40%) results were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1PVL2/J1PVM4) were submitted for analysis. Laboratory duplicates are compared using the same criteria as for laboratory results. All field duplicate results are acceptable.

Analytical Detection Levels

Reported analytical detection levels are compared against the required quantitation limits (RQL's) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

Completeness

Data package No. KP0114 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 99%.

MAJOR DEFICIENCIES

The following major deficiencies were noted:

- Due to surrogate recoveries outside QC limits, all 2,4-dichlorophenol, 2,4,6-trichlorophenol, 2,4,5-trichlorophenol, pentachlorophenol, bis(2-chloroethyl)ether, bis(2-chloroisopropyl)ether, bis(2-chloroethoxy)methane, 4-chlorophenyl phenyl ether and 4-bromophenyl phenyl ether results in sample J1PVM5 were qualified as rejected and flagged "UR".

Rejected data is unusable and should not be reported.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to LCS recoveries outside QC limits, all 2,4-dinitrophenol (10%), 4,6-dinitro-2-methylphenol (19%), hexachlorocyclopentadiene (40%) and pentachlorophenol (25%) results were qualified as estimates and flagged "J".

- Due to matrix spike recoveries outside QC limits, all 2,4,5-trichlorophenol (39%), 2,4,6-trichlorophenol (17%), 2,4-dinitrophenol (39%), 4-nitrophenol (42%), hexachlorocyclopentadiene (39%) and pentachlorophenol (34%) results were qualified as estimates and flagged "J".

- Due to matrix spike duplicate recoveries outside QC limits, all 2,4,6-trichlorophenol (48%), 2,4-dinitrophenol (21%), 4,6-dinitro-2-methylphenol (38%), 4-chloroanaline (47%), 4-nitrophenol (46%), hexachlorocyclopentadiene (36%) and pentachlorophenol (26%) results were qualified as estimates and flagged "J".

- Due to surrogate recoveries outside QC limits, all 2,4-dichlorophenol, 2,4,6-trichlorophenol, 2,4,5-trichlorophenol, pentachlorophenol, bis(2-chloroethyl)ether, bis(2-chloroisopropyl)ether, bis(2-chloroethoxy)methane, 4-chlorophenyl phenyl ether and 4-bromophenyl phenyl ether results in sample J1PVM3 were qualified as estimates and flagged "J".

- Due to RPDs outside QC limits, all 2,4,5-trichlorophenol (42%), 2,4,6-trichlorophenol (98%), 2,4-dinitrophenol (59%) and 4,6-dinitro-2-methylphenol (40%) results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*, March 2008.

DOE/RL-96-22, Rev. 5, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, September 2009.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the same quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

SEMIVOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: KP0114	**REVIEWER: ELR**	**Project: 100-D-65**	**PAGE_1_OF_1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
2,4-dinitrophenol 4,6-dinitro-2-methylphenol hexachlorocyclopentadiene pentachlorophenol	J	All	LCS recovery
2,4,5-trichlorophenol 2,4,6-trichlorophenol 2,4-dinitrophenol 4-nitrophenol hexachlorocyclopentadiene pentachlorophenol	J	All	MS recovery
2,4,6-trichlorophenol 2,4-dinitrophenol 4,6-dinitro-2-methylphenol 4-chloroanaline 4-nitrophenol hexachlorocyclopentadiene pentachlorophenol	J	All	MSD recovery
2,4-dichlorophenol 2,4,6-trichlorophenol 2,4,5-trichlorophenol pentachlorophenol bis(2-chloroethyl)ether bis(2-chloroisopropyl)ether bis(2-chloroethoxy)methane 4-chlorophenyl phenyl ether 4-bromophenyl phenyl ether	J	J1PVM3	Surrogate recovery
2,4-dichlorophenol 2,4,6-trichlorophenol 2,4,5-trichlorophenol pentachlorophenol bis(2-chloroethyl)ether bis(2-chloroisopropyl)ether bis(2-chloroethoxy)methane 4-chlorophenyl phenyl ether 4-bromophenyl phenyl ether	UR	J1PVM5	Surrogate recovery
2,4,5-trichlorophenol 2,4,6-trichlorophenol 2,4-dinitrophenol 4,6-dinitro-2-methylphenol	J	All	RPD

SEMIVOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

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-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVL2
1207048-01 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,2-Dichlorobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,3-Dichlorobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,4-Dichlorobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,5-Trichlorophenol	334	U J	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,6-Trichlorophenol	334	U J	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dichlorophenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dimethylphenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrophenol	1670	U J	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrotoluene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,6-Dinitrotoluene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chloronaphthalene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chlorophenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylnaphthalene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylphenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitroaniline	1670	U	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitrophenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3,3'-Dichlorobenzidine	667	U	667	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3-Nitroaniline	1670	U	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4,6-Dinitro-2-methylphenol	334	U J	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Bromophenyl Phenyl Ether	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloro-3-methylphenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloroaniline	334	U J	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chlorophenyl Phenyl Ether	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3- and/or 4-Methylphenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitroaniline	1670	U	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitrophenol	1670	U J	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthylene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Anthracene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benz[a]anthracene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[a] pyrene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[b] fluoranthene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[g,h,i] perylene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[k] fluoranthene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroethoxy) methane	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C

264 Welsh Pool Road
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Phone: 610-280-3000
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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL2
1207048-01 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroisopropyl) ether	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-ethylhexyl) phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Butyl Benzyl Phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Carbazole	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Chrysene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenz[a,h]anthracene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenzofuran	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Diethyl Phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dimethyl Phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-butyl Phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-octyl Phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluoranthene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluorene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobutadiene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorocyclopentadiene	334	U J	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachloroethane	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Indeno[1,2,3-cd]pyrene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Isophorone	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Naphthalene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Nitrobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodi-n-propylamine	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodiphenylamine	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pentachlorophenol	1670	U J	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenanthrene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pyrene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Unknown 1	**242**	B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 3	**763**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 4	**243**	A, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 2	**39900**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 1	**2600**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Surrogate: 2-Fluorophenol	*65 %*		*25-121*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Phenol-d5	*70 %*		*24-113*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*63 %*		*23-120*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL2
1207048-01 (Soil)

8/2/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*66 %*	*30-115*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*81 %*	*19-122*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*88 %*	*18-137*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVL3
1207048-02 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,2-Dichlorobenzene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,3-Dichlorobenzene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,4-Dichlorobenzene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,5-Trichlorophenol	324	U J	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,6-Trichlorophenol	324	U J	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dichlorophenol	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dimethylphenol	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrophenol	1620	U J	1620	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrotoluene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,6-Dinitrotoluene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chloronaphthalene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chlorophenol	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylnaphthalene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylphenol	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitroaniline	1620	U	1620	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitrophenol	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3,3'-Dichlorobenzidine	648	U	648	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3-Nitroaniline	1620	U	1620	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4,6-Dinitro-2-methylphenol	324	U J	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Bromophenyl Phenyl Ether	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloro-3-methylphenol	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloroaniline	324	U J	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chlorophenyl Phenyl Ether	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3- and/or 4-Methylphenol	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitroaniline	1620	U	1620	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitrophenol	1620	U J	1620	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthylene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Anthracene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benz[a]anthracene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[a] pyrene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[b] fluoranthene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[g,h,i] perylene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[k] fluoranthene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroethoxy) methane	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C

264 Welsh Pool Road
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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVL3
1207048-02 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroisopropyl) ether	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-ethylhexyl) phthalate	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Butyl Benzyl Phthalate	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Carbazole	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Chrysene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenz[a,h]anthracene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenzofuran	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Diethyl Phthalate	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dimethyl Phthalate	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-butyl Phthalate	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-octyl Phthalate	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluoranthene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluorene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobenzene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobutadiene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorocyclopentadiene	324	U J	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachloroethane	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Indeno[1,2,3-cd]pyrene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Isophorone	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Naphthalene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Nitrobenzene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodi-n-propylamine	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodiphenylamine	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pentachlorophenol	1620	U J	1620	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenanthrene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenol	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pyrene	324	U	324	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 2	**231**	B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 1	**452**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 2	**40000**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 3	**578**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 1	**2470**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Surrogate: 2-Fluorophenol	*55 %*		*25-121*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Phenol-d5	*57 %*		*24-113*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*58 %*		*23-120*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL3
1207048-02 (Soil)

8/2/12

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*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*46 %*	*19-122*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*79 %*	*18-137*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL4
1207048-03 (Soil)

4/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,2-Dichlorobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,3-Dichlorobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,4-Dichlorobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,5-Trichlorophenol	337	U J	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,6-Trichlorophenol	337	U J	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dichlorophenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dimethylphenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrophenol	1690	U J	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrotoluene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,6-Dinitrotoluene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chloronaphthalene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chlorophenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylnaphthalene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylphenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitroaniline	1690	U	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitrophenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3,3'-Dichlorobenzidine	675	U	675	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3-Nitroaniline	1690	U	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4,6-Dinitro-2-methylphenol	337	U J	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Bromophenyl Phenyl Ether	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloro-3-methylphenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloroaniline	337	U J	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chlorophenyl Phenyl Ether	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3- and/or 4-Methylphenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitroaniline	1690	U	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitrophenol	1690	U J	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthylene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Anthracene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benz[a]anthracene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[a] pyrene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[b] fluoranthene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[g,h,i] perylene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[k] fluoranthene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroethoxy) methane	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C

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Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL4
1207048-03 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroisopropyl) ether	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-ethylhexyl) phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Butyl Benzyl Phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Carbazole	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Chrysene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenz[a,h]anthracene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenzofuran	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Diethyl Phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dimethyl Phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-butyl Phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-octyl Phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluoranthene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluorene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobutadiene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorocyclopentadiene	337	U J	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachloroethane	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Indeno[1,2,3-cd]pyrene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Isophorone	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Naphthalene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Nitrobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodi-n-propylamine	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodiphenylamine	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pentachlorophenol	1690	U J	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenanthrene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pyrene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 1	**339**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 3	**707**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Alkane 1	**123**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 2	**38800**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 1	**2760**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Surrogate: 2-Fluorophenol	*68 %*		*25-121*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Phenol-d5	*72 %*		*24-113*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*68 %*		*23-120*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL4
1207048-03 (Soil)

8/2/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*65 %*	*30-115*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*66 %*	*19-122*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*83 %*	*18-137*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL5
1207048-04 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,2-Dichlorobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,3-Dichlorobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,4-Dichlorobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,5-Trichlorophenol	334	U J	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,6-Trichlorophenol	334	U J	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dichlorophenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dimethylphenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrophenol	1670	U J	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrotoluene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,6-Dinitrotoluene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chloronaphthalene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chlorophenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylnaphthalene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylphenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitroaniline	1670	U	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitrophenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3,3'-Dichlorobenzidine	668	U	668	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3-Nitroaniline	1670	U	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4,6-Dinitro-2-methylphenol	334	U J	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Bromophenyl Phenyl Ether	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloro-3-methylphenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloroaniline	334	U J	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chlorophenyl Phenyl Ether	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3- and/or 4-Methylphenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitroaniline	1670	U	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitrophenol	1670	U J	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthylene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Anthracene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benz[a]anthracene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[a] pyrene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[b] fluoranthene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[g,h,i] perylene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[k] fluoranthene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroethoxy) methane	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C

