

SAF-RC-029
Remaining Sites Confirmation Sampling
- Soil Full Protocol
FINAL VALIDATION PACKAGE

COMPLETE COPY OF FINAL VALIDATION PACKAGE TO:

Kathy Wendt H4-21

COMMENTS:

SDG K3796 SAF-RC-029

Waste Site: 300-32

Date: 31 December 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: Remaining Sites Confirmation Sampling – Soil Full Protocol – Waste Site 300-32
Subject: Semivolatile Organics - Data Package No. K3796-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K3796 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
J1N1M1	1/9/12	Soil	C	See note 1
J1N1M2	1/9/12	Soil	C	See note 1
J1N1M3	1/9/12	Soil	C	See note 1
J1N1M4	1/9/12	Soil	C	See note 1
J1N1M5	1/9/12	Soil	C	See note 1
J1N1M6	1/9/12	Soil	C	See note 1
J1N1M7	1/9/12	Soil	C	See note 1
J1N1M8	1/9/12	Soil	C	See note 1
J1N1M9	1/9/12	Soil	C	See note 1
J1N1N0	1/9/12	Soil	C	See note 1
J1N1N1	1/9/12	Soil	C	See note 1
J1N1N3	1/9/12	Soil	C	See note 1
J1N1N4	1/10/12	Soil	C	See note 1
J1N1N5	1/10/12	Soil	C	See note 1
J1N1N6	1/10/12	Soil	C	See note 1
J1N1N7	1/10/12	Soil	C	See note 1
J1N1N8	1/10/12	Soil	C	See note 1

1 - Semivolatile organics by 8270C.

- 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

One field blank (J1N1N3) was submitted for analysis. No analytes were detected in the field blank.

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 an LCS recovery outside QC limits, all hexachlorocyclopentadiene (44%) and pentachlorophenol (34%) results were qualified as estimates and flagged "J".

Due to matrix spike recoveries outside QC limits, all 2,4-dinitrophenol (0%), 3,3-dichlorobenzidine (0%), 4,6-dinitro-2-methylphenol (44%), 4-chloro-3-methylphenol (0%), 4-chloroanaline (39%), 4-nitrophenol (0%), hexachlorocyclopentadiene (0%) and pentachlorophenol (0%) results were qualified as estimates and flagged "J".

Due to matrix spike duplicate recoveries outside QC limits, all 2,4-dinitrophenol (0%), 4,6-dinitro-2-methylphenol (35%), hexachlorocyclopentadiene (0%) and pentachlorophenol (0%) 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, the 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 J1N1N8 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. Sample 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 an RPD outside QC limits, all 4-chloroanaline (40%) results were qualified as estimates and flagged "J".

All other duplicate results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1N1N0/J1N1N1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were 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. Five hundred-eighteen analytes exceeded the RQL. Under the WCH statement of work, no qualification is required. All other analytes exceeded the RQL.

- **Completeness**

Data package No. KP0123 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 an LCS recovery outside QC limits, all hexachlorocyclopentadiene (44%) and pentachlorophenol (34%) results were qualified as estimates and flagged "J".
- Due to matrix spike recoveries outside QC limits, all 2,4-dinitrophenol (0%), 3,3-dichlorobenzidine (0%), 4,6-dinitro-2-methylphenol (44%), 4-chloro-3-methylphenol (0%), 4-chloroanaline (39%), 4-nitrophenol (0%), hexachlorocyclopentadiene (0%) and pentachlorophenol (0%) results were qualified as estimates and flagged "J".
- Due to matrix spike duplicate recoveries outside QC limits, all 2,4-dinitrophenol (0%), 4,6-dinitro-2-methylphenol (35%), hexachlorocyclopentadiene (0%) and pentachlorophenol (0%) results were qualified as estimates and flagged "J".
- Due to a surrogate recovery outside QC limits, the 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 J1N1N8 were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits, all 4-chloroanaline (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.

Five hundred-eighteen 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*, March 2008.

DOE/RL-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

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

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: K3796	REVIEWER: ELR	Project: 300-32	PAGE <u>1</u> OF <u>1</u>
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
hexachlorocyclopentadiene pentachlorophenol	J	All	LCS recovery
2,4-dinitrophenol 3,3-dichlorobenzidine 4,6-dinitro-2-methylphenol 4-chloro-3-methylphenol 4-chloroanaline 4-nitrophenol hexachlorocyclopentadiene pentachlorophenol	J	All	MS recovery
2,4-dinitrophenol 4,6-dinitro-2-methylphenol 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	J1N1N8	Surrogate recovery
4-chloroanaline	J	All	RPD

* - 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
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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M1
12/30/12
1201028-02 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,2-Dichlorobenzene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,3-Dichlorobenzene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,4-Dichlorobenzene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,5-Trichlorophenol	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,6-Trichlorophenol	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dichlorophenol	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dimethylphenol	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrophenol	20100	U J	20100	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrotoluene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,6-Dinitrotoluene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chloronaphthalene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chlorophenol	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylnaphthalene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylphenol	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitroaniline	20100	U	20100	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitrophenol	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3,3'-Dichlorobenzidine	8030	U J	8030	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3-Nitroaniline	20100	U	20100	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4,6-Dinitro-2-methylphenol	4020	U J	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Bromophenyl Phenyl Ether	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloro-3-methylphenol	4020	U J	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloroaniline	4020	U J	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chlorophenyl Phenyl Ether	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3- and/or 4-Methylphenol	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitroaniline	20100	U J	20100	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitrophenol	20100	U J	20100	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthylene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Anthracene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[a]anthracene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[a] pyrene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[b] fluoranthene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[g,h,i] perylene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[k] fluoranthene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroethoxy) methane	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C

0000000008



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M1
1201028-02 (Soil)

✓
12/30/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method		
Lionville Laboratory											
Semivolatile Organic Compounds by SW846 8270C											
Bis(2-chloroethyl) ether	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Bis(2-chloroisopropyl) ether	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Bis(2-ethylhexyl) phthalate	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Butyl Benzyl Phthalate	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Carbazole	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Chrysene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Dibenz[a,h]anthracene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Dibenzofuran	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Diethyl Phthalate	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Dimethyl Phthalate	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Di-n-butyl Phthalate	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Di-n-octyl Phthalate	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Fluoranthene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Fluorene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Hexachlorobenzene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Hexachlorobutadiene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Hexachlorocyclopentadiene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Hexachloroethane	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Indeno[1,2,3-cd]pyrene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Isophorone	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Naphthalene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Nitrobenzene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
N-Nitrosodi-n-propylamine	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
N-Nitrosodiphenylamine	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Pentachlorophenol	20100	U	20100	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Phenanthrene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Phenol	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Pyrene	4020	U	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
TIC:Aldol Condensate 1	21900	A, B, J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Surrogate: 2-Fluorophenol	65 %		25-121			L201135	01/13/2012	01/19/2012	8270C		
Surrogate: Phenol-d5	58 %		24-113			L201135	01/13/2012	01/19/2012	8270C		
Surrogate: Nitrobenzene-d5	60 %		23-120			L201135	01/13/2012	01/19/2012	8270C		
Surrogate: 2-Fluorobiphenyl	71 %		30-115			L201135	01/13/2012	01/19/2012	8270C		
Surrogate: 2,4,6-Tribromophenol	49 %		19-122			L201135	01/13/2012	01/19/2012	8270C		
Surrogate: p-Terphenyl-d14	77 %		18-137			L201135	01/13/2012	01/19/2012	8270C		



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M2
1201028-03 (Soil)

✓
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,2-Dichlorobenzene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,3-Dichlorobenzene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,4-Dichlorobenzene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,5-Trichlorophenol	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,6-Trichlorophenol	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dichlorophenol	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dimethylphenol	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrophenol	4810	U J	4810	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrotoluene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,6-Dinitrotoluene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chloronaphthalene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chlorophenol	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylnaphthalene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylphenol	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitroaniline	4810	U	4810	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitrophenol	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3,3'-Dichlorobenzidine	1930	U J	1930	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3-Nitroaniline	4810	U	4810	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4,6-Dinitro-2-methylphenol	963	U J	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Bromophenyl Phenyl Ether	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloro-3-methylphenol	963	U J	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloroaniline	963	U J	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chlorophenyl Phenyl Ether	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3- and/or 4-Methylphenol	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitroaniline	4810	U J	4810	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitrophenol	4810	U J	4810	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthylene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Anthracene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[a]anthracene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[a] pyrene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[b] fluoranthene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[g,h,i] perylene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[k] fluoranthene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroethoxy) methane	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M2
1201028-03 (Soil)

✓
12/20/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroisopropyl) ether	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-ethylhexyl) phthalate	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Butyl Benzyl Phthalate	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Carbazole	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Chrysene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dibenz[a,h]anthracene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dibenzofuran	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Diethyl Phthalate	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dimethyl Phthalate	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Di-n-butyl Phthalate	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Di-n-octyl Phthalate	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Fluoranthene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Fluorene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorobenzene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorobutadiene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorocyclopentadiene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachloroethane	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Indeno[1,2,3-cd]pyrene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Isophorone	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Naphthalene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Nitrobenzene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
N-Nitrosodi-n-propylamine	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
N-Nitrosodiphenylamine	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Pentachlorophenol	4810	U	4810	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Phenanthrene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Phenol	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Pyrene	963	U	963	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
TIC:Unknown 1	404	B, J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
TIC:Aldol Condensate 1	21300	A, B, J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2-Fluorophenol	58 %		25-121			L201135	01/13/2012	01/19/2012	8270C
Surrogate: Phenol-d5	48 %		24-113			L201135	01/13/2012	01/19/2012	8270C
Surrogate: Nitrobenzene-d5	55 %		23-120			L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2-Fluorobiphenyl	56 %		30-115			L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2,4,6-Tribromophenol	52 %		19-122			L201135	01/13/2012	01/19/2012	8270C
Surrogate: p-Terphenyl-d14	65 %		18-137			L201135	01/13/2012	01/19/2012	8270C

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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M3
1201028-04 (Soil)

V2(301.c)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,2-Dichlorobenzene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,3-Dichlorobenzene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,4-Dichlorobenzene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,5-Trichlorophenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,6-Trichlorophenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dichlorophenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dimethylphenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrophenol	1610	U	1610	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrotoluene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,6-Dinitrotoluene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chloronaphthalene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chlorophenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylnaphthalene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylphenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitroaniline	1610	U	1610	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitrophenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3,3'-Dichlorobenzidine	644	U	644	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3-Nitroaniline	1610	U	1610	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4,6-Dinitro-2-methylphenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Bromophenyl Phenyl Ether	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloro-3-methylphenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloroaniline	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chlorophenyl Phenyl Ether	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3- and/or 4-Methylphenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitroaniline	1610	U	1610	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitrophenol	1610	U	1610	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthylene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Anthracene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benz[a]anthracene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[a] pyrene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[b] fluoranthene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[g,h,i] perylene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[k] fluoranthene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroethoxy) methane	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M3
1201028-04 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroisopropyl) ether	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-ethylhexyl) phthalate	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Butyl Benzyl Phthalate	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Carbazole	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Chrysene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenz[a,h]anthracene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenzofuran	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Diethyl Phthalate	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dimethyl Phthalate	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-butyl Phthalate	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-octyl Phthalate	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluoranthene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluorene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobenzene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobutadiene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorocyclopentadiene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachloroethane	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Indeno[1,2,3-cd]pyrene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Isophorone	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Naphthalene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Nitrobenzene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodi-n-propylamine	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodiphenylamine	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pentachlorophenol	1610	U	1610	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenanthrene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenol	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pyrene	322	U	322	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 1	83.8	B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 2	76.2	J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 2	18400	A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 1	104	A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorophenol	74 %		25-121			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Phenol-d5	68 %		24-113			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Nitrobenzene-d5	69 %		23-120			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorobiphenyl	75 %		30-115			L201135	01/13/2012	01/18/2012	8270C



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M3
1201028-04 (Soil)

✓ 12(30)1,2

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Surrogate: 2,4,6-Tribromophenol	68 %	19-122			L201135	01/13/2012	01/18/2012	8270C
Surrogate: p-Terphenyl-d ₁₄	84 %	18-137			L201135	01/13/2012	01/18/2012	8270C



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Reported:
01/24/2012 10:35

J1N1M4
1201028-05 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,2-Dichlorobenzene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,3-Dichlorobenzene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,4-Dichlorobenzene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,5-Trichlorophenol	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,6-Trichlorophenol	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dichlorophenol	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dimethylphenol	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrophenol	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrotoluene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,6-Dinitrotoluene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chloronaphthalene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chlorophenol	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylnaphthalene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylphenol	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitroaniline	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitrophenol	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3,3'-Dichlorobenzidine	651	U	651	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3-Nitroaniline	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4,6-Dinitro-2-methylphenol	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Bromophenyl Phenyl Ether	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloro-3-methylphenol	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloroaniline	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chlorophenyl Phenyl Ether	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3- and/or 4-Methylphenol	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitroaniline	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitrophenol	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthylene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Anthracene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benz[a]anthracene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[a] pyrene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[b] fluoranthene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[g,h,i] perylene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[k] fluoranthene	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroethoxy) methane	325	U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C



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2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M4
1201028-05 (Soil)

✓
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Bis(2-chloroethyl) ether	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroisopropyl) ether	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-ethylhexyl) phthalate	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Butyl Benzyl Phthalate	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Carbazole	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Chrysene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenz[a,h]anthracene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenzofuran	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Diethyl Phthalate	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dimethyl Phthalate	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-butyl Phthalate	249 J	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-octyl Phthalate	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluoranthene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluorene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobenzene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobutadiene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorocyclopentadiene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachloroethane	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Indeno[1,2,3-cd]pyrene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Isophorone	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Naphthalene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Nitrobenzene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodi-n-propylamine	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodiphenylamine	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pentachlorophenol	1630 U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenanthrene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenol	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pyrene	325 U	325	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 1	11800 A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorophenol	62 %	25-121			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Phenol-d5	58 %	24-113			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Nitrobenzene-d5	57 %	23-120			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorobiphenyl	56 %	30-115			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2,4,6-Tribromophenol	56 %	19-122			L201135	01/13/2012	01/18/2012	8270C
Surrogate: p-Terphenyl-d14	62 %	18-137			L201135	01/13/2012	01/18/2012	8270C



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2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M5
1201028-06 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,2-Dichlorobenzene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,3-Dichlorobenzene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,4-Dichlorobenzene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,5-Trichlorophenol	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,6-Trichlorophenol	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dichlorophenol	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dimethylphenol	330	U <i>5/10</i>	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrophenol	1650	U <i>J</i>	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrotoluene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,6-Dinitrotoluene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chloronaphthalene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chlorophenol	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylnaphthalene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylphenol	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitroaniline	1650	U	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitrophenol	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3,3'-Dichlorobenzidine	659	U <i>J</i>	659	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3-Nitroaniline	1650	U	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4,6-Dinitro-2-methylphenol	330	U <i>J</i>	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Bromophenyl Phenyl Ether	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloro-3-methylphenol	330	U <i>J</i>	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloroaniline	330	U <i>J</i>	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chlorophenyl Phenyl Ether	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3- and/or 4-Methylphenol	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitroaniline	1650	U <i>J</i>	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitrophenol	1650	U <i>J</i>	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthylene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Anthracene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benz[a]anthracene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[a] pyrene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[b] fluoranthene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[g,h,i] perylene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[k] fluoranthene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroethoxy) methane	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C

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LIONVILLE LABORATORY
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WC-Hanford, Inc.
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Phone: 610-280-3000
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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M5
1201028-06 (Soil)

V12/301.e

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method		
Lionville Laboratory											
Semivolatile Organic Compounds by SW846 8270C											
Bis(2-chloroethyl) ether	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Bis(2-chloroisopropyl) ether	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Bis(2-ethylhexyl) phthalate	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Butyl Benzyl Phthalate	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Carbazole	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Chrysene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Dibenz[a,h]anthracene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Dibenzofuran	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Diethyl Phthalate	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Dimethyl Phthalate	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Di-n-butyl Phthalate	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Di-n-octyl Phthalate	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Fluoranthene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Fluorene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Hexachlorobenzene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Hexachlorobutadiene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Hexachlorocyclopentadiene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Hexachloroethane	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Indeno[1,2,3-cd]pyrene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Isophorone	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Naphthalene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Nitrobenzene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
N-Nitrosodi-n-propylamine	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
N-Nitrosodiphenylamine	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Pentachlorophenol	1650	U	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Phenanthrene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Phenol	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Pyrene	330	U	330	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
TIC:Aldol Condensate 1	9060	A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C		
Surrogate: 2-Fluorophenol	42 %		25-121			L201135	01/13/2012	01/18/2012	8270C		
Surrogate: Phenol-d5	48 %		24-113			L201135	01/13/2012	01/18/2012	8270C		
Surrogate: Nitrobenzene-d5	38 %		23-120			L201135	01/13/2012	01/18/2012	8270C		
Surrogate: 2-Fluorobiphenyl	56 %		30-115			L201135	01/13/2012	01/18/2012	8270C		
Surrogate: 2,4,6-Tribromophenol	55 %		19-122			L201135	01/13/2012	01/18/2012	8270C		
Surrogate: p-Terphenyl-d14	69 %		18-137			L201135	01/13/2012	01/18/2012	8270C		

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WC-Hanford, Inc.
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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M6
1201028-07 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
1,2-Dichlorobenzene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
1,3-Dichlorobenzene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
1,4-Dichlorobenzene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4,5-Trichlorophenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4,6-Trichlorophenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4-Dichlorophenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4-Dimethylphenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrophenol	3300	U	3300	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrotoluene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,6-Dinitrotoluene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Chloronaphthalene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Chlorophenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Methylnaphthalene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Methylphenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Nitroaniline	3300	U	3300	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Nitrophenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
3,3'-Dichlorobenzidine	1320	U	1320	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
3-Nitroaniline	3300	U	3300	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4,6-Dinitro-2-methylphenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Bromophenyl Phenyl Ether	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Chloro-3-methylphenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Chloroaniline	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Chlorophenyl Phenyl Ether	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
3- and/or 4-Methylphenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Nitroaniline	3300	U	3300	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Nitrophenol	3300	U	3300	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Acenaphthene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Acenaphthylene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Anthracene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Benz[a]anthracene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Benzo[a] pyrene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Benzo[b] fluoranthene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Benzo[g,h,i] perylene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Benzo[k] fluoranthene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroethoxy) methane	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C

000000019



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M6
1201028-07 (Soil)

V12130112

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroisopropyl) ether	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Bis(2-ethylhexyl) phthalate	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Butyl Benzyl Phthalate	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Carbazole	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Chrysene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Dibenz[a,h]anthracene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Dibenzo-furan	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Diethyl Phthalate	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Dimethyl Phthalate	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Di-n-butyl Phthalate	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Di-n-octyl Phthalate	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Fluoranthene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Fluorene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobenzene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobutadiene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Hexachlorocyclopentadiene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Hexachloroethane	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Indeno[1,2,3-cd]pyrene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Isophorone	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Naphthalene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Nitrobenzene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodi-n-propylamine	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodiphenylamine	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Pentachlorophenol	3300	U	3300	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Phenanthrene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Phenol	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Pyrene	659	U	659	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 1	23700	A, B, J, D		ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorophenol	70 %		25-121			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Phenol-d5	63 %		24-113			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Nitrobenzene-d5	60 %		23-120			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorobiphenyl	65 %		30-115			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2,4,6-Tribromophenol	49 %		19-122			L201135	01/13/2012	01/18/2012	8270C
Surrogate: p-Terphenyl-d14	70 %		18-137			L201135	01/13/2012	01/18/2012	8270C



A division of EBARA Analytical Corporation

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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M7
1201028-08 (Soil)

V 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,2-Dichlorobenzene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,3-Dichlorobenzene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,4-Dichlorobenzene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,5-Trichlorophenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,6-Trichlorophenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dichlorophenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dimethylphenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrophenol	9890	U	9890	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrotoluene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,6-Dinitrotoluene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chloronaphthalene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chlorophenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylnaphthalene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylphenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitroaniline	9890	U	9890	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitrophenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3,3'-Dichlorobenzidine	3950	U	3950	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3-Nitroaniline	9890	U	9890	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4,6-Dinitro-2-methylphenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Bromophenyl Phenyl Ether	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloro-3-methylphenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloroaniline	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chlorophenyl Phenyl Ether	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3- and/or 4-Methylphenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitroaniline	9890	U	9890	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitrophenol	9890	U	9890	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthylene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Anthracene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[a]anthracene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[a] pyrene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[b] fluoranthene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[g,h,i] perylene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[k] fluoranthene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroethoxy) methane	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C

000000021



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M7
1201028-08 (Soil)

V₁₂(3012)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroisopropyl) ether	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-ethylhexyl) phthalate	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Butyl Benzyl Phthalate	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Carbazole	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Chrysene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dibenz[a,h]anthracene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dibenzofuran	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Diethyl Phthalate	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dimethyl Phthalate	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Di-n-butyl Phthalate	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Di-n-octyl Phthalate	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Fluoranthene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Fluorene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorobenzene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorobutadiene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorocyclopentadiene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachloroethane	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Indeno[1,2,3-cd]pyrene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Isophorone	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Naphthalene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Nitrobenzene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
N-Nitrosodi-n-propylamine	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
N-Nitrosodiphenylamine	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Pentachlorophenol	9890	U	9890	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Phenanthrene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Phenol	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Pyrene	1980	U	1980	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
TIC:Aldol Condensate 1	23900	A, B, J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2-Fluorophenol	73 %		25-121			L201135	01/13/2012	01/19/2012	8270C
Surrogate: Phenol-d5	61 %		24-113			L201135	01/13/2012	01/19/2012	8270C
Surrogate: Nitrobenzene-d5	59 %		23-120			L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2-Fluorobiphenyl	66 %		30-115			L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2,4,6-Tribromophenol	51 %		19-122			L201135	01/13/2012	01/19/2012	8270C
Surrogate: p-Terphenyl-d14	69 %		18-137			L201135	01/13/2012	01/19/2012	8270C



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M8
1201028-09 (Soil)

V1213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,2-Dichlorobenzene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,3-Dichlorobenzene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,4-Dichlorobenzene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,5-Trichlorophenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,6-Trichlorophenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dichlorophenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dimethylphenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrophenol	4770	U	4770	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrotoluene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,6-Dinitrotoluene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chloronaphthalene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chlorophenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylnaphthalene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylphenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitroaniline	4770	U	4770	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitrophenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3,3'-Dichlorobenzidine	1910	U	1910	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3-Nitroaniline	4770	U	4770	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4,6-Dinitro-2-methylphenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Bromophenyl Phenyl Ether	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloro-3-methylphenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloroaniline	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chlorophenyl Phenyl Ether	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3- and/or 4-Methylphenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitroaniline	4770	U	4770	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitrophenol	4770	U	4770	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthylene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Anthracene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[a]anthracene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[a] pyrene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[b] fluoranthene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[g,h,i] perlylene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[k] fluoranthene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroethoxy) methane	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C

000000023



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

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01/24/2012 10:35

J1N1M8
1201028-09 (Soil)

V, 2/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroisopropyl) ether	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-ethylhexyl) phthalate	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Butyl Benzyl Phthalate	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Carbazole	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Chrysene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dibenz[a,h]anthracene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dibenzofuran	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Diethyl Phthalate	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dimethyl Phthalate	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Di-n-butyl Phthalate	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Di-n-octyl Phthalate	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Fluoranthene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Fluorene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorobenzene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorobutadiene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorocyclopentadiene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachloroethane	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Indeno[1,2,3-cd]pyrene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Isophorone	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Naphthalene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Nitrobenzene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
N-Nitrosodi-n-propylamine	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
N-Nitrosodiphenylamine	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Pentachlorophenol	4770	U	4770	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Phenanthrene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Phenol	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Pyrene	953	U	953	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
TIC:Ethane, 1,1,2,2-tetrachloro-	678	N, J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
TIC:Unknown 2	237	J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
TIC:Unknown 1	318	J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
TIC:Aldol Condensate 1	18100	A, B, J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2-Fluorophenol	67 %		25-121			L201135	01/13/2012	01/19/2012	8270C
Surrogate: Phenol-d5	65 %		24-113			L201135	01/13/2012	01/19/2012	8270C
Surrogate: Nitrobenzene-d5	62 %		23-120			L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2-Fluorobiphenyl	67 %		30-115			L201135	01/13/2012	01/19/2012	8270C

000000024



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

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01/24/2012 10:35

J1N1M8
1201028-09 (Soil)

V1213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Surrogate: 2,4,6-Tribromophenol	56 %	19-122			L201135	01/13/2012	01/19/2012	8270C
Surrogate: p-Terphenyl-d14	71 %	18-137			L201135	01/13/2012	01/19/2012	8270C



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Project Number: K3796
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01/24/2012 10:35

J1N1M9
1201028-10 (Soil)

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Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
1,2-Dichlorobenzene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
1,3-Dichlorobenzene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
1,4-Dichlorobenzene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4,5-Trichlorophenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4,6-Trichlorophenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4-Dichlorophenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4-Dimethylphenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrophenol	3230	U	3230	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrotoluene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2,6-Dinitrotoluene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Chloronaphthalene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Chlorophenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Methylnaphthalene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Methylphenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Nitroaniline	3230	U	3230	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
2-Nitrophenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
3,3'-Dichlorobenzidine	1290	U	1290	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
3-Nitroaniline	3230	U	3230	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4,6-Dinitro-2-methylphenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Bromophenyl Phenyl Ether	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Chloro-3-methylphenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Chloroaniline	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Chlorophenyl Phenyl Ether	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
3- and/or 4-Methylphenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Nitroaniline	3230	U	3230	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
4-Nitrophenol	3230	U	3230	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Acenaphthene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Acenaphthylene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Anthracene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Benz[a]anthracene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Benzo[a] pyrene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Benzo[b] fluoranthene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Benzo[g,h,i] perylene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Benzo[k] fluoranthene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroethoxy) methane	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C

000000026



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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1M9
1201028-10 (Soil)

✓
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroisopropyl) ether	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Bis(2-ethylhexyl) phthalate	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Butyl Benzyl Phthalate	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Carbazole	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Chrysene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Dibenz[a,h]anthracene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Dibenzofuran	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Diethyl Phthalate	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Dimethyl Phthalate	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Di-n-butyl Phthalate	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Di-n-octyl Phthalate	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Fluoranthene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Fluorene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobenzene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobutadiene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Hexachlorocyclopentadiene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Hexachloroethane	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Indeno[1,2,3-cd]pyrene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Isophorone	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Naphthalene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Nitrobenzene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodi-n-propylamine	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodiphenylamine	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Pentachlorophenol	3230	U	3230	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Phenanthrene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Phenol	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Pyrene	647	U	647	ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 1	23700	A, B, J, D		ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 1	378	B, J, D		ug/kg dry	2	L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorophenol	56 %		25-121			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Phenol-d5	56 %		24-113			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Nitrobenzene-d5	57 %		23-120			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorobiphenyl	61 %		30-115			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2,4,6-Tribromophenol	42 %		19-122			L201135	01/13/2012	01/18/2012	8270C
Surrogate: p-Terphenyl-d14	66 %		18-137			L201135	01/13/2012	01/18/2012	8270C

000000027



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N0
1201028-11 (Soil)

V12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,2-Dichlorobenzene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,3-Dichlorobenzene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,4-Dichlorobenzene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,5-Trichlorophenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,6-Trichlorophenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dichlorophenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dimethylphenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrophenol	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrotoluene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,6-Dinitrotoluene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chloronaphthalene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chlorophenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylnaphthalene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylphenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitroaniline	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitrophenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3,3'-Dichlorobenzidine	652	U	652	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3-Nitroaniline	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4,6-Dinitro-2-methylphenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Bromophenyl Phenyl Ether	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloro-3-methylphenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloroaniline	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chlorophenyl Phenyl Ether	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3- and/or 4-Methylphenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitroaniline	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitrophenol	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthylene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Anthracene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benz[a]anthracene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[a] pyrene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[b] fluoranthene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[g,h,i] perylene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[k] fluoranthene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroethoxy) methane	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C

000000028



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2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N0
1201028-11 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroisopropyl) ether	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-ethylhexyl) phthalate	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Butyl Benzyl Phthalate	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Carbazole	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Chrysene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenz[a,h]anthracene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenzofuran	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Diethyl Phthalate	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dimethyl Phthalate	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-butyl Phthalate	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-octyl Phthalate	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluoranthene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluorene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobenzene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobutadiene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorocyclopentadiene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachloroethane	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Indeno[1,2,3-cd]pyrene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Isophorone	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Naphthalene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Nitrobenzene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodi-n-propylamine	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodiphenylamine	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pentachlorophenol	1630	U	1630	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenanthrene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenol	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pyrene	326	U	326	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 2	156	J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 1	78.3	B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 1	17600	A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorophenol	63 %		25-121			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Phenol-d5	61 %		24-113			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Nitrobenzene-d5	61 %		23-120			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorobiphenyl	61 %		30-115			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2,4,6-Tribromophenol	49 %		19-122			L201135	01/13/2012	01/18/2012	8270C

000000029



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N0
1201028-11 (Soil)

V
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Surrogate: *p*-Terphenyl-d14

63 %

18-137

L201135 01/13/2012 01/18/2012 8270C

000000030



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N1
1201028-12 (Soil)

V, 2/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,2-Dichlorobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,3-Dichlorobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,4-Dichlorobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,5-Trichlorophenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,6-Trichlorophenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dichlorophenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dimethylphenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrophenol	1650	U	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrotoluene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,6-Dinitrotoluene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chloronaphthalene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chlorophenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylnaphthalene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylphenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitroaniline	1650	U	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitrophenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3,3'-Dichlorobenzidine	658	U	658	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3-Nitroaniline	1650	U	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4,6-Dinitro-2-methylphenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Bromophenyl Phenyl Ether	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloro-3-methylphenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloroaniline	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chlorophenyl Phenyl Ether	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3- and/or 4-Methylphenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitroaniline	1650	U	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitrophenol	1650	U	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthylene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Anthracene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benz[a]anthracene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[a] pyrene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[b] fluoranthene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[g,h,i] perylene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[k] fluoranthene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroethoxy) methane	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C

000000031



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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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N1
1201028-12 (Soil)

V, 213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroisopropyl) ether	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-ethylhexyl) phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Butyl Benzyl Phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Carbazole	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Chrysene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenz[a,h]anthracene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenzofuran	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Diethyl Phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dimethyl Phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-butyl Phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-octyl Phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluoranthene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluorene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobutadiene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorocyclopentadiene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachloroethane	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Indeno[1,2,3-cd]pyrene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Isophorone	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Naphthalene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Nitrobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodi-n-propylamine	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodiphenylamine	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pentachlorophenol	1650	U	1650	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenanthrene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pyrene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 1	74.8	J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 1	17500	A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorophenol	57 %		25-121			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Phenol-d5	57 %		24-113			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Nitrobenzene-d5	56 %		23-120			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorobiphenyl	57 %		30-115			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2,4,6-Tribromophenol	47 %		19-122			L201135	01/13/2012	01/18/2012	8270C
Surrogate: p-Terphenyl-d4	58 %		18-137			L201135	01/13/2012	01/18/2012	8270C

000000032



264 Welsh Pool Road
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Phone: 610-280-3000
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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N3
1201028-14 (Soil)

✓12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,2-Dichlorobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,3-Dichlorobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,4-Dichlorobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,5-Trichlorophenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,6-Trichlorophenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dichlorophenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dimethylphenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrophenol	1640	U	1640	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrotoluene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,6-Dinitrotoluene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chloronaphthalene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chlorophenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylnaphthalene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylphenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitroaniline	1640	U	1640	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitrophenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3,3'-Dichlorobenzidine	657	U	657	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3-Nitroaniline	1640	U	1640	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4,6-Dinitro-2-methylphenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Bromophenyl Phenyl Ether	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloro-3-methylphenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloroaniline	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chlorophenyl Phenyl Ether	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3- and/or 4-Methylphenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitroaniline	1640	U	1640	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitrophenol	1640	U	1640	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthylene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Anthracene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benz[a]anthracene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[a] pyrene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[b] fluoranthene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[g,h,i] perylene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[k] fluoranthene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroethoxy) methane	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C

000000033



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2620 Fermi Avenue
Richland WA, 99344

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N3
1201028-14 (Soil)

V213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroisopropyl) ether	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-ethylhexyl) phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Butyl Benzyl Phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Carbazole	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Chrysene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenz[a,h]anthracene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenzofuran	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Diethyl Phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dimethyl Phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-butyl Phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-octyl Phthalate	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluoranthene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluorene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobutadiene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorocyclopentadiene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachloroethane	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Indeno[1,2,3-cd]pyrene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Isophorone	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Naphthalene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Nitrobenzene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodi-n-propylamine	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodiphenylamine	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pentachlorophenol	1640	U	1640	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenanthrene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenol	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pyrene	329	U	329	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 3	133	J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 2	317	J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 1	828	B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 2	57200	A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 1	200	A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorophenol	64 %		25-121			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Phenol-d5	67 %		24-113			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Nitrobenzene-d5	70 %		23-120			L201135	01/13/2012	01/18/2012	8270C

000000034



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N3
1201028-14 (Soil)

V12136114

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Surrogate: 2-Fluorobiphenyl	73 %	30-115		L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2,4,6-Tribromophenol	38 %	19-122		L201135	01/13/2012	01/18/2012	8270C
Surrogate: p-Terphenyl-d14	79 %	18-137		L201135	01/13/2012	01/18/2012	8270C

000000035



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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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N4
1201028-15 (Soil)

V12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,2-Dichlorobenzene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,3-Dichlorobenzene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,4-Dichlorobenzene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,5-Trichlorophenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,6-Trichlorophenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dichlorophenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dimethylphenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrophenol	10200	U	10200	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrotoluene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,6-Dinitrotoluene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chloronaphthalene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chlorophenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylnaphthalene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylphenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitroaniline	10200	U	10200	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitrophenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3,3'-Dichlorobenzidine	4080	U	4080	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3-Nitroaniline	10200	U	10200	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4,6-Dinitro-2-methylphenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Bromophenyl Phenyl Ether	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloro-3-methylphenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloroaniline	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chlorophenyl Phenyl Ether	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3- and/or 4-Methylphenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitroaniline	10200	U	10200	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitrophenol	10200	U	10200	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthylene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Anthracene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[a]anthracene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[a] pyrene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[b] fluoranthene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[g,h,i] perylene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[k] fluoranthene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroethoxy) methane	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C

000000036



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99344

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N4
1201028-15 (Soil)

V, 2130 1.2

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method		
Lionville Laboratory											
Semivolatile Organic Compounds by SW846 8270C											
Bis(2-chloroethyl) ether	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Bis(2-chloroisopropyl) ether	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Bis(2-ethylhexyl) phthalate	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Butyl Benzyl Phthalate	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Carbazole	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Chrysene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Dibenz[a,h]anthracene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Dibenzofuran	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Diethyl Phthalate	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Dimethyl Phthalate	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Di-n-butyl Phthalate	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Di-n-octyl Phthalate	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Fluoranthene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Fluorene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Hexachlorobenzene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Hexachlorobutadiene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Hexachlorocyclopentadiene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Hexachloroethane	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Indeno[1,2,3-cd]pyrene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Isophorone	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Naphthalene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Nitrobenzene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
N-Nitrosodi-n-propylamine	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
N-Nitrosodiphenylamine	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Pentachlorophenol	10200	U	10200	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Phenanthrene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Phenol	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Pyrene	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
TIC:Aldol Condensate 1	13100	A, B, J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C		
Surrogate: 2-Fluorophenol	64 %		25-121			L201135	01/13/2012	01/19/2012	8270C		
Surrogate: Phenol-d5	64 %		24-113			L201135	01/13/2012	01/19/2012	8270C		
Surrogate: Nitrobenzene-d5	55 %		23-120			L201135	01/13/2012	01/19/2012	8270C		
Surrogate: 2-Fluorobiphenyl	69 %		30-115			L201135	01/13/2012	01/19/2012	8270C		
Surrogate: 2,4,6-Tribromophenol	49 %		19-122			L201135	01/13/2012	01/19/2012	8270C		
Surrogate: p-Terphenyl-d14	70 %		18-137			L201135	01/13/2012	01/19/2012	8270C		



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N5
1201028-16 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,2-Dichlorobenzene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,3-Dichlorobenzene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,4-Dichlorobenzene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,5-Trichlorophenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,6-Trichlorophenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dichlorophenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dimethylphenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrophenol	5090	U	5090	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrotoluene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,6-Dinitrotoluene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chloronaphthalene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chlorophenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylnaphthalene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylphenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitroaniline	5090	U	5090	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitrophenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3,3'-Dichlorobenzidine	2040	U	2040	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3-Nitroaniline	5090	U	5090	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4,6-Dinitro-2-methylphenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Bromophenyl Phenyl Ether	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloro-3-methylphenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloroaniline	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chlorophenyl Phenyl Ether	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3- and/or 4-Methylphenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitroaniline	5090	U	5090	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitrophenol	5090	U	5090	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthylene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Anthracene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[a]anthracene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[a] pyrene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[b] fluoranthene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[g,h,i] perylene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[k] fluoranthene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroethoxy) methane	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N5
1201028-16 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroisopropyl) ether	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-ethylhexyl) phthalate	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Butyl Benzyl Phthalate	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Carbazole	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Chrysene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dibenz[a,h]anthracene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dibenzo furan	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Diethyl Phthalate	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Dimethyl Phthalate	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Di-n-butyl Phthalate	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Di-n-octyl Phthalate	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Fluoranthene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Fluorene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorobenzene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorobutadiene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachlorocyclopentadiene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Hexachloroethane	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Indeno[1,2,3-cd]pyrene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Isophorone	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Naphthalene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Nitrobenzene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
N-Nitrosodi-n-propylamine	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
N-Nitrosodiphenylamine	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Pentachlorophenol	5090	U	5090	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Phenanthrene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Phenol	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Pyrene	1020	U	1020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
TIC:Ethane, 1,1,2,2-tetrachloro-	284	N, J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
TIC:Aldol Condensate 1	14200	A, B, J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2-Fluorophenol	79 %		25-121			L201135	01/13/2012	01/19/2012	8270C
Surrogate: Phenol-d5	78 %		24-113			L201135	01/13/2012	01/19/2012	8270C
Surrogate: Nitrobenzene-d5	68 %		23-120			L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2-Fluorobiphenyl	75 %		30-115			L201135	01/13/2012	01/19/2012	8270C
Surrogate: 2,4,6-Tribromophenol	71 %		19-122			L201135	01/13/2012	01/19/2012	8270C
Surrogate: p-Terphenyl-d14	83 %		18-137			L201135	01/13/2012	01/19/2012	8270C



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N6
1201028-17 (Soil)

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Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,2-Dichlorobenzene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,3-Dichlorobenzene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,4-Dichlorobenzene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,5-Trichlorophenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,6-Trichlorophenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dichlorophenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dimethylphenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrophenol	1740	U	1740	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrotoluene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,6-Dinitrotoluene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chloronaphthalene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chlorophenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylnaphthalene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylphenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitroaniline	1740	U	1740	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitrophenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3,3'-Dichlorobenzidine	695	U	695	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3-Nitroaniline	1740	U	1740	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4,6-Dinitro-2-methylphenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Bromophenyl Phenyl Ether	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloro-3-methylphenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloroaniline	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chlorophenyl Phenyl Ether	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3- and/or 4-Methylphenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitroaniline	1740	U	1740	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitrophenol	1740	U	1740	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthylene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Anthracene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benz[a]anthracene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[a] pyrene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[b] fluoranthene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[g,h,i] perylene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[k] fluoranthene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroethoxy) methane	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C

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Project Number: K3796
Project Manager: Joan Kessner

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J1N1N6
1201028-17 (Soil)