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WC-Hanford, Inc.	Project: RC-075	
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Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL5
1207048-04 (Soil)

6/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroisopropyl) ether	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-ethylhexyl) phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Butyl Benzyl Phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Carbazole	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Chrysene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenz[a,h]anthracene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenzofuran	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Diethyl Phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dimethyl Phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-butyl Phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-octyl Phthalate	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluoranthene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluorene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobutadiene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorocyclopentadiene	334	U J	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachloroethane	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Indeno[1,2,3-cd]pyrene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Isophorone	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Naphthalene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Nitrobenzene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodi-n-propylamine	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodiphenylamine	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pentachlorophenol	1670	U J	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenanthrene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenol	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pyrene	334	U	334	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Unknown 1	**445**	J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 1	**2380**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Alkane 1	**324**	J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 2	**38400**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 3	**614**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Surrogate: 2-Fluorophenol	*60 %*		*25-121*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Phenol-d5	*65 %*		*24-113*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*59 %*		*23-120*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL5
1207048-04 (Soil)

8/2/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*65 %*	*30-115*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*79 %*	*19-122*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*79 %*	*18-137*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVL6
1207048-05 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,2-Dichlorobenzene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,3-Dichlorobenzene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,4-Dichlorobenzene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,5-Trichlorophenol	336	U J	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,6-Trichlorophenol	336	U J	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dichlorophenol	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dimethylphenol	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrophenol	1680	U J	1680	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrotoluene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,6-Dinitrotoluene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chloronaphthalene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chlorophenol	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylnaphthalene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylphenol	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitroaniline	1680	U	1680	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitrophenol	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3,3'-Dichlorobenzidine	673	U	673	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3-Nitroaniline	1680	U	1680	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4,6-Dinitro-2-methylphenol	336	U J	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Bromophenyl Phenyl Ether	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloro-3-methylphenol	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloroaniline	336	U J	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chlorophenyl Phenyl Ether	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3- and/or 4-Methylphenol	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitroaniline	1680	U	1680	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitrophenol	1680	U J	1680	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthylene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Anthracene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benz[a]anthracene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[a] pyrene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[b] fluoranthene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[g,h,i] perylene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[k] fluoranthene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroethoxy) methane	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C

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J1PVL6
1207048-05 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroisopropyl) ether	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-ethylhexyl) phthalate	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Butyl Benzyl Phthalate	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Carbazole	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Chrysene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenz[a,h]anthracene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenzofuran	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Diethyl Phthalate	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dimethyl Phthalate	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-butyl Phthalate	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-octyl Phthalate	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluoranthene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluorene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobenzene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobutadiene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorocyclopentadiene	336	U J	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachloroethane	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Indeno[1,2,3-cd]pyrene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Isophorone	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Naphthalene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Nitrobenzene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodi-n-propylamine	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodiphenylamine	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pentachlorophenol	1680	U J	1680	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenanthrene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenol	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pyrene	336	U	336	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Unknown 1	**731**	J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Alkane 1	**368**	J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 3	**673**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 1	**2680**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 2	**42600**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Surrogate: 2-Fluorophenol	*56 %*		*25-121*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Phenol-d5	*58 %*		*24-113*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*54 %*		*23-120*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVL6
1207048-05 (Soil)

8/2/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory					
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*57 %*	*30-115*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*58 %*	*19-122*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*68 %*	*18-137*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL7
1207048-06 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,2-Dichlorobenzene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,3-Dichlorobenzene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,4-Dichlorobenzene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,5-Trichlorophenol	340	U J	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,6-Trichlorophenol	340	U J	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dichlorophenol	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dimethylphenol	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrophenol	1700	U J	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrotoluene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,6-Dinitrotoluene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chloronaphthalene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chlorophenol	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylnaphthalene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylphenol	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitroaniline	1700	U	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitrophenol	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3,3'-Dichlorobenzidine	680	U	680	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3-Nitroaniline	1700	U	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4,6-Dinitro-2-methylphenol	340	U J	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Bromophenyl Phenyl Ether	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloro-3-methylphenol	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloroaniline	340	U J	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chlorophenyl Phenyl Ether	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3- and/or 4-Methylphenol	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitroaniline	1700	U	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitrophenol	1700	U J	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthylene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Anthracene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benz[a]anthracene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[a] pyrene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[b] fluoranthene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[g,h,i] perylene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[k] fluoranthene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroethoxy) methane	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVL7
1207048-06 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroisopropyl) ether	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-ethylhexyl) phthalate	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Butyl Benzyl Phthalate	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Carbazole	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Chrysene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenz[a,h]anthracene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenzofuran	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Diethyl Phthalate	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dimethyl Phthalate	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-butyl Phthalate	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-octyl Phthalate	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluoranthene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluorene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobenzene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobutadiene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorocyclopentadiene	340	U J	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachloroethane	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Indeno[1,2,3-cd]pyrene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Isophorone	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Naphthalene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Nitrobenzene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodi-n-propylamine	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodiphenylamine	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pentachlorophenol	1700	U J	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenanthrene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenol	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pyrene	340	U	340	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 1	**395**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 3	**569**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 2	**34500**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Alkane 1	**377**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 1	**2280**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Surrogate: 2-Fluorophenol	*56 %*		*25-121*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Phenol-d5	*60 %*		*24-113*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*58 %*		*23-120*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

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1207048-06 (Soil)

V 8/2/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory					
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*60 %*	*30-115*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*23 %*	*19-122*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*78 %*	*18-137*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVL8
1207048-07 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,2-Dichlorobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,3-Dichlorobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,4-Dichlorobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,5-Trichlorophenol	339	U J	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,6-Trichlorophenol	339	U J	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dichlorophenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dimethylphenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrophenol	1700	U J	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrotoluene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,6-Dinitrotoluene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chloronaphthalene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chlorophenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylnaphthalene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylphenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitroaniline	1700	U	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitrophenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3,3'-Dichlorobenzidine	679	U	679	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3-Nitroaniline	1700	U	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4,6-Dinitro-2-methylphenol	339	U J	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Bromophenyl Phenyl Ether	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloro-3-methylphenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloroaniline	339	U J	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chlorophenyl Phenyl Ether	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3- and/or 4-Methylphenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitroaniline	1700	U	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitrophenol	1700	U J	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthylene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Anthracene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benz[a]anthracene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[a] pyrene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[b] fluoranthene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[g,h,i] perylene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[k] fluoranthene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroethoxy) methane	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVL8
1207048-07 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroisopropyl) ether	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-ethylhexyl) phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Butyl Benzyl Phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Carbazole	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Chrysene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenz[a,h]anthracene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenzofuran	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Diethyl Phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dimethyl Phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-butyl Phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-octyl Phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluoranthene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluorene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobutadiene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorocyclopentadiene	339	U J	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachloroethane	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Indeno[1,2,3-cd]pyrene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Isophorone	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Naphthalene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Nitrobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodi-n-propylamine	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodiphenylamine	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pentachlorophenol	1700	U J	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenanthrene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pyrene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 1	**356**	B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 4	**302**	A, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 3	**738**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 2	**40700**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 1	**2810**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Surrogate: 2-Fluorophenol	*65 %*		*25-121*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Phenol-d5	*68 %*		*24-113*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*69 %*		*23-120*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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J1PVL8
1207048-07 (Soil)

8/2/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*69 %*	*30-115*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*55 %*	*19-122*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*93 %*	*18-137*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVL9
1207048-08 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,2-Dichlorobenzene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,3-Dichlorobenzene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,4-Dichlorobenzene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,5-Trichlorophenol	333	U J	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,6-Trichlorophenol	333	U J	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dichlorophenol	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dimethylphenol	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrophenol	1670	U J	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrotoluene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,6-Dinitrotoluene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chloronaphthalene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chlorophenol	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylnaphthalene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylphenol	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitroaniline	1670	U	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitrophenol	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3,3'-Dichlorobenzidine	666	U	666	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3-Nitroaniline	1670	U	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4,6-Dinitro-2-methylphenol	333	U J	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Bromophenyl Phenyl Ether	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloro-3-methylphenol	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloroaniline	333	U J	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chlorophenyl Phenyl Ether	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3- and/or 4-Methylphenol	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitroaniline	1670	U	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitrophenol	1670	U J	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthylene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Anthracene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benz[a]anthracene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[a] pyrene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[b] fluoranthene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[g,h,i] perylene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[k] fluoranthene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroethoxy) methane	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVL9
1207048-08 (Soil)

4/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroisopropyl) ether	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-ethylhexyl) phthalate	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Butyl Benzyl Phthalate	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Carbazole	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Chrysene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenz[a,h]anthracene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenzofuran	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Diethyl Phthalate	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dimethyl Phthalate	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-butyl Phthalate	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-octyl Phthalate	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluoranthene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluorene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobenzene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobutadiene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorocyclopentadiene	333	U J	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachloroethane	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Indeno[1,2,3-cd]pyrene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Isophorone	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Naphthalene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Nitrobenzene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodi-n-propylamine	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodiphenylamine	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pentachlorophenol	1670	U J	1670	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenanthrene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenol	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pyrene	333	U	333	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Unknown 1	**393**	J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 3	**428**	A, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Alkane 1	**389**	J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 2	**39700**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 1	**2440**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Surrogate: 2-Fluorophenol	*62 %*		*25-121*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Phenol-d5	*62 %*		*24-113*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*63 %*		*23-120*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVL9
1207048-08 (Soil)

8/2/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory					
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*66 %*	*30-115*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*69 %*	*19-122*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*84 %*	*18-137*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVM0
1207048-09 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,2-Dichlorobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,3-Dichlorobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,4-Dichlorobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,5-Trichlorophenol	337	U J	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,6-Trichlorophenol	337	U J	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dichlorophenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dimethylphenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrophenol	1690	U J	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrotoluene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,6-Dinitrotoluene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chloronaphthalene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chlorophenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylnaphthalene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylphenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitroaniline	1690	U	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitrophenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3,3'-Dichlorobenzidine	675	U	675	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3-Nitroaniline	1690	U	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4,6-Dinitro-2-methylphenol	337	U J	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Bromophenyl Phenyl Ether	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloro-3-methylphenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloroaniline	337	U J	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chlorophenyl Phenyl Ether	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3- and/or 4-Methylphenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitroaniline	1690	U	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitrophenol	1690	U J	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthylene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Anthracene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benz[a]anthracene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[a] pyrene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[b] fluoranthene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[g,h,i] perylene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[k] fluoranthene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroethoxy) methane	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVM0
1207048-09 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroisopropyl) ether	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-ethylhexyl) phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Butyl Benzyl Phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Carbazole	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Chrysene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenz[a,h]anthracene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenzofuran	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Diethyl Phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dimethyl Phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-butyl Phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-octyl Phthalate	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluoranthene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluorene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobutadiene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorocyclopentadiene	337	U J	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachloroethane	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Indeno[1,2,3-cd]pyrene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Isophorone	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Naphthalene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Nitrobenzene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodi-n-propylamine	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodiphenylamine	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pentachlorophenol	1690	U J	1690	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenanthrene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenol	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pyrene	337	U	337	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 1	**401**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 2	**40100**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 3	**724**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 1	**2870**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Alkane 1	**626**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Surrogate: 2-Fluorophenol	*69 %*		*25-121*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Phenol-d5	*73 %*		*24-113*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*73 %*		*23-120*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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J1PVM0
1207048-09 (Soil)