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12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroisopropyl) ether	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-ethylhexyl) phthalate	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Butyl Benzyl Phthalate	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Carbazole	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Chrysene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenz[a,h]anthracene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenzofuran	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Diethyl Phthalate	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dimethyl Phthalate	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-butyl Phthalate	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-octyl Phthalate	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluoranthene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluorene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobenzene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobutadiene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorocyclopentadiene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachloroethane	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Indeno[1,2,3-cd]pyrene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Isophorone	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Naphthalene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Nitrobenzene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodi-n-propylamine	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodiphenylamine	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pentachlorophenol	1740	U	1740	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenanthrene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenol	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pyrene	347	U	347	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 3	202	J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 2	141	J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 1	242	B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 1	79.0	A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 2	21900	A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorophenol	72 %		25-121			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Phenol-d5	69 %		24-113			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Nitrobenzene-d5	68 %		23-120			L201135	01/13/2012	01/18/2012	8270C

000000041



264 Welsh Pool Road
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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N6
1201028-17 (Soil)

V
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Surrogate: 2-Fluorobiphenyl	68 %	30-115		L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2,4,6-Tribromophenol	57 %	19-122		L201135	01/13/2012	01/18/2012	8270C
Surrogate: p-Terphenyl-d14	77 %	18-137		L201135	01/13/2012	01/18/2012	8270C



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Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N7
1201028-18 (Soil)

V
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,2-Dichlorobenzene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,3-Dichlorobenzene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
1,4-Dichlorobenzene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,5-Trichlorophenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4,6-Trichlorophenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dichlorophenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dimethylphenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrophenol	1700	U	1700	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,4-Dinitrotoluene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2,6-Dinitrotoluene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chloronaphthalene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Chlorophenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylnaphthalene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Methylphenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitroaniline	1700	U	1700	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
2-Nitrophenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3,3'-Dichlorobenzidine	678	U	678	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3-Nitroaniline	1700	U	1700	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4,6-Dinitro-2-methylphenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Bromophenyl Phenyl Ether	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloro-3-methylphenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chloroaniline	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Chlorophenyl Phenyl Ether	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
3- and/or 4-Methylphenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitroaniline	1700	U	1700	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
4-Nitrophenol	1700	U	1700	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Acenaphthylene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Anthracene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benz[a]anthracene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[a] pyrene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[b] fluoranthene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[g,h,i] perylene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Benzo[k] fluoranthene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroethoxy) methane	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C

000000043



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2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N7
1201028-18 (Soil)

V
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

Bis(2-chloroethyl) ether	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-chloroisopropyl) ether	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Bis(2-ethylhexyl) phthalate	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Butyl Benzyl Phthalate	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Carbazole	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Chrysene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenz[a,h]anthracene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dibenzo-furan	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Diethyl Phthalate	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Dimethyl Phthalate	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-butyl Phthalate	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Di-n-octyl Phthalate	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluoranthene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Fluorene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobenzene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorobutadiene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachlorocyclopentadiene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Hexachloroethane	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Indeno[1,2,3-cd]pyrene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Isophorone	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Naphthalene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Nitrobenzene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodi-n-propylamine	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
N-Nitrosodiphenylamine	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pentachlorophenol	1700	U	1700	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenanthrene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Phenol	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Pyrene	339	U	339	ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Unknown 1	89.2	J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
TIC:Aldol Condensate 1	11200	A, B, J		ug/kg dry	1	L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorophenol	56 %		25-121			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Phenol-d5	60 %		24-113			L201135	01/13/2012	01/18/2012	8270C
Surrogate: Nitrobenzene-d5	61 %		23-120			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2-Fluorobiphenyl	62 %		30-115			L201135	01/13/2012	01/18/2012	8270C
Surrogate: 2,4,6-Tribromophenol	46 %		19-122			L201135	01/13/2012	01/18/2012	8270C
Surrogate: p-Terphenyl-d14	67 %		18-137			L201135	01/13/2012	01/18/2012	8270C



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

J1N1N8
1201028-19 (Soil)

V12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Semivolatile Organic Compounds by SW846 8270C

1,2,4-Trichlorobenzene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,2-Dichlorobenzene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,3-Dichlorobenzene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
1,4-Dichlorobenzene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,5-Trichlorophenol	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4,6-Trichlorophenol	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dichlorophenol	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dimethylphenol	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrophenol	10000	U <i>J</i>	10000	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,4-Dinitrotoluene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2,6-Dinitrotoluene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chloronaphthalene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Chlorophenol	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylnaphthalene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Methylphenol	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitroaniline	10000	U	10000	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
2-Nitrophenol	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3,3'-Dichlorobenzidine	4020	U <i>J</i>	4020	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3-Nitroaniline	10000	U	10000	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4,6-Dinitro-2-methylphenol	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Bromophenyl Phenyl Ether	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloro-3-methylphenol	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chloroaniline	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Chlorophenyl Phenyl Ether	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
3- and/or 4-Methylphenol	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitroaniline	10000	U <i>J</i>	10000	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
4-Nitrophenol	10000	U <i>J</i>	10000	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Acenaphthylene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Anthracene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benz[a]anthracene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[a] pyrene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[b] fluoranthene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[g,h,i] perlylene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Benzo[k] fluoranthene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C
Bis(2-chloroethoxy) methane	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012	8270C

000000045



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

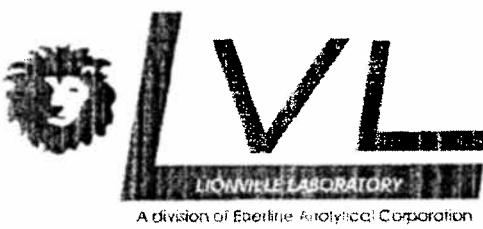
J1N1N8
1201028-19 (Soil)

V121301.2

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Bis(2-chloroethyl) ether	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Bis(2-chloroisopropyl) ether	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Bis(2-ethylhexyl) phthalate	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Butyl Benzyl Phthalate	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Carbazole	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Chrysene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Dibenz[a,h]anthracene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Dibenzofuran	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Diethyl Phthalate	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Dimethyl Phthalate	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Di-n-butyl Phthalate	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Di-n-octyl Phthalate	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Fluoranthene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Fluorene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Hexachlorobenzene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Hexachlorobutadiene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Hexachlorocyclopentadiene	2010	U <i>J</i>	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Hexachloroethane	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Indeno[1,2,3-cd]pyrene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Isophorone	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Naphthalene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Nitrobenzene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
N-Nitrosodi-n-propylamine	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
N-Nitrosodiphenylamine	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Pentachlorophenol	10000	U <i>J</i>	10000	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Phenanthrene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Phenol	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
Pyrene	2010	U	2010	ug/kg dry	3	L201135	01/13/2012	01/19/2012
TIC:Unknown 1	409	J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012
TIC:Aldol Condensate 1	12400	A, B, J, D		ug/kg dry	3	L201135	01/13/2012	01/19/2012
Surrogate: 2-Fluorophenol	67 %		25-121			L201135	01/13/2012	01/19/2012
Surrogate: Phenol-d5	58 %		24-113			L201135	01/13/2012	01/19/2012
Surrogate: Nitrobenzene-d5	62 %		23-120			L201135	01/13/2012	01/19/2012
Surrogate: 2-Fluorobiphenyl	66 %		30-115			L201135	01/13/2012	01/19/2012
Surrogate: 2,4,6-Tribromophenol	14 % *		19-122			L201135	01/13/2012	01/19/2012
Surrogate: p-Terphenyl-d14	58 %		18-137			L201135	01/13/2012	01/19/2012

000000046

Appendix 4
Laboratory Narrative and Chain-of-Custody Documentation



A division of Eberline Analytical Corporation

264 Welsh Pool Road
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Case Narrative

Client: WC-HANFORD RC-029 K3796
LVL #: 1201028

W.O. #: 60049-001-001-0001-00
Date Received: 01-11-2012

SEMIVOLATILE

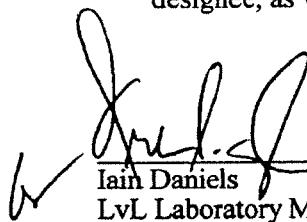
Seventeen (17) soil samples were collected on 01-09,10-2012.

The samples and associated QC samples were extracted 01-13-2012 and analyzed 01-18,19-2012 according to Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C, and the analysis procedure was based on SW846 Method 8270C for TCL Semivolatile target compounds.

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

1. Discrepancies from the sample acceptance policy have been recorded on the Sample Receipt Checklist.
2. Several extracted samples required dilution due to the nature of the matrix. The samples J1N1M6 and J1N1M9 required a 2-fold dilution; samples J1N1M1, J1N1M7, J1N1M8, J1N1N4, J1N1N5, J1N1N8, L201135-MS1 and L201135-MSD1 required a 3-fold dilution. Reporting limits have been adjusted to reflect the necessary dilutions.
3. The samples J1N1M7, J1N1N4 and J1N1N8 had elevated volumes of 2 mls; samples J1N1M0, L201135-MS1 and L201135-MSD1 had an elevated volume of 4 mls due to the sample matrix. Reporting limits have been adjusted to reflect the changes.
4. Samples were extracted and analyzed within holding time.
5. Non-target compounds were detected in these samples.
6. One (1) of one hundred and twenty-six (126) surrogate recoveries was outside acceptance criteria. The loss of surrogate 2,4,6-Tribromophenol in the sample J1N1N8 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 at a retention time of 19.972 minutes. This surrogate loss has been associated with the use of soxhlet extractions.
7. The method blank was below the reporting limit for all target compounds.

8. All blank spike recoveries were within acceptance criteria.
9. Nine (9) of one hundred and twenty-eight (128) obtainable matrix spike recoveries were outside acceptance criteria. Several matrix spike recoveries were unobtainable due to dilution required for analysis. A copy of the Sample Discrepancy Report (SDR# 12MS019) has been enclosed.
10. The samples were reported on a dry weight basis.
11. All initial calibrations associated with this data set were within acceptance criteria.
12. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
13. Internal standard area and retention time criteria were met.
14. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
15. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hardcopy package has been authorized by the Laboratory Manager or designee, as verified by the following signature.



Iain Daniels
LvL Laboratory Manager



1/24/12

Date

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 12113019

Initiator: Shawn Syr
 Date: 1-24-12
 Client: WCH Standard L3746
RE-D29

Batch: 1201028
 Samples: L201135-ms1, msd1
 Method: SW846/MCAWW/CLP1

Parameter: 8270
 Matrix: SOIL
 Prep Batch: L201135

1. Reason for SDR

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

b. General Discrepancy

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

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

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

- (1) ^{several} ~~four~~ Spike recoveries outside QC acceptance limits in L201135-ms1, msd1 but L201135-881 is OK

2. Known or Probable Causes(s) possible matrix effect samples required a 3 fold dilution for analysis and an elevated final volume of 4mls.

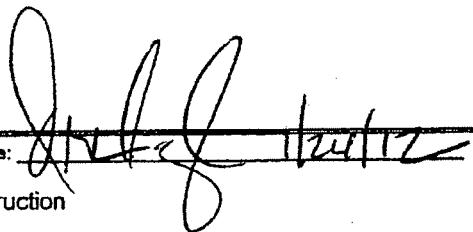
PCW/1-24-12

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



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

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

5. Final Action...signature/date:

Other Explanation:

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

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

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: _____

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 1 of 7																																																																	
Collector Simonds	Company Contact John Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days																																																																		
Project Destination Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampled Location 300-32		SAF No. RC-029	Method of Shipment																																																																			
Ice Chest No. AA-A# 1-9-12	Field Logbook No. EL-1663	COA C30032A000		Bill of Lading/Air Bill No. AT 1-9-12		Sec OSCP																																																																	
Submitted To BH Ultra- ERKENNE-SERVICES/LIONVILLE	Offsite Property No. A100975																																																																						
POSSIBLE SAMPLE HAZARDS/REMARKS Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.																																																																							
Special Handling and/or Storage Please keep cool (< deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.																																																																							
<table border="1"> <thead> <tr> <th>Preservation</th> <th>Cool 4C</th> <th>Cool 4C</th> <th>Cool 4C</th> <th>Freeze</th> <th>Cool 4C</th> <th>Cool 4C</th> <th>Cool 4C</th> </tr> </thead> <tbody> <tr> <td>Type of Container</td> <td>G/P</td> <td>G/P</td> <td>G/P</td> <td>G*</td> <td>G</td> <td>G</td> <td>G/P</td> </tr> <tr> <td>No. of Container(s)</td> <td>1</td> <td>1</td> <td>1</td> <td>5</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Volume</td> <td>60mL</td> <td>60mL</td> <td>120mL</td> <td>40mL</td> <td>120mL</td> <td>120mL</td> <td>500mL</td> </tr> <tr> <td colspan="8"> See Item (1) in Preservation Spec. Instructions. * * </td> </tr> <tr> <td colspan="8"> SAMPLE ANALYSIS See Item (1) in Preservation Spec. Instructions. * * </td> </tr> <tr> <td colspan="8"> See Item (1) in Preservation Spec. Instructions. * * </td> </tr> <tr> <td colspan="8"> SPECIAL INSTRUCTIONS VOA- B2270A See Item (1) in Preservation Spec. Instructions. * * </td> </tr> </tbody> </table>								Preservation	Cool 4C	Cool 4C	Cool 4C	Freeze	Cool 4C	Cool 4C	Cool 4C	Type of Container	G/P	G/P	G/P	G*	G	G	G/P	No. of Container(s)	1	1	1	5	1	1	1	Volume	60mL	60mL	120mL	40mL	120mL	120mL	500mL	See Item (1) in Preservation Spec. Instructions. * *								SAMPLE ANALYSIS See Item (1) in Preservation Spec. Instructions. * *								See Item (1) in Preservation Spec. Instructions. * *								SPECIAL INSTRUCTIONS VOA- B2270A See Item (1) in Preservation Spec. Instructions. * *							
Preservation	Cool 4C	Cool 4C	Cool 4C	Freeze	Cool 4C	Cool 4C	Cool 4C																																																																
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Sample No.	Matrix *	Sample Date	Sample Time	Date/Time	Date/Time	Date/Time	Date/Time																																																																
JIN1M0	SOIL	01/09/12	1145	10/09/12	1715	10/09/12	1720																																																																
JIN1M1	SOIL	01/09/12																																																																					
JIN1M2	SOIL	01/09/12	1230																																																																				
JIN1M3	SOIL	01/09/12	1240																																																																				
JIN1M4	SOIL	01/09/12	1250																																																																				
CHAIN OF POSSESSION Received By/Removed From MARQUA STREAMS Date/Time 1-9-12 1531 Received By/Stored In Bludger Date/Time 1-9-12 1531 Received By/Removed From BLUDGER Date/Time 1-9-12 1620 Received By/Stored In A. F. et al. /A. J. et al. Date/Time 1-9-12 1620 Received By/Removed From A. F. et al. /A. J. et al. Date/Time 1-10-12 1245 Received By/Stored In Fed Ex Date/Time 1-10-12 1245 Received By/Removed From Fed Ex Date/Time 1-11-12 0930 Received By/Stored In Bludger Date/Time 1-11-12 0930 Received By/Removed From Fed Ex Date/Time 1-11-12 1545 Received By/Stored In Bludger Date/Time 1-11-12 1545 Received By/Removed From Fed Ex Date/Time 1-11-12 1545 Received By/Stored In Bludger Date/Time 1-11-12 1545 REVIEWED BY John Simonds DATE 10-12-12																																																																							
LABORATORY	Received By	SECTION	Disposal Method	Date/Time	Date/Time	Date/Time	Date/Time																																																																

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				Project Coordinator KESSNER, JH		RC-029-127		Page 2 of 43		
Collector Simpsons	Contact Joan Kessner	Telephone No. 375-4668	SAF No. RC-029	Price Code 8C	Date Turnaround 15 Days					
Project Designation Remaining Sites Confirmation Sampling - Soil Full Protocol				Method of Shipment						
Job Sheet No. AA 1-9-12	ERC-02-007	Field Logbook No. EL1663	COA C30032A000	Bill of Lading/Air Bill No. NA-1-9-12 COAD		See OSPC				
Shipped To S&N ANALYTICAL SERVICES / MONROVILLE		Offsite Property No. A100975								
POSSIBLE SAMPLE HAZARDS/REMARKS Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.				Type of Container	G/P	Cool AC	Cool AC	Cool 4C	gG	G/P
Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.				No. of Container(s)	1	1	1	5	1	1
				Volume	60mL	120mL	40mL	120mL	120mL	500mL
				See Item (1) in Special Instructions.	VOA- SUS3060 (TCL)	VOA- SUS3060 (TCL)	PAHS- 8310	PCBs- 8002	See Item (1) in Special Instructions.	
SAMPLE ANALYSIS				*	*	*	*	*	*	
Sample No.	Matrix *	Sample Date	Sample Time							SPECIAL INSTRUCTIONS
J1N1M5	SOIL	1/9/12	13:00	x	x	x	x	x	x	(1) ICP-Metal - 60 (OTR (Close-out List)) Aluminum, Antimony, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc; Mercury -7471- (CV) (2) Gamma Spec (OTR List) Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-154, Europium-155; Gross Alpha & Gross Beta (3) Americium-241; Nickel-63; Isotopic Plutonium Plutonium-238, Plutonium-239/240; Strontium-89, 90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium Uranium-233/234, Uranium-235, Uranium-238; Total Uranium
J1N1M6	SOIL	1/9/12	1320	x	x	x	x	x	x	
J1N1M7	SOIL	1/9/12	1345	x	x	x	x	x	x	
J1N1M8	SOIL	1/9/12	1355	x	x	x	x	x	x	
J1N1M9	SOIL	1/9/12	1420	x	x	x	x	x	x	
CHAIN OF POSSESSION				Sign/Print Name	Received By/Stored In	Date/Time	Received By/Stored In	Date/Time	Received By/Stored In	Matrix *
MIRANDA SIMMONS	1-9-12 1531	Bloddon Bloddon	1/9/12 1531							See Item (1) in Special Instructions.
RElinquished By/Retained From BLODDON, BLODDON	Date/Time 1/9/12 1620	A. Fischer	Date/Time 1-9-12 1620	Received By/Stored In A. Fischer	Date/Time 1-9-12 1620	Received By/Stored In A. Fischer	Date/Time 1-9-12 1620	Received By/Stored In A. Fischer	Date/Time 1-9-12 1620	(1) ICP-Metal - 60 (OTR (Close-out List)) Aluminum, Antimony, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc; Mercury -7471- (CV) (2) Gamma Spec (OTR List) Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-154, Europium-155; Gross Alpha & Gross Beta (3) Americium-241; Nickel-63; Isotopic Plutonium Plutonium-238, Plutonium-239/240; Strontium-89, 90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium Uranium-233/234, Uranium-235, Uranium-238; Total Uranium
RElinquished By/Retained From A. Fischer	Date/Time 1-10-12 1245	Fed Ex	Date/Time 1-10-12 1245	Received By/Stored In Fed Ex	Date/Time 1-10-12 1245	Received By/Stored In Fed Ex	Date/Time 1-10-12 1245	Received By/Stored In Fed Ex	Date/Time 1-10-12 1245	
RElinquished By/Retained From Fed Ex	Date/Time 1-11-12 0952	Lizelle Hechler	Date/Time 1-11-12 0952	Received By/Stored In Lizelle Hechler	Date/Time 1-11-12 0952	Received By/Stored In Lizelle Hechler	Date/Time 1-11-12 0952	Received By/Stored In Lizelle Hechler	Date/Time 1-11-12 0952	
RElinquished By/Retained From	Date/Time		Date/Time		Date/Time		Date/Time		Date/Time	
LABORATORY	Received By									
SECTION	Disposal Method									
FINAL SAMPLE DISPOSITION	Disposal By									

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 1 of 42	
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days		
Remaining Sites Confirmation Sampling - Soil Full Protocol				SAF No. RC-029			
Ice Chest No. #A 1-9-12 - ER6-02-007	Field Logbook No. EL-1663	COA C30032A000	Method of Shipment Mail of Labeled/Air Bill No. NA 1-A-11-Cards	See EX			
Shipped To DEPARTMENT OF DEFENSES / LIONVILLE	Office Property No. A100975			See OSPC			
POSSIBLE SAMPLE HAZARDS/REMARKS							
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.							
Special Handling and/or Storage <i>Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</i>							
Type of Container	Preservation	Cool 4C	Cool AC	Cool 4C	Cool 4C	gF	G/P
No. of Container(s)	1	1	1	5	1	1	1
Volume	60mL	60mL	120mL	40mL	120mL	120mL	500mL
SAMPLE ANALYSIS				See Item (1) in Special Instructions.			
Sample No.	Mainx *	Sample Date	Sample Time	VOA- EZDA (TCL)	PAN- EZDA (TCL)	PAN- EZDA	See Item (1) in Special Instructions.
JIN1N0	SOIL	1/9/12	1430	X	X	X	
JIN1N1	SOIL	1/9/12	1435	X	X	X	
JIN1N2	SOIL						
JIN1N3	SOIL						
JIN1N4	SOIL						
JIN1N5	SOIL						
CHAIN OF POSSESSION				SIGN/PRINT NAMES			
Relinquished/Removed From Washington Simonds	Date/Time 1-9-12 1531	Received By/Stored In Bill Hudson Shulman	Date/Time 1/9/12	Date/Time 1/9/12			
Relinquished/Removed From St. Louis Office	Date/Time 1/9/12 1620	Received By/Stored In A. Freier A. Freier	Date/Time 1-9-12	Date/Time 1/9/12			
Relinquished/Removed From A. Freier Office	Date/Time 1-10-12 1245	Received By/Stored In Freier	Date/Time 1/9/12	Date/Time 1/9/12			
Relinquished/Removed From FED	Date/Time 1-11-12 0950	Received By/Stored In Fitzpatrick	Date/Time 1/9/12	Date/Time 1/9/12			
Relinquished/Removed From FED	Date/Time 1-11-12 1545	Received By/Stored In Vito Hernandez	Date/Time 1/9/12	Date/Time 1/9/12			
LABORATORY SECTION	Received By By AMB	Reviewed By AMB	Date/Time 1-10-12	Date/Time 1-10-12			
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By			

Matrix *

Refined
Stabilized
Stabilized
Stabilized
W = Water
O = Oil
A = Acid
D = Dilute/Liquid
T = Trace
W = Water
L = Liquid
V = Vapour
X = Other

** PLEASE ADD LITHIUM TO ICP METALS LIST*
** 20 mL vial → % moisture*
** freeze upon receipt*

Date/Time

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector Simonds	Company Contact Joan Kestner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	RC-029-127	Run # 01072
Project Destination Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location 300-32		SAF No. RC-029	Data Turnaround 15 Days		
Ice Chest No. JK AF - 1-10-12	Field Labbook No. EL-1663	COA C30032A000	Method of Shipment Fed Ex			
Shipped To B&H ENVIRONMENTAL SERVICES / LIONVILLE	Offsite Property No. A100975	BILL of Lading/Air Bill No. AF 1-10-12	Sec OSPC			
POSSIBLE SAMPLE HAZARDS/REMARKS						
Samplers may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly. <i>L DDT Lures</i> AF 1-10-12						
Special Handling and/or Storage						
Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.						
SAMPLE ANALYSIS						
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS		
JIN1N5	SOIL	1/10/12	0805	*	*	*
JIN1N6	SOIL	1/10/12	0830	*	*	*
JIN1N7	SOIL	1/10/12	0845	*	*	*
JIN1N8	SOIL	1/10/12	0900	*	*	*
JIN1N9	SOIL			*	*	*
Sign/Print Names						
Date/Time 10/15						
Relinquished By/Removed From <i>Miranda Simonds</i> AF 1-10-12	Date/Time	Received By/Stand In <i>BHDSONG Binder</i> AF 1-10-12	Date/Time			
Relinquished By/Removed From <i>Philipson Binder</i> AF 10/12	Date/Time	Received By/Stand In <i>A. Freier A. Freier</i> AF 1-10-12	Date/Time			
Relinquished By/Removed From <i>A. Freier A. Freier</i> AF 1-10-12	Date/Time	Received By/Stand In <i>Vito Herkamp</i> AF 1-10-12	Date/Time			
Relinquished By/Removed From <i>Felder</i> AF 1-10-12	Date/Time	Received By/Stand In <i>REVIEWED</i> AF 2-11-12	Date/Time			
Relinquished By/Removed From <i>Felder</i> AF 1-10-12	Date/Time	Received By/Stand In <i>REVIEWED</i> AF 2-11-12	Date/Time			
LABORATORY	Received By	DATE 1/10/12			Disposed By	
SECTION	Disposal Method				Date/Time	
FINAL SAMPLE DISPOSITION						

Appendix 5
Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 3GO-32					
VALIDATOR: ELR	LAB: LLI			DATE: 12/29/02	
		SDG: K379C			
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX					
JINM1	JINM2	JINM3	JINM4	JINM5	
JINM6	JINM7	JINM8	JINM9	JINM0	
JINM1	JINM3	JINM4	JINM5	JINM6	
JINM7	JINM8				
					Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/AComments: _____

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

GC/MS tuning/performance check acceptable? Yes No N/AInitial calibrations acceptable? Yes No N/AContinuing calibrations acceptable? Yes No N/AStandards traceable? Yes No N/AStandards expired? Yes No N/ACalculation check acceptable? Yes No N/AComments: _____

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:

n3

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: *Sur - n8 - J all troubleshooted assy**LCS-11 - J all sr - NII 11 - J ad**MSD-111 - J ad**no PA*

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 - | - Fall

6. SYSTEM PERFORMANCE (Levels D and E)

- Internal standards analyzed?..... Yes No N/A
- Internal 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: 518 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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

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 L201135 - SW 3540C												
Blank (L201135-BLK1)												
								Prepared: 01/13/2012 Analyzed: 01/18/2012				
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-methyphenol	330	U	330	ug/kg wet								
4-Bromophenyl Phenyl Ether	330	U	330	ug/kg wet								
4-Chloro-3-methylphenol	330	U	330	ug/kg wet								
4-Chloroaniline	330	U	330	ug/kg wet								
4-Chlorophenyl Phenyl Ether	330	U	330	ug/kg wet								
3- and/or 4-Methylphenol	330	U	330	ug/kg wet								
4-Nitroaniline	1650	U	1650	ug/kg wet								
4-Nitrophenol	1650	U	1650	ug/kg wet								
Acenaphthene	330	U	330	ug/kg wet								
Acenaphthylene	330	U	330	ug/kg wet								
Anthracene	330	U	330	ug/kg wet								
Benz[a]anthracene	330	U	330	ug/kg wet								
Benzo[a] pyrene	330	U	330	ug/kg wet								
Benzo[b] fluoranthene	330	U	330	ug/kg wet								
Benzo[g,h,i] perylene	330	U	330	ug/kg wet								
Benzo[k] fluoranthene	330	U	330	ug/kg wet								
Bis(2-chloroethoxy) methane	330	U	330	ug/kg wet								

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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

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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 L201135 - SW 3540C												
Blank (L201135-BLK1)												
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 2	101	J		ug/kg wet								
Unknown 1	253	J		ug/kg wet								
Trichloro-1-propene	136	J		ug/kg wet								
Aldol Condensate 2	45200	A, J		ug/kg wet								
Aldol Condensate 1	308	A, J		ug/kg wet								
Surrogate: 2-Fluorophenol	1810			ug/kg wet	2500.0	73	25-121					
Surrogate: Phenol-d5	1820			ug/kg wet	2500.0	73	24-113					
Surrogate: Nitrobenzene-d5	1270			ug/kg wet	1666.7	76	23-120					



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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 L201135 - SW 3540C									
Blank (L201135-BLK1)									
<i>Surrogate: 2-Fluorobiphenyl</i>	1260		ug/kg wet	1666.7	75	30-115			
<i>Surrogate: 2,4,6-Tribromophenol</i>	1550		ug/kg wet	2500.0	62	19-122			
<i>Surrogate: p-Terphenyl-d14</i>	1300		ug/kg wet	1666.7	78	18-137			
LCS (L201135-BS1)									
1,2,4-Trichlorobenzene	1080	330	ug/kg wet	2000.0	54	45-110			
1,2-Dichlorobenzene	1360	330	ug/kg wet	2000.0	68	45-105			
1,3-Dichlorobenzene	1310	330	ug/kg wet	2000.0	65	40-100			
1,4-Dichlorobenzene	1310	330	ug/kg wet	2000.0	66	35-105			
2,4,5-Trichlorophenol	1780	330	ug/kg wet	2000.0	89	30-140			
2,4,6-Trichlorophenol	1350	330	ug/kg wet	2000.0	68	20-110			
2,4-Dichlorophenol	1160	330	ug/kg wet	2000.0	58	40-110			
2,4-Dimethylphenol	1010	330	ug/kg wet	2000.0	51	30-105			
2,4-Dinitrophenol	1300	J 1650	ug/kg wet	2000.0	65	25-130			
2,4-Dinitrotoluene	1560	330	ug/kg wet	2000.0	78	50-115			
2,6-Dinitrotoluene	1530	330	ug/kg wet	2000.0	76	40-120			
2-Chloronaphthalene	1460	330	ug/kg wet	2000.0	73	45-115			
2-Chlorophenol	1510	330	ug/kg wet	2000.0	75	45-105			
2-Methylnaphthalene	1140	330	ug/kg wet	2000.0	57	45-110			
2-Methylphenol	1420	330	ug/kg wet	2000.0	71	40-120			
2-Nitroaniline	1600	J 1650	ug/kg wet	2000.0	80	45-120			
2-Nitrophenol	1150	330	ug/kg wet	2000.0	57	40-110			
3,3'-Dichlorobenzidine	1640	660	ug/kg wet	2000.0	82	15-130			
3-Nitroaniline	1580	J 1650	ug/kg wet	2000.0	79	40-130			
4,6-Dinitro-2-methylphenol	1520	330	ug/kg wet	2000.0	76	20-140			
4-Bromophenyl Phenyl Ether	1480	330	ug/kg wet	2000.0	74	45-115			
4-Chloro-3-methylphenol	1370	330	ug/kg wet	2000.0	68	35-115			
4-Chloroaniline	1110	330	ug/kg wet	2000.0	55	10-100			
4-Chlorophenyl Phenyl Ether	1520	330	ug/kg wet	2000.0	76	45-110			
3- and/or 4-Methylphenol	1470	330	ug/kg wet	2000.0	73	40-120			
4-Nitroaniline	1620	J 1650	ug/kg wet	2000.0	81	40-130			
4-Nitrophenol	1290	J 1650	ug/kg wet	2000.0	65	15-140			
Acenaphthene	1470	330	ug/kg wet	2000.0	74	45-110			
Acenaphthylene	1330	330	ug/kg wet	2000.0	66	45-115			
Anthracene	1550	330	ug/kg wet	2000.0	78	45-130			
Benz[a]anthracene	1540	330	ug/kg wet	2000.0	77	45-130			
Benzo[a] pyrene	1420	330	ug/kg wet	2000.0	71	45-130			



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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 L201135 - SW 3540C									
LCS (L201135-BS1)									
Prepared: 01/13/2012 Analyzed: 01/18/2012									
Benzo[b] fluoranthene	1450	330	ug/kg wet	2000.0	73	40-130			
Benzo[g,h,i] perylene	1650	330	ug/kg wet	2000.0	83	45-125			
Benzo[k] fluoranthene	1490	330	ug/kg wet	2000.0	74	45-125			
Bis(2-chloroethoxy) methane	1190	330	ug/kg wet	2000.0	59	45-110			
Bis(2-chloroethyl) ether	1410	330	ug/kg wet	2000.0	70	40-110			
Bis(2-chloroisopropyl) ether	1370	330	ug/kg wet	2000.0	68	30-115			
Bis(2-ethylhexyl) phthalate	1480	330	ug/kg wet	2000.0	74	40-145			
Butyl Benzyl Phthalate	1430	330	ug/kg wet	2000.0	72	50-125			
Carbazole	1660	330	ug/kg wet	2000.0	83	40-140			
Chrysene	1650	330	ug/kg wet	2000.0	83	45-130			
Dibenz[a,h]anthracene	1680	330	ug/kg wet	2000.0	84	45-125			
Dibenzofuran	1500	330	ug/kg wet	2000.0	75	45-120			
Diethyl Phthalate	1480	330	ug/kg wet	2000.0	74	50-125			
Dimethyl Phthalate	1460	330	ug/kg wet	2000.0	73	45-130			
Di-n-butyl Phthalate	1480	330	ug/kg wet	2000.0	74	50-130			
Di-n-octyl Phthalate	1340	330	ug/kg wet	2000.0	67	40-150			
Fluoranthene	1650	330	ug/kg wet	2000.0	82	45-130			
Fluorene	1500	330	ug/kg wet	2000.0	75	45-120			
Hexachlorobenzene	1640	330	ug/kg wet	2000.0	82	45-130			
Hexachlorobutadiene	1160	330	ug/kg wet	2000.0	58	45-105			
Hexachlorocyclopentadiene	886	330	ug/kg wet	2000.0	44	10-100			
Hexachloroethane	1270	330	ug/kg wet	2000.0	64	35-110			
Indeno[1,2,3-cd]pyrene	1670	330	ug/kg wet	2000.0	84	45-130			
Isophorone	1050	330	ug/kg wet	2000.0	53	40-110			
Naphthalene	1240	330	ug/kg wet	2000.0	62	40-110			
Nitrobenzene	1040	330	ug/kg wet	2000.0	52	40-105			
N-Nitrosodi-n-propylamine	1400	330	ug/kg wet	2000.0	70	30-130			
N-Nitrosodiphenylamine	1500	330	ug/kg wet	2000.0	75	50-120			
Pentachlorophenol	675	J	1650	ug/kg wet	2000.0	34	25-120		
Phenanthrene	1610	330	ug/kg wet	2000.0	80	50-120			
Phenol	1440	330	ug/kg wet	2000.0	72	40-115			
Pyrene	1370	330	ug/kg wet	2000.0	68	45-125			
<i>Surrogate: 2-Fluorophenol</i>	1890			ug/kg wet	2500.0	76	25-121		
<i>Surrogate: Phenol-d5</i>	1950			ug/kg wet	2500.0	78	24-113		
<i>Surrogate: Nitrobenzene-d5</i>	954			ug/kg wet	1666.7	57	23-120		
<i>Surrogate: 2-Fluorobiphenyl</i>	1290			ug/kg wet	1666.7	77	30-115		
<i>Surrogate: 2,4,6-Tribromophenol</i>	1540			ug/kg wet	2500.0	62	19-122		



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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 L201135 - SW 3540C									
LCS (L201135-BS1)									
Prepared: 01/13/2012 Analyzed: 01/18/2012									
Surrogate: <i>p</i> -Terphenyl-d14 1250 ug/kg wet 1666.7 75 18-137									
Matrix Spike (L201135-MS1)									
Source: 1201028-02 Prepared: 01/13/2012 Analyzed: 01/19/2012									
1,2,4-Trichlorobenzene	1350	J, D	4050	ug/kg dry	2046.1	4020 U	66	45-110	
1,2-Dichlorobenzene	1360	J, D	4050	ug/kg dry	2046.1	4020 U	66	45-105	
1,3-Dichlorobenzene	1430	J, D	4050	ug/kg dry	2046.1	4020 U	70	40-100	
1,4-Dichlorobenzene	1400	J, D	4050	ug/kg dry	2046.1	4020 U	68	35-105	
2,4,5-Trichlorophenol	1610	J, D	4050	ug/kg dry	2046.1	4020 U	79	30-140	
2,4,6-Trichlorophenol	1220	J, D	4050	ug/kg dry	2046.1	4020 U	60	20-110	
2,4-Dichlorophenol	1470	J, D	4050	ug/kg dry	2046.1	4020 U	72	40-110	
2,4-Dimethylphenol	1100	J, D	4050	ug/kg dry	2046.1	4020 U	54	30-105	
2,4-Dinitrophenol	20300	U	20300	ug/kg dry	2046.1	20100 U	*	25-130	
2,4-Dinitrotoluene	1270	J, D	4050	ug/kg dry	2046.1	4020 U	62	50-115	
2,6-Dinitrotoluene	1220	J, D	4050	ug/kg dry	2046.1	4020 U	60	40-120	
2-Chloronaphthalene	1510	J, D	4050	ug/kg dry	2046.1	4020 U	74	45-115	
2-Chlorophenol	1440	J, D	4050	ug/kg dry	2046.1	4020 U	70	45-105	
2-Methylnaphthalene	1430	J, D	4050	ug/kg dry	2046.1	4020 U	70	45-110	
2-Methylphenol	1440	J, D	4050	ug/kg dry	2046.1	4020 U	70	40-120	
2-Nitroaniline	1440	J, D	20300	ug/kg dry	2046.1	20100 U	70	45-120	
2-Nitrophenol	1200	J, D	4050	ug/kg dry	2046.1	4020 U	59	40-110	
3,3'-Dichlorobenzidine	8100	U	8100	ug/kg dry	2046.1	8030 U	*	15-130	
3-Nitroaniline	1310	J, D	20300	ug/kg dry	2046.1	20100 U	64	40-130	
4,6-Dinitro-2-methylphenol	897	J, D	4050	ug/kg dry	2046.1	4020 U	44	20-140	
4-Bromophenyl Phenyl Ether	1400	J, D	4050	ug/kg dry	2046.1	4020 U	68	45-115	
4-Chloro-3-methylphenol	4050	U	4050	ug/kg dry	2046.1	4020 U	*	35-115	
4-Chloroaniline	789	J, D	4050	ug/kg dry	2046.1	4020 U	39	10-100	
4-Chlorophenyl Phenyl Ether	1440	J, D	4050	ug/kg dry	2046.1	4020 U	70	45-110	
3- and/or 4-Methylphenol	1410	J, D	4050	ug/kg dry	2046.1	4020 U	69	40-120	
4-Nitroaniline	1490	J, D	20300	ug/kg dry	2046.1	20100 U	73	40-130	
4-Nitrophenol	20300	U	20300	ug/kg dry	2046.1	20100 U	*	15-140	
Acenaphthene	1530	J, D	4050	ug/kg dry	2046.1	4020 U	75	45-110	
Acenaphthylene	1410	J, D	4050	ug/kg dry	2046.1	4020 U	69	45-115	
Anthracene	1500	J, D	4050	ug/kg dry	2046.1	4020 U	74	45-130	
Benz[a]anthracene	1600	J, D	4050	ug/kg dry	2046.1	4020 U	78	45-130	
Benzo[a] pyrene	1420	J, D	4050	ug/kg dry	2046.1	4020 U	70	45-130	
Benzo[b] fluoranthene	1550	J, D	4050	ug/kg dry	2046.1	4020 U	76	40-130	
Benzo[g,h,i] perylene	1580	J, D	4050	ug/kg dry	2046.1	4020 U	77	45-125	



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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 L201135 - SW 3540C												
Matrix Spike (L201135-MS1)												
			Source: 1201028-02			Prepared: 01/13/2012	Analyzed: 01/19/2012					
Benzo[k] fluoranthene	1350	J, D	4050	ug/kg dry	2046.1	4020 U	66	45-125				
Bis(2-chloroethoxy) methane	1430	J, D	4050	ug/kg dry	2046.1	4020 U	70	45-110				
Bis(2-chloroethyl) ether	1490	J, D	4050	ug/kg dry	2046.1	4020 U	73	40-110				
Bis(2-chloroisopropyl) ether	1550	J, D	4050	ug/kg dry	2046.1	4020 U	76	30-115				
Bis(2-ethylhexyl) phthalate	1700	J, D	4050	ug/kg dry	2046.1	4020 U	83	40-145				
Butyl Benzyl Phthalate	1520	J, D	4050	ug/kg dry	2046.1	4020 U	74	50-125				
Carbazole	1790	J, D	4050	ug/kg dry	2046.1	4020 U	87	40-140				
Chrysene	1690	J, D	4050	ug/kg dry	2046.1	4020 U	82	45-130				
Dibenz[a,h]anthracene	1430	J, D	4050	ug/kg dry	2046.1	4020 U	70	45-125				
Dibenzofuran	1600	J, D	4050	ug/kg dry	2046.1	4020 U	78	45-120				
Diethyl Phthalate	1590	J, D	4050	ug/kg dry	2046.1	4020 U	78	50-125				
Dimethyl Phthalate	1510	J, D	4050	ug/kg dry	2046.1	4020 U	74	45-130				
Di-n-butyl Phthalate	1740	J, D	4050	ug/kg dry	2046.1	4020 U	85	50-130				
Di-n-octyl Phthalate	1360	J, D	4050	ug/kg dry	2046.1	4020 U	66	40-150				
Fluoranthene	1670	J, D	4050	ug/kg dry	2046.1	4020 U	82	45-130				
Fluorene	1640	J, D	4050	ug/kg dry	2046.1	4020 U	80	45-120				
Hexachlorobenzene	1720	J, D	4050	ug/kg dry	2046.1	4020 U	84	45-130				
Hexachlorobutadiene	1490	J, D	4050	ug/kg dry	2046.1	4020 U	73	45-105				
Hexachlorocyclopentadiene	4050	U	4050	ug/kg dry	2046.1	4020 U	*	10-100				
Hexachloroethane	1360	J, D	4050	ug/kg dry	2046.1	4020 U	66	35-110				
Indeno[1,2,3-cd]pyrene	1480	J, D	4050	ug/kg dry	2046.1	4020 U	72	45-130				
Isophorone	1480	J, D	4050	ug/kg dry	2046.1	4020 U	72	40-110				
Naphthalene	1670	J, D	4050	ug/kg dry	2046.1	4020 U	82	40-110				
Nitrobenzene	1440	J, D	4050	ug/kg dry	2046.1	4020 U	71	40-105				
N-Nitrosodi-n-propylamine	1390	J, D	4050	ug/kg dry	2046.1	4020 U	68	30-130				
N-Nitrosodiphenylamine	1440	J, D	4050	ug/kg dry	2046.1	4020 U	70	50-120				
Pentachlorophenol	20300	U	20300	ug/kg dry	2046.1	20100 U	*	25-120				
Phenanthrene	1580	J, D	4050	ug/kg dry	2046.1	4020 U	77	50-120				
Phenol	1510	J, D	4050	ug/kg dry	2046.1	4020 U	74	40-115				
Pyrene	1510	J, D	4050	ug/kg dry	2046.1	4020 U	74	45-125				
Surrogate: 2-Fluorophenol	2090			ug/kg dry	2557.7		82	25-121				
Surrogate: Phenol-d5	2060			ug/kg dry	2557.7		81	24-113				
Surrogate: Nitrobenzene-d5	1290			ug/kg dry	1705.1		76	23-120				
Surrogate: 2-Fluorobiphenyl	1390			ug/kg dry	1705.1		81	30-115				
Surrogate: 2,4,6-Tribromophenol	1840			ug/kg dry	2557.7		72	19-122				
Surrogate: p-Terphenyl-d14	1260			ug/kg dry	1705.1		74	18-137				



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Semivolatile Organic Compounds by SW846 8270C - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit		
Batch L201135 - SW 3540C												
Matrix Spike Dup (L201135-MSD1)												
			Source: 1201028-02			Prepared: 01/13/2012	Analyzed: 01/19/2012					
1,2,4-Trichlorobenzene	1540	J, D	4020	ug/kg dry	2032.6	4020 U	76	45-110	14	40		
1,2-Dichlorobenzene	1540	J, D	4020	ug/kg dry	2032.6	4020 U	76	45-105	13	40		
1,3-Dichlorobenzene	1530	J, D	4020	ug/kg dry	2032.6	4020 U	75	40-100	7	40		
1,4-Dichlorobenzene	1500	J, D	4020	ug/kg dry	2032.6	4020 U	74	35-105	8	40		
2,4,5-Trichlorophenol	1490	J, D	4020	ug/kg dry	2032.6	4020 U	73	30-140	7	40		
2,4,6-Trichlorophenol	1370	J, D	4020	ug/kg dry	2032.6	4020 U	68	20-110	12	40		
2,4-Dichlorophenol	1730	J, D	4020	ug/kg dry	2032.6	4020 U	85	40-110	17	40		
2,4-Dimethylphenol	1220	J, D	4020	ug/kg dry	2032.6	4020 U	60	30-105	11	40		
2,4-Dinitrophenol	20100	U	20100	ug/kg dry	2032.6	20100 U	*	25-130		40		
2,4-Dinitrotoluene	1500	J, D	4020	ug/kg dry	2032.6	4020 U	74	50-115	17	40		
2,6-Dinitrotoluene	1630	J, D	4020	ug/kg dry	2032.6	4020 U	80	40-120	29	40		
2-Chloronaphthalene	1600	J, D	4020	ug/kg dry	2032.6	4020 U	79	45-115	7	40		
2-Chlorophenol	1520	J, D	4020	ug/kg dry	2032.6	4020 U	75	45-105	6	40		
2-Methylnaphthalene	1670	J, D	4020	ug/kg dry	2032.6	4020 U	82	45-110	16	40		
2-Methylphenol	1630	J, D	4020	ug/kg dry	2032.6	4020 U	80	40-120	13	40		
2-Nitroaniline	1660	J, D	20100	ug/kg dry	2032.6	20100 U	82	45-120	15	40		
2-Nitrophenol	1270	J, D	4020	ug/kg dry	2032.6	4020 U	62	40-110	6	40		
3,3'-Dichlorobenzidine	1390	J, D	8050	ug/kg dry	2032.6	8030 U	68	15-130		40		
3-Nitroaniline	1520	J, D	20100	ug/kg dry	2032.6	20100 U	75	40-130	16	40		
4,6-Dinitro-2-methylphenol	714	J, D	4020	ug/kg dry	2032.6	4020 U	35	20-140	22	40		
4-Bromophenyl Phenyl Ether	1790	J, D	4020	ug/kg dry	2032.6	4020 U	88	45-115	25	40		
4-Chloro-3-methylphenol	1510	J, D	4020	ug/kg dry	2032.6	4020 U	74	35-115		40		
4-Chloroaniline	1180	J, D	4020	ug/kg dry	2032.6	4020 U	58	10-100	40	40		
4-Chlorophenyl Phenyl Ether	1690	J, D	4020	ug/kg dry	2032.6	4020 U	83	45-110	17	40		
3- and/or 4-Methylphenol	1360	J, D	4020	ug/kg dry	2032.6	4020 U	67	40-120	3	40		
4-Nitroaniline	1450	J, D	20100	ug/kg dry	2032.6	20100 U	72	40-130	2	40		
4-Nitrophenol	1640	J, D	20100	ug/kg dry	2032.6	20100 U	81	15-140		40		
Acenaphthene	1630	J, D	4020	ug/kg dry	2032.6	4020 U	80	45-110	7	40		
Acenaphthylene	1590	J, D	4020	ug/kg dry	2032.6	4020 U	78	45-115	13	40		
Anthracene	1700	J, D	4020	ug/kg dry	2032.6	4020 U	83	45-130	13	40		
Benz[a]anthracene	1930	J, D	4020	ug/kg dry	2032.6	4020 U	95	45-130	20	40		
Benzo[a] pyrene	1610	J, D	4020	ug/kg dry	2032.6	4020 U	79	45-130	13	40		
Benzo[b] fluoranthene	1660	J, D	4020	ug/kg dry	2032.6	4020 U	82	40-130	8	40		
Benzo[g,h,i] perlyne	1710	J, D	4020	ug/kg dry	2032.6	4020 U	84	45-125	8	40		
Benzo[k] fluoranthene	1670	J, D	4020	ug/kg dry	2032.6	4020 U	82	45-125	22	40		
Bis(2-chloroethoxy) methane	1790	J, D	4020	ug/kg dry	2032.6	4020 U	88	45-110	23	40		

000000053



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/24/2012 10:35

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 L201135 - SW 3540C												
Matrix Spike Dup (L201135-MSD1) Source: 1201028-02 Prepared: 01/13/2012 Analyzed: 01/19/2012												
Bis(2-chloroethyl) ether	1490	J, D	4020	ug/kg dry	2032.6	4020 U	73	40-110	0.9	40		
Bis(2-chloroisopropyl) ether	1700	J, D	4020	ug/kg dry	2032.6	4020 U	84	30-115	10	40		
Bis(2-ethylhexyl) phthalate	2180	J, D	4020	ug/kg dry	2032.6	4020 U	107	40-145	26	40		
Butyl Benzyl Phthalate	1700	J, D	4020	ug/kg dry	2032.6	4020 U	84	50-125	12	40		
Carbazole	1910	J, D	4020	ug/kg dry	2032.6	4020 U	94	40-140	8	40		
Chrysene	1920	J, D	4020	ug/kg dry	2032.6	4020 U	95	45-130	14	40		
Dibenz[a,h]anthracene	1570	J, D	4020	ug/kg dry	2032.6	4020 U	77	45-125	10	40		
Dibenzofuran	1810	J, D	4020	ug/kg dry	2032.6	4020 U	89	45-120	13	40		
Diethyl Phthalate	1760	J, D	4020	ug/kg dry	2032.6	4020 U	87	50-125	11	40		
Dimethyl Phthalate	1600	J, D	4020	ug/kg dry	2032.6	4020 U	79	45-130	6	40		
Di-n-butyl Phthalate	1830	J, D	4020	ug/kg dry	2032.6	4020 U	90	50-130	6	40		
Di-n-octyl Phthalate	1590	J, D	4020	ug/kg dry	2032.6	4020 U	78	40-150	16	40		
Fluoranthene	1880	J, D	4020	ug/kg dry	2032.6	4020 U	92	45-130	12	40		
Fluorene	1740	J, D	4020	ug/kg dry	2032.6	4020 U	86	45-120	7	40		
Hexachlorobenzene	1900	J, D	4020	ug/kg dry	2032.6	4020 U	94	45-130	11	40		
Hexachlorobutadiene	1740	J, D	4020	ug/kg dry	2032.6	4020 U	85	45-105	16	40		
Hexachlorocyclopentadiene	4020	U	4020	ug/kg dry	2032.6	4020 U	*	10-100		40		
Hexachloroethane	1320	J, D	4020	ug/kg dry	2032.6	4020 U	65	35-110	2	40		
Indeno[1,2,3-cd]pyrene	1600	J, D	4020	ug/kg dry	2032.6	4020 U	79	45-130	8	40		
Isophorone	1450	J, D	4020	ug/kg dry	2032.6	4020 U	71	40-110	2	40		
Naphthalene	1990	J, D	4020	ug/kg dry	2032.6	4020 U	98	40-110	18	40		
Nitrobenzene	1730	J, D	4020	ug/kg dry	2032.6	4020 U	85	40-105	19	40		
N-Nitrosodi-n-propylamine	1550	J, D	4020	ug/kg dry	2032.6	4020 U	76	30-130	12	40		
N-Nitrosodiphenylamine	1770	J, D	4020	ug/kg dry	2032.6	4020 U	87	50-120	21	40		
Pentachlorophenol	20100	U	20100	ug/kg dry	2032.6	20100 U	*	25-120		40		
Phenanthrene	1850	J, D	4020	ug/kg dry	2032.6	4020 U	91	50-120	16	40		
Phenol	1930	J, D	4020	ug/kg dry	2032.6	4020 U	95	40-115	25	40		
Pyrene	1770	J, D	4020	ug/kg dry	2032.6	4020 U	87	45-125	17	40		
<i>Surrogate: 2-Fluorophenol</i>	2010			ug/kg dry	2540.7		79	25-121				
<i>Surrogate: Phenol-d5</i>	1620			ug/kg dry	2540.7		64	24-113				
<i>Surrogate: Nitrobenzene-d5</i>	1210			ug/kg dry	1693.8		71	23-120				
<i>Surrogate: 2-Fluorobiphenyl</i>	1520			ug/kg dry	1693.8		90	30-115				
<i>Surrogate: 2,4,6-Tribromophenol</i>	1580			ug/kg dry	2540.7		62	19-122				
<i>Surrogate: p-Terphenyl-d14</i>	1500			ug/kg dry	1693.8		88	18-137				

Date: 31 December 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: Remaining Sites Confirmation Sampling – Soil Full Protocol – Waste Site 300-32
Subject: Diesel Range Organics - Data Package No. K3796-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K3796 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
J1N1M1	1/9/12	Soil	C	See note 1
J1N1M2	1/9/12	Soil	C	See note 1
J1N1M3	1/9/12	Soil	C	See note 1
J1N1M4	1/9/12	Soil	C	See note 1
J1N1M5	1/9/12	Soil	C	See note 1
J1N1M6	1/9/12	Soil	C	See note 1
J1N1M7	1/9/12	Soil	C	See note 1
J1N1M8	1/9/12	Soil	C	See note 1
J1N1M9	1/9/12	Soil	C	See note 1
J1N1N0	1/9/12	Soil	C	See note 1
J1N1N1	1/9/12	Soil	C	See note 1
J1N1N4	1/10/12	Soil	C	See note 1
J1N1N5	1/10/12	Soil	C	See note 1
J1N1N6	1/10/12	Soil	C	See note 1
J1N1N7	1/10/12	Soil	C	See note 1
J1N1N8	1/10/12	Soil	C	See note 1

1 – Diesel range organics by 8015M.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). 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 (although the motor oil result exceeded the RQL).

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 the lack of a matrix spike, matrix spike duplicate and LCS analysis, all motor oil 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

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. Sample 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 the lack of a matrix spike and matrix spike duplicate analysis, all motor oil results were qualified as estimates and flagged "J".

All other laboratory results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1N1N0/J1N1N1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were 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. Six analytes exceeded the RQL. Under the WCH statement of work, no qualification is required. All other analytes met the RQL.

Completeness

Data package No. K3796 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 motor oil 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.

Six 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*, March 2008.

DOE/RL-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

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

DIESEL RANGE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: K3796	REVIEWER: ELR	Project: 300-32	PAGE <u>1</u> OF <u>1</u>
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Motor oil	J	All	No MS, MSD or 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



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Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 08:31

K 12/30/12

Extractable Petroleum Hydrocarbons by SW846 8015

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1M1 (1201028-02) Soil								
Surrogate: p-Terphenyl	82 %	39-129			L201131	01/13/2012	01/20/2012	8015M
Diesel Range Organics	13000 U	13000	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
Motor Oil	106000 J	39100	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
J1N1M2 (1201028-03) Soil								
Surrogate: p-Terphenyl	83 %	39-129			L201131	01/13/2012	01/19/2012	8015M
Diesel Range Organics	3320 U	3320	ug/kg dry	1	L201131	01/13/2012	01/19/2012	8015M
Motor Oil	13200 J	9970	ug/kg dry	1	L201131	01/13/2012	01/19/2012	8015M
J1N1M3 (1201028-04) Soil								
Surrogate: p-Terphenyl	79 %	39-129			L201131	01/13/2012	01/20/2012	8015M
Diesel Range Organics	3330 U	3330	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
Motor Oil	5710 J	9990	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
J1N1M4 (1201028-05) Soil								
Surrogate: p-Terphenyl	87 %	39-129			L201131	01/13/2012	01/20/2012	8015M
Diesel Range Organics	3250 U	3250	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
Motor Oil	9740 U J	9740	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
J1N1M5 (1201028-06) Soil								
Surrogate: p-Terphenyl	80 %	39-129			L201131	01/13/2012	01/20/2012	8015M
Diesel Range Organics	3310 U	3310	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
Motor Oil	9930 U J	9930	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
J1N1M6 (1201028-07) Soil								
Surrogate: p-Terphenyl	94 %	39-129			L201131	01/13/2012	01/19/2012	8015M
Diesel Range Organics	3310 U	3310	ug/kg dry	1	L201131	01/13/2012	01/19/2012	8015M
Motor Oil	61500 J	9930	ug/kg dry	1	L201131	01/13/2012	01/19/2012	8015M



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 08:31

✓1213012

Extractable Petroleum Hydrocarbons by SW846 8015

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1M7 (1201028-08) Soil								
Surrogate: p-Terphenyl	80 %	39-129			L201131	01/13/2012	01/19/2012	8015M
Diesel Range Organics	3370 U	3370	ug/kg dry	1	L201131	01/13/2012	01/19/2012	8015M
Motor Oil	23800 J	10100	ug/kg dry	1	L201131	01/13/2012	01/19/2012	8015M
J1N1M8 (1201028-09) Soil								
Surrogate: p-Terphenyl	72 %	39-129			L201131	01/13/2012	01/20/2012	8015M
Diesel Range Organics	3360 U	3360	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
Motor Oil	4740 J	10100	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
J1N1M9 (1201028-10) Soil								
Surrogate: p-Terphenyl	91 %	39-129			L201131	01/13/2012	01/19/2012	8015M
Diesel Range Organics	3310 U	3310	ug/kg dry	1	L201131	01/13/2012	01/19/2012	8015M
Motor Oil	51900 J	9930	ug/kg dry	1	L201131	01/13/2012	01/19/2012	8015M
J1N1N0 (1201028-11) Soil								
Surrogate: p-Terphenyl	84 %	39-129			L201131	01/13/2012	01/20/2012	8015M
Diesel Range Organics	3340 U	3340	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
Motor Oil	4930 J	10000	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
J1N1N1 (1201028-12) Soil								
Surrogate: p-Terphenyl	92 %	39-129			L201131	01/13/2012	01/20/2012	8015M
Diesel Range Organics	3350 U	3350	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
Motor Oil	4370 J	10100	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
J1N1N4 (1201028-15) Soil								
Surrogate: p-Terphenyl	84 %	39-129			L201131	01/13/2012	01/20/2012	8015M
Diesel Range Organics	6670 U	6670	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
Motor Oil	25200 J	20000	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

V,27301-2
Reported:
01/22/2012 08:31

Extractable Petroleum Hydrocarbons by SW846 8015

Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1N5 (1201028-16) Soil								
Surrogate: p-Terphenyl	78 %	39-129			L201131	01/13/2012	01/19/2012	8015M
Diesel Range Organics	3420 U	3420	ug/kg dry	1	L201131	01/13/2012	01/19/2012	8015M
Motor Oil	34800 J	10200	ug/kg dry	1	L201131	01/13/2012	01/19/2012	8015M
J1N1N6 (1201028-17) Soil								
Surrogate: p-Terphenyl	88 %	39-129			L201131	01/13/2012	01/20/2012	8015M
Diesel Range Organics	3480 U	3480	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
Motor Oil	10500 U J	10500	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
J1N1N7 (1201028-18) Soil								
Surrogate: p-Terphenyl	80 %	39-129			L201131	01/13/2012	01/20/2012	8015M
Diesel Range Organics	3400 U	3400	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
Motor Oil	6490 J	10200	ug/kg dry	1	L201131	01/13/2012	01/20/2012	8015M
J1N1N8 (1201028-19) Soil								
Surrogate: p-Terphenyl	89 %	39-129			L201131	01/13/2012	01/19/2012	8015M
Diesel Range Organics	27400 U	27400	ug/kg dry	2	L201131	01/13/2012	01/19/2012	8015M
Motor Oil	1300000 J	82200	ug/kg dry	2	L201131	01/13/2012	01/19/2012	8015M

Appendix 4
Laboratory Narrative and Chain-of-Custody Documentation



A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-029 K3796
LVL #: 1201028

W.O. #: 60049-001-001-0001-00
Date Received: 01-11-2012

DIESEL RANGE ORGANICS

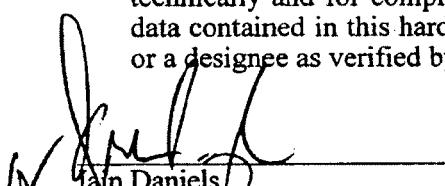
Sixteen (16) soil samples were collected on 01-09,10-2012.

The samples and associated QC samples were extracted 01-13-2012 and analyzed 01-19,20-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8015B for Diesel Range Organics.

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

1. Discrepancies from the sample acceptance policy have been recorded on the Sample Receipt Checklist.
2. All required holding times for extraction and analysis have been met.
3. The samples J1N1M1, J1N1N4, J1N1N8, L201131-MS1 and L201131-MSD1 had elevated final volumes. Reporting limits have been adjusted to reflect the elevated final volumes.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. The method blank was below the reporting limits for all target compounds.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. The sample J1N1N8 required a 2-fold instrument dilution due to high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.
9. All initial calibrations associated with this data set were within acceptance criteria.
10. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
11. The samples were reported on a dry weight basis.

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



Ian Daniels
LvL Laboratory Manager

1/24/12
Date

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						RC-029-127	Page 1 of 17
Washington Closure Hanford			Project Coordinator KESSNER, JH SAF No. RC-029			Price Code 8C	Data Turnaround 15 Days
Collector Simonds	Company Contact Joan Kestner	Telephone No. 375-4686	Sampling Location 300-32	Field Logbook No. EL-16663	COA C3032A000	Method of Shipment Bill of Lading/Air Bill No. 444-AZ 1-9-12	Sec. OSAC
Project Designation Remaining Sites Confirmation Sampling - Soil Full Protocol	Ice Chest No. NA-AZ 1-9-12	Shipped To 3H 1/9/12 LIONVILLE	Oralite Property No. A 100975				
POSSIBLE SAMPLE HAZARDS/REMARKS							
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.							
Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.							
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS			
JIN1M0	SOIL	01/09/12	1145	* * * * *			
JIN1M1	SOIL	01/09/12	1215	*	*	*	*
JIN1M2	SOIL	01/09/12	1230	*	*	*	*
JIN1M3	SOIL	01/09/12	1240	*	*	*	*
JIN1M4	SOIL	01/09/12	1250	*	*	*	*
CHAIN OF POSSESSION							
Retain/Released By/Removed From <i>WAISANNA SWINDS</i>	Date/Time 1-9-12 1331	Received By/Stored In <i>Baldwins Blubbers</i>	Date/Time 1-9-12 1531	(1) ICP Metals - 6010TR (Chloride Lit) (Aluminum, Anthony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Sodium, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)			
Retain/Released By/Removed From <i>34NDX010</i>	Date/Time 1-9-12 1620	Received By/Stored In <i>A. Friesch</i>	Date/Time 1-9-12 1620	(2) Gamma Spec (Clean Lit) (Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-154, Americium-153); Gross Alpha & Gross Beta			
Retain/Released By/Removed From <i>A. Friesch</i>	Date/Time 1-10-12 1245	Received By/Stored In <i>Fed Ex</i>	Date/Time 1-10-12 1245	(3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Strontium-89,90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium			
Retain/Released By/Removed From <i>Fed Ex</i>	Date/Time 1-11-12 0930	Received By/Stored In <i>Vince Hellmich</i>	Date/Time 1-11-12 0930	* PLEASE ADD LITHIUM TO ICP METALS LIST PA 1/5/12			
Retain/Released By/Removed From <i>Fed Ex</i>	Date/Time 1-11-12 1345	Received By/Stored In <i>ECR Accufile 2</i>	Date/Time 1-11-12 1345	* * * 20 ml vial → % moisture * * * freeze upon receipt at 1-10-12.			
LABORATORY SECTION	Received By	Reviewed By		Title			
FINAL SAMPLE DISPOSITION	Disposal Method			Date/Time			

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127	Page 2 of 2
Collector Simonds	Company Contact Joan Kesner	Telephone No. 375-4638	Project Coordinator KESSNER, JH SAF No. RC-029	Price Code 8C	Date Turnaround 15 Days
Project Destination Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location 300-312	Field Logbook No. EL-1663	COA C30032A000	Method of Shipment Mail or Ladine/Air Bill No.	<i>fed ex</i>
Ice Chest No. AFC-A4 1-9-12 ERG-02-007	Offsite Property No. A1000975				<i>See OSAC</i>
Shipped To <i>BN V1/m</i> BERTHIER SERVICES / TONVILLE	Possibly Hazardous Chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.	Preservation Grp	Cool AC 0	Cool AC 0	Cool AC 0
	Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.	Type of Container No. of Container(s)	1 1	1 5	1 1
		Volume 60mL	60mL 120mL 40mL	120mL 120mL	250mL 500mL 60mL
	SAMPLE ANALYSIS	See Item (1) in Instructions.	Chlorinated Hex-7196	VOA - SVA- RTDA (TCL) #*#	PAHS - \$310 PCB - \$802 See Item (2) in Special Instructions.
		*	*	*	
Sample No.	Mark *	Sample Date 1/9/12	Sample Time 13:0	X	X
J1N1M5	SOIL	1/9/12	13:20	X	X
J1N1M6	SOIL	1/9/12	13:45	X	X
J1N1M7	SOIL	1/9/12	13:55	X	X
J1N1M8	SOIL	1/9/12	14:20	X	X
J1N1M8	SOIL	1/9/12	14:20	X	X
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS	
Relinquished By/Removed From <i>BN V1/m</i>	Received By/Stored In <i>BN V1/m</i>	Date/Time 1-9-12 15:31	Received By/Shared In <i>BN V1/m</i>	Date/Time 1-9-12 15:31	(1) ICP Metals - 60 (UTR (Close-out Lab) Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Calcium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 741 - (CV)
Relinquished By/Removed From <i>BN V1/m</i>	Received By/Shared In <i>BN V1/m</i>	Date/Time 1-9-12 16:20	Received By/Shared In <i>BN V1/m</i>	Date/Time 1-9-12 16:20	(2) Gamma Spec (Clean Lab) (Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-155); Gross Alpha & Gross Beta
Relinquished By/Removed From <i>BN V1/m</i>	Received By/Shared In <i>BN V1/m</i>	Date/Time 1-9-12 16:44	Received By/Shared In <i>BN V1/m</i>	Date/Time 1-9-12 16:44	(3) Americium-241, Nickel-63; Isotopic Plutonium [Plutonium-238, Plutonium-239/240]; Serronium-89,90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium [Uranium-233/234, Uranium-235, Uranium-238]; Total Uranium
Relinquished By/Removed From <i>A-Ficer J. kesner</i>	Received By/Shared In <i>A-Ficer J. kesner</i>	Date/Time 1-10-12 12:45	Received By/Shared In <i>A-Ficer J. kesner</i>	Date/Time 1-10-12 09:50	* RELEASE ADD LITHIUM TO ICP METALS LIST
Relinquished By/Removed From <i>fed ex</i>	Received By/Shared In <i>fed ex</i>	Date/Time 1-10-12 12:45	Received By/Shared In <i>fed ex</i>	Date/Time 1-10-12 09:50	* RELEASE ADD LITHIUM TO ICP METALS LIST
Relinquished By/Removed From <i>fed ex</i>	Received By/Shared In <i>fed ex</i>	Date/Time 1-10-12 12:45	Received By/Shared In <i>fed ex</i>	Date/Time 1-10-12 09:50	* * 20ml vial → % moisture
Reacquired By/Removed From <i>fed ex</i>	Received By/Shared In <i>fed ex</i>	Date/Time 1-10-12 12:45	Received By/Shared In <i>fed ex</i>	Date/Time 1-10-12 09:50	* * freeze upon receipt At 1-10-12
LABORATORY SECTION	Received By		RENEWED	Title	
FINAL SAMPLE DISPOSITION	Disposal Method		CMB	DATE 1-10-12	Date/Time

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 2 of 2	
Collector Simonds	Company Contact John Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days		
Project Designation Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location 300-312	SAF No. RC-029	Method of Shipment Bill of Lading/Air Bill No. NA-1009175				
Ice Chest No. AA 1-9-12 ERL-02-007	Field Logbook No. EL-1663	COA C30032A000	Offsite Property No. A1009175				
POSSIBLE SAMPLE HAZARDS/REMARKS				Preservation			
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.				Cool 4C	Cool AC	Frozen	Cool 4C
Special Handling and/or Storage				G/P	G	G*	*G
Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" reading. Thank You.				1	1	5	1
				60mL	60mL	120mL	120mL
				Volume	40mL	40mL	250mL
				Spec Item (1) in Special Instructions.	VOA-5032A00 (TCL)	PAH-310	PCBs - 8001
				*	K	VQA-B27DA	See Item (1) in Special Instructions.
SAMPLE ANALYSIS				*	*	*	*
Sample No.	Mainx *	Sample Date	Sample Time				
JIN1NO	SOIL	1/9/12	1430	X	X	X	X
JIN1N1	SOIL	1/9/12	1435	X	X	X	X
JIN1NP	SOIL						
JIN1NS	SOIL	1/9/12					
JIN1NT	SOIL	1/9/12					
CHAIN OF POSSESSION				SIGN/PRINT NAME			
Relinquished By/Removed From MAGNA SWEATERS	Date/Time 1-9-12 1531	Received By/Stored In Bill Hudson Blubers	Date/Time 1-9-12 1531	SPECIAL INSTRUCTIONS			
Relinquished By/Removed From STUDSON COFFEE	Date/Time 1-9-12 1620	Received By/Stored In A. Feller	Date/Time 1-9-12	(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (2) Gamma Spec (Close List) (Americium-241, Cobalt-60, Europium-152, Europium-154, Europium-155); Gross Alpha & Gross Beta (3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Strontium-89/90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium			
Relinquished By/Removed From A. Feller	Date/Time 1-10-12 1245	Received By/Stored In Fed Ex	Date/Time 1-9-12				
Relinquished By/Removed From Fed Ex	Date/Time 1-11-12 0950	Received By/Stored In Fed Ex	Date/Time 1-11-12				
Relinquished By/Removed From Fed Ex	Date/Time 1-11-12 1345	Received By/Stored In YITZIE HERSTADEL	Date/Time 1-11-12				
Relinquished By/Removed From	Date/Time	Reviewed By YITZIE HERSTADEL	Date/Time				
LABORATORY SECTION	Received By	Reviewed By	Date/Time				
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time				

19

WCH-EE-011

Date/Time

Date/Time

Disposed By

BY
CMB
DATE
1-10-12

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				Project Coordinator KRESSNER, JH		Price Code 8C		RC-029-127		RC-029-127																																																																		
Collector Simonds	Company Contact Joan Kestner	Telephone No. 375-4688	Sample Location 300-312	SAF No. RC-029		Method of Shipment		Data Turnaround 15 Days																																																																				
Project Description Remaining Site Confirmation Sampling - Soil Pull Protocol			Field Logbook No. EL-1663	COA C30032A000																																																																								
Ice Chest No. NA-A3 1-10-12	ERC-02-007	Office Property No.	A 100975	BILL of Lading/Air Bill No. NA-A4 1-10-12																																																																								
Shipped To SPEERHARD-CHERMES / LIONVILLE																																																																												
POSSIBLE SAMPLE HAZARDS/REMARKS				SAMPLE ANALYSIS																																																																								
<p>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</p> <p><i>L DOT L-17777-3 A # 1-10-12</i></p> <p>Special Handling and/or Storage</p> <p>Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</p>				<table border="1"> <thead> <tr> <th>Preservation</th> <th>Cool 4C</th> <th>Cool AC</th> <th>Cool AC</th> <th>Frozen</th> <th>Cool AC</th> </tr> </thead> <tbody> <tr> <td>Type of Container</td> <td>GFP</td> </tr> <tr> <td>No. of Container(s)</td> <td>1</td> </tr> <tr> <td>Volume</td> <td>60mL</td> <td>60mL</td> <td>120mL</td> <td>40mL</td> <td>120mL</td> <td>120mL</td> <td>120mL</td> <td>120mL</td> <td>120mL</td> <td>120mL</td> <td>120mL</td> <td>120mL</td> </tr> <tr> <td>See Item (1) in Special Instructions.</td> <td>*</td> </tr> </tbody> </table>								Preservation	Cool 4C	Cool AC	Cool AC	Frozen	Cool AC	Type of Container	GFP	No. of Container(s)	1	1	1	1	1	1	1	1	1	1	1	1	Volume	60mL	60mL	120mL	40mL	120mL	See Item (1) in Special Instructions.	*	*	*	*	*	*	*	*	*	*	*	*																									
Preservation	Cool 4C	Cool AC	Cool AC	Frozen	Cool AC	Cool AC	Cool AC	Cool AC	Cool AC	Cool AC	Cool AC	Cool AC																																																																
Type of Container	GFP	GFP	GFP	GFP	GFP	GFP	GFP	GFP	GFP	GFP	GFP	GFP																																																																
No. of Container(s)	1	1	1	1	1	1	1	1	1	1	1	1																																																																
Volume	60mL	60mL	120mL	40mL	120mL	120mL	120mL	120mL	120mL	120mL	120mL	120mL																																																																
See Item (1) in Special Instructions.	*	*	*	*	*	*	*	*	*	*	*	*																																																																
Sample No.	Matrix*	Sample Date	Sample Time	VOA samples frozen upon collection																																																																								
JIN1N1	SOIL			**																																																																								
JIN1N1	SOIL	1/10/12	0715	**																																																																								
JIN1N2	SOIL	1/10/12	0740	**																																																																								
JIN1N3	SOIL	1/10/12	0750	**																																																																								
JIN1N4	SOIL	1/10/12	0750	**																																																																								
SPECIAL INSTRUCTIONS																																																																												
<p>Relinquished By/Received From <i>W. G. Simonds</i> 1-10-12</p> <p>Relinquished By/Received From <i>B. D. Dorn</i> 1-10-12</p> <p>Relinquished By/Received From <i>A. Freier A. J. Henrie</i> 1-10-12</p> <p>Relinquished By/Received From <i>A. Freier A. J. Henrie</i> 1-10-12</p> <p>Relinquished By/Received From <i>Victor Herathay</i> 1-10-12</p> <p>Relinquished By/Received From <i>Victor Herathay</i> 1-10-12</p> <p>Relinquished By/Received From <i>Victor Herathay</i> 1-10-12</p>				<p>Received By/Stand In Date/Time <i>W. G. Simonds</i> 1-10-12 10/15</p> <p>Received By/Stand In Date/Time <i>B. D. Dorn</i> 1-10-12 1100</p> <p>Received By/Stand In Date/Time <i>A. Freier A. J. Henrie</i> 1-10-12 1100</p> <p>Received By/Stand In Date/Time <i>A. Freier A. J. Henrie</i> 1-10-12 1145</p> <p>Received By/Stand In Date/Time <i>Victor Herathay</i> 1-10-12 0750</p>																																																																								
<p>(1) ICP Metals: 60/10TR (Chloroet 160) (Abundance, Abundance, Arsenic, Barium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)</p> <p>(2) Gamma Spec (Clean Line) (Americium-241, Cobalt-60, Europium-152, Europium-154, Europium-155); Gross Alpha & Gross Beta</p> <p>(3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-238/240); Strontium-89, 90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium</p> <p>* PLEASE ADD LITHIUM TO ICP METALS LIST ** VOA ONLY JININ3 - NOT PCB.</p> <p>** VOA ONLY 20 ml vial → 0% moisture → freeze upon receipt</p>																																																																												
LABORATORY SECTION	Received By	REVIEWED BY <i>C. M. B.</i>																																																																										
FINAL SAMPLE DISPOSITION	Disposal Method	DATE <i>1-10-12</i>																																																																										

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		PPG 041-111-111		Data Turnaround	
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Sampling Location 300-32 EL-1663	Project Coordinator KESNER, JH	Price Code 8C	Method of Shipment SAF No. RC-029	Date 15 Days		
Project Destination Remaining Sites Confirmation Sampling - Soil Fall Protocol	Ice Chest No. NY AG - 1-10-12	Field Logbook No. C30032A000	Offsite Property No. A100975	Bill of Lading/Air Bill No. NY A 31-0-1/2	Fed Ex				
POSSIBLE SAMPLE HAZARDS/REMARKS				Preservation Type of Container No. of Container(s)	Cool AC G/F 1 1	Cool AC G/F 1 1	Cool AC G/F 1 1	Cool AC G/F 1 1	
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly. 2. DOT L1n3 r/s As 1-10-12.				Volume	60mL	120mL	40mL	120mL	500mL
Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.				See Item (1) in Special Instructions.	See Item (1) in Special Instructions.	See Item (1) in Special Instructions.	See Item (1) in Special Instructions.	See Item (1) in Special Instructions.	
SAMPLE ANALYSIS				*	*	*	*	*	
Sample No.	Matrix *	Sample Date 1/10/12	Sample Time 0805	Sample Time 10/12	Received By/Stored In 195 BHDSON Blodget	Date/Time 10/12	SPECIAL INSTRUCTIONS	Matrix *	
JIN1N5	SOIL	1/10/12	0830	*	Received By/Stored In A. Fischer A. Fischer	Date/Time 1/10/12	(1) ICP Metals -6010TR (Close-out List) (Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury -7471 - (CV) (2) Gamma Spec (Close List) (Americium-241, Cerium-131, Cobalt-60, Europium-152, Europium-153); Gross Alpha & Gross Beta (3) Americium-241; Nickel-63; Isotopic Photonium-234, Plutonium-239/240; Strontium-89/90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium-233/234, Uranium-238; Total Uranium	See Label	
JIN1N6	SOIL	1/10/12	0830	*	Received By/Stored In A. Fischer A. Fischer	Date/Time 1/10/12		See Label	
JIN1N7	SOIL	1/10/12	0845	*	Received By/Stored In A. Fischer A. Fischer	Date/Time 1/10/12		See Label	
JIN1N8	SOIL	1/10/12	0900	*	Received By/Stored In A. Fischer A. Fischer	Date/Time 1/10/12		See Label	
CHAIN OF POSSESSION				Sign/Print Name MAYA ANDREA BHDSON	Date/Time 1-10-12	Received By/Removed From WCH	Received By/Removed From WCH	Received By/Removed From WCH	Received By/Removed From WCH
Relinquished By/Removed From MAYA ANDREA BHDSON				Date/Time 1-10-12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12
Relinquished By/Removed From A. Fischer A. Fischer				Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12
Relinquished By/Removed From A. Fischer A. Fischer				Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12
Relinquished By/Removed From FED EX				Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12
Relinquished By/Removed From FED EX				Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12
LABORATORY SECTION	Received By			Received By/Removed From FED EX	Received By/Removed From FED EX	Received By/Removed From FED EX	Received By/Removed From FED EX	Received By/Removed From FED EX	Received By/Removed From FED EX
FINAL SAMPLE DISPOSITION	Disposal Method			Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12	Date/Time 1/10/12

Appendix 5
Data Validation Supporting Documentation

GENERAL ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 300-32			DATA PACKAGE: K3796		
VALIDATOR: ELR	LAB: LLT			DATE: 12/29/12	
		SDG: K3796			
ANALYSES PERFORMED					
8015M	8021	8141	8151	8315	
		WTPH-HCID	WTPH-G	WTPH-D	
SAMPLES/MATRIX:					
JINIMI	JINIM2	JINIM3	JINIM4	JINIM5	
JINIM6	JINIM7	JINIM8	JINIM9	JINONO	
JININI	JININY	JINIAS	JINIALC	JININT	
JWIN8					5051

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/A (circle)Comments: _____

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

Initial calibrations acceptable? Yes No N/A (circle)Continuing calibrations acceptable? Yes No N/A (circle)Standards traceable? Yes No N/A (circle)Standards expired? Yes No N/A (circle)Calculation check acceptable? Yes No N/A (circle)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: _____

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: _____

no PAS

no mlo ms/msD/lcs - Tat

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: 11/11/1 - own

9. SAMPLE CLEANUP (Levels D and E)

- Fluorcil ® (or other absorbant) cleanup performed? Yes No N/A
- Lot check performed? Yes No N/A
- Check recoveries acceptable? 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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 08:31

Extractable Petroleum Hydrocarbons by SW846 8015 - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L201131 - SW 3540C									
Blank (L201131-BLK1) Prepared: 01/13/2012 Analyzed: 01/19/2012									
Diesel Range Organics	3330 U	3330	ug/kg wet						
Motor Oil	10000 U	10000	ug/kg wet						
Surrogate: p-Terphenyl	5370		ug/kg wet	6666.7	81	39-129			
LCS (L201131-BS1) Prepared: 01/13/2012 Analyzed: 01/19/2012									
Diesel Range Organics	50400	3330	ug/kg wet	66667	76	42-133			40
Surrogate: p-Terphenyl	5420		ug/kg wet	6666.7	81	39-129			
Matrix Spike (L201131-MS1) Source: 1201028-02 Prepared: 01/13/2012 Analyzed: 01/20/2012									
Diesel Range Organics	67300	13200	ug/kg dry	65772	13000 U 102	42-133			40
Surrogate: p-Terphenyl	5810		ug/kg dry	6577.2	88	39-129			
Matrix Spike Dup (L201131-MSD1) Source: 1201028-02 Prepared: 01/13/2012 Analyzed: 01/20/2012									
Diesel Range Organics	65400	13300	ug/kg dry	66737	13000 U 98	42-133	4	40	
Surrogate: p-Terphenyl	5080		ug/kg dry	6673.7	76	39-129			

Date: 31 December 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: Remaining Sites Confirmation Sampling – Soil Full Protocol – Waste Site 300-32
Subject: Inorganics - Data Package No. K3796-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K3796 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
J1N1M1	1/9/12	Soil	C	See note 1
J1N1M2	1/9/12	Soil	C	See note 1
J1N1M3	1/9/12	Soil	C	See note 1
J1N1M4	1/9/12	Soil	C	See note 1
J1N1M5	1/9/12	Soil	C	See note 1
J1N1M6	1/9/12	Soil	C	See note 1
J1N1M7	1/9/12	Soil	C	See note 1
J1N1M8	1/9/12	Soil	C	See note 1
J1N1M9	1/9/12	Soil	C	See note 1
J1N1N0	1/9/12	Soil	C	See note 1
J1N1N1	1/9/12	Soil	C	See note 1
J1N1N3	1/10/12	Soil	C	See note 1
J1N1N4	1/10/12	Soil	C	See note 1
J1N1N5	1/10/12	Soil	C	See note 1
J1N1N6	1/10/12	Soil	C	See note 1
J1N1N7	1/10/12	Soil	C	See note 1
J1N1N8	1/10/12	Soil	C	See note 1

1 – ICP metals (6010B) and mercury (7471A).