V 8/2/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*77 %*	*30-115*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*63 %*	*19-122*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*99 %*	*18-137*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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J1PVM1
1207048-10 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,2-Dichlorobenzene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,3-Dichlorobenzene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,4-Dichlorobenzene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,5-Trichlorophenol	350	U J	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,6-Trichlorophenol	350	U J	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dichlorophenol	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dimethylphenol	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrophenol	1750	U J	1750	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrotoluene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,6-Dinitrotoluene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chloronaphthalene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chlorophenol	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylnaphthalene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylphenol	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitroaniline	1750	U	1750	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitrophenol	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3,3'-Dichlorobenzidine	700	U	700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3-Nitroaniline	1750	U	1750	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4,6-Dinitro-2-methylphenol	350	U J	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Bromophenyl Phenyl Ether	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloro-3-methylphenol	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloroaniline	350	U J	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chlorophenyl Phenyl Ether	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3- and/or 4-Methylphenol	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitroaniline	1750	U	1750	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitrophenol	1750	U J	1750	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthylene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Anthracene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benz[a]anthracene	**68.9**	J	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[a] pyrene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[b] fluoranthene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[g,h,i] perylene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[k] fluoranthene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroethoxy) methane	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C

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J1PVM1
1207048-10 (Soil)

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Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroisopropyl) ether	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-ethylhexyl) phthalate	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Butyl Benzyl Phthalate	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Carbazole	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Chrysene	**85.2**	J	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenz[a,h]anthracene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenzofuran	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Diethyl Phthalate	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dimethyl Phthalate	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-butyl Phthalate	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-octyl Phthalate	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluoranthene	**64.5**	J	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluorene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobenzene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobutadiene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorocyclopentadiene	350	U J	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachloroethane	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Indeno[1,2,3-cd]pyrene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Isophorone	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Naphthalene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Nitrobenzene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodi-n-propylamine	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodiphenylamine	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pentachlorophenol	1750	U J	1750	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenanthrene	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenol	350	U	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pyrene	**98.2**	J	350	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 2	**859**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 1	**322**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 3	**775**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 2	**41500**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 1	**2940**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Surrogate: 2-Fluorophenol	*64 %*		*25-121*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Phenol-d5	*67 %*		*24-113*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*68 %*		*23-120*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

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J1PVM1
1207048-10 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*69 %*	*30-115*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*35 %*	*19-122*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*91 %*	*18-137*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

J1PVM2
1207048-11 (Soil)

8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,2-Dichlorobenzene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,3-Dichlorobenzene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,4-Dichlorobenzene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,5-Trichlorophenol	383	U J	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,6-Trichlorophenol	383	U J	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dichlorophenol	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dimethylphenol	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrophenol	1910	U J	1910	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrotoluene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,6-Dinitrotoluene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chloronaphthalene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chlorophenol	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylnaphthalene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylphenol	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitroaniline	1910	U	1910	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitrophenol	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3,3'-Dichlorobenzidine	765	U	765	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3-Nitroaniline	1910	U	1910	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4,6-Dinitro-2-methylphenol	383	U J	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Bromophenyl Phenyl Ether	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloro-3-methylphenol	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloroaniline	383	U J	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chlorophenyl Phenyl Ether	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3- and/or 4-Methylphenol	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitroaniline	1910	U	1910	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitrophenol	1910	U J	1910	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthylene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Anthracene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benz[a]anthracene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[a] pyrene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[b] fluoranthene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[g,h,i] perylene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[k] fluoranthene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroethoxy) methane	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C

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J1PVM2
1207048-11 (Soil)

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Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroisopropyl) ether	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-ethylhexyl) phthalate	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Butyl Benzyl Phthalate	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Carbazole	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Chrysene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenz[a,h]anthracene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenzofuran	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Diethyl Phthalate	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dimethyl Phthalate	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-butyl Phthalate	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-octyl Phthalate	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluoranthene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluorene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobenzene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobutadiene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorocyclopentadiene	383	U J	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachloroethane	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Indeno[1,2,3-cd]pyrene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Isophorone	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Naphthalene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Nitrobenzene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodi-n-propylamine	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodiphenylamine	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pentachlorophenol	1910	U J	1910	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenanthrene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenol	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pyrene	383	U	383	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Unknown 1	**509**	J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Unknown 2	**555**	J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 3	**444**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 1	**2360**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 2	**41000**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Surrogate: 2-Fluorophenol	*53 %*		*25-121*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Phenol-d5	*57 %*		*24-113*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*53 %*		*23-120*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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J1PVM2
1207048-11 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*57 %*	*30-115*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*24 %*	*19-122*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*71 %*	*18-137*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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J1PVM3
1207048-12 (Soil)

8/2/12

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	L207123	07/20/2012	07/25/2012	8270C
1,2-Dichlorobenzene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,3-Dichlorobenzene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
1,4-Dichlorobenzene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,5-Trichlorophenol	410	U J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4,6-Trichlorophenol	410	U J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dichlorophenol	410	U J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dimethylphenol	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrophenol	2050	U J	2050	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,4-Dinitrotoluene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2,6-Dinitrotoluene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chloronaphthalene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Chlorophenol	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylnaphthalene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Methylphenol	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitroaniline	2050	U	2050	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
2-Nitrophenol	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3,3'-Dichlorobenzidine	820	U	820	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3-Nitroaniline	2050	U	2050	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4,6-Dinitro-2-methylphenol	410	U J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Bromophenyl Phenyl Ether	410	U J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloro-3-methylphenol	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chloroaniline	410	U J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Chlorophenyl Phenyl Ether	410	U J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
3- and/or 4-Methylphenol	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitroaniline	2050	U	2050	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
4-Nitrophenol	2050	U J	2050	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Acenaphthylene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Anthracene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benz[a]anthracene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[a] pyrene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[b] fluoranthene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[g,h,i] perylene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Benzo[k] fluoranthene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroethoxy) methane	410	U J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C

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J1PVM3
1207048-12 (Soil)

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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 J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-chloroisopropyl) ether	410	U J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Bis(2-ethylhexyl) phthalate	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Butyl Benzyl Phthalate	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Carbazole	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Chrysene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenz[a,h]anthracene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dibenzofuran	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Diethyl Phthalate	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Dimethyl Phthalate	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-butyl Phthalate	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Di-n-octyl Phthalate	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluoranthene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Fluorene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobenzene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorobutadiene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachlorocyclopentadiene	410	U J	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Hexachloroethane	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Indeno[1,2,3-cd]pyrene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Isophorone	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Naphthalene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Nitrobenzene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodi-n-propylamine	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
N-Nitrosodiphenylamine	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pentachlorophenol	2050	U J	2050	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenanthrene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Phenol	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Pyrene	410	U	410	ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Unknown 2	**557**	J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Unknown 1	**515**	J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 3	**48300**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 1	**372**	A, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
TIC:Aldol Condensate 2	**2940**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/25/2012	8270C
Surrogate: 2-Fluorophenol	*55 %*		*25-121*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Phenol-d5	*57 %*		*24-113*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*57 %*		*23-120*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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J1PVM3
1207048-12 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*58 %*	*30-115*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*12 % **	*19-122*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*72 %*	*18-137*			*L207123*	*07/20/2012*	*07/25/2012*	*8270C*

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J1PVM4
1207048-13 (Soil)

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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2,4-Trichlorobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,2-Dichlorobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,3-Dichlorobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,4-Dichlorobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,5-Trichlorophenol	339	U J	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,6-Trichlorophenol	339	U J	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dichlorophenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dimethylphenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrophenol	1700	U J	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrotoluene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,6-Dinitrotoluene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chloronaphthalene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chlorophenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylnaphthalene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylphenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitroaniline	1700	U	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitrophenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3,3'-Dichlorobenzidine	678	U	678	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3-Nitroaniline	1700	U	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4,6-Dinitro-2-methylphenol	339	U J	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Bromophenyl Phenyl Ether	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloro-3-methylphenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloroaniline	339	U J	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chlorophenyl Phenyl Ether	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3- and/or 4-Methylphenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitroaniline	1700	U	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitrophenol	1700	U J	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthylene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Anthracene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benz[a]anthracene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[a] pyrene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[b] fluoranthene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[g,h,i] perylene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[k] fluoranthene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroethoxy) methane	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVM4
1207048-13 (Soil)

✓ 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroisopropyl) ether	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-ethylhexyl) phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Butyl Benzyl Phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Carbazole	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Chrysene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenz[a,h]anthracene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenzofuran	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Diethyl Phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dimethyl Phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-butyl Phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-octyl Phthalate	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluoranthene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluorene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobutadiene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorocyclopentadiene	339	U J	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachloroethane	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Indeno[1,2,3-cd]pyrene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Isophorone	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Naphthalene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Nitrobenzene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodi-n-propylamine	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodiphenylamine	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pentachlorophenol	1700	U J	1700	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenanthrene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenol	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pyrene	339	U	339	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 1	**265**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 3	**802**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 2	**46000**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Alkane 1	**183**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 1	**3260**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Surrogate: 2-Fluorophenol	*77 %*		*25-121*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Phenol-d5	*86 %*		*24-113*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*75 %*		*23-120*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVM4
1207048-13 (Soil)

8/2/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*77 %*	*30-115*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*63 %*	*19-122*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*95 %*	*18-137*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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LIONVILLE LABORATORY
A division of Pharmaceutical Corporation

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVM5
1207048-14 (Soil)

✓ 8/2/12

Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2,4-Trichlorobenzene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,2-Dichlorobenzene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,3-Dichlorobenzene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
1,4-Dichlorobenzene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,5-Trichlorophenol	328	U J R	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4,6-Trichlorophenol	328	U J R	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dichlorophenol	328	U R	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dimethylphenol	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrophenol	1640	U J	1640	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,4-Dinitrotoluene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2,6-Dinitrotoluene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chloronaphthalene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Chlorophenol	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylnaphthalene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Methylphenol	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitroaniline	1640	U	1640	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
2-Nitrophenol	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3,3'-Dichlorobenzidine	655	U	655	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3-Nitroaniline	1640	U	1640	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4,6-Dinitro-2-methylphenol	328	U J	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Bromophenyl Phenyl Ether	328	U R	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloro-3-methylphenol	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chloroaniline	328	U J	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Chlorophenyl Phenyl Ether	328	U R	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
3- and/or 4-Methylphenol	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitroaniline	1640	U	1640	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
4-Nitrophenol	1640	U J	1640	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Acenaphthylene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Anthracene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benz[a]anthracene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[a] pyrene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[b] fluoranthene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[g,h,i] perylene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Benzo[k] fluoranthene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroethoxy) methane	328	U R	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