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). 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 28 days for mercury and 6 months for ICP metals.

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 (J1N1N3) was submitted for analysis. Eleven analytes were detected in the field 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 (45.5%) 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 (J1N1N0/J1N1N1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 300 Area RQLs to ensure that laboratory detection levels meet the required criteria. All results met the RQL.

Completeness

Data package No. K3796 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 a matrix spike recovery outside QC limits, all antimony (45.5%) 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-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

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

INORGANICS DATA QUALIFICATION SUMMARY*

SDG: K3796	REVIEWER: ELR	Project: 300-32	PAGE <u>1</u> OF <u>1</u>
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Antimony	J	All	MS 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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1M1
1201028-02 (Soil)

V
12/13/2012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Metals by SW846 6000/7000 series								
Aluminum	4750		3.76	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Antimony	0.452	U	0.452	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Arsenic	1.93		0.753	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Barium	61.8		0.376	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Beryllium	0.220		0.151	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Boron	3.63		1.51	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Cadmium	0.189		0.151	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Calcium	4170		75.3	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Chromium	9.41		0.151	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Cobalt	4.69		1.51	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Copper	13.6		0.753	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Iron	14900		15.1	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Lead	7.46		0.376	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Lithium	5.33		1.88	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Magnesium	2910		56.4	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Manganese	228		3.76	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Molybdenum	0.300	B	1.51	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Nickel	7.02		3.01	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Potassium	981		301	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Selenium	0.226	U	0.226	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Silicon	313		1.51	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Silver	0.151	U	0.151	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Sodium	160		37.6	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Vanadium	37.4		1.88	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Zinc	45.7		7.53	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Mercury	0.0263	U	0.0263	mg/kg dry	1	L201149	01/17/2012	01/17/2012
								7471A



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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1M2
1201028-03 (Soil)

V2(301-)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	5870		4.76	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.571	U J	0.571	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	3.84		0.952	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	68.4		0.476	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.270		0.190	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	2.58		1.90	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.121	B	0.190	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	4870		95.2	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	8.33		0.190	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	4.97		1.90	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	12.1		0.952	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	17700		19.0	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	5.45		0.476	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	6.64		2.38	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	3670		71.4	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	261		4.76	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.736	B	1.90	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	8.71		3.81	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	1180		381	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.285	U	0.285	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	487		1.90	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.190	U	0.190	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	175		47.6	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	43.5		2.38	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	42.4		9.52	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0272	U	0.0272	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1M3
1201028-04 (Soil)

K2130112

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	4790		4.46	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.535	U	0.535	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	2.83		0.892	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	82.7		0.446	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.219		0.178	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	0.815	B	1.78	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.0722	B	0.178	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	5640		89.2	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	6.31		0.178	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	4.65		1.78	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	8.34		0.892	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	15600		17.8	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	3.03		0.446	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	5.82		2.23	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	3260		66.9	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	297		4.46	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.289	B	1.78	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	7.63		3.57	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	879		357	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.268	U	0.268	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	437		1.78	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.178	U	0.178	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	127		44.6	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	39.1		2.23	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	31.1		8.92	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0262	U	0.0262	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1M4
1201028-05 (Soil)

✓
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	4520		3.71	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.445	U	0.445	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	2.93		0.742	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	51.3		0.371	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.202		0.148	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	0.655	B	1.48	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.0601	B	0.148	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	6150		74.2	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	5.73		0.148	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	4.02		1.48	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	7.16		0.742	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	14000		14.8	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	2.50		0.371	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	5.44		1.85	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	3040		55.6	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	195		3.71	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.240	B	1.48	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	6.18		2.97	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	851		297	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.222	U	0.222	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	337		1.48	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.148	U	0.148	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	121		37.1	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	35.5		1.85	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	28.9		7.42	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0271	U	0.0271	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1M5
1201028-06 (Soil)

V12130112

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	4010		3.93	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.471	U	0.471	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	2.12		0.786	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	44.4		0.393	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.178		0.157	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	0.614	B	1.57	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.0528	B	0.157	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	6950		78.6	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	5.48		0.157	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	3.87		1.57	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	7.26		0.786	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	13000		15.7	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	2.50		0.393	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	5.08		1.96	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	2820		58.9	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	181		3.93	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.279	B	1.57	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	6.08		3.14	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	622		314	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.236	U	0.236	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	285		1.57	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.157	U	0.157	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	107		39.3	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	32.5		1.96	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	26.3		7.86	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0270	U	0.0270	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1M6
1201028-07 (Soil)

✓
12/30/12

Lionville Laboratory											
Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method		
Metals by SW846 6000/7000 series											
Aluminum	4810		4.71	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Antimony	0.566	U J	0.566	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Arsenic	2.75		0.943	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Barium	50.4		0.471	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Beryllium	0.216		0.189	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Boron	1.25	B	1.89	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Cadmium	0.0853	B	0.189	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Calcium	6350		94.3	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Chromium	6.85		0.189	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Cobalt	4.62		1.89	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Copper	9.26		0.943	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Iron	15900		18.9	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Lead	5.59		0.471	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Lithium	5.88		2.36	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Magnesium	3150		70.7	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Manganese	223		4.71	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Molybdenum	0.297	B	1.89	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Nickel	6.92		3.77	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Potassium	850		377	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Selenium	0.283	U	0.283	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Silicon	462		1.89	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Silver	0.189	U	0.189	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Sodium	145		47.1	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Vanadium	40.7		2.36	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Zinc	35.0		9.43	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B		
Mercury	0.0241	U	0.0241	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A		

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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1M7
1201028-08 (Soil)

✓ 12/36 k2

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	5210	U	4.63	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.556	U	0.556	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	2.51		0.927	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	72.9		0.463	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.248		0.185	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	1.91		1.85	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.101	B	0.185	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	5870		92.7	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	7.07		0.185	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	5.06		1.85	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	10.1		0.927	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	17200		18.5	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	4.23		0.463	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	6.07		2.32	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	3400		69.5	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	284		4.63	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.315	B	1.85	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	7.76		3.71	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	1010		371	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.278	U	0.278	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	366		1.85	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.185	U	0.185	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	150		46.3	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	42.6		2.32	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	40.7		9.27	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0270	U	0.0270	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1M8
1201028-09 (Soil)

✓
12/3/2012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	4610		3.60	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.432	U	0.432	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	2.34		0.720	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	60.3		0.360	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.210		0.144	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	0.765	B	1.44	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.0635	B	0.144	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	3870		72.0	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	5.38		0.144	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	4.45		1.44	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	11.2		0.720	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	15100		14.4	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	3.14		0.360	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	5.54		1.80	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	2930		54.0	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	218		3.60	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.255	B	1.44	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	6.60		2.88	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	885		288	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.216	U	0.216	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	261		1.44	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.144	U	0.144	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	111		36.0	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	37.5		1.80	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	35.0		7.20	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0236	U	0.0236	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1M9
1201028-10 (Soil)

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12 (30) 12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Metals by SW846 6000/7000 series								
Aluminum	4870		3.93	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Antimony	0.472	U	0.472	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Arsenic	2.78		0.786	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Barium	61.8		0.393	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Beryllium	0.233		0.157	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Boron	1.24	B	1.57	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Cadmium	0.105	B	0.157	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Calcium	4190		78.6	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Chromium	6.82		0.157	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Cobalt	5.32		1.57	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Copper	21.3		0.786	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Iron	16900		15.7	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Lead	4.23		0.393	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Lithium	5.71		1.96	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Magnesium	3170		58.9	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Manganese	273		3.93	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Molybdenum	0.313	B	1.57	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Nickel	7.23		3.14	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Potassium	929		314	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Selenium	0.236	U	0.236	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Silicon	332		1.57	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Silver	0.157	U	0.157	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Sodium	142		39.3	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Vanadium	41.9		1.96	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Zinc	43.6		7.86	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Mercury	0.0255	U	0.0255	mg/kg dry	1	L201149	01/17/2012	01/17/2012



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1N0
1201028-11 (Soil)

K12130112

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Metals by SW846 6000/7000 series								
Aluminum	4910	U	4.40	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Antimony	0.528		0.528	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Arsenic	2.42		0.880	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Barium	59.5		0.440	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Beryllium	0.225		0.176	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Boron	0.931	B	1.76	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Cadmium	0.0758	B	0.176	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Calcium	3870		88.0	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Chromium	7.14		0.176	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Cobalt	4.96		1.76	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Copper	9.62		0.880	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Iron	16300		17.6	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Lead	3.54		0.440	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Lithium	5.32		2.20	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Magnesium	3130		66.0	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Manganese	232		4.40	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Molybdenum	0.450	B	1.76	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Nickel	8.06		3.52	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Potassium	893		352	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Selenium	0.264	U	0.264	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Silicon	335		1.76	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Silver	0.176	U	0.176	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Sodium	130		44.0	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Vanadium	43.3		2.20	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Zinc	36.7		8.80	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Mercury	0.0278	U	0.0278	mg/kg dry	1	L201149	01/17/2012	01/17/2012
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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1N1
1201028-12 (Soil)

V12(38)15~

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	4680		4.27	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.513	U J	0.513	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	2.06		0.855	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	53.1		0.427	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.216		0.171	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	0.880	B	1.71	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.0621	B	0.171	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	3560		85.5	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	6.51		0.171	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	4.62		1.71	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	8.74		0.855	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	14800		17.1	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	3.37		0.427	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	5.27		2.14	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	2940		64.1	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	227		4.27	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.257	B	1.71	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	7.98		3.42	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	904		342	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.256	U	0.256	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	319		1.71	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.171	U	0.171	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	119		42.7	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	38.7		2.14	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	31.8		8.55	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0264	U	0.0264	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1N3
1201028-14 (Soil)

V12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	193		4.72	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.566	U	0.566	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	0.944	U	0.944	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	1.99		0.472	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.189	U	0.189	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	1.89	U	1.89	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.189	U	0.189	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	35.3	B	94.4	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	0.189	U	0.189	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	1.89	U	1.89	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	0.944	U	0.944	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	323		18.9	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	0.532		0.472	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	2.36	U	2.36	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	21.4	B	70.8	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	6.25		4.72	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	1.89	U	1.89	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	3.77	U	3.77	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	43.2	B	377	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.283	U	0.283	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	182		1.89	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.189	U	0.189	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	47.2	U	47.2	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	0.407	B	2.36	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	1.37	B	9.44	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0237	U	0.0237	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1N4
1201028-15 (Soil)

V121301e

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	5850		5.08	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.610	U	0.610	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	2.60		1.02	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	64.7		0.508	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.259		0.203	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	2.28		2.03	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.107	B	0.203	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	3680		102	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	7.24		0.203	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	5.54		2.03	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	10.9		1.02	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	18000		20.3	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	13.4		0.508	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	6.26		2.54	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	3290		76.2	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	281		5.08	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.322	B	2.03	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	7.59		4.07	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	1280		407	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.305	U	0.305	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	642		2.03	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.203	U	0.203	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	139		50.8	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	43.6		2.54	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	43.3		10.2	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0246	U	0.0246	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1N5
1201028-16 (Soil)

✓
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Metals by SW846 6000/7000 series								
Aluminum	5280	U J	4.32	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Antimony	0.519		0.519	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Arsenic	2.43		0.865	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Barium	63.5		0.432	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Beryllium	0.232		0.173	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Boron	3.04		1.73	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Cadmium	0.169	B	0.173	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Calcium	6150		86.5	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Chromium	7.46		0.173	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Cobalt	4.76		1.73	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Copper	10.7		0.865	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Iron	16100		17.3	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Lead	4.68		0.432	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Lithium	6.26		2.16	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Magnesium	3240		64.8	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Manganese	308		4.32	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Molybdenum	0.249	B	1.73	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Nickel	7.22		3.46	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Potassium	1090		346	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Selenium	0.259	U	0.259	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Silicon	442		1.73	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Silver	0.173	U	0.173	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Sodium	177		43.2	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Vanadium	40.4		2.16	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Zinc	42.5		8.65	mg/kg dry	1	L201127	01/13/2012	01/14/2012
Mercury	0.0267	U	0.0267	mg/kg dry	1	L201149	01/17/2012	01/17/2012



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1N6
1201028-17 (Soil)

VRL301m

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	5620		4.63	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.555	U	0.555	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	2.29		0.925	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	63.7		0.463	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.254		0.185	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	0.859	B	1.85	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.0697	B	0.185	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	2740		92.5	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	6.47		0.185	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	4.98		1.85	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	8.90		0.925	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	16900		18.5	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	3.19		0.463	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	5.98		2.31	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	3130		69.4	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	254		4.63	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.272	B	1.85	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	7.07		3.70	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	1220		370	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.278	U	0.278	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	410		1.85	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.185	U	0.185	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	114		46.3	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	41.4		2.31	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	32.8		9.25	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0271	U	0.0271	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1N7
1201028-18 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	5520		5.12	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.615	U	0.615	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	2.64		1.02	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	95.7		0.512	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.245		0.205	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	1.68	B	2.05	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.0989	B	0.205	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	9780		102	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	7.47		0.205	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	5.49		2.05	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	10.9		1.02	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	18100		20.5	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	3.86		0.512	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	6.23		2.56	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	3550		76.8	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	258		5.12	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.330	B	2.05	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	7.83		4.10	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	1110		410	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.307	U	0.307	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	619		2.05	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.205	U	0.205	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	278		51.2	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	45.2		2.56	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	39.4		10.2	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0247	U	0.0247	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

J1N1N8
1201028-19 (Soil)

✓ 2/13/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Metals by SW846 6000/7000 series

Aluminum	4890		4.45	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Antimony	0.534	U	0.534	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Arsenic	2.30		0.890	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Barium	77.3		0.445	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Beryllium	0.236		0.178	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Boron	4.87		1.78	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cadmium	0.168	B	0.178	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Calcium	6560		89.0	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Chromium	6.98		0.178	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Cobalt	5.53		1.78	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Copper	11.6		0.890	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Iron	15800		17.8	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lead	4.29		0.445	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Lithium	5.46		2.23	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Magnesium	2900		66.8	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Manganese	237		4.45	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Molybdenum	0.345	B	1.78	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Nickel	7.57		3.56	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Potassium	1090		356	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Selenium	0.267	U	0.267	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silicon	336		1.78	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Silver	0.178	U	0.178	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Sodium	162		44.5	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Vanadium	40.5		2.23	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Zinc	41.2		8.90	mg/kg dry	1	L201127	01/13/2012	01/14/2012	6010B
Mercury	0.0255	U	0.0255	mg/kg dry	1	L201149	01/17/2012	01/17/2012	7471A

Appendix 4
Laboratory Narrative and Chain-of-Custody Documentation



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

Case Narrative

Client: WC-HANFORD RC-029
LVL#: 1201028
SDG/SAF#: K3796/RC-029

W.O.#: 60049-001-001-0001-00
Date Received: 01-11-12

METALS

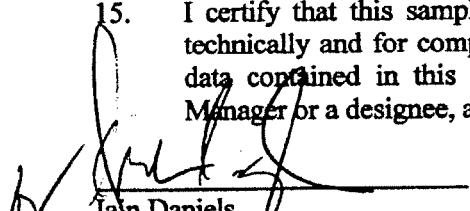
The following is a summary of the QC results accompanying the sample results. Lionville Laboratory (LvL) certifies that all test results meet the requirements of NELAC except as noted below.

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 17 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 LvL's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the LOQ).
7. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation, 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 5 analytes were outside the 75-125% control limits.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

<u>Sample ID</u>	<u>Element</u>	<u>PDS Concentration (ppb)</u>	<u>PDS % Recovery</u>
J1N1M1	Aluminum	22,000	111.8
	Antimony	100	97.5
	Iron	42,000	100.4
	Manganese	1,000	98.2
	Silicon	2,100	129.5

12. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limit critieria. The \pm 20% RPD control limit applies to sample results greater than ten times the MDL. The sample results for Arsenic and Cadmium were less than ten times the MDL.
13. For the purposes of this report, the data have been reported to the Limit of Detection (LOD). Values between the LOD and the Limit of Quantitation (LOQ) are acquired in a region of less-certain quantification.
14. LvL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
15. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



Ian Daniels
Laboratory Manager
Lionville Laboratory

1/18/12
Date

slm/01-028

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 1 of 13		
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Method of Shipment Fed Ex	Data Turnaround 15 Days		
Project Description Remaining Sites Confirmation Sampling - Soil Full Protocol				SAF No. RC-029				
Ice Chest No. AK-AF 1-9-12	ERC-02-007	Field Logbook No. EL-1663	COA C30032A000					
Shipped To 34 141- EBERLINE SERVICES/ LIONVILLE		Offsite Property No. A 100975		Bill of Lading/Air Bill No. NAT A3 /-P-72		Sec OSPC		
POSSIBLE SAMPLE HAZARDS/REMARKS								
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.								
Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.								
SAMPLE ANALYSIS								
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS				
JIN1M0	SOIL	01/09/12	1145	(1) ICP Metals - 6010TR (Clear-on Lit) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)				
JIN1M1	SOIL	01/09/12	1215	*	x	x	x	
JIN1M2	SOIL	01/09/12	1230	x	x	x	x	
JIN1M3	SOIL	01/09/12	1240	x	x	x	x	
JIN1M4	SOIL	01/09/12	1250	x	x	x	x	
CHAIN OF POSSESSION				Matrix *				
Relinquished By/Removed From WILMINGTON SITES	Date/Time 1-9-12 1531	Received By/Stored In 3414 DOR BLVD	Date/Time 1-9-12 1531	(2) Gamma Spec (Clear Lit) (Americium-241, Cerium-137, Cobalt-60, Europium-154, Europium-155); Gross Alpha & Gross Beta				
Relinquished By/Removed From 3414 DOR BLVD	Date/Time 1-9-12 1620	Received By/Stored In DCR	Date/Time 1-9-12 1620	(3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-238/240); Strontium-89/90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium [Uranium-233/234, Uranium-235, Uranium-238]; Total Uranium				
Relinquished By/Removed From A. Feier J. Hillier	Date/Time 1-10-12 1245	Received By/Stored In FED EX OFFICE	Date/Time 1-10-12 1245	* PLEASE ADD LITHIUM TO ICP METALS LIST PA 11/5/12				
Relinquished By/Removed From FED EX OFFICE	Date/Time 1-11-12 1545	Received By/Stored In FED EX OFFICE	Date/Time 1-11-12 1545	** 20 ml vial → % moisture *** freeze upon receipt at 1-10-12				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
LABORATORY Received By SECTION	Disposal Method	Reviewed By Title	Disposed By Title					
FINAL SAMPLE DISPOSITION								

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						RC-029-127		Page 2 of A3	
Collector Simonds	Contact Joan Kessner	Telephone No. 375-4688			Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days				
Project Destination Remaining Sites Confirmation Sampling, Soil Full Protocol		Sampling Location 300-32			SAF No. RC-029	Method of Shipment Bill of Lading/Air Bill No.					
Ice Chest No. AA 1-12 ERG-02-007		Field Logbook No. BL-1663	COA C30032A000	Offsite Property No. A100975	HA-1-12 and See OSPC						
See OSPC											
POSSIBLE SAMPLE HAZARD REMARKS											
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.											
Special Handling and/or Storage											
Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.											
SAMPLE ANALYSIS											
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS							
JIN1M5	SOIL	1/9/12	13:0	X	X	X	X	X	X	X	X
JIN1M6	SOIL	1/9/12	13:20	X	X	X	X	X	X	X	X
JIN1M7	SOIL	1/9/12	13:45	X	X	X	X	X	X	X	X
JIN1M8	SOIL	1/9/12	13:55	X	X	X	X	X	X	X	X
JIN1M8	SOIL	1/9/12	14:20	X	X	X	X	X	X	X	X
CHAIN OF POSSESSION											
Relinquished By/Removed From MIRANDA SWANSON 1-9-12 15:31	Received By/Stored In BLUDON 1-9-12 16:20	Date/Time 1-9-12 16:20	Date/Time 1-9-12 16:20	1-9-12 15:31							
Relinquished By/Removed From BLUDON 1-9-12 16:20	Received By/Stored In A. Fricke, A. Fricke, A. Fricke	Date/Time 1-9-12 16:45	Date/Time 1-9-12 16:45	Received By/Stored In Fed Ex							
Relinquished By/Removed From Fed Ex 1-10-12 08:50	Received By/Stored In CIOB CIOB/CIOB/CIOB	Date/Time 1-10-12 08:50	Date/Time 1-10-12 08:50	Received By/Stored In CIOB							
Relinquished By/Removed From CIOB 1-10-12 08:50	Received By/Stored In CIOB/CIOB/CIOB	Date/Time 1-10-12 08:50	Date/Time 1-10-12 08:50	RELEASE ADD UTHIUM TO ICP METALS LIST 1-10-12							
Relinquished By/Removed From CIOB 1-10-12 08:50	Received By/Stored In CIOB/CIOB/CIOB	Date/Time 1-10-12 08:50	Date/Time 1-10-12 08:50	# RELEASE ADD UTHIUM TO ICP METALS LIST 1-10-12							
LABORATORY	Received By	REVIEWED Title CMB									
SECTION	Disposal Method	Date/Time									
FINAL SAMPLE DISPOSITION		Date/Time									

REC'D 11/19/92

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127				Page 1 of 3		
Collector	Company Contact	Telephone No.	Project Coordinator	Price Code	8C	Data Turnaround				
Simonds	Joan Kessner	375-4688	KESSNER, JH							
Sampling Location 300-32 EL-1663				SAF No. RC-029				15 Days		
Field Logbook No. COA C30032A000				Method of Shipment						
Offsite Property No. A100975				Bill of Lading/Air Bill No. NA-10-11 COMP				See SPC		
POSSIBLE SAMPLE HAZARD/STRENGTHS				Preservation				Cool 4C		
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.				G/P	G	Gr*		aG	aG	
Special Handling and/or Storage				No. of Container(s)	1	1	5		1	1
Please keep cool (< 4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.				Volume	60mL	60mL	40mL	120mL	120mL	500mL
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Crown Hc-7196	TTF-Diesel Range WTFHD + KX	VQA- SOILS20 (TCL)	VQA- SOILS20 (TCL)	PAHS - E310	PCBs - E302 SVDA - B27DA
										See item (1) in Special Instructions.
Sample No.	Matrix *	Sample Date	Sample Time							SPECIAL INSTRUCTIONS
JN1NO	SOIL	1/9/92	1430	X	X	X	X	X	X	(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)
JN1N1	SOIL	1/9/92	1435	X	X	X	X	X	X	(2) German Spec (Close List) (Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-155); Gross Alpha & Gross Beta
JN1N2	SOIL									(3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Strontium-89/90 - Total Sr; Technetium-99 Low Level; isotopic Uranium [Uranium-233/234, Uranium-235, Uranium-238]; Total Uranium
JN1N3	SOIL	1/9/92								
CHAIN OF POSSESSION				Signature Names				Matrix *		
Requisitioned By/Retained From	Date/Time	Received By/Stored In		Date/Time		Received By/Stored In		SOIL		
MCGANAGH, S. MOUNTS	1/9-12 1531	Bill Hubbard Blubbs		1/9/92		Received By/Stored In		SOIL		
SHULSON, D. SHULSON	1/9/92 1620	A. Feier A. Feier		1-9-92		Received By/Stored In		SOIL		
A. Feier A. Feier	1/10/92 1245	Received By/Stored In		Date/Time		Received By/Stored In		SOIL		
F. SOE	1-11-92 1254	Received By/Stored In		Date/Time		Received By/Stored In		SOIL		
1/2/92	1-11-92 1305	Received By/Stored In		Date/Time		Received By/Stored In		SOIL		
LABORATORY SECTION	Received By	REVIEWED BY		Title		Title		Title		
FINAL SAMPLE DISPOSITION	Disposal Method	DATE		1-10-92		Date/Time		Date/Time		

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127				Page 3 of 4						
Collector Simonds	Company Contact Jean Keimer	Telephone No. 375-4688	Protect Coordinator KRESSNER, JH	Price Code 8C	8C	8C	8C	Date Turnaround 15 Days	SAF No. RC-039	Method of Shipment				
Project Destination Remaining Sites Confirmation Sampling - Soil Pull Protocol	Sampling Location 300-32	Field Notebook No. EL-1663	COA C3032A000	Bill of Lading/Air Bill No. NAK A.F. /-10/-12				See OSPC						
Ice Chest No. DA-AJ 110-12	ERC-02-007	Office Property No. A-100975					Fed Ex							
POSSIBLE SAMPLE HAZARDS/REMARKS				Preservation				Cool AC	Cool AC	Frozen	Cool AC	Cool AC	New	New
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.				Type of Container	Q/F	G/F	G	G*	G*	G	G	G	Q/F	Q/F
<i>L-DOT L-17777-73 A # 1-10-72</i>				No. of Container(s)	1	1	1	3	3	1	1	1	1	1
Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" headings. Thank You.				Volume	60mL	60mL	120mL	40mL	130mL	120mL	250mL	500mL	500mL	312-14
				Spec Name (1) in Separated Instructions	Chromate Hex - 7196	TPH-Diesel Range - WTPH-D+	VOC- Solvent (TCL)	VOC- Solvent (TCL)	VOC- Solvent (TCL)	VOC- Solvent (TCL)	PATH - 6310	PATH - 6310	See Note in Spec Instructions	See Note in Spec Instructions
SAMPLE ANALYSIS				*	*	*	*	*	*	*	*	*	*	
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS								Matrix *		
JIN1N12	SOIL													
JIN1N12	SOIL	1/10/12	0715											
JIN1N13	SOIL	1/10/12	0740	*	*	*	*	*	*	*	*	*		
JIN1N14	SOIL	1/10/12	0752	*	*	*	*	*	*	*	*	*		
CHAIN OF POSSESSION														
Relinquished By/Removed From <i>MILANO, S. SALVATI</i>	Date/Time 11-10-12	Received By/Stand In <i>Bilboden, Blodden</i>	Date/Time 10/12 1015	10/12 1015										10/12 1015
Relinquished By/Removed From <i>Bilboden, Blodden</i>	Date/Time 11-10-12 1100	Received By/Stand In <i>A. Freer, A. Johnson</i>	Date/Time 11-10-12 1100	11-10-12 1100										11-10-12 1100
Relinquished By/Removed From <i>A. Freer, A. Johnson</i>	Date/Time 11-10-12	Received By/Stand In <i>Lester Herkampf</i>	Date/Time 11-10-12 0950	11-10-12 0950										11-10-12 0950
Relinquished By/Removed From <i>Lester Herkampf</i>	Date/Time 11-10-12 1345	Received By/Stand In <i>Lester Herkampf</i>	Date/Time 11-10-12 1345	11-10-12 1345										11-10-12 1345
Relinquished By/Removed From <i>Lester Herkampf</i>	Date/Time 11-10-12	Received By/Stand In <i>Lester Herkampf</i>	Date/Time 11-10-12	11-10-12										11-10-12
LABORATORY SECTION	Received By	REVIEWED BY <i>CMB</i>												Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	DATE <i>1-10-12</i>												Date/Time

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 8 of 8	
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Days Turnaround 15 Days		
Project Designation Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location 300-32	Field Logbook No. EL-663	COA C30032A000	Method of Shipment NA A/F, 10-12	Bill of Lading/Air Bill No. SEC OSPC	Fed Ex	
Shipped To: BN-Utility-BERLINE-SERVICES / LIONVILLE	Offsite Property No. A100975	Preservation G/F	Cool 4C G	Freeze G*	Cool 4C G	Cool 4C G	None
POSSIBLE SAMPLE HAZARDS/REMARKS		Type of Container 1	1	5	1	1	
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly. 2. DOT L1mL's As of 1-10-12.		No. of Container(s) 60mL	60mL	120mL 40mL	120mL 500mL	120mL 500mL	
Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.		Volume See Item (1) in Special Instructions.	TPH-Diesel Range- WTPH-D+	VOA - SO3510240 (TCL)	PAHS - \$310 VOA (TCL)	PCBs - \$102 VOA - B2790A VOA	See Item (2) in Special Instructions.
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date 1/10/12	Sample Time 0805	X	X	X	
J1N1NS	SOIL	1/10/12	0830	X	X	X	
J1N1N6	SOIL	1/10/12	0845	X	X	X	
J1N1N7	SOIL	1/10/12	0845	X	X	X	
J1N1N8	SOIL	1/10/12	0900	X	X	X	
J1N1N9-J4A 1/10/12	SOIL						
SPECIAL INSTRUCTIONS							
CHAIN OF POSSESSION				Date/Time Received By/Stored In MARSHAND 1-10-12 105 BHD 2012 Blkdr	Date/Time 10/5	Matrix *	
Relinquished By/Removed From MARSHAND 1-10-12 105 BHD 2012 Blkdr				Date/Time 1/10/12	Date/Time 1/10/12	(1) ICP Metals - 6010TR (Close-out List) Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc; Mercury - 7471 - (CV)	
Relinquished By/Removed From PHILLIPS 1-10-12 1100 A. Frazier A. Frazier				Date/Time 1/10/12	Date/Time 1/10-12	(2) Gamma Spec (Close List) Americium-241, Cesium-137, Cobalt-60, European-151, European-153; Gross Alpha & Gross Beta	
Relinquished By/Removed From A. Frazier A. Frazier 1-10-12				Date/Time 1/10-12	Date/Time 1/10-12	(3) Americium-241, Nickel-63; Isotopic Plutonium-239/240; Strontium-89 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium	
Relinquished By/Removed From Felder 1-10-12 0930				Date/Time 1/10-12	Date/Time 1-10-12 0930	* RELEASE AND LITHIUM TD ICP METALS LIST BN 1/5/12	
Relinquished By/Removed From Felder 1-10-12 0935				Date/Time 1/10-12	Date/Time 1/10-12 0935	* 2.0 ml vial → % moisture	
Relinquished By/Removed From Felder 1-10-12 0935				Date/Time 1/10-12	Date/Time 1/10-12	* * freeze upon receipt At 1-10-12	
LABORATORY	Received By Felder	DATE 1-10-12		Disposed By		Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method						

Appendix 5
Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 300-32					
VALIDATOR: ELR	LAB: LLT			DATE: 12/28/12	
		SDG: K3774			
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MATRIX					
JINIM1	JINIM2	JINIM3	JINIM4	JINIM5	
JWINM6	JWINM7	JWINM8	JWINM9	JWINW0	
JININI	JININ3	JININ4	JININ5	JININ6	
JININ7	JININ8				
S&I					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/AComments: _____

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

Initial calibrations performed on all instruments? Yes No N/AInitial calibrations acceptable? Yes No N/AICP interference checks acceptable? Yes No N/AICV and CCV checks performed on all instruments? Yes No N/AICV and CCV checks acceptable? Yes No N/AStandards traceable? Yes No N/AStandards expired? Yes No N/ACalculation check acceptable? Yes No N/AComments: _____

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
 Yes No N/A
- ICB and CCB results acceptable? (Levels D, E) Yes No N/A
 Yes No N/A
- Laboratory blanks analyzed? Yes No N/A
 Yes No N/A
- Laboratory blank results acceptable? Yes No N/A
 Yes No N/A
- Field blanks analyzed? (Levels C, D, E) Yes No N/A
 Yes No N/A
- Field blank results acceptable? (Levels C, D, E) Yes No N/A
 Yes No N/A
- Transcription/calculation errors? (Levels D, E) Yes No N/A
 Yes No N/A
- Comments: _____

N3 - 11 detects**4. ACCURACY (Levels C, D, and E)**

- MS/MSD samples analyzed? Yes No N/A
 Yes No N/A
- MS/MSD results acceptable? Yes No N/A
 Yes No N/A
- MS/MSD standards NIST traceable? (Levels D, E) Yes No N/A
 Yes No N/A
- MS/MSD standards expired? (Levels D, E) Yes No N/A
 Yes No N/A
- LCS/BSS samples analyzed? Yes No N/A
 Yes No N/A
- LCS/BSS results acceptable? Yes No N/A
 Yes No N/A
- Standards traceable? (Levels D, E) Yes No N/A
 Yes No N/A
- Standards expired? (Levels D, E) Yes No N/A
 Yes No N/A
- Transcription/calculation errors? (Levels D, E) Yes No N/A
 Yes No N/A
- Performance audit sample(s) analyzed? Yes No N/A
 Yes No N/A
- Performance audit sample results acceptable? Yes No N/A
 Yes No N/A
- Comments: Ms - antimony (45.82) - 5

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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

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
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Batch L201127 - SW 3050B

Blank (L201127-BLK1)	Prepared: 01/13/2012 Analyzed: 01/14/2012							
Aluminum	3.29	U	3.29	mg/kg wet				
Antimony	0.395	U	0.395	mg/kg wet				
Arsenic	0.658	U	0.658	mg/kg wet				
Barium	0.329	U	0.329	mg/kg wet				
Beryllium	0.132	U	0.132	mg/kg wet				
Boron	1.32	U	1.32	mg/kg wet				
Cadmium	0.132	U	0.132	mg/kg wet				
Calcium	65.8	U	65.8	mg/kg wet				
Chromium	0.132	U	0.132	mg/kg wet				
Cobalt	1.32	U	1.32	mg/kg wet				
Copper	0.658	U	0.658	mg/kg wet				
Iron	13.2	U	13.2	mg/kg wet				
Lead	0.329	U	0.329	mg/kg wet				
Lithium	1.64	U	1.64	mg/kg wet				
Magnesium	1.38	B	49.3	mg/kg wet				
Manganese	3.29	U	3.29	mg/kg wet				
Molybdenum	1.32	U	1.32	mg/kg wet				
Nickel	2.63	U	2.63	mg/kg wet				
Potassium	263	U	263	mg/kg wet				
Selenium	0.197	U	0.197	mg/kg wet				
Silicon	1.32	U	1.32	mg/kg wet				
Silver	0.132	U	0.132	mg/kg wet				
Sodium	32.9	U	32.9	mg/kg wet				
Vanadium	1.64	U	1.64	mg/kg wet				
Zinc	6.58	U	6.58	mg/kg wet				

Duplicate (L201127-DUP1)	Source: 1201028-02	Prepared: 01/13/2012 Analyzed: 01/14/2012							
Aluminum	5160		3.94	mg/kg dry	4750		8.30	20	
Antimony	0.472	U	0.472	mg/kg dry	0.452 U				20
Arsenic	2.81		0.787	mg/kg dry	1.93		37.2*	20	
Barium	68.0		0.394	mg/kg dry	61.8		9.55	20	
Beryllium	0.234		0.157	mg/kg dry	0.220		6.44	20	
Boron	3.63		1.57	mg/kg dry	3.63		0.230	20	
Cadmium	0.136	B	0.157	mg/kg dry	0.189		32.7*	20	
Calcium	4740		78.7	mg/kg dry	4170		12.7	20	
Chromium	12.1		0.157	mg/kg dry	9.41		25.0*	20	
Cobalt	4.72		1.57	mg/kg dry	4.69		0.768	20	



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Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

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
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Batch L201127 - SW 3050B

Duplicate (L201127-DUP1)	Source: 1201028-02		Prepared: 01/13/2012 Analyzed: 01/14/2012							
Copper	11.7	0.787	mg/kg dry			13.6			14.7	20
Iron	15900	15.7	mg/kg dry			14900			6.91	20
Lead	7.95	0.394	mg/kg dry			7.46			6.39	20
Lithium	5.68	1.97	mg/kg dry			5.33			6.43	20
Magnesium	3170	59.0	mg/kg dry			2910			8.64	20
Manganese	247	3.94	mg/kg dry			228			7.88	20
Molybdenum	0.278	B	1.57	mg/kg dry		0.300			7.54	20
Nickel	7.62	3.15	mg/kg dry			7.02			8.31	20
Potassium	1080	315	mg/kg dry			981			9.23	20
Selenium	0.236	U	0.236	mg/kg dry		0.226 U				20
Silicon	290	1.57	mg/kg dry			313			7.89	20
Silver	0.157	U	0.157	mg/kg dry		0.151 U				20
Sodium	164	39.4	mg/kg dry			160			2.32	20
Vanadium	38.3	1.97	mg/kg dry			37.4			2.30	20
Zinc	45.9	7.87	mg/kg dry			45.7			0.431	20

Matrix Spike (L201127-MS1)	Source: 1201028-02		Prepared: 01/13/2012 Analyzed: 01/14/2012						
Aluminum	5790	3.55	mg/kg dry	142.14	4750	732*	75-125		20
Antimony	16.2	0.426	mg/kg dry	35.535	0.452 U	45.5*	75-125		20
Arsenic	124	0.711	mg/kg dry	142.14	1.93	85.5	75-125		20
Barium	192	0.355	mg/kg dry	142.14	61.8	91.5	75-125		20
Beryllium	3.16	0.142	mg/kg dry	3.5535	0.220	82.9	75-125		20
Boron	60.9	1.42	mg/kg dry	71.070	3.63	80.6	75-125		20
Cadmium	3.17	0.142	mg/kg dry	3.5535	0.189	83.8	75-125		20
Calcium	6160	71.1	mg/kg dry	1776.7	4170	112	75-125		20
Chromium	21.4	0.142	mg/kg dry	14.214	9.41	84.2	75-125		20
Cobalt	33.9	1.42	mg/kg dry	35.535	4.69	82.2	75-125		20
Copper	27.5	0.711	mg/kg dry	17.767	13.6	78.7	75-125		20
Iron	16600	14.2	mg/kg dry	71.070	14900	2430*	75-125		20
Lead	34.7	0.355	mg/kg dry	35.535	7.46	76.8	75-125		20
Lithium	67.4	1.78	mg/kg dry	71.070	5.33	87.4	75-125		20
Magnesium	4560	53.3	mg/kg dry	1776.7	2910	93.3	75-125		20
Manganese	313	3.55	mg/kg dry	35.535	228	239*	75-125		20
Molybdenum	59.6	1.42	mg/kg dry	71.070	0.300	83.4	75-125		20
Nickel	36.2	2.84	mg/kg dry	35.535	7.02	82.0	75-125		20
Potassium	2560	284	mg/kg dry	1776.7	981	88.7	75-125		20
Selenium	117	0.213	mg/kg dry	142.14	0.226 U	82.3	75-125		20



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2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

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 L201127 - SW 3050B									
Matrix Spike (L201127-MS1)									
Source: 1201028-02 Prepared: 01/13/2012 Analyzed: 01/14/2012									
Silicon	462	1.42	mg/kg dry	71.070	313	209*	75-125		20
Silver	2.94	0.142	mg/kg dry	3.5535	0.151 U	82.7	75-125		20
Sodium	1660	35.5	mg/kg dry	1776.7	160	84.7	75-125		20
Vanadium	70.9	1.78	mg/kg dry	35.535	37.4	94.1	75-125		20
Zinc	78.6	7.11	mg/kg dry	35.535	45.7	92.5	75-125		20
Reference (L201127-SRM1)									
Prepared: 01/13/2012 Analyzed: 01/14/2012									
Aluminum	6410	12.3	mg/kg wet	6670.0		96.1	0-200.89		
Antimony	58.2	1.48	mg/kg wet	53.000		110	0-235.8		
Arsenic	111	2.46	mg/kg wet	114.00		97.7	82.8-117.54		
Barium	295	1.23	mg/kg wet	307.00		96.0	79.8-120.2		
Beryllium	105	0.492	mg/kg wet	108.00		97.4	82.8-117.6		
Boron	81.9	4.92	mg/kg wet	85.100		96.2	67.5-132.8		
Cadmium	223	0.492	mg/kg wet	225.00		98.9	83.6-116.4		
Calcium	3130	246	mg/kg wet	3360.0		93.2	83.3-116.9		
Chromium	75.3	0.492	mg/kg wet	77.200		97.5	73.3-126.4		
Cobalt	162	4.92	mg/kg wet	166.00		97.9	80.7-118.7		
Copper	263	2.46	mg/kg wet	271.00		97.0	80.8-119.2		
Iron	8180	49.2	mg/kg wet	8420.0		97.2	78.6-121.1		
Lead	177	1.23	mg/kg wet	190.00		93.1	81.6-118.4		
Lithium	113	6.15	mg/kg wet	114.00		99.1	50.9-148.2		
Magnesium	7630	184	mg/kg wet	8570.0		89.0	83.2-116.7		
Manganese	895	12.3	mg/kg wet	965.00		92.8	69.3-130.5		
Molybdenum	232	4.92	mg/kg wet	235.00		98.9	76.2-123.8		
Nickel	213	9.84	mg/kg wet	221.00		96.2	79.6-120.8		
Potassium	14000	984	mg/kg wet	14400		97.4	81.9-118.1		
Selenium	186	0.738	mg/kg wet	187.00		99.2	75.9-124.6		
Silicon	568	4.92	mg/kg wet	807.00		70.4	0-219.3		
Silver	80.3	0.492	mg/kg wet	83.500		96.2	82.7-117.1		
Sodium	8830	123	mg/kg wet	9730.0		90.8	82.5-117.2		
Vanadium	95.7	6.15	mg/kg wet	98.700		96.9	75.9-123.6		
Zinc	199	24.6	mg/kg wet	199.00		100	78.4-121.6		



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/18/2012 12:08

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 L201149 - SW 7471A Prep											
Blank (L201149-BLK1)							Prepared & Analyzed: 01/17/2012				
Mercury	0.0290	U	0.0290		mg/kg wet						
Duplicate (L201149-DUP1)		Source: 1201028-02			Prepared & Analyzed: 01/17/2012						
Mercury	0.0271	U	0.0271		mg/kg dry		0.0263 U				20
Matrix Spike (L201149-MS1)		Source: 1201028-02			Prepared & Analyzed: 01/17/2012						
Mercury	0.160		0.0249		mg/kg dry	0.13830	0.0263 U 116	75-125			20
Reference (L201149-SRM1)					Prepared & Analyzed: 01/17/2012						
Mercury	1.25		0.0290		mg/kg wet	1.2900		96.5	62.6-138		

Date: 31 December 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: Remaining Sites Confirmation Sampling – Soil Full Protocol – Waste Site 300-32
Subject: PCB - Data Package No. K3796-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K3796 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
J1N1M1	1/9/12	Soil	C	See note 1
J1N1M2	1/9/12	Soil	C	See note 1
J1N1M3	1/9/12	Soil	C	See note 1
J1N1M4	1/9/12	Soil	C	See note 1
J1N1M5	1/9/12	Soil	C	See note 1
J1N1M6	1/9/12	Soil	C	See note 1
J1N1M7	1/9/12	Soil	C	See note 1
J1N1M8	1/9/12	Soil	C	See note 1
J1N1M9	1/9/12	Soil	C	See note 1
J1N1N0	1/9/12	Soil	C	See note 1
J1N1N1	1/9/12	Soil	C	See note 1
J1N1N4	1/10/12	Soil	C	See note 1
J1N1N5	1/10/12	Soil	C	See note 1
J1N1N6	1/10/12	Soil	C	See note 1
J1N1N7	1/10/12	Soil	C	See note 1
J1N1N8	1/10/12	Soil	C	See note 1

1 - PCBs by 8082.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). 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

Holding times are not applicable to PCB analytes.