J1PVM5
1207048-14 (Soil)

V 8/2/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	328	U R	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-chloroisopropyl) ether	328	U R	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Bis(2-ethylhexyl) phthalate	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Butyl Benzyl Phthalate	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Carbazole	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Chrysene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenz[a,h]anthracene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dibenzofuran	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Diethyl Phthalate	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Dimethyl Phthalate	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-butyl Phthalate	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Di-n-octyl Phthalate	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluoranthene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Fluorene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobenzene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorobutadiene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachlorocyclopentadiene	328	U J	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Hexachloroethane	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Indeno[1,2,3-cd]pyrene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Isophorone	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Naphthalene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Nitrobenzene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodi-n-propylamine	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
N-Nitrosodiphenylamine	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pentachlorophenol	1640	U ~~J~~ R	1640	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenanthrene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Phenol	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Pyrene	328	U	328	ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 1	**586**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Unknown 2	**1040**	J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 3	**572**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 2	**44500**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
TIC:Aldol Condensate 1	**2460**	A, B, J		ug/kg dry	1	L207123	07/20/2012	07/23/2012	8270C
Surrogate: 2-Fluorophenol	*57 %*		*25-121*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Phenol-d5	*60 %*		*24-113*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*64 %*		*23-120*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	**Reported:** 07/26/2012 11:15

J1PVM5

1207048-14 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
		Lionville Laboratory						
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*62 %*	*30-115*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*5 % **	*19-122*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*77 %*	*18-137*			*L207123*	*07/20/2012*	*07/23/2012*	*8270C*

8/2/12

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Client: WC-HANFORD RC-075 KP0114
LVL #: 1207048

W.O. #: 60049-001-001-0001-00
Date Received: 07-20-2012

SEMIVOLATILE

Fourteen (14) soil samples were collected on 07-18-2012.

The samples and associated QC samples were extracted 07-20-2012 and analyzed 07-23,25-2012 according to Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C, and the analysis procedure was based on SW846 Method 8270C for TCL Semivolatile target compounds.

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

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

2. Samples were extracted and analyzed within holding time.

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

4. Two (2) of one hundred and eight (108) obtainable surrogate recoveries were outside acceptance criteria. The surrogate recovery criteria were not met for samples J1PVM5 and J1PVM3. A copy of the Sample Discrepancy Report (SDR#12MS138) has been enclosed.

   The loss of the surrogate 2,4,6-Tribromophenol in the samples J1PVM3 and J1PVM5 appears to be due to a chemical reaction rather than to a problem with the extraction process. Peaks on the chromatogram indicate this reaction. The conversion compound has been reported as a non-target compound in the sample J1PVM3 at a retention time of 21.038 minutes and in sample J1PVM5 at a retention time of 21.181 minutes. The loss of this surrogate has been associated with the use of soxhlet extractions.

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

6. Two (2) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12MS138) has been enclosed.

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.

7. Two (2) of one hundred and twenty-eight (128) obtainable matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12MS138) has been enclosed.

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.

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

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

12. 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").

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

Iain Daniels
LvL Laboratory Manager

7/26/2
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12MS138

Initiator: Shawn Saylor
Date: 7-26-12
Client: Wellsford RCOTF / KM0114

Batch: 1207047
Samples: 1207047-14, L207123-MS1
Method: SW846/MCAWW/CLP/

Parameter: 8270C
Matrix: Soil
Prep Batch: L207123

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary) TEJS 7-26-12

1. <10% recovery of 2,4,6-tribromophenol in ~~L207123-MS1~~ JIPVMS
2. low recovery of 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol in L207123-MS1
3. low recovery of 2,4,6-trichlorophenol in L207123-MS1
4. low recovery of 2,4-dinitrophenol in L207123-MSD1

2. Known or Probable Causes(s) (1) May be due to a chemical reaction. Breakdown compound reported as a TIC at retention time of 21.191 minutes. The loss of this surrogate has been associated with the use of soxhlet extractions. (2) Acidic phenols subject to erratic chromatographic behavior.

Samples all below reporting limit for all target compounds

3. Discussion and Proposed Action Other Description: narrate

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

4. Project Manager Instructions...signature/date: 7/26/12

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: 7/26/12 Other Explanation:

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

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

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

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

QA-139-A-0208

000000013

@ 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 1 of ~~2~~ 3

Collector ~~Q Stowe~~ J Smith @ 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075
Ice Chest No. RCC-08-028	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSPL

Price Code ~~8L~~ 8B @ 7-18-12

Data Turnaround ~~21~~ 7 Days @ 7-18-12

POSSIBLE SAMPLE ~~HAZARDS/REMARKS~~
~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See Item (2) in Special Instructions.	Carbon-14; Tritium - 1G	Nickel-63; Strontium-89,90 – Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL2	SOIL	7-18-12	1230	X	X	X	X	X	X	X			
J1PVL3	SOIL	7-18-12	1220	X	X	X	X	X	X	X			
J1PVL4	SOIL	7-18-12	1210	X	X	X	X	X	X	X			
J1PVL5	SOIL	7-18-12	1150	X	X	X	X	X	X	X			
J1PVL6	SOIL	7-18-12	~~1140~~	X	X	X	X	X	X	X			

7-18-12

CHAIN OF POSSESSION Sign/Print Names 1040 @ 7-18-12

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Jason Smith Jason Smith	7/18/12 1340	Dwoolbry D	7-18-12 1340
Dwoolbry D	7-18-12 1600	Dennis Newman 1060 #3	7/18/12 1600
Dennis Newman WCH	7/19/12 1245	Fed Ex	
Fed Ex	7.20.12 1000	[signature]	7.20.12 1000

SPECIAL INSTRUCTIONS

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

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

Attorney by 300 per Skessner

KP0114

REVIEWED BY MWShea DATE 7/19/12

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

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

WCH-EE-011

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2 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 2 of 3

Collector ~~Q Stowe~~ J Smith 2 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075
Ice Chest No. RCC-08-022	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED Ex 2 7-18-12
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSPL

Price Code ~~8L~~ 8B 2 7-18-12

Data Turnaround ~~21~~ 7 Days 2 7-18-12

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - H3 7-18-12	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL7	SOIL	7-18-12	1025	X	X	X	X	X	X	X			
J1PVL8	SOIL	7-18-12	1010	X	X	X	X	X	X	X			
J1PVL9	SOIL	7-18-12	1000	X	X	X	X	X	X	X			
J1PVM0	SOIL	7-18-12	0950	X	X	X	X	X	X	X			
J1PVM1	SOIL	7-18-12	0935	X	X	X	X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Jason Smith	7/18/12 1340	DWOOLEY	7-18-12 1340
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DWOOLEY	7-18-12 1600	1060 #3 Dennis Newman	7-18-12 1600
Relinquished By/Removed From WCH	Date/Time 1245	Received By/Stored In	Date/Time
Dennis Newman	7/19/12		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	7-20-12 / 10:00	DSmith	7-20-12 / 10:00
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

REVIEWED BY DWShea DATE 7/19/12

anions by 300 per J Kessner

KP0114

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

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D 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 1 of 3

Collector ~~Q Stowe~~ J Smith D 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Price Code 8L 8B	Data Turnaround 21 Days 7		
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall	SAF No. RC-075	D 7-18-12
Ice Chest No. RCC-08-~~028~~ 022 7/19/12	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX D 7-18-12
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. 4110469	Bill of Lading/Air Bill No. SEE OSL	

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	sG	sG	sG	sG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - FD	Nickel-63; Strontium-89,90 -- Total Sr
J1PVM2	SOIL	7-18-12	0920	X	X	X	X	X	X	X		X	
J1PVM3	SOIL	7-18-12	0855	X	X	X	X	X	X	X			
J1PVM4	SOIL	7-18-12	1230	X	X	X	X	X	X	X			
J1PVM5	SOIL	7-18-12	1230	X			X						

7-18-12

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature]	7-18-12 1340	[signature]	7-18-12 1340
[signature]	7-18-12 1600	[signature] 1060 #3	7/18/12 1600
[signature] WCH	7/19/12 1245	Fed Ex	
Fed Ex	7.20.12 1000	[signature]	7.20.12 1000

Orions by 300 per JKessner

KP0114

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (Mercury)
(2) Gamma Spec (Client List) (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

REVIEWED BY DWSheu DATE 7/19/12

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

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Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-65			DATA PACKAGE: KP0114		
VALIDATOR: ELR		LAB: LLI		DATE: 8/2/12	
			SDG: KP0114		

ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)

SAMPLES/MATRIX				
J1PVL2	J1PVL3	J1PVL4	J1PVL5	J1PVL6
J1PVL7	J1PVL8	J1PVM0	J1PVL9	J1PVM1
J1PVM2	J1PVM3	J1PVM4	J1PVM5	
				Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes No N/A

Comments:

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? ..... Yes No N/A

Initial calibrations acceptable? ..... Yes No N/A

Continuing calibrations acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A

Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

4. ACCURACY (Levels C, D, and E)

Surrogates/system monitoring compounds analyzed? ..... Yes No N/A

Surrogate/system monitoring compound recoveries acceptable? ..... Yes No N/A

Surrogates traceable? (Levels D, E) ..... Yes No N/A

Surrogates expired? (Levels D, E) ..... Yes No N/A

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: Surr-M3-J tribromo assoc

Surr-M5-R tribromo assoc

LCS-IIII-J all MS-IIII-J all

MSD-IIII-J all

no PAS

GC/MS ORGANIC DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD RPD values acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: RPD - 1111 - Jal

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? ..... Yes No N/A

Iinternal standard areas acceptable? ..... Yes No N/A

Internal standard retention times acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments:

7. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) ..... Yes No N/A

Compound quantitation acceptable? (Levels D, E) ..... Yes No N/A

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Laboratory properly identified and coded all TIC? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: 98 over

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? ..... Yes No N/A

GPC check performed? ..... Yes No N/A

GPC check recoveries acceptable? ..... Yes No N/A

GPC calibration performed? ..... Yes No N/A

GPC calibration check performed? ..... Yes No N/A

GPC calibration check retention times acceptable? ..... Yes No N/A

Check/calibration materials traceable? ..... Yes No N/A

Check/calibration materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments:

Appendix 6

Additional Documentation Requested by Client

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-075 Project Number: KP0114 Project Manager: Joan Kessner	**Reported:** 07/26/2012 11:15

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 L207123 - SW 3540C										
Blank (L207123-BLK1)				Prepared: 07/20/2012 Analyzed: 07/23/2012						
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						

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

WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

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 L207123 - SW 3540C										
Blank (L207123-BLK1)				Prepared: 07/20/2012 Analyzed: 07/23/2012						
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						
Unknown 1 TICS	835	J		ug/kg wet						
Aldol Condensate 2	2040	A, J		ug/kg wet						
Aldol Condensate 4	967	A, J		ug/kg wet						
Aldol Condensate 3 RW7/20/12	49200	A, J		ug/kg wet						
Aldol Condensate 1	1460	A, J		ug/kg wet						
Surrogate: 2-Fluorophenol	*1720*			*ug/kg wet*	*2500.0*		*69*	*25-121*		
Surrogate: Phenol-d5	*1820*			*ug/kg wet*	*2500.0*		*73*	*24-113*		
Surrogate: Nitrobenzene-d5	*1230*			*ug/kg wet*	*1666.7*		*74*	*23-120*		

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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-075 Project Number: KP0114 Project Manager: Joan Kessner	**Reported:** 07/26/2012 11:15

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 L207123 - SW 3540C									
Blank (L207123-BLK1)			Prepared: 07/20/2012 Analyzed: 07/23/2012						
Surrogate: 2-Fluorobiphenyl	*1260*		*ug/kg wet*	*1666.7*		*75*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1640*		*ug/kg wet*	*2500.0*		*66*	*19-122*		
Surrogate: p-Terphenyl-d14	*1680*		*ug/kg wet*	*1666.7*		*101*	*18-137*		
LCS (L207123-BS1)			Prepared: 07/20/2012 Analyzed: 07/23/2012						
1,2,4-Trichlorobenzene	1250		ug/kg wet	2000.0		63	45-110		
1,2-Dichlorobenzene	1250		ug/kg wet	2000.0		62	45-105		
1,3-Dichlorobenzene	1190		ug/kg wet	2000.0		60	40-100		
1,4-Dichlorobenzene	1190		ug/kg wet	2000.0		60	35-105		
2,4,5-Trichlorophenol	1470		ug/kg wet	2000.0		74	30-140		
2,4,6-Trichlorophenol	1210		ug/kg wet	2000.0		60	20-110		
2,4-Dichlorophenol	1360		ug/kg wet	2000.0		68	40-110		
2,4-Dimethylphenol	1330		ug/kg wet	2000.0		66	30-105		
2,4-Dinitrophenol	192		ug/kg wet	2000.0		10*	25-130		
2,4-Dinitrotoluene	1360		ug/kg wet	2000.0		68	50-115		
2,6-Dinitrotoluene	1410		ug/kg wet	2000.0		71	40-120		
2-Chloronaphthalene	1290		ug/kg wet	2000.0		64	45-115		
2-Chlorophenol	1320		ug/kg wet	2000.0		66	45-105		
2-Methylnaphthalene	1260		ug/kg wet	2000.0		63	45-110		
2-Methylphenol	1480		ug/kg wet	2000.0		74	40-120		
2-Nitroaniline	1470		ug/kg wet	2000.0		73	45-120		
2-Nitrophenol	1310		ug/kg wet	2000.0		65	40-110		
3,3'-Dichlorobenzidine	1330		ug/kg wet	2000.0		66	15-130		
3-Nitroaniline	1410		ug/kg wet	2000.0		71	40-130		
4,6-Dinitro-2-methylphenol	380		ug/kg wet	2000.0		19*	20-140		
4-Bromophenyl Phenyl Ether	1540		ug/kg wet	2000.0		77	45-115		
4-Chloro-3-methylphenol	1450		ug/kg wet	2000.0		72	35-115		
4-Chloroaniline	1210		ug/kg wet	2000.0		60	10-100		
4-Chlorophenyl Phenyl Ether	1360		ug/kg wet	2000.0		68	45-110		
3- and/or 4-Methylphenol	1500		ug/kg wet	2000.0		75	40-120		
4-Nitroaniline	1350		ug/kg wet	2000.0		67	40-130		
4-Nitrophenol	1020		ug/kg wet	2000.0		51	15-140		
Acenaphthene	1260		ug/kg wet	2000.0		63	45-110		
Acenaphthylene	1140		ug/kg wet	2000.0		57	45-115		
Anthracene	1370		ug/kg wet	2000.0		68	45-130		
Benz[a]anthracene	1450		ug/kg wet	2000.0		73	45-130		
Benzo[a] pyrene	1470		ug/kg wet	2000.0		74	45-130		

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WC-Hanford, Inc.	Project: RC-075	
2620 Fermi Avenue	Project Number: KP0114	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/26/2012 11:15

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 L207123 - SW 3540C									
LCS (L207123-BS1)			Prepared: 07/20/2012 Analyzed: 07/23/2012						
Benzo[b] fluoranthene	1470		ug/kg wet	2000.0		74	40-130		
Benzo[g,h,i] perylene	1480		ug/kg wet	2000.0		74	45-125		
Benzo[k] fluoranthene	1450		ug/kg wet	2000.0		72	45-125		
Bis(2-chloroethoxy) methane	1310		ug/kg wet	2000.0		65	45-110		
Bis(2-chloroethyl) ether	1280		ug/kg wet	2000.0		64	40-110		
Bis(2-chloroisopropyl) ether	1280		ug/kg wet	2000.0		64	30-115		
Bis(2-ethylhexyl) phthalate	1310		ug/kg wet	2000.0		65	40-145		
Butyl Benzyl Phthalate	1300		ug/kg wet	2000.0		65	50-125		
Carbazole	1490		ug/kg wet	2000.0		74	40-140		
Chrysene	1490		ug/kg wet	2000.0		75	45-130		
Dibenz[a,h]anthracene	1390		ug/kg wet	2000.0		69	45-125		
Dibenzofuran	1340		ug/kg wet	2000.0		67	45-120		
Diethyl Phthalate	1290		ug/kg wet	2000.0		64	50-125		
Dimethyl Phthalate	1280		ug/kg wet	2000.0		64	45-130		
Di-n-butyl Phthalate	1180		ug/kg wet	2000.0		59	50-130		
Di-n-octyl Phthalate	1250		ug/kg wet	2000.0		62	40-150		
Fluoranthene	1290		ug/kg wet	2000.0		64	45-130		
Fluorene	1320		ug/kg wet	2000.0		66	45-120		
Hexachlorobenzene	1600		ug/kg wet	2000.0		80	45-130		
Hexachlorobutadiene	1430		ug/kg wet	2000.0		72	45-105		
Hexachlorocyclopentadiene	794		ug/kg wet	2000.0		40	10-100		
Hexachloroethane	1220		ug/kg wet	2000.0		61	35-110		
Indeno[1,2,3-cd]pyrene	1510		ug/kg wet	2000.0		76	45-130		
Isophorone	1230		ug/kg wet	2000.0		62	40-110		
Naphthalene	1340		ug/kg wet	2000.0		67	40-110		
Nitrobenzene	1240		ug/kg wet	2000.0		62	40-105		
N-Nitrosodi-n-propylamine	1820		ug/kg wet	2000.0		91	30-130		
N-Nitrosodiphenylamine	1470		ug/kg wet	2000.0		73	50-120		
Pentachlorophenol	502		ug/kg wet	2000.0		25	25-120		
Phenanthrene	1380		ug/kg wet	2000.0		69	50-120		
Phenol	1420		ug/kg wet	2000.0		71	40-115		
Pyrene	1420		ug/kg wet	2000.0		71	45-125		
Surrogate: 2-Fluorophenol	*1800*		*ug/kg wet*	*2500.0*		*72*	*25-121*		
Surrogate: Phenol-d5	*1950*		*ug/kg wet*	*2500.0*		*78*	*24-113*		
Surrogate: Nitrobenzene-d5	*1180*		*ug/kg wet*	*1666.7*		*71*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1180*		*ug/kg wet*	*1666.7*		*71*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1700*		*ug/kg wet*	*2500.0*		*68*	*19-122*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

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 L207123 - SW 3540C									
LCS (L207123-BS1)			Prepared: 07/20/2012 Analyzed: 07/23/2012						
Surrogate: p-Terphenyl-d14	*1330*		*ug/kg wet*	*1666.7*		*80*	*18-137*		
Matrix Spike (L207123-MS1)		Source: 1207048-01	Prepared: 07/20/2012 Analyzed: 07/25/2012						
1,2,4-Trichlorobenzene	1240		ug/kg dry	2065.5	334 U	60	45-110		
1,2-Dichlorobenzene	1230		ug/kg dry	2065.5	334 U	60	45-105		
1,3-Dichlorobenzene	1170		ug/kg dry	2065.5	334 U	57	40-100		
1,4-Dichlorobenzene	1180		ug/kg dry	2065.5	334 U	57	35-105		
2,4,5-Trichlorophenol	797		ug/kg dry	2065.5	334 U	39	30-140		
2,4,6-Trichlorophenol	342		ug/kg dry	2065.5	334 U	17*	20-110		
2,4-Dichlorophenol	1270		ug/kg dry	2065.5	334 U	62	40-110		
2,4-Dimethylphenol	1300		ug/kg dry	2065.5	334 U	63	30-105		
2,4-Dinitrophenol	812		ug/kg dry	2065.5	1670 U	39	25-130		
2,4-Dinitrotoluene	1270		ug/kg dry	2065.5	334 U	62	50-115		
2,6-Dinitrotoluene	1350		ug/kg dry	2065.5	334 U	65	40-120		
2-Chloronaphthalene	1310		ug/kg dry	2065.5	334 U	63	45-115		
2-Chlorophenol	1280		ug/kg dry	2065.5	334 U	62	45-105		
2-Methylnaphthalene	1250		ug/kg dry	2065.5	334 U	61	45-110		
2-Methylphenol	1420		ug/kg dry	2065.5	334 U	69	40-120		
2-Nitroaniline	1320		ug/kg dry	2065.5	1670 U	64	45-120		
2-Nitrophenol	1230		ug/kg dry	2065.5	334 U	60	40-110		
3,3'-Dichlorobenzidine	1320		ug/kg dry	2065.5	667 U	64	15-130		
3-Nitroaniline	1280		ug/kg dry	2065.5	1670 U	62	40-130		
4,6-Dinitro-2-methylphenol	1170		ug/kg dry	2065.5	334 U	57	20-140		
4-Bromophenyl Phenyl Ether	1530		ug/kg dry	2065.5	334 U	74	45-115		
4-Chloro-3-methylphenol	1360		ug/kg dry	2065.5	334 U	66	35-115		
4-Chloroaniline	1090		ug/kg dry	2065.5	334 U	53	10-100		
4-Chlorophenyl Phenyl Ether	1360		ug/kg dry	2065.5	334 U	66	45-110		
3- and/or 4-Methylphenol	1400		ug/kg dry	2065.5	334 U	68	40-120		
4-Nitroaniline	1140		ug/kg dry	2065.5	1670 U	55	40-130		
4-Nitrophenol	872		ug/kg dry	2065.5	1670 U	42	15-140		
Acenaphthene	1290		ug/kg dry	2065.5	334 U	62	45-110		
Acenaphthylene	1140		ug/kg dry	2065.5	334 U	55	45-115		
Anthracene	1350		ug/kg dry	2065.5	334 U	65	45-130		
Benz[a]anthracene	1430		ug/kg dry	2065.5	334 U	69	45-130		
Benzo[a] pyrene	1440		ug/kg dry	2065.5	334 U	70	45-130		
Benzo[b] fluoranthene	1400		ug/kg dry	2065.5	334 U	68	40-130		
Benzo[g,h,i] perylene	1790		ug/kg dry	2065.5	334 U	87	45-125		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