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.

All 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 PCB results in samples J1N1M7 and J1N1N4 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. Sample 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 duplicate results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1N1N0/J1N1N1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were 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. K3796 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 surrogate recoveries outside QC limits, all PCB results in samples J1N1M7 and J1N1N4 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-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

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

PCB DATA QUALIFICATION SUMMARY*

SDG: K3796	REVIEWER: ELR	Project: 300-32	PAGE <u>1</u> OF <u>1</u>
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All	J	J1N1M7, J1N1N4	Surrogate 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



A division of Eberline Analytical Corporation

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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:55

J1N1M1
1201028-02 (Soil)

12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.6	U	13.6	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1221	13.6	U	13.6	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1232	13.6	U	13.6	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1242	13.6	U	13.6	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1248	12.6	J	13.6	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1254	102		13.6	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1260	29.8		13.6	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1262	13.6	U	13.6	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1268	13.6	U	13.6	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Surrogate: Decachlorobiphenyl	87 %		43-144			L201146	01/16/2012	01/18/2012	8082
Surrogate: Tetrachloro-meta-xylene	92 %		52-141			L201146	01/16/2012	01/18/2012	8082



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:55

J1N1M2
1201028-03 (Soil)

V
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1221	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1232	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1242	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1248	3.44	J	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1254	21.8		13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1260	6.35	J	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1262	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1268	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Surrogate: Decachlorobiphenyl	86 %		43-144			L201146	01/16/2012	01/18/2012	8082
Surrogate: Tetrachloro-meta-xylene	74 %		52-141			L201146	01/16/2012	01/18/2012	8082



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:55

J1N1M3
1201028-04 (Soil)

V₁₂(30)^{1/2}

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1221	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1232	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1242	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1248	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1254	4.59	J	13.5	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1260	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1262	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1268	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Surrogate: Decachlorobiphenyl	93 %		43-144			L201146	01/16/2012	01/18/2012	8082
Surrogate: Tetrachloro-meta-xylene	90 %		52-141			L201146	01/16/2012	01/18/2012	8082



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:55

J1N1M4
1201028-05 (Soil)

✓ 2/3d/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1221	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1232	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1242	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1248	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1254	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1260	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1262	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1268	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Surrogate: Decachlorobiphenyl	90 %		43-144			L201146	01/16/2012	01/18/2012	8082
Surrogate: Tetrachloro-meta-xylene	69 %		52-141			L201146	01/16/2012	01/18/2012	8082



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:55

J1N1M5
1201028-06 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1221	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1232	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1242	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1248	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1254	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1260	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1262	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1268	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Surrogate: Decachlorobiphenyl	85 %		43-144			L201146	01/16/2012	01/18/2012	8082
Surrogate: Tetrachloro-meta-xylene	83 %		52-141			L201146	01/16/2012	01/18/2012	8082

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Project Number: K3796
Project Manager: Joan Kessner

Reported:
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J1N1M6
1201028-07 (Soil)

V
2/3d.2

Analyte	Result and Qualifier	Reporting					
		Limit	Units	Dilution	Batch	Prepared	Analyzed

Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1221	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1232	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1242	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1248	7.95	J	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1254	26.9		13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1260	5.66	J	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1262	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1268	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Surrogate: Decachlorobiphenyl	86 %		43-144			L201146	01/16/2012	01/18/2012	8082
Surrogate: Tetrachloro-meta-xylene	75 %		52-141			L201146	01/16/2012	01/18/2012	8082



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Reported:
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J1N1M7
1201028-08 (Soil)

V
12/30/12

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	L201146	01/16/2012	01/18/2012
Aroclor 1221	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012
Aroclor 1232	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012
Aroclor 1242	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012
Aroclor 1248	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012
Aroclor 1254	50.9		13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012
Aroclor 1260	21.4		13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012
Aroclor 1262	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012
Aroclor 1268	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012
Surrogate: Decachlorobiphenyl	88 %		43-144			L201146	01/16/2012	01/18/2012
Surrogate: Tetrachloro-meta-xylene	22 % *		52-141			L201146	01/16/2012	01/18/2012



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Reported:
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J1N1M8
1201028-09 (Soil)

V
1213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1221	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1232	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1242	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1248	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1254	12.5	J	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1260	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1262	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Aroclor 1268	13.3	U	13.3	ug/kg dry	1	L201146	01/16/2012	01/18/2012	8082
Surrogate: Decachlorobiphenyl	90 %		43-144			L201146	01/16/2012	01/18/2012	8082
Surrogate: Tetrachloro-meta-xylene	66 %		52-141			L201146	01/16/2012	01/18/2012	8082



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Reported:
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J1N1M9
1201028-10 (Soil)

V₁, V₂, (3d) V₂

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	52.5	U	52.5	ug/kg dry	4	L201146	01/16/2012	01/19/2012	8082
Aroclor 1221	52.5	U	52.5	ug/kg dry	4	L201146	01/16/2012	01/19/2012	8082
Aroclor 1232	52.5	U	52.5	ug/kg dry	4	L201146	01/16/2012	01/19/2012	8082
Aroclor 1242	52.5	U	52.5	ug/kg dry	4	L201146	01/16/2012	01/19/2012	8082
Aroclor 1248	52.5	U	52.5	ug/kg dry	4	L201146	01/16/2012	01/19/2012	8082
Aroclor 1254	318	D	52.5	ug/kg dry	4	L201146	01/16/2012	01/19/2012	8082
Aroclor 1260	96.2	D	52.5	ug/kg dry	4	L201146	01/16/2012	01/19/2012	8082
Aroclor 1262	52.5	U	52.5	ug/kg dry	4	L201146	01/16/2012	01/19/2012	8082
Aroclor 1268	52.5	U	52.5	ug/kg dry	4	L201146	01/16/2012	01/19/2012	8082
Surrogate: Decachlorobiphenyl	100 %		43-144			L201146	01/16/2012	01/19/2012	8082
Surrogate: Tetrachloro-meta-xylene	96 %		52-141			L201146	01/16/2012	01/19/2012	8082



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Reported:
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J1N1N0
1201028-11 (Soil)

✓ 12/30/14

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1221	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1232	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1242	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1248	18.1		13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1254	121		13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1260	25.7		13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1262	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1268	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
<i>Surrogate: Decachlorobiphenyl</i>	88 %		43-144			L201146	01/16/2012	01/19/2012	8082
<i>Surrogate: Tetrachloro-meta-xylene</i>	88 %		52-141			L201146	01/16/2012	01/19/2012	8082



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J1N1N1
1201028-12 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1221	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1232	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1242	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1248	36.5		13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1254	146		13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1260	28.1		13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1262	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1268	13.4	U	13.4	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
<i>Surrogate: Decachlorobiphenyl</i>	90 %		43-144			L201146	01/16/2012	01/19/2012	8082
<i>Surrogate: Tetrachloro-meta-xylene</i>	87 %		52-141			L201146	01/16/2012	01/19/2012	8082

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J1N1N4
1201028-15 (Soil)

V1213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1221	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1232	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1242	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1248	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1254	40.3		13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1260	17.2		13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1262	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1268	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Surrogate: Decachlorobiphenyl	88 %		43-144			L201146	01/16/2012	01/19/2012	8082
Surrogate: Tetrachloro-meta-xylene	31 % *		52-141			L201146	01/16/2012	01/19/2012	8082



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Reported:
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J1N1NS
1201028-16 (Soil)

✓ 1213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Polychlorinated Biphenyls by SW846 8082								
Aroclor 1016	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012
Aroclor 1221	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012
Aroclor 1232	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012
Aroclor 1242	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012
Aroclor 1248	12.5	J	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012
Aroclor 1254	106		13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012
Aroclor 1260	28.2		13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012
Aroclor 1262	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012
Aroclor 1268	13.5	U	13.5	ug/kg dry	1	L201146	01/16/2012	01/19/2012
Surrogate: Decachlorobiphenyl	91 %		43-144			L201146	01/16/2012	01/19/2012
Surrogate: Tetrachloro-meta-xylene	83 %		52-141			L201146	01/16/2012	01/19/2012
								8082



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J1N1N6
1201028-17 (Soil)

✓ 2 (30) c²

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.7	U	13.7	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1221	13.7	U	13.7	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1232	13.7	U	13.7	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1242	13.7	U	13.7	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1248	9.16	J	13.7	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1254	21.9		13.7	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1260	3.58	J	13.7	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1262	13.7	U	13.7	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1268	13.7	U	13.7	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Surrogate: Decachlorobiphenyl	94 %		43-144			L201146	01/16/2012	01/19/2012	8082
Surrogate: Tetrachloro-meta-xylene	89 %		52-141			L201146	01/16/2012	01/19/2012	8082



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J1N1N7
1201028-18 (Soil)

V
12(301.2)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polychlorinated Biphenyls by SW846 8082

Aroclor 1016	13.8	U	13.8	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1221	13.8	U	13.8	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1232	13.8	U	13.8	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1242	13.8	U	13.8	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1248	13.8	U	13.8	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1254	181		13.8	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1260	36.8		13.8	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1262	13.8	U	13.8	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1268	13.8	U	13.8	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Surrogate: Decachlorobiphenyl	100 %		43-144			L201146	01/16/2012	01/19/2012	8082
Surrogate: Tetrachloro-meta-xylene	93 %		52-141			L201146	01/16/2012	01/19/2012	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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:55

J1N1N8
1201028-19 (Soil)

V
4213012

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	L201146	01/16/2012	01/19/2012	8082
Aroclor 1221	14.0	U	14.0	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1232	14.0	U	14.0	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1242	14.0	U	14.0	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1248	15.5		14.0	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1254	82.4		14.0	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1260	20.5		14.0	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1262	14.0	U	14.0	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
Aroclor 1268	14.0	U	14.0	ug/kg dry	1	L201146	01/16/2012	01/19/2012	8082
<i>Surrogate: Decachlorobiphenyl</i>	86 %		43-144			L201146	01/16/2012	01/19/2012	8082
<i>Surrogate: Tetrachloro-meta-xylene</i>	92 %		52-141			L201146	01/16/2012	01/19/2012	8082

Appendix 4
Laboratory Narrative and Chain-of-Custody Documentation



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-029 K3796
LVL #: 1201028

W.O. #: 60049-001-001-0001-00
Received: 01-11-2012

PCBs

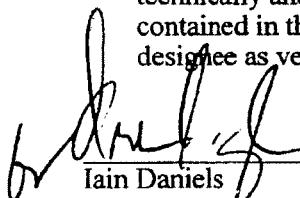
Sixteen (16) soil samples were collected on 01-09,10-2012.

The samples and associated QC samples were extracted 01-16-2012 and analyzed 01-18,19-2012 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. Discrepancies from the sample acceptance policy have been recorded on the Sample Receipt Checklist.
2. All required holding times for extraction and analysis have been met.
3. Two (2) of forty (40) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC026) 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 sample J1N1M9 required a 4-fold instrument dilution due to high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.
8. The samples are reported on a dry weight basis.
9. All initial calibrations associated with this data set were within acceptance criteria.
10. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

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

1/24/12

Date

00000003

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 126C026

Initiator: Catherine Corry
 Date: 01-22-12
 Client: WC Hanford

Batch: 1201028
 Samples: 08, 15
 Method: SW846/MCAWW/CLP/

Parameter: PCB
 Matrix: SOIL
 Prep Batch: 1201140

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

<input type="checkbox"/> Missing Sample/Extract	<input type="checkbox"/> Container Broken	<input type="checkbox"/> Wrong Sample Pulled	<input type="checkbox"/> Label ID's Illegible
<input type="checkbox"/> Hold Time Exceeded	<input type="checkbox"/> Insufficient Sample	<input type="checkbox"/> Preservation Wrong	<input type="checkbox"/> Received Past Hold
<input type="checkbox"/> Improper Bottle Type	<input type="checkbox"/> 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)

TCX recovery is low in samples #08 (22%) and #15 (31%)

2. Known or Probable Causes(s)

Blow down/Bail down

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:

TCX is much more volatile than the target analytes and is easily lost during concentration

Narrate, S.

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:

- 88-112912*
- 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 disposition.

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: _____

820000000

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST										RC-029-127	Date 1 of / 2		
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days								
Project Description Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location 300-32	SAF No. RC-029	Method of Shipment										
Ice Chest No. AA-A-1-9-12	Field Logbook No. EL-1663	COA C30032A000											
Shipped To SH 144- EERLINE-SERVICES/LIONVILLE	Office Property No. A 100975	BH of Latitude/Altitude Lat. 41° 1' 49" N Long. 74° 45' 12" W	See OSPC										
POSSIBLE SAMPLE HAZARDS/REMARKS		Preservation	Cool 4C	Cool 4C	Freeze	Cool 4C	Cool 4C	Cool 4C	Cool 4C	GAP	GAP	RCE	
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.		Type of Container	GAP	G	G*	G	G	G	G	GAP	GAP	RCE	
Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.		No. of Container(s)	1	1	1	5	1	1	1	1	1	1	3/2/16
		Volume	60mL	60mL	40mL	120mL	120mL	120mL	240mL	500mL	60mL	60mL	3/2/17
SAMPLE ANALYSIS		See Item (1) in Special Instructions.	Chromatogram Hex - 71%	TPH-Diesel Range - 0.0000-0.0000	TPH-Diesel Range - 0.0000-0.0000	VOA - EPA (TCL)	VOA - EPA (TCL)	PAHS - 0.002	PCBs - 0.002	See Item (1) in Special Instructions.	See Item (1) in Special Instructions.	See Item (1) in Special Instructions.	
		*	*	*	*	*	*	*	*	*	*	*	
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS								Matrix *	
J1N1M0	SOIL	01/09/12	1145									SO-Soil	
J1N1M1	SOIL	01/09/12	1215									SC-Soil	
J1N1M2	SOIL	01/09/12	1230									Si-Soil	
J1N1M3	SOIL	01/09/12	1240									W-Water	
J1N1M4	SOIL	01/09/12	1250									CH-CH	
Signature Names										Am-Beta & Gross Beta			
CHAIN OF POSSESSION										Am-Beta & Gross Beta			
Retired/By/Removed From <u>MARIAH SWANSON</u>	Date/Time 1-9-12 1551	Received By/Stored In <u>BLUDDON</u>	Date/Time 1-9-12 1531	(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)									
Retired/By/Removed From <u>BLUDDON</u>	Date/Time 1-9-12 1620	Received By/Stored In <u>A.F. & C.R. Associates</u>	Date/Time 1-9-12 1620	(2) Gamma Spec (Clear List) (Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gross Alpha & Gross Beta									
Retired/By/Removed From <u>A. F. & C. R. Associates</u>	Date/Time 1-9-12 1620	Received By/Stored In <u>Fed Ex</u>	Date/Time 1-10-12 1245	(3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Strontium-89/90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233, Uranium-235, Uranium-238); Total Uranium									
Retired/By/Removed From <u>Fed Ex</u>	Date/Time 1-10-12 1245	Received By/Stored In <u>Fed Ex</u>	Date/Time 1-10-12 1245	* PLEASE ADD LITHIUM TO ICP METALS LIST									
Retired/By/Removed From <u>Fed Ex</u>	Date/Time 1-11-12 1345	Received By/Stored In <u>Fed Ex</u>	Date/Time 1-11-12 1545	** 20 ml vial → % moisture									
Retired/By/Removed From	Date/Time	Received By/Stored In	Date/Time	*** freeze upon receipt # 1-10-12									
LABORATORY SECTION	Received By									Reviewed By	Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method									Disposed By	Date/Time		

4/1/12

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127				Page 2 of 4					
Collector Simonds	Telephone No. 375-4688	Project Coordinator KESSNER, JH	SAF No. RC-029	Price Code 8C	Days Turnaround 15 Days								
Project Destination Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location 300-32	Method of Shipment NH-1-9-12-2000		Bill of Lading/Air Bill No. See OSPC									
Ice Chest No. NRA 1-9-12 ERC-02-007	Field Lot/Stock No. EL-1663	Offsite Property No. A100975		A100975									
Shipped To BERBERIAN SERVICES / CONVILLE		Preservation		Cool 4C	Cool 4C	Freeze	Cool 4C	*G	*G	G/P	G/P		
POSSIBLE SAMPLE HAZARD STATEMENTS		Type of Container	G/P	G	G*								
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.		No. of Container(s)	1	1	1	5		1	1	1	1		
Special Handling and/or Storage Please keep cool (<deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.		Volume	60mL	60mL	40mL	20mL	120mL	120mL	250mL	300mL	60mL		
		See Item (1) in Special Instructions.	Chromat. Hst - 7196	TPI-Diesel Range - 5034250	VOA - 5034250 (TCL)	*#	See VOA - 5034250 (TCL)	PAHS - 6310	PCBs - 8002	See Item (1) in Special Instructions.	See Item (1) in Special Instructions.		
			*	*	*	*							
SAMPLE ANALYSIS													
Sample No.	Matrix *	Sample Date	Sample Time										
JN1M5	SOIL	1/9/12	12:00	x	x	x	x	x	x	x	x		
JN1M6	SOIL	1/9/12	1320	x	x	x	x	x	x	x	x		
JN1M7	SOIL	1/9/12	1345	x	x	x	x	x	x	x	x		
JN1M8	SOIL	1/9/12	1355	x	x	x	x	x	x	x	x		
JN1M8	SOIL	1/9/12	1420	x	x	x	x	x	x	x	x		
Sight/Print Names													
SPECIAL INSTRUCTIONS													
(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Zinc); Mercury - 7471 (CV) (2) Gamma Spec (Close List) (Americium-241, Cerium-137, Cobalt-60, Europium-154, Europium-155); Gross Alpha & Gross Beta (3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-231, Plutonium-239/240); Strontium-89/90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium [Uranium-233/234, Uranium-235, Uranium-238]; Total Uranium													
\$19.90 - Total Fee													
* PLEASE ADD LITHIUM TO ICP METALS LIST													
** 20ml vial → % moisture													
*** freeze upon receipt													
LABORATORY SECTION	Received By	Date/Time	Received By/Stored In	Date/Time	Received By/Stored In	Date/Time	Received By/Stored In	Date/Time	Received By/Stored In	Date/Time	Received By/Stored In	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method												

Oct 19/17

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 1 of A3	
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days				
Project Description Remaining Sites Confirmation Sampling - Soil Full Protocol		Sampling Location 300-32	SAF No. RC-029	Method of Shipment Bill of Lading/Air Bill No. NA - 1-A-12 Cams		See OSPC			
Ice Chest No. DAK 1-9-12 ER6-02-007		Field Logbook No. EL-1663	COA C30032A000						
Shipped To <u>SM Analytical Services, Jonville</u>		Office Property No. A100975							
Possible Sample Hazards/Remarks <i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i> Special Handling and/or Storage <i>Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</i>									
Possible Sample Hazards/Remarks <i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i> Special Handling and/or Storage <i>Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</i>									
SAMPLE ANALYSIS <i>See Item (1) in Special Instructions.</i>									
Sample No.	Matrix*	Sample Date	Sample Time	SPECIAL INSTRUCTIONS					
JIN1N0	SOIL	1/9/12	1430	X	X	X	X	X	X
JIN1N1	SOIL	1/9/12	1435	X	X	X	X	X	X
JIN1N2	SOIL								
JIN1N3	SOIL								
JIN1N4	SOIL								
CHAIN OF POSSESSION <i>Requisitioned By/Removed From Date/Time Received By/Stored In Date/Time</i>									
<u>WCH-EE-SMITHS</u> 1-9-12 1531 <u>BILL HEDGES</u> 1/12 1531 <i>Requisitioned By/Removed From Date/Time Received By/Stored In Date/Time</i>									
<u>WCH-EE-SMITHS</u> 1/12 1620 <u>A. Feller</u> 1-9-12 <i>Requisitioned By/Removed From Date/Time Received By/Stored In Date/Time</i>									
<u>A. Feller</u> 1-10-12 1245 <u>F. E.</u> 1/12 0950 <i>Requisitioned By/Removed From Date/Time Received By/Stored In Date/Time</i>									
<u>F. E.</u> 1-11-12 0950 <u>F. E.</u> 1/12 0950 <i>Requisitioned By/Removed From Date/Time Received By/Stored In Date/Time</i>									
REVIEWED BY <u>CMB</u> DATE <u>10-12</u> <i>Received By</i> <u>CMB</u> <i>Date</i> <u>10-12</u>									
LABORATORY SECTION	Disposal Method	Date/Time		Date/Time		Date/Time			
FINAL SAMPLE DISPOSITION									

101-L

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 3 of 4	
Collector	Project Coordinator	Phone No.	SAF No.	Proj. Code	8C	Data Turnaround	
Collector Simonds	KESSNER, JH	375-4638	RC-029				
Project Description Remediating Site Confirmation Sampling - Soil Pull Protocol	Sampling Location 300-32		Method of Shipment		15 Days		
Job Sheet No. DA 43 1-10-12 ERC-02-007	Field Logbook No. EL-1663	COA C30032A000	Bill of Lading/Air Bill No. NAK A.F. 1-10-12		See OSR		
Shipped To 3M Lab Services /Lionville	Office Property No.	A 100975	Fed Ex				
POSSIBLE SAMPLE HAZARDS/REMARKS							
<p><i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i></p> <p><i>< DUE L/17/12 At 1-10-12</i></p> <p>Special Handling and/or Storage</p> <p><i>Please keep cool (< deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</i></p>							
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS			
JIN1N2	SOIL						
JIN1N2	SOIL	1/10/12	0715				
JIN1N3	SOIL	1/10/12	0740	*	*	*	*
JIN1N4	SOIL	1/10/12	0732	*	*	*	*
CHAIN OF POSSESSION							
Retired/Removed From MANAGAT SERVICES INC	Date/Time 1-10-12 1015	Received By/Stand In BHDSON Blodson	Date/Time 1/10/12 1015	Matrix *			
Retired/Removed From BHDSON Blodson	Date/Time 1-10-12 1100	Received By/Stand In A. Freier A. Freier	Date/Time 1-10-12 1100	(1) ICP Metals: 60/07R (Clearcut Ltd) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Sodium, Silver, Sulfur, Vanadium, Zinc); Mercury - 7471 - (CV)			
Retired/Removed From A. Freier A. Freier	Date/Time 1-10-12 1245	Received By/Stand In L. Zeller	Date/Time 1-10-12 1245	(2) Gamma Spec (Clear Ltd) (Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-154, Barium-135); (3) Americium-241; Nickel-63; Isotopic Phosphorus (Phosphorus-238, Phosphorus-239/240); Strontium-89,90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium			
Retired/Removed From L. Zeller	Date/Time 1-10-12 0930	Received By/Stand In L. Zeller	Date/Time 1-10-12 0930	(4) PLEASE ADD LANTHANUM TO ICP METALS LIST			
Retired/Removed From L. Zeller	Date/Time 1-10-12 0945	Received By/Stand In L. Zeller	Date/Time 1-10-12 0945	* PLEASE ADD LANTHANUM TO ICP METALS LIST			
L. LABORATORY SECTION	Received By	Reviewed By					
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By					

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	RC-029-127	Date Turnaround 15 Days	
Project Description Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location 300-32 EL-1653	Field Logbook No. EL-1653	COA C30032A000	Method of Shipment Bill of Lading/Air Bill No. A# 1-10-12	See OSPC		
Ice Chest No. JK-Ag-1-10-12	Offsite Property No. A100975			Fed Ex			
POSSIBLE SAMPLE HAZARDS/REMARKS							
<p><i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i></p> <p><i>✓ DOT L1n1r1s Ag 1-10-12</i></p> <p>Special Handling and/or Storage</p> <p>Please keep cool (< deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</p>							
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date 1/10/12	Preservation COOL AC	Cool AC	Cool AC	Cool AC	
JN1N5	SOIL	0805	X	X	X	X	
JN1N6	SOIL	0830	X	X	X	X	
JN1N7	SOIL	0845	X	X	X	X	
JN1N8	SOIL	0900	X	X	X	X	
JN1N9-34	SOIL	*	*	*	*	*	
Sign/Print Names							
SPECIAL INSTRUCTIONS							
<p>1) ICP Metals - 6010TR (Close-on List) (Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)</p> <p>(2) Gamma Spec. (Close List) (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-153); Gross Alpha & Gross Beta</p> <p>(3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-239/240); Strontium-89-90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium</p>							
Matrix *							
<p>Soil Stable Stable Stable W-Water O-Oil Air Dissolved Subs Dissolved Liquids To Trace With Water Leached Vaporization X=Other</p>							
Relinquished By/Removed From NIRANNA DIAHNS	Received By/Stored In BLUDSON Bludson	Date/Time 10/10/12	Date/Time 10/10/12	* PLEASE ADD LITHIUM TO ICP METALS LIST			
Relinquished By/Removed From BLUDSON Bludson	Received By/Stored In A. Freyer A. Frieser	Date/Time 11/07	Date/Time 1/10/12	* 20 ml vial → % moisture			
Relinquished By/Removed From A. Frieser A. Frieser	Received By/Stored In BLUDSON Bludson	Date/Time 1/10/12	Date/Time 1/10/12	* * * freeze upon receipt At 1-10-12			
Relinquished By/Removed From Fed Ex	Received By/Stored In BLUDSON Bludson	Date/Time 1/10/12	Date/Time 1/10/12	Title			
Relinquished By/Removed From BLUDSON Bludson	Received By/Stored In BLUDSON Bludson	Date/Time 1/10/12	Date/Time 1/10/12	Title			
LABORATORY Received By SECTION	DATE 1-10-12						
FINAL SAMPLE DISPOSITION	Disposal Method	Date/Time					

WCH-EE-011

Appendix 5
Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	300-32				K 3794
VALIDATOR:	ELR	LAB: LCI		DATE:	12/29/12
			SDG:	K 3796	
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
JINIM1	JINIM2	JINIM3	JINIM4	JINIM5	
JINIM6	JINIM7	JINIM8	JINIM9	JINIM0	
JININ1	JININ4	JININ5	JININ6	JININ7	
JININ8					

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: Surr - M7 - Taef
" NY "

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: _____

_____**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)

- Fluorcil ® (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.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:55

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 L201146 - SW 8151A									
Blank (L201146-BLK1)									
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					
<i>Surrogate: Decachlorobiphenyl</i>	29.6			ug/kg wet	33.333	89	43-144		
<i>Surrogate: Tetrachloro-meta-xylene</i>	29.9			ug/kg wet	33.337	90	52-141		
LCS (L201146-BS1)									
Aroclor 1016	140		13.3	ug/kg wet	166.67	84	50-138		40
Aroclor 1260	175		13.3	ug/kg wet	166.67	105	50-148		40
<i>Surrogate: Decachlorobiphenyl</i>	30.8			ug/kg wet	33.333	92	43-144		
<i>Surrogate: Tetrachloro-meta-xylene</i>	31.2			ug/kg wet	33.337	94	52-141		
Matrix Spike (L201146-MS1)									
		Source: 1201028-19			Prepared: 01/16/2012	Analyzed: 01/19/2012			
Aroclor 1016	187	D	55.2	ug/kg dry	172.96	14.0 U	108	50-138	
Aroclor 1260	227	D	55.2	ug/kg dry	172.96	20.5	119	50-148	
<i>Surrogate: Decachlorobiphenyl</i>	32.6			ug/kg dry	34.592		94	43-144	
<i>Surrogate: Tetrachloro-meta-xylene</i>	36.1			ug/kg dry	34.595		104	52-141	
Matrix Spike Dup (L201146-MSD1)									
		Source: 1201028-19			Prepared: 01/16/2012	Analyzed: 01/19/2012			
Aroclor 1016	156	D	55.5	ug/kg dry	173.83	14.0 U	90	50-138	19
Aroclor 1260	222	D	55.5	ug/kg dry	173.83	20.5	116	50-148	3
<i>Surrogate: Decachlorobiphenyl</i>	32.3			ug/kg dry	34.767		93	43-144	
<i>Surrogate: Tetrachloro-meta-xylene</i>	28.1			ug/kg dry	34.770		81	52-141	

Date: 31 December 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: Remaining Sites Confirmation Sampling – Soil Full Protocol – Waste Site 300-32
Subject: Polyaromatic Hydrocarbons - Data Package No. K3796-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K3796 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
J1N1M1	1/9/12	Soil	C	See note 1
J1N1M2	1/9/12	Soil	C	See note 1
J1N1M3	1/9/12	Soil	C	See note 1
J1N1M4	1/9/12	Soil	C	See note 1
J1N1M5	1/9/12	Soil	C	See note 1
J1N1M6	1/9/12	Soil	C	See note 1
J1N1M7	1/9/12	Soil	C	See note 1
J1N1M8	1/9/12	Soil	C	See note 1
J1N1M9	1/9/12	Soil	C	See note 1
J1N1N0	1/9/12	Soil	C	See note 1
J1N1N1	1/9/12	Soil	C	See note 1
J1N1N4	1/10/12	Soil	C	See note 1
J1N1N5	1/10/12	Soil	C	See note 1
J1N1N6	1/10/12	Soil	C	See note 1
J1N1N7	1/10/12	Soil	C	See note 1
J1N1N8	1/10/12	Soil	C	See note 1

1 – Polyaromatic hydrocarbons by 8310..

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). 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 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 naphthalene (29%), acenaphthylene (36%) and acenaphthene (20%) results were qualified as estimates and flagged "J".

Due to a matrix spike duplicate recovery outside QC limits, all naphthalene (39%) 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

Due to surrogate recoveries outside QC limits, all PAH results in sample J1N1N7 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. Sample 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 acenaphthylene (68%), acenaphthene (110%), fluorene (56%) and anthracene (44%) results were qualified as estimates and flagged "J".

All other laboratory results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1N1N0/J1N1N1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were 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 RQLs were met.

• Completeness

Data package No. K3796 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 a matrix spike recovery outside QC limits, all naphthalene (29%), acenaphthylene (36%) and acenaphthene (20%) results were qualified as estimates and flagged "J".
- Due to a matrix spike duplicate recovery outside QC limits, all naphthalene (39%) results were qualified as estimates and flagged "J".

- Due to surrogate recoveries outside QC limits, all PAH results in sample J1N1N7 were qualified as estimates and flagged "J".
- Due to RPDs outside QC limits, all acenaphthylene (68%), acenaphthene (110%), fluorene (56%) and anthracene (44%) 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-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

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: K3796	REVIEWER: ELR	Project: 300-32	PAGE <u>1</u> OF <u>1</u>
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Naphthalene Acenaphthylene Acenaphthene	J	All	MS recovery
Naphthalene	J	All	MSD recovery
All	J	J1N1N7	Surrogate recovery
Acenaphthylene Acenaphthene Fluorene Anthracene	J	All	RPD

* - 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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

J1N1M1
1201028-02 (Soil)

✓
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	3.34	U J	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.34	U J	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	44.0	J	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	1.14	J J	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	1.86	J	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.34	U J	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	7.07		3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	3.34	U	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	1.87	J	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	3.34	U	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.34	U	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.34	U	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.14	J	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	3.34	U	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.34	U	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.34	U	3.34	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
<i>Surrogate: Triphenylene</i>	95 %		68-129			L201130	01/13/2012	01/17/2012	8310

000000006



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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

J1N1M2
1201028-03 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	3.36	J <u>J</u>	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.42	U <u>J</u>	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	3.42	U <u>J</u>	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	3.42	U <u>J</u>	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	3.42	U	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.42	U <u>J</u>	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	3.42	U	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	2.23	J	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	3.42	U	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	1.34	J	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.42	U	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.42	U	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.42	U	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	1.66	J	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.42	U	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.42	U	3.42	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Surrogate: Triphenylene	105 %		68-129			L201130	01/13/2012	01/17/2012	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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

J1N1M3
1201028-04 (Soil)

K213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	3.76	J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.35	U J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	5.96	J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	3.35	U J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.35	U J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	1.01	J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	0.906	J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	0.956	J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Surrogate: Triphenylene	112 %		68-129			L201130	01/13/2012	01/17/2012	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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

J1N1M4
1201028-05 (Soil)

✓1213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	2.90	J J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.35	U J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	5.96	J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	3.35	U J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.35	U J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	0.938	J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	0.954	J	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.35	U	3.35	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Surrogate: Triphenylene	103 %		68-129			L201130	01/13/2012	01/17/2012	8310



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

J1N1MS
1201028-06 (Soil)

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(2) 30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	3.10	J T	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.21	U T	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	3.21	U T	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	2.89	J T	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.21	U T	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.21	U	3.21	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
<i>Surrogate: Triphenylene</i>	90 %		68-129			L201130	01/13/2012	01/17/2012	8310



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Project Number: K3796
Project Manager: Joan Kessner

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J1N1M6
1201028-07 (Soil)

✓
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	1.48	J J	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.18	U J	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	5.30	J	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	3.18	U J	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	3.18	U	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.18	U J	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	3.91		3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	3.18	U	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	3.18	U	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	25.8		3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.18	U	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.18	U	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.18	U	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	1.02	J	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.18	U	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.18	U	3.18	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Surrogate: Triphenylene	105 %		68-129			L201130	01/13/2012	01/17/2012	8310



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Project Number: K3796
Project Manager: Joan Kessner

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J1N1M7
1201028-08 (Soil)

✓
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	8.07	J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.27	U J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	92.7	J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	3.27	U J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	2.14	J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.27	U J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	9.17		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	4.06		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	9.03		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	8.41		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	14.9		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	13.0		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.27		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	10.7		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.27	U	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	5.40		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
<i>Surrogate: Triphenylene</i>	<i>109 %</i>		<i>68-129</i>			<i>L201130</i>	<i>01/13/2012</i>	<i>01/17/2012</i>	<i>8310</i>



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Project Number: K3796
Project Manager: Joan Kessner

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01/22/2012 09:18

J1N1M8
1201028-09 (Soil)

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12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	2.19	J	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.36	U J	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	5.38	J	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	3.36	U J	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	0.875	J	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.36	U J	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	2.29	J	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	1.06	J	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	1.18	J	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	3.36	U	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.36	U	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.36	U	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.36	U	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	1.23	J	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.36	U	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.36	U	3.36	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Surrogate: Triphenylene	98 %		68-129			L201130	01/13/2012	01/17/2012	8310

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01/22/2012 09:18

J1N1M9
1201028-10 (Soil)

V1213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	108	J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.27	U J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	40.8	J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	3.27	U J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	3.05	J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.27	U J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	8.35		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	2.90	J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	4.75		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	2.29	J	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	85.0		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	4.26		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	18.6		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	5.73		3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.27	U	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.27	U	3.27	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Surrogate: Triphenylene	96 %		68-129			L201130	01/13/2012	01/17/2012	8310



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J1N1N0
1201028-11 (Soil)

✓
12/501-2

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	3.68	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.39	UJ	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	6.11	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	3.39	UJ	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	1.20	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.39	UJ	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	59.6		3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	1.48	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	1.14	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	1.29	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	1.36	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
<i>Surrogate: Triphenylene</i>	100 %		68-129			L201130	01/13/2012	01/17/2012	8310

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J1N1N1
1201028-12 (Soil)

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12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	3.17	J J	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.28	U J	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	22.4	J	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	3.28	U J	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	1.15	J	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.28	U J	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	3.71		3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	3.28	U	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	1.25	J	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	3.14	J	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	0.903	J	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.28	U	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.28	U	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	1.33	J	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.28	U	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.28	U	3.28	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Surrogate: Triphenylene	96 %		68-129			L201130	01/13/2012	01/17/2012	8310



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J1N1N4
1201028-15 (Soil)

✓12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	4.08	J	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.44	U J	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	55.5	S	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	2.53	J J	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	2.03	J	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.44	U J	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	7.63		3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	3.44	U	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	3.44	U	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	2.81	J	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.44	U	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.44	U	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.44	U	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	9.09		3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.44	U	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.44	U	3.44	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Surrogate: Triphenylene	115 %		68-129			L201130	01/13/2012	01/17/2012	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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

J1N1NS
1201028-16 (Soil)

V
121301.2

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	3.72	J	3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	7.19	J	3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	74.3	J	3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	1.07	J J	3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	7.19		3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.30	U J	3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	14.9		3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	3.62		3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	5.52		3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	4.76		3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.30	U	3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.30	U	3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	1.97	J	3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	8.28		3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.30	U	3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.30	U	3.30	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Surrogate: Triphenylene	109 %		68-129			L201130	01/13/2012	01/17/2012	8310



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

J1N1N6
1201028-17 (Soil)

✓
(2/30/12)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	2.04	J T	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.46	U J	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	3.46	U J	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	3.46	U J	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	3.46	U	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.46	U J	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	3.46	U	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	9.08		3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	3.46	U	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	3.46	U	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.46	U	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.46	U	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.46	U	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	3.46	U	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.46	U	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.46	U	3.46	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
<i>Surrogate: Triphenylene</i>	98 %		68-129			L201130	01/13/2012	01/17/2012	8310

000000019



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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

J1N1N7
1201028-18 (Soil)

✓
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	4.43	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Acenaphthylene	4.51		3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Acenaphthene	10.9		3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Fluorene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Phenanthrene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Anthracene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Fluoranthene	2.29	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Indeno[1,2,3-cd]pyrene	0.882	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Pyrene	0.984	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Benz[a]anthracene	45.6		3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Chrysene	1.10	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Benzo[b] fluoranthene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Benzo[k] fluoranthene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Benzo[a] pyrene	1.87	J	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Dibenz[a,h]anthracene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Benzo[g,h,i] perylene	3.39	U	3.39	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310	
Surrogate: Triphenylene	63 % *		68-129				L201130	01/13/2012	01/17/2012	8310

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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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

J1N1N8
1201028-19 (Soil)

K, 213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Polynuclear Aromatic Compounds by SW846 8310

Naphthalene	2.55	J J	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthylene	3.33	U J	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Acenaphthene	97.7	J	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluorene	41.5	J	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Phenanthrene	2.56	J	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Anthracene	3.33	U J	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Fluoranthene	218		3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Indeno[1,2,3-cd]pyrene	3.33	U	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Pyrene	3.33	U	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benz[a]anthracene	7.56		3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Chrysene	3.33	U	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[b] fluoranthene	3.33	U	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[k] fluoranthene	3.33	U	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[a] pyrene	12.2		3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Dibenz[a,h]anthracene	3.33	U	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Benzo[g,h,i] perylene	3.33	U	3.33	ug/kg dry	1	L201130	01/13/2012	01/17/2012	8310
Surrogate: Triphenylene	100 %		68-129			L201130	01/13/2012	01/17/2012	8310

Appendix 4
Laboratory Narrative and Chain-of-Custody Documentation



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-029 K3796
LVL #: 1201028

W.O. #: 60049-001-001-0001-00
Date Received: 01-11-2012

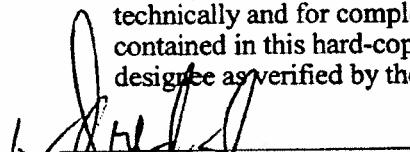
POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)

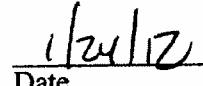
Sixteen (16) soil samples were collected on 01-09,10-2011.

The samples and associated QC samples were extracted 01-13-2012 and analyzed 01-17-2012 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. Discrepancies from the sample acceptance policy have been recorded on the Sample Receipt Checklist.
2. All required holding times for extraction and analysis have been met.
3. One (1) of twenty (20) surrogate recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC025) 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. One (1) of thirty-two (32) matrix spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC025) has been enclosed.
7. The initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. The samples were reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory manager or a designee as verified by the following signature.


Karen Daniels
LvL Laboratory Manager


Date

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 12GC025

Initiator: Katherine Carey
 Date: 01-22-12
 Client: WR, Hartford

Batch: 1201028
 Samples: 18, m31
 Method: SW846/MCAWW/CLP/

Parameter: PATH
 Matrix: SOIL
 Prep Batch: L201130

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)

surrogate recovery is low in #18 (63%)

Acenaphthylene recovery is low in m31

BSEMD are good.

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:

SS is 18 is marginal (63% vs 68% LL)

Re-log 1/23/12

Narrate 1/23/12

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:

- 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 disposition.

- 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: _____

B74411

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 1 of 12		
Collector Simeone	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSLER, JH	Price Code 8C	Data Turnaround 15 Days			
Project Designation Remaining Site Confirmation Sampling - Soil Full Protocol	Sampling Location 300-32	SAF No. RC-029	Method of Shipment Air/Land/Air Bill No. JAT-AZ 1-9-12					
Ice Chest No. AA-# 1-9-12	Field Logbook No. EL-1663	COA C30032A00	Offsite Property No. A 100975					
POSSIBLE SAMPLE HAZARDS/REMARKS Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly. Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.				Cool 4C	Cool 4C	Cool 4C	Cool 4C	
				Preservation	G/F	G	G	G
				Type of Container	1	1	1	1
				No. of Container(s)	1	1	1	1
				Volume	60mL	60mL	40mL	120mL
				Specimen (1) In Special Instructions.	Chromium Hex + 71%	VQA- 50310260 (TCL)	VQA- 50310260 (TCL)	VQA- 50310260 (TCL)
					*	*	*	*
SAMPLE ANALYSIS Sign/Print Name Signature				SPECIAL INSTRUCTIONS PLEASE ADD LITHIUM TO ICP METALS LIST * * * 20 ml vial → % moisture * * * freeze upon receipt at 1-10-12				
CHAIN OF POSSESSION Relinquished By/Removed From MARSHALL SIMEONE Remaining Site Confirmation Sampling Date/Time 1-9-12 1531				Received By/Stored In 34412002 Etobicoke Date/Time 1-9-12 1531	Date/Time 1-9-12 1531	(1) ICP Metals - 6010TR (Check-off 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) (2) Gamma Spec (Check List) (Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gross Alpha & Gross Beta (3) Americium-241; Nickel-63; Isotopic Plutonium [Plutonium-238, Plutonium-239/240]; Strontium-89/90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium [Uranium-233/234, Uranium-235, Uranium-238]; Total Uranium		
Relinquished By/Removed From A. Feller Remaining Site Confirmation Sampling Date/Time 1-10-12 1245				Received By/Stored In Fed Ex Date/Time 1-10-12 1245	Date/Time 1-10-12 1245	* * * PLEASE ADD LITHIUM TO ICP METALS LIST * * * 20 ml vial → % moisture * * * freeze upon receipt at 1-10-12		
Relinquished By/Removed From F. O. Remaining Site Confirmation Sampling Date/Time 1-11-12 1545				Received By/Stored In 1-10-12 1545 Date/Time 1-11-12 1545	Date/Time 1-11-12 1545	* * * PLEASE ADD LITHIUM TO ICP METALS LIST * * * 20 ml vial → % moisture * * * freeze upon receipt at 1-10-12		
LABORATORY SECTION	Received By	Date/Time	Reviewed By	Reviewed By John B Date/Time 1-10-12	Date/Time	Disposed By	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method							

B11472

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						RC-029-127	Page 2 of 3
Collector Simonds	Company Contact Joan Kessner	Telephone No. 315-4688	Project Coordinator KESSNER, JH SAF No. RC-029	Price Code 8C	Date Turnaround 15 Days		
Project Designation Remaining Sites Confirmation Sampling - Soil Full Protocol		Sampling Location 300-32	Method of Shipment				
Ice Chest No. ANX-A4 1-9-12	Field Logbook No. EL-1663	COA C3002A000	BILL of Lading/Air Bill No.				
Shipped To <u>ERG 4/11-12</u> <u>LIBERTARIAN SERVICES / GONVILLE</u>		Offsite Property No. A100975	NA- L-7-12 and	See OS/PC			
POSSIBLE SAMPLE HAZARDS/REMARKS							
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.							
Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" Reading. Thank You.							
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS			
JN1M5	SOIL	1/9/12	12:00	x	x	x	x
JN1M6	SOIL	1/9/12	1320	x	x	x	x
JN1M7	SOIL	1/9/12	1345	x	x	x	x
JN1M8	SOIL	1/9/12	1355	x	x	x	x
JN1M9	SOIL	1/9/12	1420	x	x	x	x
CHAIN OF POSSESSION							
Requisitioned By/Removed From <u>ANALYST 4. SURVEYS WASH</u>	Date/Time 1-9-12 1531	Received By/Stored In <u>Bludorn Bludorn</u>	Date/Time 1-9-12 1531				
Requisitioned By/Removed From <u>STUDSON STUDSON</u>	Date/Time 1-9-12 1620	A. Fccr. A. Fccr. A. Fccr. A. Fccr.	Date/Time 1-9-12 1620				
Requisitioned By/Removed From <u>A. Fccr. A. Fccr. 1/10-12 1245</u>	Date/Time 1-10-12 1245	Received By/Stored In <u>RECEIVED 1/10-12 1245</u>	Date/Time 1-10-12 1245				
Requisitioned By/Removed From <u>FCCR FCCR 1/11-12 0852</u>	Date/Time 1-11-12 0852	Received By/Stored In <u>RECEIVED 1/11-12 0852</u>	Date/Time 1-11-12 0852				
Requisitioned By/Removed From <u>RECEIVED 1/11-12 0855</u>	Date/Time 1-11-12 0855	RELEASER ADD LITHIUM TO ICP METALS LIST ** 20ml vial → % moisture	Date/Time 1-11-12 0855				
LABORATORY	Received By	REVIEWED <i>CMB</i>					
SECTION	Disposal Method	Title 1-10-12					
FINAL SAMPLE DISPOSITION		Date/Time					

BT 1417

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 3 of 43																																																									
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days																																																										
Project Destination Remaining Sites Confirmation Sampling - Soil Full Protocol Ice Chest No. A-1-9-12 ER6-02-007 Shipped To <u>3rd Alpha</u> ERBERTHE-SCHNEIDER, LONVILLE		Sampling Location 300-32	SAC No. RC-029	Method of Shipment Bill of Lading/Air Bill No. NAA-1-9-12 Cams	Method of Shipment Bill of Lading/Air Bill No. NAA-1-9-12 Cams																																																										
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i> Special Handling and/or Storage <i>Please keep cool (4 deg C) those requiring coolness, as shown on Preservation heading. Thank You.</i>																																																															
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			1-10-12																																																												

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 3 of 4		
Collector Simonds	Company Contact John Keener	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Days Turnaround 15 Days	Data Turnaround		
Project Designation Remaining Sites Confirmation Sampling - Soil Pull Protocol				SAP No. RC-029	Method of Shipment			
Ice Chest No. JK A3	Submitted To 3rd Infra Environmental Services / Louisville	Field Larbook No. EL-1663	Office Property No. A 100975	Bill of Lading/Air Bill No. NAT A3 1-10-12				
SAMPLE HAZARDS/REMARKS				See OSPC				
<p><i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i></p> <p><i>✓ DOT L flammables A # 1-10-12</i></p> <p><i>Special Handling and/or Storage</i></p> <p><i>Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</i></p>								
Possible Sample Analysis								
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS				
JIN114	SOIL			Received By/Stand In Date/Time A. Fischer 10/12 10/12 10/15 Received By/Stand In Date/Time A. Fischer 10/12 10/12 11/00				
JIN115	SOIL	1/10/12	0715	* * * * *				
JIN116	SOIL	1/10/12	0740	* * * * *				
JIN117	SOIL	1/10/12	0750	* * * * *				
JIN118	SOIL	1/10/12	0750	* * * * *				
JIN119	SOIL	1/10/12	0750	* * * * *				
CHAIN OF POSSESSION				Matrix *				
Relinquished By/Removed From Date/Time W.H. Keener Samples 10/12 10/15				(1) ICP Metals : 60/UTR (Chromium, Antimony, Arsenic, Barium, Beryllium, Baroc, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Molybdenum, Nickel, Potassium, Sodium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV)				
Relinquished By/Removed From Date/Time W.H. Keener Samples 10/12 10/10				(2) Gamma Spec (Slow Lab) (Antimony-214, Cadmium-137, Cobalt-60, Europium-152, Europium-151; Gross Alpha & Gross Beta				
Relinquished By/Removed From Date/Time A. Fischer 10/12 10/12 10/15				(3) Americium-241; Nickel-63; Isotopic Photonion (Phosphorus-31, Phosphorus-33/34, Uranium-235, Uranium-238); Total Uranium				
Relinquished By/Removed From Date/Time A. Fischer 10/12 10/12 10/15				89.90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium				
Relinquished By/Removed From Date/Time A. Fischer 10/12 10/12 10/15				* PLEASE ADD LITHIUM TO ICP METALS LIST				
Relinquished By/Removed From Date/Time A. Fischer 10/12 10/12 10/15				* VOA ONLY JININ 3 - NOT PCB.				
Relinquished By/Removed From Date/Time A. Fischer 10/12 10/12 10/15				* VOA 20 ml vial → 0% moisture freeze upon receipt				
LABORATORY SECTION	Received By	Reviewed By		Date/Time				
FINAL SAMPLE DISPOSITION	Disposal Method	C. Higby		Date/Time				

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Washington Closure Hanford		Company Contact Joan Kessner		Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	RC-029-127	Page 15 Days
Collector Simonds		Sample Location 300-32			SAF No. RC-039			
Project Designation Remaining Sites Confirmation Sampling - Soil Full Protocol		Field Logbook No. EL-1663		COA C30032A000	Method of Shipment		Fed Ex	
Ice Chest No. NAC 44 - 1-10-12	Shipped To BENNINGTON HOSPITAL / LIONVILLE	Offsite Property No. A100975	Bill of Lading/Air Bill No. NAK A5 1-10-12				Sec OSPC	
POSSIBLE SAMPLE HAZARDS/REMARKS		Preservation		Cool AC	Cool AC	Cool AC		
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.		Type of Container	GFP	G	G*	AG	GFP	
<u>L</u> DOT L1R2 R7-S Ad 1-10-12		No. of Container(s)	1	1	1	1	1	
Special Handling and/or Storage		Volume	60ml.	120ml.	40ml.	120ml.	250ml.	
Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.		See Item (1) in Special Instructions.	X	Churnin Hec - 7196	TPH-Diesel Range - WITH-D+	PAH - E310 Sem - VOA - E310A (TCL)	PCB - E310 E270A VOA	See Item (1) in Special Instructions.
SAMPLE ANALYSIS								
Sample No.	Matrix *	Sample Date	Sample Time					
J1N1N5	SOIL	1/10/12	0805	X	X	X	X	
J1N1N6	SOIL	1/10/12	0830	X	X	X	X	
J1N1N7	SOIL	1/10/12	0845	X	X	X	X	
J1N1N8	SOIL	1/10/12	0900	X	X	X	X	
J1N1N9	SOIL	1/10/12						
CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				
Relinquished By/Removed From NIPANDA SHANMUGAM	Date/Time 1-10-12	Received By/Stored In SHUDONI Blodner	Date/Time 1-10-12	10/5 (1) ICP Metals - 6010TR (Close-on Lab) 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) (2) Gamma Spec. (Client List) Americium-241, Americium-155; Cobalt-60, Europium-152, Europium-154, Europium-155; Great Alpha & Gross Beta (3) Americium-241; Nickel-63; Isotopic Potassium [Plutonium-238, Protactinium-239/240]; Strontium-89/90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium [Uranium-233/234, Uranium-235, Uranium-238]; Total Uranium				
Relinquished By/Removed From A. Freyer A. Frieser	Date/Time 1-10-12	Received By/Stored In A. Frieser	Date/Time 1-10-12					
Relinquished By/Removed From Frieser	Date/Time 1-10-12	Received By/Stored In Fed Ex	Date/Time 1-10-12					
Relinquished By/Removed From Frieser	Date/Time 1-10-12	Received By/Stored In Frieser	Date/Time 1-10-12					
Relinquished By/Removed From Frieser	Date/Time 1-10-12	Received By/Stored In REVIEWED	Date/Time 1-10-12	* PLEASE ADD LITHIUM TO ICP METALS LIST ** 20 ml vial → % moisture				
Relinquished By/Removed From Frieser	Date/Time 1-10-12	Received By/Stored In REVIEWED	Date/Time 1-10-12	** freeze upon receipt At 1-10-12				
LABORATORY	Received By			Title				
SECTION				Date/Time				
FINAL SAMPLE DISPOSITION	Disposal Method			Date/Time				

Appendix 5
Data Validation Supporting Documentation

GENERAL ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 300-32	DATA PACKAGE: K3796				
VALIDATOR: ECR	LAB: LLT	DATE: 12/27/07			
		SDG: K3796			
ANALYSES PERFORMED					
8015	8021	8141	8151	8315	8310
		WTPH-HCID	WTPH-G	WTPH-D	
SAMPLES/MATRIX:					
JINIMI	JINIM2	JINIM3	JINIM4	JINIM5	
JINIMC	JINIM7	JINIM8	JINIM9	JINIM0	
JININI	JININY	JININS	JINIANL	JININ7	
JINING					
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: *WS 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: *Surr - N7 - J all**MS - 6t out - J all**3**MSD - 1 - J all**or PAP*

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: RPD - ||| - Tell**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)

- Fluorocil ® (or other absorbant) cleanup performed?..... Yes No N/A
- Lot check performed? Yes No N/A
- Check recoveries acceptable?..... 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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

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 L201130 - SW 3540C									
Matrix Spike (L201130-MS1)									
		Source: 1201028-02			Prepared: 01/13/2012	Analyzed: 01/17/2012			
Naphthalene	47.9	3.30	ug/kg dry	165.17	3.34 U	29	0-127		40
Acenaphthylene	59.3	3.30	ug/kg dry	165.17	3.34 U	36*	50-140		40
Acenaphthene	77.6	3.30	ug/kg dry	165.17	44.0	20	17-139		40
Fluorene	83.1	3.30	ug/kg dry	165.17	1.14	50	28-145		40
Phenanthrene	114	3.30	ug/kg dry	165.17	1.86	68	30-152		40
Anthracene	113	3.30	ug/kg dry	165.17	3.34 U	69	19-171		40
Fluoranthene	137	3.30	ug/kg dry	165.17	7.07	78	34-159		40
Indeno[1,2,3-cd]pyrene	96.4	3.30	ug/kg dry	165.17	3.34 U	58	31-156		40
Pyrene	119	3.30	ug/kg dry	165.17	1.87	71	33-152		40
Benz[a]anthracene	144	3.30	ug/kg dry	165.17	3.34 U	87	32-157		40
Chrysene	130	3.30	ug/kg dry	165.17	3.34 U	79	31-159		40
Benzo[b] fluoranthene	119	3.30	ug/kg dry	165.17	3.34 U	72	33-164		40
Benzo[k] fluoranthene	138	3.30	ug/kg dry	165.17	3.14	82	28-161		40
Benzo[a] pyrene	143	3.30	ug/kg dry	165.17	3.34 U	86	29-149		40
Dibenz[a,h]anthracene	128	3.30	ug/kg dry	165.17	3.34 U	77	27-153		40
Benzo[g,h,i] perylene	104	3.30	ug/kg dry	165.17	3.34 U	63	32-157		40
<i>Surrogate: Triphenylene</i>	<i>161</i>		<i>ug/kg dry</i>	<i>165.17</i>		<i>97</i>	<i>68-129</i>		
Matrix Spike Dup (L201130-MSD1)									
		Source: 1201028-02			Prepared: 01/13/2012	Analyzed: 01/17/2012			
Naphthalene	64.5	3.32	ug/kg dry	166.03	3.34 U	39	0-127	29	40
Acenaphthylene	122	3.32	ug/kg dry	166.03	3.34 U	73	50-140	68*	40
Acenaphthene	161	3.32	ug/kg dry	166.03	44.0	70	17-139	110*	40
Fluorene	148	3.32	ug/kg dry	166.03	1.14	88	28-145	56*	40
Phenanthrene	153	3.32	ug/kg dry	166.03	1.86	91	30-152	29	40
Anthracene	178	3.32	ug/kg dry	166.03	3.34 U	107	19-171	44*	40
Fluoranthene	158	3.32	ug/kg dry	166.03	7.07	91	34-159	15	40
Indeno[1,2,3-cd]pyrene	109	3.32	ug/kg dry	166.03	3.34 U	66	31-156	12	40
Pyrene	143	3.32	ug/kg dry	166.03	1.87	85	33-152	18	40
Benz[a]anthracene	159	3.32	ug/kg dry	166.03	3.34 U	96	32-157	9	40
Chrysene	140	3.32	ug/kg dry	166.03	3.34 U	84	31-159	7	40
Benzo[b] fluoranthene	136	3.32	ug/kg dry	166.03	3.34 U	82	33-164	13	40
Benzo[k] fluoranthene	147	3.32	ug/kg dry	166.03	3.14	87	28-161	6	40
Benzo[a] pyrene	193	3.32	ug/kg dry	166.03	3.34 U	116	29-149	30	40
Dibenz[a,h]anthracene	133	3.32	ug/kg dry	166.03	3.34 U	80	27-153	3	40
Benzo[g,h,i] perylene	100	3.32	ug/kg dry	166.03	3.34 U	60	32-157	5	40
<i>Surrogate: Triphenylene</i>	<i>164</i>		<i>ug/kg dry</i>	<i>166.03</i>		<i>99</i>	<i>68-129</i>		

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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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/22/2012 09:18

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 L201130 - SW 3540C												
Blank (L201130-BLK1)												
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								
<i>Surrogate: Triphenylene</i>	175			ug/kg wet	166.67	105	68-129					
LCS (L201130-BS1)												
<i>Prepared: 01/13/2012 Analyzed: 01/18/2012</i>												
Naphthalene	108	3.33	ug/kg wet	166.67	65	0-127	40					
Acenaphthylene	181	3.33	ug/kg wet	166.67	108	50-140	40					
Acenaphthene	173	3.33	ug/kg wet	166.67	104	17-139	40					
Fluorene	178	3.33	ug/kg wet	166.67	107	28-145	40					
Phenanthrene	185	3.33	ug/kg wet	166.67	111	30-152	40					
Anthracene	208	3.33	ug/kg wet	166.67	125	19-171	40					
Fluoranthene	184	3.33	ug/kg wet	166.67	110	34-159	40					
Indeno[1,2,3-cd]pyrene	195	3.33	ug/kg wet	166.67	117	31-156	40					
Pyrene	180	3.33	ug/kg wet	166.67	108	33-152	40					
Benz[a]anthracene	197	3.33	ug/kg wet	166.67	118	32-157	40					
Chrysene	188	3.33	ug/kg wet	166.67	113	31-159	40					
Benzo[b] fluoranthene	188	3.33	ug/kg wet	166.67	113	33-164	40					
Benzo[k] fluoranthene	190	3.33	ug/kg wet	166.67	114	28-161	40					
Benzo[a] pyrene	119	3.33	ug/kg wet	166.67	71	29-149	40					
Dibenz[a,h]anthracene	186	3.33	ug/kg wet	166.67	112	27-153	40					
Benzo[g,h,i] perylene	165	3.33	ug/kg wet	166.67	99	32-157	40					
<i>Surrogate: Triphenylene</i>	206		ug/kg wet	166.67	123	68-129						

000000022

Date: 31 December 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: Remaining Sites Confirmation Sampling – Soil Full Protocol – Waste Site 300-32
Subject: Radiochemistry - Data Package No. K3796-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K3796 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
J1N1M1	1/9/12	Soil	C	See note 1
J1N1M2	1/9/12	Soil	C	See note 1
J1N1M3	1/9/12	Soil	C	See note 1
J1N1M4	1/9/12	Soil	C	See note 1
J1N1M5	1/9/12	Soil	C	See note 1
J1N1M6	1/9/12	Soil	C	See note 1
J1N1M7	1/9/12	Soil	C	See note 1
J1N1M8	1/9/12	Soil	C	See note 1
J1N1M9	1/9/12	Soil	C	See note 1
J1N1N0	1/9/12	Soil	C	See note 1
J1N1N1	1/9/12	Soil	C	See note 1
J1N1N4	1/10/12	Soil	C	See note 1
J1N1N5	1/10/12	Soil	C	See note 1
J1N1N6	1/10/12	Soil	C	See note 1
J1N1N7	1/10/12	Soil	C	See note 1
J1N1N8	1/10/12	Soil	C	See note 1

1 – Alpha spectroscopy, gross alpha/beta, total uranium and gamma spectroscopy.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). 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 field 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".

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 (J1N1N0/J1N1N1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. The RPDs for radium-228 (33%) and lead-212 (33%) were outside QC limits. Under the WCH statement of work, no qualification is required. All other field duplicate results were 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. Four analytes exceeded the RQL. Under the WCH statement of work, no qualification is required. All other analytes met the RQLs.

Completeness

Data package No. K3796 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".

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.

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-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

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: K3796	REVIEWER: ELR	Project: 300-32	PAGE <u>1</u> OF <u>1</u>
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
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 K3796

7867-001

J1N1M1

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-01</u>	Client sample id <u>J1N1M1</u>	
Dept sample id <u>7867-001</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 12:15 857.4 g</u>	
% solids <u>97.5</u>	Custody/SAF No <u>RC-029-127 RC-029</u>	

✓, 213011c

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	7.64	3.6	3.69	10.0		93A
Gross Beta	12587-47-2	14.6	4.3	5.83	15.0		93B
Total Uranium (ug/g)	7440-61-1	9.83	1.1	0.121	1.00		U_T
Uranium 233/234	U-233/234	3.70	0.67	0.177	1.00		U
Uranium 235	15117-96-1	0.196	0.17	0.214	1.00	U	U
Uranium 238	U-238	3.29	0.61	0.177	1.00		U
Potassium 40	13966-00-2	15.7	0.62	0.270			GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	U		0.021	0.100	U	GAM
Europium 152	14683-23-9	U		0.064	0.100	U	GAM
Europium 154	15585-10-1	U		0.085	0.100	U	GAM
Europium 155	14391-16-3	U		0.089	0.100	U	GAM
Radium 226	13982-63-3	0.396	0.054	0.052	0.100		GAM
Radium 228	15262-20-1	0.624	0.11	0.107	0.200		GAM
Thorium 228	14274-82-9	0.618	0.037	0.033			GAM
Thorium 232	TH-232	0.624	0.11	0.107			GAM
Uranium 235	15117-96-1	U		0.250	0.300	U	GAM
Uranium-238	U-238	U		4.40	10.0	U	GAM
Americium 241	14596-10-2	U		0.157	0.300	U	GAM
Bismuth 214	14733-03-0	0.408	0.056	0.054			GAM
Lead 212	15092-94-1	0.640	0.038	0.034			GAM

Remaining Sites Confirmation Sampling - Soil Full
Protocol

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Lab id <u>EBRLINE</u>
Protocol <u>RC-029</u>
Version <u>Ver 10.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/12</u>

EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-002

J1N1M2

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-02</u>	Client sample id <u>J1N1M2</u>	
Dept sample id <u>7867-002</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 12:30</u>	<u>829.7 g</u>
% solids <u>97.2</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

V 12/30/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	7.54	3.4	2.60	10.0		93A
Gross Beta	12587-47-2	21.2	4.7	6.13	15.0		93B
Total Uranium (ug/g)	7440-61-1	7.02	0.80	0.121	1.00		U_T
Uranium 233/234	U-233/234	2.70	0.52	0.168	1.00	J	U
Uranium 235	15117-96-1	0.293	0.16	0.204	1.00		U
Uranium 238	U-238	2.86	0.53	0.168	1.00		U
Potassium 40	13966-00-2	15.8	0.68	0.267			GAM
Cobalt 60	10198-40-0	U		0.032	0.050	U	GAM
Cesium 137	10045-97-3	U		0.026	0.100	U	GAM
Europium 152	14683-23-9	U		0.064	0.100	U	GAM
Europium 154	15585-10-1	U		0.107	0.100	U	GAM
Europium 155	14391-16-3	U		0.077	0.100	U	GAM
Radium 226	13982-63-3	0.396	0.057	0.053	0.100		GAM
Radium 228	15262-20-1	0.594	0.14	0.147	0.200		GAM
Thorium 228	14274-82-9	0.529	0.036	0.036			GAM
Thorium 232	TH-232	0.594	0.14	0.147			GAM
Uranium 235	15117-96-1	U		0.274	0.300	U	GAM
Uranium-238	U-238	U		3.89	10.0	U	GAM
Americium 241	14596-10-2	U		0.053	0.300	U	GAM
Bismuth 214	14733-03-0	0.408	0.059	0.054			GAM
Lead 212	15092-94-1	0.548	0.037	0.038			GAM

Remaining Sites Confirmation Sampling - Soil Full Protocol

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Lab id <u>EBRLNE</u>
Protocol <u>RC-029</u>
Version <u>Ver 10.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/12</u>

EBERLINE ANALYTICAL / RICHMOND
 SAMPLE DELIVERY GROUP K3796

7867-003

J1N1M3

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-03</u>	Client sample id <u>J1N1M3</u>	
Dept sample id <u>7867-003</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 12:40</u>	<u>805.4 g</u>
% solids <u>97.9</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

V123042

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	8.22	3.4	3.56	10.0		93A
Gross Beta	12587-47-2	20.5	4.1	4.89	15.0		93B
Total Uranium (ug/g)	7440-61-1	3.03	0.35	0.121	1.00		U_T
Uranium 233/234	U-233/234	1.01	0.33	0.175	1.00		U
Uranium 235	15117-96-1	0.028	0.055	0.212	1.00	U	J
Uranium 238	U-238	1.28	0.34	0.175	1.00		U
Potassium 40	13966-00-2	15.7	0.95	0.338			GAM
Cobalt 60	10198-40-0	U		0.047	0.050	U	GAM
Cesium 137	10045-97-3	U		0.041	0.100	U	GAM
Europium 152	14683-23-9	U		0.098	0.100	U	GAM
Europium 154	15585-10-1	U		0.184	0.100	U	GAM
Europium 155	14391-16-3	U		0.124	0.100	U	GAM
Radium 226	13982-63-3	0.359	0.076	0.073	0.100		GAM
Radium 228	15262-20-1	0.620	0.17	0.159	0.200		GAM
Thorium 228	14274-82-9	0.514	0.045	0.045			GAM
Thorium 232	TH-232	0.620	0.17	0.159			GAM
Uranium 235	15117-96-1	U		0.204	0.300	U	GAM
Uranium-238	U-238	U		5.65	10.0	U	GAM
Americium 241	14596-10-2	U		0.287	0.300	U	GAM
Bismuth 214	14733-03-0	0.370	0.078	0.076			GAM
Lead 212	15092-94-1	0.532	0.046	0.047			GAM

Remaining Sites Confirmation Sampling - Soil Full Protocol

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Protocol <u>RC-029</u>
Version <u>Ver 10.0</u>
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Version <u>3.06</u>
Report date <u>02/21/12</u>

EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-004

J1N1M4

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-04</u>	Client sample id <u>J1N1M4</u>	
Dept sample id <u>7867-004</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 12:50</u>	<u>793.6 g</u>
* solids <u>97.6</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

V12/30/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	13.3	4.8	3.73	10.0		93A
Gross Beta	12587-47-2	17.2	4.1	5.11	15.0		93B
Total Uranium (ug/g)	7440-61-1	2.40	0.28	0.121	1.00		U_T
Uranium 233/234	U-233/234	1.16	0.36	0.188	1.00	U	U
Uranium 235	15117-96-1	0.030	0.060	0.228	1.00	U J	U
Uranium 238	U-238	0.640	0.25	0.188	1.00	U	U
Potassium 40	13966-00-2	16.1	0.58	0.203			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	U		0.019	0.100	U	GAM
Europium 152	14683-23-9	U		0.055	0.100	U	GAM
Europium 154	15585-10-1	U		0.077	0.100	U	GAM
Europium 155	14391-16-3	U		0.078	0.100	U	GAM
Radium 226	13982-63-3	0.380	0.046	0.044	0.100		GAM
Radium 228	15262-20-1	0.578	0.097	0.096	0.200		GAM
Thorium 228	14274-82-9	0.540	0.031	0.030			GAM
Thorium 232	TH-232	0.578	0.097	0.096			GAM
Uranium 235	15117-96-1	U		0.150	0.300	U	GAM
Uranium-238	U-238	U		2.86	10.0	U	GAM
Americium 241	14596-10-2	U		0.088	0.300	U	GAM
Bismuth 214	14733-03-0	0.392	0.048	0.046			GAM
Lead 212	15092-94-1	0.560	0.032	0.031			GAM

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Protocol <u>RC-029</u>
Version <u>Ver 10.0</u>
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Version <u>3.06</u>
Report date <u>02/21/12</u>

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 K3796

7867-005

J1N1M5

D A T A S H E E T

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-05</u>	Client sample id <u>J1N1M5</u>	
Dept sample id <u>7867-005</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 13:10 774.2 g</u>	
% solids <u>97.6</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

V1213012

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	6.81	3.7	3.95	10.0		93A
Gross Beta	12587-47-2	14.7	3.9	5.21	15.0		93B
Total Uranium (ug/g)	7440-61-1	4.36	0.50	0.121	1.00		U_T
Uranium 233/234	U-233/234	1.41	0.39	0.177	1.00		U
Uranium 235	15117-96-1	0.084	0.11	0.214	1.00	U	U
Uranium 238	U-238	1.46	0.39	0.177	1.00		U
Potassium 40	13966-00-2	15.5	0.71	0.253			GAM
Cobalt 60	10198-40-0	U		0.032	0.050	U	GAM
Cesium 137	10045-97-3	U		0.030	0.100	U	GAM
Europium 152	14683-23-9	U		0.072	0.100	U	GAM
Europium 154	15585-10-1	U		0.104	0.100	U	GAM
Europium 155	14391-16-3	U		0.079	0.100	U	GAM
Radium 226	13982-63-3	0.394	0.063	0.057	0.100		GAM
Radium 228	15262-20-1	0.541	0.14	0.147	0.200		GAM
Thorium 228	14274-82-9	0.521	0.038	0.039			GAM
Thorium 232	TH-232	0.541	0.14	0.147			GAM
Uranium 235	15117-96-1	U		0.207	0.300	U	GAM
Uranium-238	U-238	U		4.35	10.0	U	GAM
Americium 241	14596-10-2	U		0.107	0.300	U	GAM
Bismuth 214	14733-03-0	0.406	0.065	0.059			GAM
Lead 212	15092-94-1	0.540	0.040	0.040			GAM

Remaining Sites Confirmation Sampling - Soil Full Protocol

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Lab id <u>EBRLNE</u>
Protocol <u>RC-029</u>
Version <u>Ver 10.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/12</u>

EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-006

J1N1M6

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-06</u>	Client sample id <u>J1N1M6</u>	
Dept sample id <u>7867-006</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 13:20</u>	<u>846.6 g</u>
% solids <u>97.9</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

V12150111

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	11.0	4.3	3.22	10.0		93A
Gross Beta	12587-47-2	23.7	4.5	5.28	15.0		93B
Total Uranium (ug/g)	7440-61-1	10.3	1.2	0.121	1.00		U_T
Uranium 233/234	U-233/234	3.62	0.63	0.211	1.00		U
Uranium 235	15117-96-1	0.134	0.11	0.204	1.00	U_J	U
Uranium 238	U-238	3.51	0.63	0.169	1.00		U
Potassium 40	13966-00-2	17.9	0.80	0.399			GAM
Cobalt 60	10198-40-0	U		0.033	0.050	U	GAM
Cesium 137	10045-97-3	U		0.028	0.100	U	GAM
Europium 152	14683-23-9	U		0.079	0.100	U	GAM
Europium 154	15585-10-1	U		0.117	0.100	U	GAM
Europium 155	14391-16-3	U		0.074	0.100	U	GAM
Radium 226	13982-63-3	0.394	0.056	0.053	0.100		GAM
Radium 228	15262-20-1	0.603	0.16	0.146	0.200		GAM
Thorium 228	14274-82-9	0.777	0.049	0.043			GAM
Thorium 232	TH-232	0.603	0.16	0.146			GAM
Uranium 235	15117-96-1	U		0.203	0.300	U	GAM
Uranium-238	U-238	U		3.71	10.0	U	GAM
Americium 241	14596-10-2	U		0.043	0.300	U	GAM
Bismuth 214	14733-03-0	0.405	0.057	0.055			GAM
Lead 212	15092-94-1	0.804	0.050	0.045			GAM

Remaining Sites Confirmation Sampling - Soil Full Protocol

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EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-007

J1N1M7

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-07</u>	Client sample id <u>J1N1M7</u>	
Dept sample id <u>7867-007</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 13:45 834.7 g</u>	
% solids <u>97.7</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

V1213012

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	10.5	4.3	4.03	10.0		93A
Gross Beta	12587-47-2	17.7	4.4	5.87	15.0		93B
Total Uranium (ug/g)	7440-61-1	10.6	1.2	0.121	1.00		U_T
Uranium 233/234	U-233/234	3.85	0.70	0.200	1.00		U
Uranium 235	15117-96-1	0.285	0.19	0.242	1.00	J	U
Uranium 238	U-238	3.90	0.70	0.200	1.00		U
Potassium 40	13966-00-2	16.2	0.99	0.258			GAM
Cobalt 60	10198-40-0	U		0.028	0.050	U	GAM
Cesium 137	10045-97-3	U		0.028	0.100	U	GAM
Europium 152	14683-23-9	U		0.073	0.100	U	GAM
Europium 154	15585-10-1	U		0.089	0.100	U	GAM
Europium 155	14391-16-3	U		0.083	0.100	U	GAM
Radium 226	13982-63-3	0.427	0.052	0.044	0.100		GAM
Radium 228	15262-20-1	0.635	0.12	0.121	0.200		GAM
Thorium 228	14274-82-9	0.617	0.044	0.041			GAM
Thorium 232	TH-232	0.635	0.12	0.121			GAM
Uranium 235	15117-96-1	U		0.192	0.300	U	GAM
Uranium-238	U-238	U		6.32	10.0	U	GAM
Americium 241	14596-10-2	U		0.053	0.300	U	GAM
Bismuth 214	14733-03-0	0.440	0.054	0.046			GAM
Lead 212	15092-94-1	0.639	0.045	0.043			GAM

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EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-008

J1N1M8

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-08</u>	Client sample id <u>J1N1M8</u>	
Dept sample id <u>7867-008</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 13:55</u>	<u>827 g</u>
% solids <u>97.6</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