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 L207123 - SW 3540C									
Matrix Spike (L207123-MS1)		**Source: 1207048-01**	Prepared: 07/20/2012 Analyzed: 07/25/2012						
Benzo[k] fluoranthene	1350		ug/kg dry	2065.5	334 U	65	45-125		
Bis(2-chloroethoxy) methane	1270		ug/kg dry	2065.5	334 U	61	45-110		
Bis(2-chloroethyl) ether	1220		ug/kg dry	2065.5	334 U	59	40-110		
Bis(2-chloroisopropyl) ether	1220		ug/kg dry	2065.5	334 U	59	30-115		
Bis(2-ethylhexyl) phthalate	1360		ug/kg dry	2065.5	334 U	66	40-145		
Butyl Benzyl Phthalate	1300		ug/kg dry	2065.5	334 U	63	50-125		
Carbazole	1390		ug/kg dry	2065.5	334 U	67	40-140		
Chrysene	1480		ug/kg dry	2065.5	334 U	71	45-130		
Dibenz[a,h]anthracene	1580		ug/kg dry	2065.5	334 U	76	45-125		
Dibenzofuran	1320		ug/kg dry	2065.5	334 U	64	45-120		
Diethyl Phthalate	1270		ug/kg dry	2065.5	334 U	62	50-125		
Dimethyl Phthalate	1270		ug/kg dry	2065.5	334 U	61	45-130		
Di-n-butyl Phthalate	1210		ug/kg dry	2065.5	334 U	59	50-130		
Di-n-octyl Phthalate	1150		ug/kg dry	2065.5	334 U	56	40-150		
Fluoranthene	1250		ug/kg dry	2065.5	334 U	60	45-130		
Fluorene	1320		ug/kg dry	2065.5	334 U	64	45-120		
Hexachlorobenzene	1680		ug/kg dry	2065.5	334 U	81	45-130		
Hexachlorobutadiene	1430		ug/kg dry	2065.5	334 U	69	45-105		
Hexachlorocyclopentadiene	796		ug/kg dry	2065.5	334 U	39	10-100		
Hexachloroethane	1160		ug/kg dry	2065.5	334 U	56	35-110		
Indeno[1,2,3-cd]pyrene	1730		ug/kg dry	2065.5	334 U	84	45-130		
Isophorone	1170		ug/kg dry	2065.5	334 U	57	40-110		
Naphthalene	1350		ug/kg dry	2065.5	334 U	65	40-110		
Nitrobenzene	1180		ug/kg dry	2065.5	334 U	57	40-105		
N-Nitrosodi-n-propylamine	1610		ug/kg dry	2065.5	334 U	78	30-130		
N-Nitrosodiphenylamine	1480		ug/kg dry	2065.5	334 U	71	50-120		
Pentachlorophenol	700		ug/kg dry	2065.5	1670 U	34	25-120		
Phenanthrene	1390		ug/kg dry	2065.5	334 U	67	50-120		
Phenol	1350		ug/kg dry	2065.5	334 U	65	40-115		
Pyrene	1390		ug/kg dry	2065.5	334 U	67	45-125		
Surrogate: 2-Fluorophenol	*1670*		*ug/kg dry*	*2581.9*		*65*	*25-121*		
Surrogate: Phenol-d5	*1820*		*ug/kg dry*	*2581.9*		*70*	*24-113*		
Surrogate: Nitrobenzene-d5	*1080*		*ug/kg dry*	*1721.2*		*62*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1190*		*ug/kg dry*	*1721.2*		*69*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*544*		*ug/kg dry*	*2581.9*		*21*	*19-122*		
Surrogate: p-Terphenyl-d14	*1270*		*ug/kg dry*	*1721.2*		*74*	*18-137*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/26/2012 11:15

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 L207123 - SW 3540C									
Matrix Spike Dup (L207123-MSD1)	**Source: 1207048-01**		Prepared: 07/20/2012 Analyzed: 07/25/2012						
1,2,4-Trichlorobenzene	1230		ug/kg dry	2118.5	334 U	58	45-110	4	40
1,2-Dichlorobenzene	1220		ug/kg dry	2118.5	334 U	58	45-105	3	40
1,3-Dichlorobenzene	1170		ug/kg dry	2118.5	334 U	55	40-100	3	40
1,4-Dichlorobenzene	1190		ug/kg dry	2118.5	334 U	56	35-105	2	40
2,4,5-Trichlorophenol	1260		ug/kg dry	2118.5	334 U	59	30-140	42*	40
2,4,6-Trichlorophenol	1020		ug/kg dry	2118.5	334 U	48	20-110	98*	40
2,4-Dichlorophenol	1290		ug/kg dry	2118.5	334 U	61	40-110	2	40
2,4-Dimethylphenol	1240		ug/kg dry	2118.5	334 U	58	30-105	7	40
2,4-Dinitrophenol	454		ug/kg dry	2118.5	1670 U	21*	25-130	59*	40
2,4-Dinitrotoluene	1220		ug/kg dry	2118.5	334 U	58	50-115	7	40
2,6-Dinitrotoluene	1300		ug/kg dry	2118.5	334 U	61	40-120	6	40
2-Chloronaphthalene	1260		ug/kg dry	2118.5	334 U	60	45-115	6	40
2-Chlorophenol	1280		ug/kg dry	2118.5	334 U	60	45-105	3	40
2-Methylnaphthalene	1220		ug/kg dry	2118.5	334 U	58	45-110	5	40
2-Methylphenol	1390		ug/kg dry	2118.5	334 U	66	40-120	5	40
2-Nitroaniline	1280		ug/kg dry	2118.5	1670 U	61	45-120	6	40
2-Nitrophenol	1240		ug/kg dry	2118.5	334 U	59	40-110	2	40
3,3'-Dichlorobenzidine	1180		ug/kg dry	2118.5	667 U	56	15-130	14	40
3-Nitroaniline	1180		ug/kg dry	2118.5	1670 U	55	40-130	11	40
4,6-Dinitro-2-methylphenol	803		ug/kg dry	2118.5	334 U	38	20-140	40	40
4-Bromophenyl Phenyl Ether	1510		ug/kg dry	2118.5	334 U	71	45-115	4	40
4-Chloro-3-methylphenol	1300		ug/kg dry	2118.5	334 U	61	35-115	7	40
4-Chloroaniline	997		ug/kg dry	2118.5	334 U	47	10-100	11	40
4-Chlorophenyl Phenyl Ether	1280		ug/kg dry	2118.5	334 U	61	45-110	8	40
3- and/or 4-Methylphenol	1390		ug/kg dry	2118.5	334 U	66	40-120	3	40
4-Nitroaniline	1110		ug/kg dry	2118.5	1670 U	52	40-130	6	40
4-Nitrophenol	972		ug/kg dry	2118.5	1670 U	46	15-140	8	40
Acenaphthene	1240		ug/kg dry	2118.5	334 U	58	45-110	7	40
Acenaphthylene	1100		ug/kg dry	2118.5	334 U	52	45-115	6	40
Anthracene	1320		ug/kg dry	2118.5	334 U	62	45-130	4	40
Benz[a]anthracene	1370		ug/kg dry	2118.5	334 U	65	45-130	7	40
Benzo[a] pyrene	1370		ug/kg dry	2118.5	334 U	64	45-130	8	40
Benzo[b] fluoranthene	1310		ug/kg dry	2118.5	334 U	62	40-130	9	40
Benzo[g,h,i] perylene	1700		ug/kg dry	2118.5	334 U	80	45-125	8	40
Benzo[k] fluoranthene	1270		ug/kg dry	2118.5	334 U	60	45-125	8	40
Bis(2-chloroethoxy) methane	1240		ug/kg dry	2118.5	334 U	59	45-110	5	40

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Semivolatile Organic Compounds by SW846 8270C - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207123 - SW 3540C									
Matrix Spike Dup (L207123-MSD1)	**Source: 1207048-01**		Prepared: 07/20/2012 Analyzed: 07/25/2012						
Bis(2-chloroethyl) ether	1220		ug/kg dry	2118.5	334 U	58	40-110	2	40
Bis(2-chloroisopropyl) ether	1220		ug/kg dry	2118.5	334 U	58	30-115	3	40
Bis(2-ethylhexyl) phthalate	1270		ug/kg dry	2118.5	334 U	60	40-145	9	40
Butyl Benzyl Phthalate	1220		ug/kg dry	2118.5	334 U	58	50-125	8	40
Carbazole	1400		ug/kg dry	2118.5	334 U	66	40-140	2	40
Chrysene	1420		ug/kg dry	2118.5	334 U	67	45-130	6	40
Dibenz[a,h]anthracene	1500		ug/kg dry	2118.5	334 U	71	45-125	8	40
Dibenzofuran	1270		ug/kg dry	2118.5	334 U	60	45-120	6	40
Diethyl Phthalate	1200		ug/kg dry	2118.5	334 U	57	50-125	9	40
Dimethyl Phthalate	1190		ug/kg dry	2118.5	334 U	56	45-130	9	40
Di-n-butyl Phthalate	1160		ug/kg dry	2118.5	334 U	55	50-130	7	40
Di-n-octyl Phthalate	1060		ug/kg dry	2118.5	334 U	50	40-150	11	40
Fluoranthene	1240		ug/kg dry	2118.5	334 U	58	45-130	3	40
Fluorene	1250		ug/kg dry	2118.5	334 U	59	45-120	8	40
Hexachlorobenzene	1610		ug/kg dry	2118.5	334 U	76	45-130	7	40
Hexachlorobutadiene	1410		ug/kg dry	2118.5	334 U	67	45-105	4	40
Hexachlorocyclopentadiene	755		ug/kg dry	2118.5	334 U	36	10-100	8	40
Hexachloroethane	1180		ug/kg dry	2118.5	334 U	56	35-110	1	40
Indeno[1,2,3-cd]pyrene	1650		ug/kg dry	2118.5	334 U	78	45-130	7	40
Isophorone	1150		ug/kg dry	2118.5	334 U	54	40-110	5	40
Naphthalene	1320		ug/kg dry	2118.5	334 U	63	40-110	5	40
Nitrobenzene	1170		ug/kg dry	2118.5	334 U	55	40-105	3	40
N-Nitrosodi-n-propylamine	1620		ug/kg dry	2118.5	334 U	77	30-130	2	40
N-Nitrosodiphenylamine	1420		ug/kg dry	2118.5	334 U	67	50-120	6	40
Pentachlorophenol	559		ug/kg dry	2118.5	1670 U	26	25-120	25	40
Phenanthrene	1350		ug/kg dry	2118.5	334 U	64	50-120	5	40
Phenol	1330		ug/kg dry	2118.5	334 U	63	40-115	4	40
Pyrene	1320		ug/kg dry	2118.5	334 U	62	45-125	8	40
Surrogate: 2-Fluorophenol	*1540*		*ug/kg dry*	*2648.1*		*58*	*25-121*		
Surrogate: Phenol-d5	*1630*		*ug/kg dry*	*2648.1*		*62*	*24-113*		
Surrogate: Nitrobenzene-d5	*984*		*ug/kg dry*	*1765.4*		*56*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1040*		*ug/kg dry*	*1765.4*		*59*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1280*		*ug/kg dry*	*2648.1*		*49*	*19-122*		
Surrogate: p-Terphenyl-d14	*1090*		*ug/kg dry*	*1765.4*		*61*	*18-137*		

Date: 3 August 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-D/DR Burial Ground and Remaining Sites – Soil Full Protocol - Waste Site 100-D-65
Subject: Wet Chemistry - Data Package No. KP0114-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. KP0114 prepared by Lionville Laboratories Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1PVL2	7/18/12	Soil	C	See note 1
J1PVL3	7/18/12	Soil	C	See note 1
J1PVL4	7/18/12	Soil	C	See note 1
J1PVL5	7/18/12	Soil	C	See note 1
J1PVL6	7/18/12	Soil	C	See note 1
J1PVL7	7/18/12	Soil	C	See note 1
J1PVL8	7/18/12	Soil	C	See note 1
J1PVL9	7/18/12	Soil	C	See note 1
J1PVM0	7/18/12	Soil	C	See note 1
J1PVM1	7/18/12	Soil	C	See note 1
J1PVM2	7/18/12	Soil	C	See note 1
J1PVM3	7/18/12	Soil	C	See note 1
J1PVM4	7/18/12	Soil	C	See note 1

1 – Chromium VI by 7196A, IC anions by 300.3, nitrate/nitrite by 353.2 and pH by 9045C.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, Rev. 4, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as

follows: Soil samples must be analyzed within 30 days for chromium VI, nitrate/nitrite, chloride, fluoride, bromide, sulfate; 48 hours for nitrate, nitrite and orthophosphate; and immediate (24 hours) for pH.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

Due to the holding time being exceeded by greater than twice the limit, all detected pH, nitrate, nitrite and orthophosphate results were qualified as estimates and flagged "J".

Due to the holding time being exceeded by greater than twice the limit, all undetected nitrate, nitrite and orthophosphate results were qualified as rejected and flagged "UR".

All other holding times were acceptable.

- **Method Blanks**

Method Blanks

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. All blank results must fall below the contract required detection limit (CRQL) to be acceptable.

All method blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is

required.

All accuracy results were acceptable.

Precision

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicates (J1PVL2/J1PVM4) were submitted for analysis. Laboratory duplicates are compared using the same criteria as for laboratory results. All field duplicate results are acceptable.

Analytical Detection Levels

Reported analytical detection levels are compared against the required quantitation limits (RQLs) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

Completeness

Data package KP0114 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 88%.

MAJOR DEFICIENCIES

The following major deficiency was noted:

- Due to the holding time being exceeded by greater than twice the limit, all undetected nitrate, nitrite and orthophosphate results were qualified as rejected and flagged "UR".

Rejected data is unusable and should not be reported.

MINOR DEFICIENCIES

The following minor deficiency was noted:

- Due to the holding time being exceeded by greater than twice the limit, all detected pH, nitrate, nitrite and orthophosphate results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: KP0114	REVIEWER: ELR	Project: 100-D-65	PAGE_1_OF_1
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
pH, nitrate	J	All	Hold time
Nitrite	J	J1PVL7	Hold time
Nitrite	UR	J1PVL2, J1PVL3 J1PVL4, J1PVL5 J1PVL6, J1PVL8 J1PVL9, J1PVM0 J1PVM1, J1PVM2 J1PVM3, J1PVM4	Hold time
Orthophosphate	J	J1PVL3, J1PVL5 J1PVL6, J1PVL7 J1PVL9, J1PVM0 J1PVM2, J1PVM4	Hold time
Orthophosphate	UR	J1PVL2, J1PVL4 J1PVL8, J1PVM1 J1PVM3	Hold time

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 10:34

✓ 6/2/12

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVL2 (1207048-01) Soil									
%Solids	**94.3**		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	**4.8** B J	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	2.1 U R	2.1	10.3	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	**5.0** B	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**1.34**	0.10	0.51	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.21 U	0.21	0.53	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	**9.16** J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D
J1PVL3 (1207048-02) Soil									
%Solids	**98.5**		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.0 U	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	1.0 U	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	**2.6** B J	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	**3.0** B J	2.0	9.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	**3.7** B	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.81**	0.10	0.49	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	**9.16** J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D

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Lionville Laboratory

8/2/12

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVL4 (1207048-03) Soil									
%Solids	**96.2**		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	**2.2** B	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	**13.2** J	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	2.0 U R	2.0	10.2	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	**37.4**	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**3.24**	0.10	0.51	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.21 U	0.21	0.52	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	**9.08** J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D
J1PVL5 (1207048-04) Soil									
%Solids	**96.4**		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	**1.4** B	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	**9.1** J	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	**2.9** B J	2.0	10.2	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	**11.9**	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**2.20**	0.10	0.51	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.21 U	0.21	0.52	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	**9.10** J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D

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Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVL6 (1207048-05) Soil									
%Solids	95.4		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.0 U	1.0	5.2	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	28.8	1.0	5.2	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.2	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	9.2 J	1.0	5.2	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.2	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	3.8 B J	2.1	10.3	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	14.1	1.0	5.2	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	2.16	0.10	0.52	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.21 U	0.21	0.52	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	9.07 J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D
J1PVL7 (1207048-06) Soil									
%Solids	96.3		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.0 U	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	1.0 U	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	37.6 J	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.0 B J	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	3.3 B J	1.9	9.7	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	7.6	1.0	4.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	8.93	0.10	0.49	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.21 U	0.21	0.52	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	8.76 J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D

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Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVL8 (1207048-07) Soil									
%Solids	96.3		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	4.9 B J	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	2.0 U R	2.0	10.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	4.7 B	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	1.40	0.10	0.51	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.21 U	0.21	0.52	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	9.04 J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D
J1PVL9 (1207048-08) Soil									
%Solids	97.7		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	11.2 J	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	3.3 B J	2.0	10.2	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	2.8 B	1.0	5.1	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	2.82	0.10	0.51	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	8.94 J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D

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Lionville Laboratory

8/2/12

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVM0 (1207048-09) Soil									
%Solids	**95.7**		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.0 U	1.0	5.0	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	1.0 B, U	1.0	5.0	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.0	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	**7.0** J	1.0	5.0	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.0	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	**3.1** B J	2.0	10.0	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	**4.2** B	1.0	5.0	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**1.75**	0.10	0.50	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.21 U	0.21	0.52	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	**8.68** J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D
J1PVM1 (1207048-10) Soil									
%Solids	**91.1**		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.1 U	1.1	5.4	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	**1.5** B	1.1	5.4	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.1 U	1.1	5.4	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	**2.7** B J	1.1	5.4	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.1 U R	1.1	5.4	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	2.2 U R	2.2	10.8	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	**22.5**	1.1	5.4	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**0.80**	0.11	0.54	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.22 U	0.22	0.55	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	**8.75** J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D

LVL
LIONVILLE LABORATORY
A division of Baseline 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-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 10:34

Wet Chemistry
Lionville Laboratory

8/2/12

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVM2 (1207048-11) Soil									
%Solids	**83.8**		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.1 U	1.1	5.5	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	**1.6** B	1.1	5.5	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.1 U	1.1	5.5	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	**3.9** B J	1.1	5.5	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.1 U R	1.1	5.5	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	**8.8** B J	2.2	10.9	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	**4.3** B	1.1	5.5	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**1.03**	0.11	0.55	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.24 U	0.24	0.60	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	**8.45** J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D
J1PVM3 (1207048-12) Soil									
%Solids	**80.0**		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.3 U	1.3	6.3	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	1.3 U	1.3	6.3	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.3 U	1.3	6.3	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	**5.5** B J	1.3	6.3	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.3 U R	1.3	6.3	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	2.5 U R	2.5	12.5	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	**6.3**	1.3	6.3	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**1.45**	0.13	0.63	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.25 U	0.25	0.63	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	**8.61** J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-075 Project Number: KP0114 Project Manager: Joan Kessner	Reported: 07/27/2012 10:34

Wet Chemistry
Lionville Laboratory

✓ 8/2/12

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PVM4 (1207048-13) Soil									
%Solids	97.2		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G
Bromide	1.0 U	1.0	4.8	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Chloride	1.0 B	1.0	4.8	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	4.8	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate	4.3 B J	1.0	4.8	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	4.8	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Orthophosphate	2.3 B J	1.9	9.5	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Sulfate	5.0	1.0	4.8	mg/kg dry	1	L207160	07/25/2012	07/25/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	1.16	0.10	0.48	mg/kg dry	1	L207169	07/25/2012	07/26/2012	EPA 353.2
Hexavalent Chromium	0.21 U	0.21	0.51	mg/kg dry	1	L207129	07/23/2012	07/23/2012	SW846 7196A
pH	9.10 J	0.10	0.10	pH Units	1	L207165	07/26/2012	07/26/2012	SW846 9045D
J1PVM5 (1207048-14) Soil									
%Solids	100		0.1	% by Weight	1	L207136	07/23/2012	07/23/2012	SM2540G

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-075 KP0114
LVL#: 1207048 **Date Received:** 07-20-12

INORGANIC NARRATIVE

1. This narrative covers the analyses of 14 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 which were analyzed past holding time.

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.

Iain Daniels
Laboratory Manager
Lionville Laboratory

7/27/12
Date

njp\i07-048

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 19 pages.