✓12/30/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	10.9	4.2	2.86	10.0		93A
Gross Beta	12587-47-2	18.9	4.7	6.18	15.0		93B
Total Uranium (ug/g)	7440-61-1	5.89	0.67	0.121	1.00		U_T
Uranium 233/234	U-233/234	1.98	0.52	0.234	1.00	U	
Uranium 235	15117-96-1	0.037	0.074	0.283	1.00	U J	
Uranium 238	U-238	1.98	0.52	0.234	1.00	U	
Potassium 40	13966-00-2	15.4	0.69	0.298			GAM
Cobalt 60	10198-40-0	U		0.030	0.050	U	GAM
Cesium 137	10045-97-3	U		0.025	0.100	U	GAM
Europium 152	14683-23-9	U		0.059	0.100	U	GAM
Europium 154	15585-10-1	U		0.106	0.100	U	GAM
Europium 155	14391-16-3	U		0.072	0.100	U	GAM
Radium 226	13982-63-3	0.374	0.048	0.045	0.100		GAM
Radium 228	15262-20-1	0.570	0.14	0.143	0.200		GAM
Thorium 228	14274-82-9	0.703	0.051	0.047			GAM
Thorium 232	TH-232	0.570	0.14	0.143			GAM
Uranium 235	15117-96-1	U		0.187	0.300	U	GAM
Uranium-238	U-238	U		7.00	10.0	U	GAM
Americium 241	14596-10-2	U		0.049	0.300	U	GAM
Bismuth 214	14733-03-0	0.385	0.049	0.047			GAM
Lead 212	15092-94-1	0.728	0.053	0.049			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 K3796

7867-009

J1N1M9

D A T A S H E E T

SDG 7867	Client/Case no Hanford	SDG K3796
Contact Joseph Verville	Contract No. S00W235A01	
Lab sample id S201024-09	Client sample id J1N1M9	
Dept sample id 7867-009	Location/Matrix 300-32	SOIL
Received 01/11/12	Collected/Weight 01/09/12 14:20 922.7 g	
% solids 98.0	Custody/SAF No RC-029-127	RC-029

V, 12/30/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	12.4	4.2	3.92	10.0		93A
Gross Beta	12587-47-2	23.8	4.3	4.93	15.0		93B
Total Uranium (ug/g)	7440-61-1	9.75	1.1	0.121	1.00		U_T
Uranium 233/234	U-233/234	3.36	0.73	0.231	1.00	U	
Uranium 235	15117-96-1	0.146	0.15	0.280	1.00	U	
Uranium 238	U-238	3.72	0.75	0.231	1.00	U	
Potassium 40	13966-00-2	16.0	0.64	0.250			GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	U		0.023	0.100	U	GAM
Europium 152	14683-23-9	U		0.064	0.100	U	GAM
Europium 154	15585-10-1	U		0.089	0.100	U	GAM
Europium 155	14391-16-3	U		0.094	0.100	U	GAM
Radium 226	13982-63-3	0.416	0.051	0.047	0.100		GAM
Radium 228	15262-20-1	0.742	0.10	0.094	0.200		GAM
Thorium 228	14274-82-9	0.622	0.038	0.037			GAM
Thorium 232	TH-232	0.742	0.10	0.094			GAM
Uranium 235	15117-96-1	U		0.273	0.300	U	GAM
Uranium-238	U-238	U		5.39	10.0	U	GAM
Americium 241	14596-10-2	U		0.167	0.300	U	GAM
Bismuth 214	14733-03-0	0.428	0.052	0.048			GAM
Lead 212	15092-94-1	0.644	0.040	0.039			GAM

Remaining Sites Confirmation Sampling - Soil Full Protocol

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EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-010

JIN1N0

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-10</u>	Client sample id <u>JIN1N0</u>	
Dept sample id <u>7867-010</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 14:30</u>	<u>772.8 g</u>
% solids <u>97.4</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

VJ213012

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	16.1	5.2	3.88	10.0		93A
Gross Beta	12587-47-2	20.9	4.5	5.74	15.0		93B
Total Uranium (ug/g)	7440-61-1	15.3	1.7	0.121	1.00		U_T
Uranium 233/234	U-233/234	5.60	0.81	0.164	1.00		U
Uranium 235	15117-96-1	0.234	0.16	0.199	1.00	J	U
Uranium 238	U-238	5.13	0.79	0.164	1.00		U
Potassium 40	13966-00-2	19.8	0.92	0.366			GAM
Cobalt 60	10198-40-0	U		0.038	0.050	U	GAM
Cesium 137	10045-97-3	U		0.034	0.100	U	GAM
Europium 152	14683-23-9	U		0.101	0.100	U	GAM
Europium 154	15585-10-1	U		0.136	0.100	U	GAM
Europium 155	14391-16-3	U		0.094	0.100	U	GAM
Radium 226	13982-63-3	0.453	0.076	0.073	0.100		GAM
Radium 228	15262-20-1	0.853	0.18	0.167	0.200		GAM
Thorium 228	14274-82-9	0.946	0.060	0.055			GAM
Thorium 232	TH-232	0.853	0.18	0.167			GAM
Uranium 235	15117-96-1	U		0.415	0.300	U	GAM
Uranium-238	U-238	U		4.67	10.0	U	GAM
Americium 241	14596-10-2	U		0.054	0.300	U	GAM
Bismuth 214	14733-03-0	0.466	0.078	0.075			GAM
Lead 212	15092-94-1	0.979	0.062	0.057			GAM

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EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-011

J1N1N1

DATA SHEET

SDG <u>7867</u> Contact <u>Joseph Verville</u>	Client/Case no <u>Hanford</u> Contract No. <u>S00W235A01</u>	SDG <u>K3796</u>
Lab sample id <u>S201024-11</u>	Client sample id <u>J1N1N1</u>	
Dept sample id <u>7867-011</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 14:35</u>	<u>792.3 g</u>
* solids <u>97.4</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

V123012

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	12.0	4.3	3.38	10.0		93A
Gross Beta	12587-47-2	18.5	4.1	5.07	15.0		93B
Total Uranium (ug/g)	7440-61-1	9.02	1.0	0.121	1.00		U_T
Uranium 233/234	U-233/234	3.10	0.59	0.173	1.00		U
Uranium 235	15117-96-1	0.302	0.17	0.210	1.00		U
Uranium 238	U-238	3.56	0.65	0.173	1.00		U
Potassium 40	13966-00-2	16.2	0.62	0.212			GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	U		0.023	0.100	U	GAM
Europium 152	14683-23-9	U		0.064	0.100	U	GAM
Europium 154	15585-10-1	U		0.084	0.100	U	GAM
Europium 155	14391-16-3	U		0.096	0.100	U	GAM
Radium 226	13982-63-3	0.398	0.054	0.051	0.100		GAM
Radium 228	15262-20-1	0.700	0.12	0.114	0.200		GAM
Thorium 228	14274-82-9	0.676	0.039	0.036			GAM
Thorium 232	TH-232	0.700	0.12	0.114			GAM
Uranium 235	15117-96-1	U		0.254	0.300	U	GAM
Uranium-238	U-238	U		6.98	10.0	U	GAM
Americium 241	14596-10-2	U		0.116	0.300	U	GAM
Bismuth 214	14733-03-0	0.410	0.056	0.052			GAM
Lead 212	15092-94-1	0.700	0.040	0.037			GAM

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EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-012

J1N1N4

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-12</u>	Client sample id <u>J1N1N4</u>	
Dept sample id <u>7867-012</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/10/12 07:50</u>	<u>702 g</u>
% solids <u>95.9</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

V121304c

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	9.75	4.2	3.96	10.0		93A
Gross Beta	12587-47-2	15.1	4.0	5.21	15.0		93B
Total Uranium (ug/g)	7440-61-1	4.55	0.52	0.121	1.00		U_T
Uranium 233/234	U-233/234	1.51	0.37	0.152	1.00	U	
Uranium 235	15117-96-1	0.048	0.048	0.184	1.00	U_J	U
Uranium 238	U-238	1.57	0.38	0.152	1.00	U	
Potassium 40	13966-00-2	14.8	0.80	0.318		GAM	
Cobalt 60	10198-40-0	U		0.037	0.050	U	GAM
Cesium 137	10045-97-3	U		0.036	0.100	U	GAM
Europium 152	14683-23-9	U		0.076	0.100	U	GAM
Europium 154	15585-10-1	U		0.121	0.100	U	GAM
Europium 155	14391-16-3	U		0.092	0.100	U	GAM
Radium 226	13982-63-3	0.389	0.062	0.060	0.100		GAM
Radium 228	15262-20-1	0.703	0.13	0.130	0.200		GAM
Thorium 228	14274-82-9	0.553	0.040	0.036			GAM
Thorium 232	TH-232	0.703	0.13	0.130			GAM
Uranium 235	15117-96-1	U		0.180	0.300	U	GAM
Uranium-238	U-238	U		4.40	10.0	U	GAM
Americium 241	14596-10-2	U		0.109	0.300	U	GAM
Bismuth 214	14733-03-0	0.401	0.064	0.061			GAM
Lead 212	15092-94-1	0.573	0.042	0.038			GAM

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EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-013

JIN1N5

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-13</u>	Client sample id <u>JIN1N5</u>	
Dept sample id <u>7867-013</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/10/12 08:05</u>	<u>721.8 g</u>
% solids <u>95.5</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

V12/10/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	18.1	5.3	3.20	10.0		93A
Gross Beta	12587-47-2	23.3	4.5	5.28	15.0		93B
Total Uranium (ug/g)	7440-61-1	17.9	2.0	0.121	1.00		U_T
Uranium 233/234	U-233/234	6.05	0.87	0.166	1.00		U
Uranium 235	15117-96-1	0.342	0.21	0.201	1.00		U
Uranium 238	U-238	5.66	0.82	0.166	1.00		U
Potassium 40	13966-00-2	16.0	0.57	0.194			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 137	10045-97-3	U		0.020	0.100	U	GAM
Europium 152	14683-23-9	U		0.058	0.100	U	GAM
Europium 154	15585-10-1	U		0.068	0.100	U	GAM
Europium 155	14391-16-3	U		0.084	0.100	U	GAM
Radium 226	13982-63-3	0.399	0.047	0.047	0.100		GAM
Radium 228	15262-20-1	0.632	0.086	0.076	0.200		GAM
Thorium 228	14274-82-9	0.598	0.036	0.035			GAM
Thorium 232	TH-232	0.632	0.086	0.076			GAM
Uranium 235	15117-96-1	U		0.258	0.300	U	GAM
Uranium-238	U-238	U		6.47	10.0	U	GAM
Americium 241	14596-10-2	U		0.111	0.300	U	GAM
Bismuth 214	14733-03-0	0.411	0.048	0.049			GAM
Lead 212	15092-94-1	0.618	0.037	0.036			GAM

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EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-014

J1N1N6

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-14</u>	Client sample id <u>J1N1N6</u>	
Dept sample id <u>7867-014</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/10/12 08:30</u>	<u>651.2 g</u>
% solids <u>95.6</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

V (21361-4)

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	6.36	3.3	2.86	10.0		93A
Gross Beta	12587-47-2	20.1	4.2	5.20	15.0		93B
Total Uranium (ug/g)	7440-61-1	1.54	0.18	0.121	1.00		U_T
Uranium 233/234	U-233/234	0.605	0.22	0.165	1.00	U	U
Uranium 235	15117-96-1	0.026	0.052	0.200	1.00	U	J
Uranium 238	U-238	0.627	0.22	0.165	1.00	U	U
Potassium 40	13966-00-2	19.6	0.81	0.377			GAM
Cobalt 60	10198-40-0	U		0.033	0.050	U	GAM
Cesium 137	10045-97-3	U		0.030	0.100	U	GAM
Europium 152	14683-23-9	U		0.089	0.100	U	GAM
Europium 154	15585-10-1	U		0.117	0.100	U	GAM
Europium 155	14391-16-3	U		0.087	0.100	U	GAM
Radium 226	13982-63-3	0.488	0.066	0.060	0.100		GAM
Radium 228	15262-20-1	0.732	0.15	0.146	0.200		GAM
Thorium 228	14274-82-9	0.868	0.050	0.040			GAM
Thorium 232	TH-232	0.732	0.15	0.146			GAM
Uranium 235	15117-96-1	U		0.183	0.300	U	GAM
Uranium-238	U-238	U		3.85	10.0	U	GAM
Americium 241	14596-10-2	U		0.044	0.300	U	GAM
Bismuth 214	14733-03-0	0.503	0.068	0.062			GAM
Lead 212	15092-94-1	0.897	0.052	0.042			GAM

Remaining Sites Confirmation Sampling - Soil Full Protocol

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Lab id <u>EBERLINE</u>
Protocol <u>RC-029</u>
Version <u>Ver 10.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/12</u>

EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-015

J1N1N7

DATA SHEET

SDG 7867 Contact Joseph Verville	Client/Case no Hanford Contract No. S00W235A01	SDG K3796
Lab sample id S201024-15 Dept sample id 7867-015 Received 01/11/12 % solids 95.9	Client sample id J1N1N7 Location/Matrix 300-32 Collected/Weight 01/10/12 08:45 767.5 g Custody/SAF No RC-029-127 RC-029	SOIL

V, 213011

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	1.97	0.52	0.354	10.0		93A
Gross Beta	12587-47-2	3.63	0.51	0.574	15.0		93B
Total Uranium (ug/g)	7440-61-1	21.4	2.4	0.121	1.00	U_T	U
Uranium 233/234	U-233/234	7.32	0.94	0.154	1.00	J	U
Uranium 235	15117-96-1	0.317	0.20	0.187	1.00	U	U
Uranium 238	U-238	6.59	0.87	0.154	1.00		GAM
Potassium 40	13966-00-2	12.5	1.1	0.590			GAM
Cobalt 60	10198-40-0	U		0.066	0.050	U	GAM
Cesium 137	10045-97-3	U		0.050	0.100	U	GAM
Europium 152	14683-23-9	U		0.135	0.100	U	GAM
Europium 154	15585-10-1	U		0.191	0.100	U	GAM
Europium 155	14391-16-3	U		0.138	0.100	U	GAM
Radium 226	13982-63-3	0.347	0.12	0.122	0.100		GAM
Radium 228	15262-20-1	0.506	0.18	0.172	0.200		GAM
Thorium 228	14274-82-9	0.508	0.068	0.068			GAM
Thorium 232	TH-232	0.506	0.18	0.172			GAM
Uranium 235	15117-96-1	U		0.445	0.300	U	GAM
Uranium-238	U-238	U		7.16	10.0	U	GAM
Americium 241	14596-10-2	U		0.125	0.300	U	GAM
Bismuth 214	14733-03-0	0.358	0.12	0.126			GAM
Lead 212	15092-94-1	0.525	0.070	0.070			GAM

Remaining Sites Confirmation Sampling - Soil Full
Protocol

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Lab id EBRINE
Protocol RC-029
Version Ver 10.0
Form DVD-DS
Version 3.06
Report date 02/21/12

EBERLINE ANALYTICAL / RICHMOND
 SAMPLE DELIVERY GROUP K3796

7867-016

J1N1N8

DATA SHEET

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG <u>K3796</u>
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
Lab sample id <u>S201024-16</u>	Client sample id <u>J1N1N8</u>	
Dept sample id <u>7867-016</u>	Location/Matrix <u>300-32</u>	<u>SOIL</u>
Received <u>01/11/12</u>	Collected/Weight <u>01/10/12 09:00</u>	<u>730 g</u>
% solids <u>94.9</u>	Custody/SAF No <u>RC-029-127</u>	<u>RC-029</u>

✓12/20/12

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	8.81	3.8	3.63	10.0		93A
Gross Beta	12587-47-2	15.2	4.3	5.82	15.0		93B
Total Uranium (ug/g)	7440-61-1	6.23	0.71	0.121	1.00		U_T
Uranium 233/234	U-233/234	2.23	0.47	0.167	1.00		U
Uranium 235	15117-96-1	0.159	0.11	0.202	1.00	U	5
Uranium 238	U-238	2.25	0.47	0.167	1.00		U
Potassium 40	13966-00-2	13.6	3.7	0.877			GAM
Cobalt 60	10198-40-0	U		0.075	0.050	U	GAM
Cesium 137	10045-97-3	U		0.086	0.100	U	GAM
Europium 152	14683-23-9	U		0.231	0.100	U	GAM
Europium 154	15585-10-1	U		0.239	0.100	U	GAM
Europium 155	14391-16-3	U		0.218	0.100	U	GAM
Radium 226	13982-63-3	0.298	0.21	0.193	0.100		GAM
Radium 228	15262-20-1	1.02	0.40	0.383	0.200		GAM
Thorium 228	14274-82-9	0.620	0.17	0.173			GAM
Thorium 232	TH-232	1.02	0.40	0.383			GAM
Uranium 235	15117-96-1	U		0.448	0.300	U	GAM
Uranium-238	U-238	U		10.5	10.0	U	GAM
Americium 241	14596-10-2	U		0.110	0.300	U	GAM
Bismuth 214	14733-03-0	0.307	0.21	0.199			GAM
Lead 212	15092-94-1	0.641	0.18	0.179			GAM

Remaining Sites Confirmation Sampling - Soil Full Protocol

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Lab id <u>EBRLNE</u>
Protocol <u>RC-029</u>
Version <u>Ver 10.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/12</u>

Appendix 4
Laboratory Narrative and Chain-of-Custody Documentation

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K3796 was composed of sixteen soil samples designated under SAF No. RC-029 with a Project Designation of: Remaining Sites Confirmation Sampling – Soil Full Protocol.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist. The results were transmitted to WCH via e-mail on January 24, 2012.

2.0 ANALYSIS NOTES

2.1 Gross Alpha/Gross Beta Analysis

The gross alpha QC-LCS percent recovery was 129%, greater than the upper control limit of 120%. The relative percent difference between the original and duplicate gross alpha results was 57%, and the DER was 1.8. Due to an unexpected gross beta result for sample J1N1N6 a request for reanalysis was issued. The sample was reanalyzed in duplicate and reanalysis results are reported herein. No other problems were encountered during the course of the analyses.

2.2 Isotopic Uranium Analysis

The relative percent difference between the original and duplicate U-235 results was 71%, and the DER was 1.6; both results were less than the RDL. No other problems were encountered during the course of the analyses.

2.3 Total Uranium Analysis

No problems were encountered during the course of the analyses.

2.4 Gamma Spectroscopy

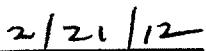
No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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



Joseph Verville
Client Services Manager



Date

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 1 of 4-3	
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Price Code 8C	Data Turnaround 15 Days	Data Turnaround 15 Days
Project Designation Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location 300-32 EL-1663-1461-41	Field Logbook No. A1-15/12	COA C30032A000	SAF No. RC-029	Method of Shipment <i>Fed Ex</i>		
Ice Chest No. DA-4-1-9-12	Offsite Property No. EBERLINE SERVICES / HONDA 3A 4/1/12	A100984		Bill of Lading/Air Bill No. NA-A1-4-12	<i>See O SPC</i>		
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i> <i>< PDF Limit 48 ppm -</i> Special Handling and/or Storage <i>Please keep cool (4 deg. Celsius) requiring coolness, as shown on "Preparation" heading. Thank You.</i> NONE							
SAMPLE ANALYSIS SO							
Sample No.	Matrix *	Sample Date 1/9/12	Sample Time 14:45	Date/Time 1/9/12 14:45	SPECIAL INSTRUCTIONS See Item (1) in Special Instructions. See Item (1) in Special Instructions.		
J1N1M0	SOIL	1/9/12	12:15	1/9/12 12:15	(1) ICP Metals-60/ICP (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) (2) Gamma Spec (Close List) (Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gross Alpha & Gross Beta (3) Americium-241-Nickel-63-Europium-152-Europium-154-Uranium-233, Uranium-234, Uranium-235, Uranium-238; Total Uranium		
J1N1M1	SOIL	1/9/12	12:30	1/9/12 12:30			
J1N1M2	SOIL	1/9/12	12:40	1/9/12 12:40			
J1N1M3	SOIL	1/9/12	12:50	1/9/12 12:50			
J1N1M4	SOIL	1/9/12	12:50	1/9/12 12:50			
CHAIN OF POSSESSION M. A. and S. Simonds Received By/Removed From Date/Time 1/9/12 15:31 BHudson Bloddes 1/9/12 15:31 Received By/Removed From Date/Time 1/9/12 16:05 A.Freier A.Freier 1/9/12 16:05 Received By/Removed From Date/Time 1/9/12 16:55 A.Freier A.Freier 1/9/12 16:55 Received By/Removed From Date/Time 1/9/12 17:05 Fed Ex Fed Ex 1/9/12 17:05 Received By/Removed From Date/Time 1/9/12 17:45 BHudson Bloddes 1/9/12 17:45 Received By/Removed From Date/Time 1/9/12 18:00 BHudson Bloddes 1/9/12 18:00 Received By/Removed From Date/Time 1/9/12 18:15 BHudson Bloddes 1/9/12 18:15 Received By/Removed From Date/Time 1/9/12 18:30 BHudson Bloddes 1/9/12 18:30 LABORATORY SECTION FINAL SAMPLE DISPOSITION Received By Disposal Method							
REVIEWED 100% DATE 1-10-10 Initials Disposed By Title Date/Time Date/Time Date/Time Date/Time Date/Time							

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127	Page 2 of 4/3		
Collector	Company Contact	Telephone No.	Project Coordinator	Price Code	8C		
Simonds	Joan Kessner	375-4688	KESSNER, JH	SAF No.	Data Turnaround		
Project Designation	Remaining Sites Confirmation Sampling - Soil Full Protocol			RC-029	15 Days		
Ice Chest No. DA-1-1-2	ERC-01-041	Sample Location 300-32 EL-1463-1601-2L	Field Logbook No. 81-151-1 COA C30032A000	Method of Shipment Bill of Lading/Air Bill No. AF-1-9-1-2	Fed Ex		
Shipped To EBERLINE SERVICES / LIONVILLE- PA 14112	Offsite Property No. A100984	Preservation	Cool 4C	Cool 4C	Coil 4C		
POSSIBLE SAMPLE HAZARDS/REMARKS		Type of Container	G/P	G	G	Coil 4C	Name
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly. L-DOT L-mits AF 1-0-2 Special Handling and/or Storage AF 1-9-1-2 Please keep cool (4 deg. C) during shipping coolness, as shown on "Preservation" heading. Thank You. NONE		No. of Containers(s)	1	1	1	1	Name
		Volume	60mL	120mL	120mL	250mL	60mL
		Spec Item (1) in Special Instructions.	Chromium Hex + 7196	VOCs - SO3/VOC (TCL)	VOCs - SO3/VOC (TCL)	PCBs - PCB2	See Item (1) in Special Instructions.
							See Item (2) in Special Instructions.
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date	Sample Time				
JINIM5	SOIL	1/9/12	1310			X	X
JINIM6	SOIL	1/9/12	1320			X	X
JINIM7	SOIL	1/9/12	1345			X	X
JINIM8	SOIL	1/9/12	1355			X	X
JINIM9	SOIL	1/9/12	1420			X	X
SPECIAL INSTRUCTIONS							
CHAIN OF POSSESSION				Sign/Print Names			
Relinquished By/Removed From ALABAMA SUGAR CO. INC.	Date/Time 1-9-12	Received By/Stored In Budson Blodson	Date/Time 1/9/12 1531	(1) ICP Metals - 6010TR (Close-out List) (Aluminum, 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) (2) Gamma Spec (Close List) (Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-154, Euromium-155); Gross Alpha & Gross Beta (3) Americium-241, Nickel-63, Technetium-99m, Uranium-234, Uranium-235, Uranium-238; Total Uranium			
Relinquished By/Removed From Budson Blodson	Date/Time 1/9/12	Received By/Stored In A. Fischer A. Fischer	Date/Time 1-9-12 1605	B1M 1/9/12			
Relinquished By/Removed From A. Fischer A. Fischer	Date/Time 1-10-12 100002	Received By/Stored In Fed Ex	Date/Time 1/10/12 100002				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time				
LABORATORY SECTION	Received By	Title					
FINAL SAMPLE DISPOSITION	Disposal Method	Date/Time					

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127	Page 3 of 13
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days
Project Designation Remaining Sites Confirmation Sampling - Soil Pull Protocol	Sampling Location 300-32 EL-1663 (Loc 1-6)	SAF No. RC-029	Method of Shipment	Fed Ex	
Ice Chest No. #A 1-9-12	Field Logbook No. 11517	COA C30032A000	BILL of Lading/Air Bill No. NA-A 1-9-12	See OSPC	
Shipped To EBERLINE SERVICES / LONAWALA 31 412	Offsite Property No. A 100 986				
POSSIBLE SAMPLE HAZARDS/REMARKS					
<p>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</p> <p><u>L</u> DOT Labels <u>A</u> I-10-12</p> <p>Special Handling and/or Storage <u>A</u> 1-9-12</p> <p>Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</p> <p>NON E</p>					
SAMPLE ANALYSIS					
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS	
JIN1N0	SOIL	1/9/12	1430	X X X X	
JIN1N1	SOIL	1/9/12	1435		
JHNH2	SOIL				
JHNH5	SOIL				
JHNH6	SOIL				
CHAIN OF POSSESSION					
Relinquished By/Removed From ALABAMA SIGHTS NOTIC	Date/Time 1-9-12 1531	Received By/Stored In BLUDDON Blunder	Date/Time 1/9/12 1531	Matrix * (1) ICP Metals - 60 (OTR (Close-out List)) Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Silicon, Sodium, Zinc; Mercury - 7471 - (CV) (2) Gamma Spec (Chem List) (Antimony-214), Cerium-137, Cobalt-60, Europium-152, Europium-154, Europium-155; Gross Alpha & Gross Beta (3) Americium-241, Nickel-63, Americium-244, Thorium-232, Uranium-233, Uranium-235, Uranium-238; Total Uranium	
Relinquished By/Removed From BLUDDON Blunder	Date/Time 1/9/12 1605	Received By/Stored In A. Feller A. Feller	Date/Time 1-9-12 1605		
Relinquished By/Removed From A. Feller A. Feller	Date/Time 1-10-12 1205	Received By/Stored In Fed Ex	Date/Time 1/10/12 1205		
Relinquished By/Removed From Fed Ex	Date/Time 1/10/12 1205	Received By/Stored In ALABAMA SIGHTS NOTIC	Date/Time 1/10/12 1205		
Relinquished By/Removed From ALABAMA SIGHTS NOTIC	Date/Time 1/10/12 1205	Received By/Stored In Disposal	Date/Time 1/10/12 1205		
LABORATORY SECTION	Received By				
FINAL SAMPLE DISPOSITION	Disposal Method				

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RL-029-1-1 / 1-10-12		Data Turnaround	
Collector	Company Contact	Telephone No.	Project Coordinator	Price Code	8C		
Simonds	Joan Kessner	375-4688	KESSNER, JH				
Project Destination	Sampling Location	K3796 (7867)	SAF No.				
Remaining Sites Confirmation Sampling - Soil Pull Protocol	Field Logbook No. 2115112	COA	RC-029				
Ice Chest No. NAR-A3 1-10-12	ER-C-01-041	Offsite Property No.	A100986	Method of Shipment	Fed Ex		
Shipped To EBERLINE SERVICES / MONTEBELLO, CA 91112				Bill of Lading/Air Bill No.	Sec. OSPC		
POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Name	Name
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.	GRP	GR	G	G*	G	Q/P	Q/P
Z-Dot 2, 1 m/s A3 1-10-12	Type of Container	1	1	5	1	1	1
Special Handling and/or Storage A3 1-10-12	No. of Containers(s)	1	1	5	1	1	1
Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation/Handling". Thank You.	Volume	60mL	120mL	120mL	120mL	60mL	R/C
A3 1-10-12	See Item (1) in Special Instructions.	Chromatogram Hex - 71%	VOC - 50398360 (TCL)	PAHs - 8310 PCBs - 8011	See Item (2) in Special Instructions.	See Item (3) in Special Instructions.	3/2/12 3/2/17
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS			
JAHN-A-Bill 1/10/12	SOIL			(1) ICP Metals - 8010TR (Cleantech Ltd) Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Cobalt, Copper, Iron, Lead, Magnesium, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc; Mercury - 7471 - (CV)			
JAHN-A-SM100 1/10/12	SOIL	1/10/12	0745	(2) Gamma Spec (Cleantech Ltd) Americium-241, Calcium-137, Cobalt-60, Europium-152, Europium-153; Gross Alpha & Gross Beta			
JAHN-A-soil 1/10/12	SOIL	1/10/12	0740	(3) Activation-241 Nickel-63; Isotope Dissolution-232-238-235-Uranium-233-234; Uranium-235, Rb-89; Total Sr; Technetium-99; Low-Level Isotope Uranium			
JIN114 1/10/12	SOIL	1/10/12	0752	Uranium-234; Total Uranium			
CHAIN OF POSSESSION							
Relinquished By/Removed From ABERLINE SERVICES 1/10/12	Date/Time	Received By/Stored In Bill DODD Bunker 1/10/12	Date/Time	10/15			
Relinquished By/Removed From Bill DODD Bunker 1/10/12	Date/Time	Received By/Stored In A. Fricke & Thruw 1/10/12	Date/Time	1/10/12 11:00			
Relinquished By/Removed From A. Fricke & Thruw 1/10/12	Date/Time	Received By/Stored In Fed Ex 1/10/12	Date/Time	1/10/12 11:00			
Relinquished By/Removed From Fed Ex 1/10/12	Date/Time	Received By/Stored In Bill DODD Bunker 1/10/12	Date/Time	1/10/12 11:00			
Relinquished By/Removed From Fed Ex 1/10/12	Date/Time	Received By/Stored In Bill DODD Bunker 1/10/12	Date/Time	1/10/12 11:00			
Relinquished By/Removed From Bill DODD Bunker 1/10/12	Date/Time	Received By/Stored In Bill DODD Bunker 1/10/12	Date/Time	1/10/12 11:00			
Relinquished By/Removed From Bill DODD Bunker 1/10/12	Date/Time	Received By/Stored In Bill DODD Bunker 1/10/12	Date/Time	1/10/12 11:00			
LABORATORY Received By SECTION				Title			
FINAL SAMPLE DISPOSITION	Disposed Method			Date/Time			
				Date/Time			

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			RC-029-127		Page 4 of 14	
Collector	Company Contact		Project Coordinator	Price Code	8C	Data Turnaround
Simmonds	Joan Kessner 375-4688		KESSNER, JH SAF No. RC-029			15 Days
Project Destination Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location 300-32 EL-1663-16cl-16c	Field Logbook No. K3796 (7867)	COA C30032A000	Method of Shipment	<i>Fed Ex</i>	
Ice Chest No. <i>NY 1-10-12</i>	Offsite Property No.	A100986		Bill of Lading/Air Bill No. <i>NY A1 1-10-12</i>	See OSPC.	
Shipped To EBERLINE SERVICES / ENVIROTECH 241 14112	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None
POSSIBLE SAMPLE HAZARDS/REMARKS	Type of Container	G/P	G/P	G*	G	G/P
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly. 2 DOT Limits AF 1-10-12	No. of Container(s)	1	1	1	5	1
Special Handling and/or Storage None	Volume	60mL	60mL	120mL	120mL	120mL
Please keep cool (4 deg C) those requiring coolness, as shown on "Presentation" heading. Thank You. AF 1-10-12	See Item (1) in Special Instructions.	Chromat Hex - 7196	TPI-Piesel Range - 505000 (TCL)	Semi-Vol - 500000 (TCL)	PAB - 8310 <i>8270A</i> <i>SVOA</i>	See Item (2) in Special Instructions.
SAMPLE ANALYSIS						
32	Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS	
JIN1N5	SOIL	1/10/12	0805	10/5	Matrix * Soil Soil-Sand Soil-Silt Soil-Clay W-Water O-Oil Ash-Ash D-Dust-Liquids T-Tissue W-Wire L-Liquid V-Vapors X-Codes	
JIN1N6	SOIL	1/10/12	0830	Date/Time	(1) ICP Metals - 50 (OTR (Close-out List) Aluminum, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (2) Gamma Spec (Clean List) Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-151; Gross Alpha & Gross Beta (3) Americium-241, Nickel-63, Technetium-99m, Tritium-3H, Uranium-235, Uranium-238; Total Uranium	
JIN1N7	SOIL	1/10/12	0845	Date/Time		
JIN1N8	SOIL	1/10/12	0900	Date/Time		
JIN1N9 241 10112	SOIL			Date/Time		
CHAIN OF POSSESSION			Sign/Print Names			
Relinquished By/Removed From <i>NY 1-10-12</i>	Date/Time	Received By/Stored In <i>Bludson Bludson 10/12</i>	Date/Time			
Relinquished By/Removed From <i>NY 1-10-12</i>	Date/Time	Received By/Stored In <i>A. Ferer A. Ferer 1-10-12</i>	Date/Time			
Relinquished By/Removed From <i>NY 1-10-12</i>	Date/Time	Received By/Stored In <i>A. Ferer A. Ferer 1-10-12</i>	Date/Time			
Relinquished By/Removed From <i>NY 1-10-12</i>	Date/Time	Received By/Stored In <i>A. Ferer A. Ferer 1-10-12</i>	Date/Time			
Relinquished By/Removed From FINAL SAMPLE DISPOSITION	Date/Time	Received By/Stored In	Date/Time			
LABORATORY SECTION	Received By	Title				
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				

Appendix 5
Data Validation Supporting Documentation

APPENDIX A
RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: <i>300-32</i>			DATA PACKAGE: <i>K3794</i>		
VALIDATOR: <i>FLR</i>	LAB: <i>FB</i>			DATE: <i>12/26/12</i>	
		SDG: <i>K3794</i>			
ANALYSES PERFORMED					
<input checked="" type="checkbox"/> Gross Alpha/Beta	<input type="checkbox"/> Strontium-90	<input type="checkbox"/> Technetium-99	<input checked="" type="checkbox"/> Alpha Spectroscopy	<input checked="" type="checkbox"/> Gamma Spectroscopy	
<input checked="" type="checkbox"/> Total Uranium	<input type="checkbox"/> Radium-22	<input type="checkbox"/> Tritium	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SAMPLES/MATRIX					
<i>JINM1</i>	<i>JINM2</i>	<i>JINM3</i>	<i>JINM4</i>	<i>JINM5</i>	
<i>JINM6</i>	<i>JINM7</i>	<i>JINM8</i>	<i>JINM9</i>	<i>JINM0</i>	
<i>JINM1</i>	<i>JINM4</i>	JINM8	JINM9	<i>JINM5</i>	
<i>JINM6</i>	<i>JINM7</i>	<i>JINM8</i>	<i>JINM9</i>	<i>JINM0</i>	
<i>50.1</i>					

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 LCS - tail

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: _____

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(1) - Ra-224 - 33%
1ccd-212 - 33%

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: 1111 - out

Appendix 6
Additional Documentation Requested by Client

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 K3796

7867-018

Method Blank

METHOD BLANK

SDG <u>7867</u> Contact <u>Joseph Verville</u>	Client/Case no <u>Hanford</u> Contract No. <u>S00W235A01</u>	SDG <u>K3796</u>
Lab sample id <u>S201024-18</u> Dept sample id <u>7867-018</u>	Client sample id <u>Method Blank</u> Material/Matrix _____ SAF No <u>RC-029</u>	SOIL

ANALYTE	CAS NO.	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.030	1.5	3.88	10.0	U	93A
Gross Beta	12587-47-2	-0.050	2.8	4.92	15.0	U	93B
Total Uranium (ug/g)	7440-61-1	0	0.005	0.012	1.00	U	U_T
Uranium 233/234	U-233/234	0	0.047	0.181	1.00	U	U
Uranium 235	15117-96-1	0	0.057	0.220	1.00	U	U
Uranium 238	U-238	0.047	0.048	0.181	1.00	U	U
Potassium 40	13966-00-2	U		0.610		U	GAM
Cobalt 60	10198-40-0	U		0.071	0.050	U	GAM
Cesium 137	10045-97-3	U		0.047	0.100	U	GAM
Europium 152	14683-23-9	U		0.113	0.100	U	GAM
Europium 154	15585-10-1	U		0.160	0.100	U	GAM
Europium 155	14391-16-3	U		0.110	0.100	U	GAM
Radium 226	13982-63-3	U		0.081	0.100	U	GAM
Radium 228	15262-20-1	U		0.218	0.200	U	GAM
Thorium 228	14274-82-9	U		0.103		U	GAM
Thorium 232	TH-232	U		0.218		U	GAM
Uranium 235	15117-96-1	U		0.229	0.300	U	GAM
Uranium-238	U-238	U		6.36	10.0	U	GAM
Americium 241	14596-10-2	U		0.125	0.300	U	GAM
Bismuth 214	14733-03-0	U		0.083		U	GAM
Lead 212	15092-94-1	U		0.107		U	GAM

QC-BLANK# 80894

METHOD BLANKS

Page 1

SUMMARY DATA SECTION

Page 10

Lab id <u>EBRLNE</u>
Protocol <u>RC-029</u>
Version <u>Ver 10.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/12</u>

EBERLINE ANALYTICAL / RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-021

Method Blank

METHOD BLANK

SDG <u>7867</u> Contact <u>Joseph Verville</u>	Client/Case no <u>Hanford</u> Contract No. <u>S00W235A01</u>	SDG <u>K3796</u>
Lab sample id <u>S201024-21</u> Dept sample id <u>7867-021</u>	Client sample id <u>Method Blank</u> Material/Matrix _____ SAF No <u>RC-029</u>	SOIL

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.491	1.2	3.59	10.0	U	93A
Gross Beta	12587-47-2	1.59	3.5	6.11	15.0	U	93B

QC-BLANK #81107

METHOD BLANKS
Page 2
SUMMARY DATA SECTION
Page 11

Lab id EBRLNE
Protocol RC-029
Version Ver 10.0
Form DVD-DS
Version 3.06
Report date 02/21/12

EBERLINE ANALYTICAL/RICHMOND
SAMPLE DELIVERY GROUP K3796

7867-017

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7867</u> Contact <u>Joseph Verville</u>	Client/Case no <u>Hanford</u> SDG <u>K3796</u> Contract No. <u>S00W235A01</u>
Lab sample id <u>S201024-17</u> Dept sample id <u>7867-017</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOIL</u> SAF No <u>RC-029</u>

ANALYTE	RESULT	2 σ ERR	MDA	RDL	QUALI-	TEST	ADDED	2 σ ERR	REC	3 σ LIMITS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIEERS		pCi/g	pCi/g	%	(TOTAL)	LIMITS
Gross Alpha	143	14	2.73	10.0		93A	111	4.4	129	56-144	80-120
Gross Beta	90.1	7.6	6.15	15.0		93B	103	4.1	87	70-130	80-120
Total Uranium (ug/g)	36.2	4.1	0.121	1.00		U_T	36.2	1.4	100	82-118	80-120
Uranium 233/234	11.2	1.3	0.243	1.00		U	11.8	0.47	95	79-121	80-120
Uranium 238	11.8	1.3	0.243	1.00		U	11.8	0.47	100	79-121	80-120
Cobalt 60	1.21	0.091	0.030	0.050		GAM	1.22	0.049	99	84-116	80-120
Cesium 137	1.40	0.095	0.062	0.100		GAM	1.34	0.054	104	84-116	80-120

QC-LCS #80893

LAB CONTROL SAMPLES

Page 1

SUMMARY DATA SECTION

Page 12

Lab id <u>EBERLINE</u>
Protocol <u>RC-029</u>
Version <u>Ver 10.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>02/21/12</u>

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3796

7867-020

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7867 Contact Joseph Verville	Client/Case no Hanford Contract No. S00W235A01	SDG K3796
Lab sample id S201024-20 Dept sample id 7867-020	Client sample id Lab Control Sample Material/Matrix	SOIL SAF No RC-029