2 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 1 of ~~2~~ 3

Collector ~~Q Stowe~~ J Smith 2 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075
Ice Chest No. RCC-08-028	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSPL

Price Code ~~8L~~ 8B 2 7-18-12

Data Turnaround ~~21~~ 7 Days 2 7-18-12

POSSIBLE SAMPLE ~~HAZARDS/REMARKS~~
~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium-3; 7-18-12	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL2	SOIL	7-18-12	1230	X	X	X	X	X	X	X			
J1PVL3	SOIL	7-18-12	1220	X	X	X	X	X	X	X			
J1PVL4	SOIL	7-18-12	1210	X	X	X	X	X	X	X			
J1PVL5	SOIL	7-18-12	1150	X	X	X	X	X	X	X			
J1PVL6	SOIL	7-18-12	~~1140~~	X	X	X	X	X	X	X			

CHAIN OF POSSESSION — Sign/Print Names 1040 2 7-18-12

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Jason Smith Jason Smith	1340 7/18/12	Dwoolbry D	7-18-12 1340
Dwoolbry D	7-18-12 1600	Dennis Newman 1060 #3	7/18/12 1600
Dennis Newman WCH	1245 7/19/12	Fed Ex	
Fed Ex	7.20.12 1000	[signature]	7.20.12 1000

SPECIAL INSTRUCTIONS

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

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

Actions by 300 per J Kessner

REVIEWED BY MWShea DATE 7/19/12

KP0114

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

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

WCH-EE-011

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27-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 2 of 13

Collector ~~Q Stowe~~ J Smith 27-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075
Ice Chest No. RCC-08-022	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED Ex
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSPL

Price Code ~~8L~~ 8B 27-18-12

Data Turnaround ~~21~~ 7 Days 27-18-12

POSSIBLE SAMPLE HAZARDS/REMARKS
~~None~~ Potential radioactivity 7/19/12

Special Handling and/or Storage
Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - 3B	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVL7	SOIL	7-18-12	1025	X	X	X	X	X	X	X			
J1PVL8	SOIL	7-18-12	1010	X	X	X	X	X	X	X			
J1PVL9	SOIL	7-18-12	1000	X	X	X	X	X	X	X			
J1PVM0	SOIL	7-18-12	0950	X	X	X	X	X	X	X			
J1PVM1	SOIL	7-18-12	0935	X	X	X	X	X	X	X			

7-18-12

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Jason Smith	Date/Time: 7/18/12 1340	Received By/Stored In: DWOOLERT	Date/Time: 7-18-12 1340
Relinquished By/Removed From: DWOOLERT	Date/Time: 7-18-12 1600	Received By/Stored In: 1060#3 Dennis Newman	Date/Time: 1600 7-18-12
Relinquished By/Removed From: WCH Dennis Newman	Date/Time: 1245 7/19/12	Received By/Stored In:	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 7-20-12 / 10:00	Received By/Stored In: [signature]	Date/Time: 7-20-12 / 10:00
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Mangarese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 471 - (CV) {Mercury}

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

anions by 300 per J Kessner

KP0114

REVIEWED BY DWShea DATE 7/19/12

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

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

WCH-EE-011

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D 7-18-12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-075-305	Page 1 of 13

Collector ~~Q Stowe~~ J Smith D 7-18-12	Company Contact J Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH
Project Designation 100-D/DR Burial Grounds & Remaining Sites - Soil Full Prot	Sampling Location 100-D-65 Outfall		SAF No. RC-075
Ice Chest No. RCC-08-~~028~~ 022 7/19/12	Field Logbook No. EL-1607-14	COA 000D652000	Method of Shipment FED EX D 7-18-12
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A110469		Bill of Lading/Air Bill No. SEE OSEL

Price Code ~~8L~~ 8B D 7-18-12

Data Turnaround ~~21~~ 7 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

~~None~~ Potential Radioactivity 7/19/12

Special Handling and/or Storage

Cool at 4 deg C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None
Type of Container	G/P	G/P	G/P	aG	aG	aG	aG	G/P	G/P	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1	0
Volume	125mL	125mL	125mL	125mL	125mL	120mL	125mL	500mL	125mL	125mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH (Soil) - 9045	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	See item (2) in Special Instructions.	Carbon-14; Tritium - 1B	Nickel-63; Strontium-89,90 -- Total Sr

Sample No.	Matrix *	Sample Date	Sample Time										
J1PVM2	SOIL	7-18-12	0920	X	X	X	X	X	X	X			
J1PVM3	SOIL	7-18-12	0855	X	X	X	X	X	X	X			
J1PVM4	SOIL	7-18-12	1230	X	X	X	X	X	X	X			
J1PVM5	SOIL	7-18-12	1230	X			X						

7-18-12

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] Jason Smith	7-18-12 1340	Dwoolery [signature]	7-18-12 1340
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Dwoolery [signature]	7-18-12 1600	1060 #3 Dennis Newman	7/18/12 1600
Relinquished By/Removed From WCH	Date/Time	Received By/Stored In	Date/Time
Dennis Newman	7/19/12 1245	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	7.20.12/1000	[signature] D Smith	7.20.12/1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

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

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

Anions by 300 per J Kessner

KP0114

REVIEWED BY DWShea DATE 7/19/12

Matrix *

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

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

WCH-EE-011

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Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-D-65			DATA PACKAGE: KD0114		
VALIDATOR: FLR		LAB: LLJ		DATE: 8/2/12	
			SDG: KD0114		

ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
~~Ammonia~~	BOD/COD	Chloride	Chromium-VI	pH	NO_3/NO_2
Sulfate	TDS	TKN	Phosphate		

SAMPLES/MATRIX				
JIPVL2	JIPVL3	JIPVL4	JIPVL5	JIPVL6
JIPVL7	JIPVL8	JIPVL9	JIPVM0	JIPVM1
JIPVM2	JIPVM3	JIPVM4		
				Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes No N/A

Comments:

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No N/A

Initial calibrations acceptable? ..... Yes No N/A

ICV and CCV checks performed on all instruments? ..... Yes No N/A

ICV and CCV checks acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: no FB

4. ACCURACY (Levels C, D, and E)

Spike samples analyzed? ..... Yes No N/A

Spike recoveries acceptable? ..... Yes No N/A

Sike standards NIST traceable? (Levels D, E) ..... Yes No N/A

Spike standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: no PAS

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes No N/A

Duplicate results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

6. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments: pH, ortho, nitrate + nitrite >2d - J all

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

Appendix 6

Additional Documentation Requested by Client

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-075 Project Number: KP0114 Project Manager: Joan Kessner	**Reported:** 07/27/2012 10:34

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207129 - Default Prep GenChem										
Blank (L207129-BLK1)				Prepared & Analyzed: 07/23/2012						
Hexavalent Chromium	0.20 U	0.20	0.50	mg/kg wet						
LCS (L207129-BS1)				Prepared & Analyzed: 07/23/2012						
Hexavalent Chromium	4.17	0.20	0.50	mg/kg wet	4.0000		104	80-120		
LCS (L207129-BS2)				Prepared & Analyzed: 07/23/2012						
Hexavalent Chromium	1040 D	20.0	50.0	mg/kg wet	1075.5		96	80-120		
Duplicate (L207129-DUP1)	**Source: 1207048-01**			Prepared & Analyzed: 07/23/2012						
Hexavalent Chromium	0.21 U	0.21	0.53	mg/kg dry		0.21 U				20
Matrix Spike (L207129-MS1)	**Source: 1207048-01**			Prepared & Analyzed: 07/23/2012						
Hexavalent Chromium	4.07	0.21	0.53	mg/kg dry	4.2397	0.21 U	96	75-125		
Matrix Spike (L207129-MS2)	**Source: 1207048-01**			Prepared & Analyzed: 07/23/2012						
Hexavalent Chromium	1270 D	21.2	53.0	mg/kg dry	1215.0	0.21 U	105	75-125		
Batch L207136 - % Solids										
Duplicate (L207136-DUP1)	**Source: 1207048-01**			Prepared & Analyzed: 07/23/2012						
%Solids	99.6		0.1	% by Weight		94.3			5	20
Batch L207160 - Default Prep GenChem										
Blank (L207160-BLK1)				Prepared & Analyzed: 07/25/2012						
Fluoride	1.0 U	1.0	5.0	mg/kg wet						
Chloride	1.0 U	1.0	5.0	mg/kg wet						
Bromide	1.0 U	1.0	5.0	mg/kg wet						
Orthophosphate	2.0 U	2.0	10.0	mg/kg wet						
Sulfate	1.0 U	1.0	5.0	mg/kg wet						
Nitrate	1.0 U	1.0	5.0	mg/kg wet						
Nitrite	1.0 U	1.0	5.0	mg/kg wet						

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Wet Chemistry - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207160 - Default Prep GenChem										
LCS (L207160-BS1)				Prepared & Analyzed: 07/25/2012						
Fluoride	48.8	1.0	5.0	mg/kg wet	50.000		97.6	80-120		
Chloride	46.2	1.0	5.0	mg/kg wet	50.000		92.4	80-120		
Bromide	47.9	1.0	5.0	mg/kg wet	50.000		95.8	80-120		
Orthophosphate	48.4	2.0	10.0	mg/kg wet	50.000		96.8	80-120		
Sulfate	48.3	1.0	5.0	mg/kg wet	50.000		96.6	80-120		
Nitrate	47.8	1.0	5.0	mg/kg wet	50.000		95.6	80-120		
Nitrite	47.6	1.0	5.0	mg/kg wet	50.000		95.2	80-120		
Duplicate (L207160-DUP2)		Source: 1207048-01		Prepared & Analyzed: 07/25/2012						
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	2.3 B	2.1	10.3	mg/kg dry		2.1 U				20
Sulfate	5.8	1.0	5.2	mg/kg dry		5.0			13.8	20
Nitrate	5.3	1.0	5.2	mg/kg dry		4.8			8.58	20
Nitrite	1.0 U	1.0	5.2	mg/kg dry		1.0 U				20
Matrix Spike (L207160-MS2)		Source: 1207048-01		Prepared & Analyzed: 07/25/2012						
Fluoride	52.0	1.0	5.2	mg/kg dry	52.489	1.0 U	99.0	75-125		
Chloride	52.0	1.0	5.2	mg/kg dry	52.489	1.0 U	99.0	75-125		
Bromide	50.9	1.0	5.2	mg/kg dry	52.489	1.0 U	97.0	75-125		
Orthophosphate	51.0	2.1	10.5	mg/kg dry	52.489	2.1 U	97.2	75-125		
Sulfate	57.0	1.0	5.2	mg/kg dry	52.489	5.0	99.0	75-125		
Nitrate	56.7	1.0	5.2	mg/kg dry	52.489	4.8	98.8	75-125		
Nitrite	51.3	1.0	5.2	mg/kg dry	52.489	1.0 U	97.8	75-125		
Batch L207165 - Default Prep GenChem										
Duplicate (L207165-DUP2)		Source: 1207048-12		Prepared & Analyzed: 07/26/2012						
pH	8.85	0.10	0.10	pH Units		8.61			2.75	20

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Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207165 - Default Prep GenChem										
Reference (L207165-SRM1)				Prepared & Analyzed: 07/26/2012						
pH	7.05	0.10	0.10	pH Units	7.0000		101	99-101		
Reference (L207165-SRM2)				Prepared & Analyzed: 07/26/2012						
pH	10.0	0.10	0.10	pH Units	10.000		100	99-101		
Batch L207169 - Default Prep GenChem										
Blank (L207169-BLK1)				Prepared: 07/25/2012 Analyzed: 07/26/2012						
Nitrate/Nitrite as N	0.10 U	0.10	0.50	mg/kg wet						
LCS (L207169-BS1)				Prepared: 07/25/2012 Analyzed: 07/26/2012						
Nitrate/Nitrite as N	4.94	0.10	0.50	mg/kg wet	5.0000		98.8	90-110		
Duplicate (L207169-DUP1)	**Source: 1207048-01**			Prepared: 07/25/2012 Analyzed: 07/26/2012						
Nitrate/Nitrite as N	1.27	0.10	0.52	mg/kg dry		1.34			5.11	20
Matrix Spike (L207169-MS1)	**Source: 1207048-01**			Prepared: 07/25/2012 Analyzed: 07/26/2012						
Nitrate/Nitrite as N	6.53	0.10	0.52	mg/kg dry	5.2489	1.34	99.0	75-125		