ANALYTE	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- TIES	TEST	ADDED pCi/g	2 σ ERR pCi/g	REC t	3 σ LMITS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	108	13	3.14	10.0		93A	101	4.0	107	61-139	80-120
Gross Beta	90.4	7.2	5.29	15.0		93B	85.3	3.4	106	64-136	80-120

QC-LCS #81106

LAB CONTROL SAMPLES

Page 2

SUMMARY DATA SECTION

Page 13

Lab id EBERLINE
Protocol RC-029
Version Ver 10.0
Form DVD-LCS
Version 3.06
Report date 02/21/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3796

7867-019

JINIMI

DUPLICATE

SDG <u>7867</u>	Client/Case no <u>Hanford</u>	SDG K3796
Contact <u>Joseph Verville</u>	Contract No. <u>S00W235A01</u>	
DUPPLICATE	ORIGINAL	
Lab sample id <u>S201024-19</u>	Lab sample id <u>S201024-01</u>	Client sample id <u>JINIMI</u>
Dept sample id <u>7867-019</u>	Dept sample id <u>7867-001</u>	Location/Matrix <u>300-32</u> <u>SOIL</u>
* solids <u>97.5</u>	Received <u>01/11/12</u>	Collected/Weight <u>01/09/12 12:15</u> <u>857.4 g</u>
	* solids <u>97.5</u>	Custody/SAF No <u>RC-029-127</u> <u>RC-029</u>

ANALYTE	DUPPLICATE	2 σ ERR	MDA	RDL	QUALI-	TEST	ORIGINAL	2 σ ERR	MDA	QUALI-	RDL	3 σ	DER
	pCi/g	(COUNT)	pCi/g	pCi/g	PIERS		pCi/g	(COUNT)	pCi/g	PIERS	%	TOT	σ
Gross Alpha	13.7	4.7	3.70	10.0	93A		7.64	3.6	3.69		57	95	1.8
Gross Beta	18.6	4.4	5.72	15.0	93B		14.6	4.3	5.83		24	71	1.0
Total Uranium (ug/g)	9.71	1.1	0.121	1.00	U_T		9.83	1.1	0.121		1	24	0.2
Uranium 233/234	3.24	0.68	0.272	1.00	U		3.70	0.67	0.177		13	45	0.9
Uranium 235	0.412	0.21	0.263	1.00	U		0.196	0.17	0.214	U	71	135	1.6
Uranium 238	3.07	0.62	0.217	1.00	U		3.29	0.61	0.177		7	44	0.5
Potassium 40	15.2	0.62	0.238		GAM		15.7	0.62	0.270		3	17	0.6
Cobalt 60	U	0.023	0.050	U	GAM		U		0.025	U	-	-	0.1
Cesium 137	U	0.022	0.100	U	GAM		U		0.021	U	-	-	0.1
Europium 152	U	0.059	0.100	U	GAM		U		0.064	U	-	-	0.1
Europium 154	U	0.067	0.100	U	GAM		U		0.085	U	-	-	0.3
Europium 155	U	0.089	0.100	U	GAM		U		0.089	U	-	-	0
Radium 226	0.408	0.050	0.044	0.100	GAM		0.396	0.054	0.052		3	31	0.3
Radium 228	0.563	0.12	0.113	0.200	GAM		0.624	0.11	0.107		10	44	0.7
Thorium 228	0.617	0.036	0.033		GAM		0.618	0.037	0.033		0	19	0
Thorium 232	0.563	0.12	0.113		GAM		0.624	0.11	0.107		10	44	0.7
Uranium 235	U	0.175	0.300	U	GAM		U		0.250	U	-	-	0.5
Uranium-238	U	3.92	10.0	U	GAM		U		4.40	U	-	-	0.2
Americium 241	U	0.114	0.300	U	GAM		U		0.157	U	-	-	0.4
Bismuth 214	0.420	0.051	0.045		GAM		0.408	0.056	0.054		3	31	0.3
Lead 212	0.637	0.038	0.035		GAM		0.640	0.038	0.034		0	19	0.1

QC-DUP#1 80895

Remaining Sites Confirmation Sampling - Soil Full Protocol

DUPLICATES

Page 1

SUMMARY DATA SECTION

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Lab id EBERLINE
Protocol EC-029
Version Ver 10.0
Form DVD-DUP
Version 3.06
Report date 02/21/12

EBERLINE ANALYTICAL/RICHMOND

SAMPLE DELIVERY GROUP K3796

7867-022

JINING

DUPLICATE

<u>SDG 7867</u>	Client/Case no <u>Hanford</u> <u>SDG K3796</u>	
Contact <u>Joseph Verville</u>	Contract No. <u>SOOW735A01</u>	
DUPPLICATE	ORIGINAL	
Lab sample id <u>S201024-22</u>	Lab sample id <u>S201024-14</u>	Client sample id <u>JINING</u>
Dept sample id <u>7867-022</u>	Dept sample id <u>7867-014</u>	Location/Matrix <u>300-32</u> <u>SOIL</u>
Received <u>01/11/12</u>	% solids <u>95.6</u>	Collected/Weight <u>01/10/12 08:30</u> <u>651.2 g</u>
		Custody/SAF No <u>RC-029-127</u> <u>RC-029</u>

ANALYTE	DUPPLICATE	2 σ ERR	MDA	RDL	QUALI-	TEST	ORIGINAL	2 σ ERR	MDA	QUALI-	RPD	3 σ DER
	pCi/g	(COUNT)	pCi/g	pCi/g	FIEERS		pCi/g	(COUNT)	pCi/g	FIEERS	%	σ
Gross Alpha	5.70	3.0	3.15	10.0		93A	6.36	3.3	2.86		11	119 0.3
Gross Beta	20.5	4.4	5.78	15.0		93B	20.1	4.2	5.20		2	63 0.1

QC-DUP#14 81108

Remaining Sites Confirmation Sampling - Soil Full Protocol

DUPLICATES

Page 2

SUMMARY DATA SECTION

Page 15

Lab id <u>EBERLINE</u>
Protocol <u>RC-029</u>
Version <u>Ver 10.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>02/21/12</u>

Date: 31 December 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: Remaining Sites Confirmation Sampling – Soil Full Protocol – Waste Site 300-32
Subject: Volatile Organics - Data Package No. K3796-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K3796 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
J1N1M0	1/9/12	Soil	C	See note 1
J1N1M1	1/9/12	Soil	C	See note 1
J1N1M2	1/9/12	Soil	C	See note 1
J1N1M3	1/9/12	Soil	C	See note 1
J1N1M4	1/9/12	Soil	C	See note 1
J1N1M5	1/9/12	Soil	C	See note 1
J1N1M6	1/9/12	Soil	C	See note 1
J1N1M7	1/9/12	Soil	C	See note 1
J1N1M8	1/9/12	Soil	C	See note 1
J1N1M9	1/9/12	Soil	C	See note 1
J1N1N0	1/9/12	Soil	C	See note 1
J1N1N1	1/9/12	Soil	C	See note 1
J1N1N2	1/10/12	Soil	C	See note 1
J1N1N4	1/10/12	Soil	C	See note 1
J1N1N5	1/10/12	Soil	C	See note 1
J1N1N6	1/10/12	Soil	C	See note 1
J1N1N7	1/10/12	Soil	C	See note 1
J1N1N8	1/10/12	Soil	C	See note 1

1 – Volatiles by 8260.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). 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 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 analyzed within 14 days of the date of sample collection.

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

Two field (trip) blanks (J1N1M0 & J1N1N2) were submitted for analysis. 2-Hexanone and acetone were detected in sample J1N1M0. Acetone was detected in sample J1N1N2. Under the WCH statement of work, no qualification is required.

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.

All 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. Sample 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 duplicate results were acceptable.

Field Duplicate Samples

One set of field duplicates (J1N1N0/J1N1N1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were 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. One hundred-sixteen analytes exceeded the RQL. Under the WCH statement of work, no qualification is required. All other analytes met the RQL.

Completeness

Data package No. K3796 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

One hundred-sixteen 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*, March 2008.

DOE/RL-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

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

VOLATILE ORGANICS DATA QUALIFICATION SUMMARY*

SDG: K3796	REVIEWER: ELR	Project: 300-32	PAGE <u>1</u> OF <u>1</u>
COMMENTS: No qualifiers assigned			

* - 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
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Phone: 610-280-3000
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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M0
1201028-01 (Soil)

V
12/20/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	6.44	U	6.44	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	12.9	U	12.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	5.14	J	12.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	12.9	U	12.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	42.2		12.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	6.44	U	6.44	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	10.7	U	10.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroethane	10.7	U	10.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	10.7	U	10.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	6.44	U	6.44	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	10.7	U	10.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	111%		60-130				L201165	01/11/2012	01/11/2012



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M0
1201028-01 (Soil)

V121301~

Analytic	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	94 %	72-117		L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	99 %	72-144		L201165	01/11/2012	01/11/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M1
1201028-02 (Soil)

V12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	5.63	U	5.63	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropane	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	11.3	U	11.3	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	11.3	U	11.3	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	11.3	U	11.3	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	11.3	U	11.3	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	5.63	U	5.63	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	9.39	U	9.39	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroethane	9.39	U	9.39	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	9.39	U	9.39	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	5.63	U	5.63	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	9.39	U	9.39	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	4.69	U	4.69	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	112 %		60-130			L201165	01/11/2012	01/11/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M1
1201028-02 (Soil)

✓12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	95 %	72-117			L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	105 %	72-144			L201165	01/11/2012	01/11/2012	8260B



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Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M2
1201028-03 (Soil)

✓12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	4.73	U	4.73	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropane	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	9.46	U	9.46	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	9.46	U	9.46	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	9.46	U	9.46	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	9.46	U	9.46	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	4.73	U	4.73	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	7.88	U	7.88	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroethane	7.88	U	7.88	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	7.88	U	7.88	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	4.73	U	4.73	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	7.88	U	7.88	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	3.94	U	3.94	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	114 %		60-130				L201165	01/11/2012	01/11/2012

000000011



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2620 Fermi Avenue
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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M2
1201028-03 (Soil)

V12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	94 %	72-117			L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	104 %	72-144			L201165	01/11/2012	01/11/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M3
1201028-04 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	5.96	U	5.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	5.96	U	5.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	9.93	U	9.93	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorochthane	9.93	U	9.93	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	9.93	U	9.93	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	5.96	U	5.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	9.93	U	9.93	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	117 %		60-130			L201165	01/11/2012	01/11/2012	8260B

000000013



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2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M3
1201028-04 (Soil)

✓
121301.2

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	92 %	72-117			L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	101 %	72-144			L201165	01/11/2012	01/11/2012	8260B



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Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M4
1201028-05 (Soil)

✓ 12/13/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	6.06	U	6.06	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	12.1	U	12.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	12.1	U	12.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	12.1	U	12.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	12.1	U	12.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	6.06	U	6.06	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	10.1	U	10.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroethane	10.1	U	10.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	10.1	U	10.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	6.06	U	6.06	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	10.1	U	10.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	112 %		60-130			L201165	01/11/2012	01/11/2012	8260B

000000015



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M4
1201028-05 (Soil)

V12130112

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	91 %	72-117			L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	97 %	72-144			L201165	01/11/2012	01/11/2012	8260B

000000016



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M5
1201028-06 (Soil)

V
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	6.11	U	6.11	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropane	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	12.2	U	12.2	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	12.2	U	12.2	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	12.2	U	12.2	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	12.2	U	12.2	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	6.11	U	6.11	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	10.2	U	10.2	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroethane	10.2	U	10.2	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	10.2	U	10.2	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	6.11	U	6.11	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	10.2	U	10.2	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	5.10	U	5.10	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	118 %		60-130			L201165	01/11/2012	01/11/2012	8260B

000000017



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1MS
1201028-06 (Soil)

✓
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	92 %	72-117			L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	101 %	72-144			L201165	01/11/2012	01/11/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M6
1201028-07 (Soil)

V12 (30112)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	5.95	U	5.95	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropane	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	5.95	U	5.95	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	9.92	U	9.92	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroethane	9.92	U	9.92	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	9.92	U	9.92	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	5.95	U	5.95	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	9.92	U	9.92	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	4.96	U	4.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	117 %		60-130			L201165	01/11/2012	01/11/2012	8260B

000000019



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M6
1201028-07 (Soil)

V12130102

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	94 %	72-117		L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	102 %	72-144		L201165	01/11/2012	01/11/2012	8260B

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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M7
1201028-08 (Soil)

V, 2/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	5.23	U	5.23	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropane	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	10.5	U	10.5	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	10.5	U	10.5	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	10.5	U	10.5	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	10.5	U	10.5	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	5.23	U	5.23	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	8.71	U	8.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroethane	8.71	U	8.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	8.71	U	8.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	5.23	U	5.23	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	8.71	U	8.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	4.36	U	4.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	118 %		60-130			L201165	01/11/2012	01/11/2012	8260B

000000021



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M7
1201028-08 (Soil)

V1213d¹²

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	93 %	72-117		L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	102 %	72-144		L201165	01/11/2012	01/11/2012	8260B



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M8
1201028-09 (Soil)

V
12/30/12

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method		
Lionville Laboratory											
Volatile Organic Compounds by SW846 8260B											
1,1,1-Trichloroethane	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
1,1,2,2-Tetrachloroethane	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
1,1,2-Trichloroethane	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
1,1-Dichloroethane	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
1,1-Dichloroethene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
1,2-Dichloroethane	6.25	U	6.25	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
1,2-Dichloroethene (total)	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
1,2-Dichloropropane	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
2-Butanone	12.5	U	12.5	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
2-Hexanone	12.5	U	12.5	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
4-Methyl-2-pentanone	12.5	U	12.5	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Acetone	12.5	U	12.5	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Benzene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Bromodichloromethane	6.25	U	6.25	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Bromoform	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Bromomethane	10.4	U	10.4	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Carbon Disulfide	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Carbon Tetrachloride	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Chlorobenzene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Chloroethane	10.4	U	10.4	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Chloroform	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Chloromethane	10.4	U	10.4	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
cis-1,2-Dichloroethene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
cis-1,3-Dichloropropene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Dibromochloromethane	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Ethylbenzene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Methylene Chloride	6.25	U	6.25	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Styrene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Tetrachloroethene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
trans-1,2-Dichloroethene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Toluene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
trans-1,3-Dichloropropene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Trichloroethene	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Vinyl chloride	10.4	U	10.4	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Xylenes, total	5.21	U	5.21	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B		
Surrogate: 1,2-Dichloroethane-d4	115 %		60-130			L201165	01/11/2012	01/11/2012	8260B		

000000023



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M8
1201028-09 (Soil)

V121301.2

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	93 %	72-117		L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	98 %	72-144		L201165	01/11/2012	01/11/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M9
1201028-10 (Soil)

V, 2(2011)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
1,1,1-Trichloroethane	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,1,2,2-Tetrachloroethane	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,1,2-Trichloroethane	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,1-Dichloroethane	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,1-Dichloroethene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,2-Dichloroethane	5.65	U	5.65	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,2-Dichloroethene (total)	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,2-Dichloropropane	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
2-Butanone	11.3	U	11.3	ug/kg dry	1	L201165	01/11/2012	01/11/2012
2-Hexanone	11.3	U	11.3	ug/kg dry	1	L201165	01/11/2012	01/11/2012
4-Methyl-2-pentanone	11.3	U	11.3	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Acetone	11.3	U	11.3	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Benzene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Bromodichloromethane	5.65	U	5.65	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Bromoform	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Bromomethane	9.42	U	9.42	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Carbon Disulfide	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Carbon Tetrachloride	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Chlorobenzene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Chloroethane	9.42	U	9.42	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Chloroform	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Chloromethane	9.42	U	9.42	ug/kg dry	1	L201165	01/11/2012	01/11/2012
cis-1,2-Dichloroethene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
cis-1,3-Dichloropropene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Dibromochloromethane	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Ethylbenzene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Methylene Chloride	5.65	U	5.65	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Styrene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Tetrachloroethene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
trans-1,2-Dichloroethene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Toluene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
trans-1,3-Dichloropropene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Trichloroethene	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Vinyl chloride	9.42	U	9.42	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Xylenes, total	4.71	U	4.71	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Surrogate: 1,2-Dichloroethane-d4	118 %		60-130			L201165	01/11/2012	01/11/2012

000000025



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Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1M9
1201028-10 (Soil)

V1213012

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	94 %	72-117		L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	102 %	72-144		L201165	01/11/2012	01/11/2012	8260B

000000026



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Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N0
1201028-11 (Soil)

V
(2/30)14

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	5.96	U	5.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	11.9	U	11.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	5.96	U	5.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	9.93	U	9.93	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroethane	9.93	U	9.93	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	9.93	U	9.93	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	5.96	U	5.96	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	9.93	U	9.93	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	4.97	U	4.97	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
<i>Surrogate: 1,2-Dichloroethane-d4</i>	117%		60-130			L201165	01/11/2012	01/11/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N0
1201028-11 (Soil)

V12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	95 %	72-117		L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	104 %	72-144		L201165	01/11/2012	01/11/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N1
1201028-12 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
1,1,1-Trichloroethane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,1,2,2-Tetrachloroethane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,1,2-Trichloroethane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,1-Dichloroethane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,1-Dichloroethene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,2-Dichloroethane	6.06	U	6.06	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,2-Dichloroethene (total)	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
1,2-Dichloropropane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
2-Butanone	12.1	U	12.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012
2-Hexanone	12.1	U	12.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012
4-Methyl-2-pentanone	12.1	U	12.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Acetone	12.1	U	12.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Benzene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Bromodichloromethane	6.06	U	6.06	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Bromoform	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Bromomethane	10.1	U	10.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Carbon Disulfide	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Carbon Tetrachloride	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Chlorobenzene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Chloroethane	10.1	U	10.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Chloroform	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Chloromethane	10.1	U	10.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012
cis-1,2-Dichloroethene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
cis-1,3-Dichloropropene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Dibromochloromethane	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Ethylbenzene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Methylene Chloride	6.06	U	6.06	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Styrene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Tetrachloroethene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
trans-1,2-Dichloroethene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Toluene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
trans-1,3-Dichloropropene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Trichloroethene	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Vinyl chloride	10.1	U	10.1	ug/kg dry	1	L201165	01/11/2012	01/11/2012
Xylenes, total	5.05	U	5.05	ug/kg dry	1	L201165	01/11/2012	01/11/2012
<i>Surrogate: 1,2-Dichloroethane-d4</i>	115 %		60-130			L201165	01/11/2012	01/11/2012

000000029



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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N1
1201028-12 (Soil)

V_{1,2}/301.2

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	94 %	72-117		L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	97 %	72-144		L201165	01/11/2012	01/11/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N2
1201028-13 (Soil)

V12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	6.44	U	6.44	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	12.9	U	12.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	12.9	U	12.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	12.9	U	12.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	38.3		12.9	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	6.44	U	6.44	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	10.7	U	10.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroethane	10.7	U	10.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	10.7	U	10.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	6.44	U	6.44	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	10.7	U	10.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	5.37	U	5.37	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	118 %		60-130			L201165	01/11/2012	01/11/2012	8260B

000000031



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N2
1201028-13 (Soil)

V₁₂₁₃₀₁₂

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	92 %	72-117		L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	100 %	72-144		L201165	01/11/2012	01/11/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N4
1201028-15 (Soil)

V121301rc

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2,2-Tetrachloroethane	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1,2-Trichloroethane	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethane	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,1-Dichloroethene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethane	6.36	U	6.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloroethene (total)	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
1,2-Dichloropropane	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Butanone	12.7	U	12.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
2-Hexanone	12.7	U	12.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
4-Methyl-2-pentanone	12.7	U	12.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Acetone	12.7	U	12.7	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Benzene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromodichloromethane	6.36	U	6.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromoform	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Bromomethane	10.6	U	10.6	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Disulfide	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Carbon Tetrachloride	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chlorobenzene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroethane	10.6	U	10.6	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloroform	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Chloromethane	10.6	U	10.6	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,2-Dichloroethene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
cis-1,3-Dichloropropene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Dibromochloromethane	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Ethylbenzene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Methylene Chloride	6.36	U	6.36	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Styrene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Tetrachloroethene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,2-Dichloroethene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Toluene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
trans-1,3-Dichloropropene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Trichloroethene	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Vinyl chloride	10.6	U	10.6	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Xylenes, total	5.30	U	5.30	ug/kg dry	1	L201165	01/11/2012	01/11/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	118 %		60-130			L201165	01/11/2012	01/11/2012	8260B

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2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N4
1201028-15 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	92 %	72-117		L201165	01/11/2012	01/11/2012	8260B
Surrogate: 4-Bromofluorobenzene	103 %	72-144		L201165	01/11/2012	01/11/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1NS
1201028-16 (Soil)

✓12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,1,2,2-Tetrachloroethane	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,1,2-Trichloroethane	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,1-Dichloroethane	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,1-Dichloroethene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,2-Dichloroethane	6.50	U	6.50	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,2-Dichloroethene (total)	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,2-Dichloropropane	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
2-Butanone	13.0	U	13.0	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
2-Hexanone	13.0	U	13.0	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
4-Methyl-2-pentanone	13.0	U	13.0	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Acetone	13.0	U	13.0	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Benzene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Bromodichloromethane	6.50	U	6.50	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Bromoform	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Bromomethane	10.8	U	10.8	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Carbon Disulfide	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Carbon Tetrachloride	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Chlorobenzene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Chloroethane	10.8	U	10.8	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Chloroform	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Chloromethane	10.8	U	10.8	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
cis-1,2-Dichloroethene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
cis-1,3-Dichloropropene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Dibromochloromethane	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Ethylbenzene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Methylene Chloride	6.50	U	6.50	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Styrene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Tetrachloroethene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
trans-1,2-Dichloroethene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Toluene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
trans-1,3-Dichloropropene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Trichloroethene	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Vinyl chloride	10.8	U	10.8	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Xylenes, total	5.41	U	5.41	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
<i>Surrogate: 1,2-Dichloroethane-d4</i>	115 %		60-130				L201167	01/12/2012	01/12/2012

000000035



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N5
1201028-16 (Soil)

V12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	96 %	72-117		L201167	01/12/2012	01/12/2012	8260B
Surrogate: 4-Bromofluorobenzene	104 %	72-144		L201167	01/12/2012	01/12/2012	8260B



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Fax: 610-280-3041

WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N6
1201028-17 (Soil)

✓ 12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Volatile Organic Compounds by SW846 8260B								
1,1,1-Trichloroethane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
1,1,2,2-Tetrachloroethane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
1,1,2-Trichloroethane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
1,1-Dichloroethane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
1,1-Dichloroethene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
1,2-Dichloroethane	6.53	U	6.53	ug/kg dry	1	L201167	01/12/2012	01/12/2012
1,2-Dichloroethene (total)	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
1,2-Dichloropropane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
2-Butanone	13.1	U	13.1	ug/kg dry	1	L201167	01/12/2012	01/12/2012
2-Hexanone	13.1	U	13.1	ug/kg dry	1	L201167	01/12/2012	01/12/2012
4-Methyl-2-pentanone	13.1	U	13.1	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Acetone	13.1	U	13.1	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Benzene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Bromodichloromethane	6.53	U	6.53	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Bromoform	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Bromomethane	10.9	U	10.9	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Carbon Disulfide	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Carbon Tetrachloride	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Chlorobenzene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Chloroethane	10.9	U	10.9	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Chloroform	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Chloromethane	10.9	U	10.9	ug/kg dry	1	L201167	01/12/2012	01/12/2012
cis-1,2-Dichloroethene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
cis-1,3-Dichloropropene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Dibromochloromethane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Ethylbenzene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Methylene Chloride	6.53	U	6.53	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Styrene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Tetrachloroethene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
trans-1,2-Dichloroethene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Toluene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
trans-1,3-Dichloropropene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Trichloroethene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Vinyl chloride	10.9	U	10.9	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Xylenes, total	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012
Surrogate: 1,2-Dichloroethane-d4	114 %		60-130			L201167	01/12/2012	01/12/2012

000000037



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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N6
1201028-17 (Soil)

V
12/30/12

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	90 %	72-117			L201167	01/12/2012	01/12/2012	8260B
Surrogate: 4-Bromofluorobenzene	96 %	72-144			L201167	01/12/2012	01/12/2012	8260B



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N7
1201028-18 (Soil)

V121201.2

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method		
Lionville Laboratory											
Volatile Organic Compounds by SW846 8260B											
1,1,1-Trichloroethane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
1,1,2,2-Tetrachloroethane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
1,1,2-Trichloroethane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
1,1-Dichloroethane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
1,1-Dichloroethene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
1,2-Dichloroethane	6.53	U	6.53	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
1,2-Dichloroethene (total)	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
1,2-Dichloropropane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
2-Butanone	13.1	U	13.1	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
2-Hexanone	13.1	U	13.1	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
4-Methyl-2-pentanone	13.1	U	13.1	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Acetone	13.1	U	13.1	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Benzene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Bromodichloromethane	6.53	U	6.53	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Bromoform	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Bromomethane	10.9	U	10.9	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Carbon Disulfide	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Carbon Tetrachloride	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Chlorobenzene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Chloroethane	10.9	U	10.9	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Chloroform	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Chloromethane	10.9	U	10.9	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
cis-1,2-Dichloroethene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
cis-1,3-Dichloropropene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Dibromochloromethane	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Ethylbenzene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Methylene Chloride	6.53	U	6.53	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Styrene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Tetrachloroethene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
trans-1,2-Dichloroethene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Toluene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
trans-1,3-Dichloropropene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Trichloroethene	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Vinyl chloride	10.9	U	10.9	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Xylenes, total	5.44	U	5.44	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B		
Surrogate: 1,2-Dichloroethane-d4	117 %		60-130			L201167	01/12/2012	01/12/2012	8260B		



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Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N7
1201028-18 (Soll)

V(2130)1.2

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	91 %	72-117		L201167	01/12/2012	01/12/2012	8260B
Surrogate: 4-Bromofluorobenzene	98 %	72-144		L201167	01/12/2012	01/12/2012	8260B



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Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

J1N1N8
1201028-19 (Soil)

*V
12/30/12*

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

1,1,1-Trichloroethane	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,1,2,2-Tetrachloroethane	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,1,2-Trichloroethane	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,1-Dichloroethane	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,1-Dichloroethene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,2-Dichloroethane	6.87	U	6.87	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,2-Dichloroethene (total)	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
1,2-Dichloropropane	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
2-Butanone	13.7	U	13.7	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
2-Hexanone	13.7	U	13.7	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
4-Methyl-2-pentanone	13.7	U	13.7	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Acetone	13.7	U	13.7	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Benzene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Bromodichloromethane	6.87	U	6.87	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Bromoform	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Bromomethane	11.4	U	11.4	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Carbon Disulfide	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Carbon Tetrachloride	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Chlorobenzene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Chloroethane	11.4	U	11.4	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Chloroform	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Chloromethane	11.4	U	11.4	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
cis-1,2-Dichloroethene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
cis-1,3-Dichloropropene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Dibromochloromethane	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Ethylbenzene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Methylene Chloride	6.87	U	6.87	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Styrene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Tetrachloroethene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
trans-1,2-Dichloroethene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Toluene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
trans-1,3-Dichloropropene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Trichloroethene	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Vinyl chloride	11.4	U	11.4	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Xylenes, total	5.72	U	5.72	ug/kg dry	1	L201167	01/12/2012	01/12/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	119 %		60-130			L201167	01/12/2012	01/12/2012	8260B

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000000041



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Reported:
01/20/2012 08:38

J1N1N8
1201028-19 (Soil)

✓, 2 (Soln)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
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Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Surrogate: Toluene-d8	94 %	72-117			L201167	01/12/2012	01/12/2012	8260B
Surrogate: 4-Bromofluorobenzene	107 %	72-144			L201167	01/12/2012	01/12/2012	8260B

Appendix 4
Laboratory Narrative and Chain-of-Custody Documentation



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-029 K3796
LVL #: 1201028

W.O. #: 60049-001-001-0001-00
Date Received: 01-11-2012

GC/MS VOLATILE

Eighteen (18) soil samples were collected on 01-09,10-2012.

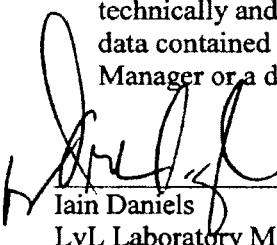
The samples and associated QC samples were prepared and analyzed 01-11,12-2012 according to criteria set forth in Lionville Laboratory SOPs. The preparation procedure was based on SW846 Method 5035A and the analysis procedure was based on SW846 Method 8260B for Client Specified Volatile target compounds.

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

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. Samples were analyzed within hold time.
3. Non-target compounds were not detected in these samples.
4. All surrogate recoveries were within acceptance criteria.
5. Two (2) of one hundred and forty (140) matrix spike recoveries were outside acceptance criteria. The spike recoveries for 1,2-Dichloroethane were elevated in the sample L201167-MS1/MSD1. There were no target compounds detected in the non-spiked sample; there was no impact on the data.
6. All blank spike recoveries were within acceptance criteria.
7. The method blanks were below the reporting limit for all target analytes.
8. Samples are reported on a dry weight basis.
9. All internal standard area and retention time criteria were met.

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

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 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

1/12/12
Date

Washington Closure Hanford			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST										RC-029-127		Page 1 of 13	
Collector Simonds	Company Contact John Kessner	Telephone No. 375-4688	Sampling Location 300-32			Project Coordinator KESSNER, JH			Price Code: 8C			Data Turnaround 15 Days				
Project Description Remaining Sites Confirmation Sampling - Soil Full Protocol			Field Logbook No. EL-10563			SAF No. RC-029			Method of Shipment Fed Ex							
Ice Chest No. AA-1-9-12			COA C30012A000			Bill of Lading/Air Bill No. Date Ac /--P-72			Bill of Lading/Air Bill No. Date Ac /--P-72			See OSC				
Shipped To BN 1/4/12 EVERTINE SERVICES/ LIONVILLE			Offsite Property No. A 100975													
POSSIBLE SAMPLE HAZARDS/REMARKS																
<p><i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i></p> <p>Special Handling and/or Storage <i>Please keep cool (4 deg C) have requiring coolants, as shown on "Preservation" heading. Thank You.</i></p>																
<p>SAMPLE ANALYSIS</p>																
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS												
J1N1M0	SOIL	01/09/12	1145	(1) ICP Metals - 6010TR (Check 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)												
J1N1M1	SOIL	01/09/12	1215	*	x	x	x	x	x	x	x	x	x	x	x	
J1N1M2	SOIL	01/09/12	1230	x	x	x	x	x	x	x	x	x	x	x	x	
J1N1M3	SOIL	01/09/12	1240	x	x	x	x	x	x	x	x	x	x	x	x	
J1N1M4	SOIL	01/09/12	1250	x	x	x	x	x	x	x	x	x	x	x	x	
CHAIN OF POSSESSION																
Relinquished By/Removed From MARSHAND SWEAGERS	Date/Time 1-9-12 1331	Received By/Stored In Bloddon Bloddon	Date/Time 1-9-12 1531	(1) ICP Metals - 6010TR (Check 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)												
Relinquished By/Removed From BLODDON	Date/Time 1-9-12 1620	Received By/Stored In A. Fischer A. Fischer	Date/Time 1-9-12 1620	(2) Gamma Spec (Check List) (Americium-241, Cadmium-113, Cobalt-60, Europium-152, Europium-154, Europium-155); Gross Alpha & Gross Beta												
Relinquished By/Removed From A. Fischer A. Fischer	Date/Time 1-10-12 1245	Received By/Stored In Fed Ex	Date/Time 1-10-12 1245	(3) Americium-241; Nickel-63; Isotopic Phosphorus [Phosphorus-32/30/34]; Strontium-89, 90 - Total Sr; Thorium-232; Uranium-233; Uranium-234; Uranium-238; Uranium												
Relinquished By/Removed From Fed Ex	Date/Time 1-11-12 1345	Received By/Stored In Fed Ex	Date/Time 1-11-12 1345	* PLEASE ADD LITHIUM TO ICP METALS LIST * * 20 ml vial → % moisture * * * freeze upon receipt at 1-10-12												
LABORATORY SECTION	Received By	REVIEWED BY												Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method	<i>AB</i>												Disposed By	Date/Time	

WCH-EE-011

B11912

Page 2 of 43

WASHINGTON CLOSURE HANFORD			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					RC-029-127		Page 2 of 43		
Collector Simonds	Company Contact Joan Kestner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Days Turnaround 15 Days							
Project Declaration Remaining Sites Confirmation Sampling - Soil Full Protocol			Sampling Location 300-32		SAF No. RC-029							
Ice Chest No. NTR-A4 1-9-12 ERG-02-007			Field Logbook No. EL-663		COA C30032A.000		Method of Shipment		Fed Ex			
Shipped To EBERLINE SERVICES (LONVILLE)			Offsite Property No. A100975		Bill of Lading/Air Bill No. HA-1-7-12 and See OSPC							
POSSIBLE SAMPLE HAZARD REMARKS <i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i>			Preservation		Cool AC		Cool AC		Cool AC		None	
			Type of Container	G/P	G	G*	G	G	G	G/P	G/P	
			No. of Container(s)	1	1	5	5	1	1	1	1	
			Volume	60mL	120mL	40mL	120mL	250mL	250mL	500mL	500mL	
			Spec. Item (1) in Special Instructions.	Chromate Hex-7196	TPH-Diesel Range WTH-D+	VOC- Solvent (TCL)	VOC- Solvent (TCL)	PAH- #310	PCB- #312	See Item (1) in Special Instructions.	See Item (1) in Special Instructions.	
			SAMPLE ANALYSIS	*	*	*	*	*	*	*	*	
			Sign/Print Name	SPECIAL INSTRUCTIONS								Matrix *
			Date/Time	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 - 1711 - (CV)								As(II) Cd(II) Ca(II) Cr(III) Co(II) Cu(II) Fe(II, III) Mg(II) Mn(II) Mo(VI) Na(I) Pb(II) V(IV, V) Zn(II)
			Date/Time	(2) Gamma Spec (Clean List) (Americium-241; Americium-241, Cobalt-60, European-152, Europium-153; Gross Alpha & Gross Beta)								Eu = Water Co = Co-60 Am = Americium-241 Eu = Europium-153 Gross Alpha = Gross Alpha Gross Beta = Gross Beta
			Date/Time	(3) Americium-241; Nickel-63; Isotopic Phosphorus (Phosphorus-31, Phosphorus-33); Strontium-89, Strontium-90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium								Str = Strontium-89 Str = Strontium-90 Total Sr = Total Strontium Uran = Uranium-233/234 Uran = Uranium-235 Uran = Uranium-238 Total = Total Uranium
			Date/Time	* PLEASE ADD URANIUM TO ICP METALS LIST								
			Date/Time	* * 20mL vial → % moisture								Ex = Excess
			Date/Time	* * * freeze upon receipt At 1-10-12								Received By CMB
			Date/Time	* * * freeze upon receipt At 1-10-12								Disposed By 1-10-12
LABORATORY SECTION		Received By		Date/Time								
FINAL SAMPLE DISPOSITION		Disposal Method		Date/Time								

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 3 of 43	
Collector Simonds	Company Contact Joel Kessner	Telephone No. 375-4638	Project Coordinator KESSNER, IH	Price Code 8C	Date Turnaround 15 Days		
Remaining Sites Confirmation Sampling - Soil Pull Protocol				SAP No. RC-029			
Ice Chest No. NKA AJ 1-9-12 ER6-02-007	Field Logbook No. EL-1663	COA C30032A000	Method of Shipment <i>fed EX</i>				
Shipped To <i>EBERLAW SERVICES, LIONVILLE</i> <i>1-9-12</i>				Bill of Lading/Air Bill No. <i>1-Q-11 CENCO</i>		Bill of Lading/Air Bill No. <i>See OSPC</i>	
Offsite Property No. <i>A100975</i>				Preservation Cool 4C GP		Cool 4C G	Frost G
Type of Container(s) No. of Container(s)				1 1		5	<i>fed EX</i>
Volume				60mL	60mL	120mL	40mL
Spec Item (1) in Special Instructions.				Chromium Hex - 7196	TPH-Diesel Range - WTPH-D + KJK	VQA- SO33260 (TCL)	VQA- SO33260 (TCL)
SAMPLE ANALYSIS				*	*	*	<i>VOA-B27DA</i>
Sample No.	Matrix *	Sample Date <i>1/9/12</i>	Sample Time <i>1430</i>				
JIN1N0	SOIL	<i>1/9/12</i>	<i>1430</i>	X	X	X	X
JIN1N1	SOIL	<i>1/9/12</i>	<i>1435</i>	X	X	X	X
JIN1N2	SOIL						
JIN1N3	SOIL						
JIN1N4	SOIL						
VOA samples frozen upon collection							
SPECIAL INSTRUCTIONS							
Relinquished By/Removed From <i>MANAMA SUMOUD</i> <i>1-9-12</i>				Received By/Stored In <i>Bil-Hudson Blubers</i> <i>1/9/12</i>	Date/Time <i>1531</i>	Matrix *	
Relinquished By/Removed From <i>1-9-12</i>				Received By/Stored In <i>1-9-12</i>	Date/Time <i>1-9-12</i>	1 (1) ICP Metals - 6010TR (Closeout 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) (2) Gamma Spec. (Clean Lab) (American-241, Cobium-137, Cobalt-60, Europium-154, Europium-155); Gross Alpha & Gross Beta (3) American-241; Nickel-63; Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Strontium-89/90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium	
Relinquished By/Removed From <i>1-9-12</i>				Received By/Stored In <i>A. Feier</i> <i>1/9/12</i>	Date/Time <i>1-9-12</i>	<i>fed EX</i>	
Relinquished By/Removed From <i>1-10-12</i>				Received By/Stored In <i>1/10-12</i>	Date/Time <i>1/10-12</i>	<i>fed EX</i>	
Relinquished By/Removed From <i>1-11-12</i>				Received By/Stored In <i>Peter Gengler</i> <i>1/11-12</i>	Date/Time <i>0950</i>	<i>fed EX</i>	
Relinquished By/Removed From <i>1-11-12</i>				Received By/Stored In <i>WHITE HORN</i> <i>1/11-12</i>	Date/Time <i>1/11-12</i>	<i>fed EX</i>	
Relinquished By/Removed From <i>1-11-12</i>				Received By/Stored In <i>1/11-12</i>	Date/Time <i>1/11-12</i>	<i>fed EX</i>	
LABORATORY				Received By SECTION	Date/Time	REVIEWED BY <i>CMB</i>	
FINAL SAMPLE DISPOSITION				Disposal Method	Date/Time	DATE <i>1-10-12</i> Disposed By	

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127	Date/Time
Collector Simonds	Customer Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days
Project Destination Remaining Sites Confirmation Sampling - Soil Pull Protocol	Sample Location 300-32		SARF No. RC-029		
Ice Chest No. DM 43 1-10-12	ERC-02-007	Field Notebook No. EL-663	COA C30032A/000	Method of Shipment Bill of Lading/Air Bill No.	
Shipped To 3M Lab EMERGING BUSINESS / LONVILLE	Office Property No. A 100975			Bill of Lading/Air Bill No. N/A	1-10-12
See OSRC					
POSSIBLE SAMPLE HAZARDS/REMARKS					
<p>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle according to: ✓ DOT L1777 4-3 A/F 1-10-12</p> <p>Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolers, as shown on "Preservation" heading. Thank You.</p>					
SAMPLE ANALYSIS					
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS	
JIN111	SOIL				
JIN111	SOIL				
JIN112	SOIL	1/10/12	0715	* VOA samples frozen upon collection	
JIN113	SOIL	1/10/12	0740	* VOA samples frozen upon collection	
JIN114	SOIL	1/10/12	0732	* VOA samples frozen upon collection	
CHAIN OF POSSESSION					
Relinquished By/Removed From <u>MICRODATA Samples</u>	Date/Time 1-10-12	Received By/Stored In <u>Blabson Blabson</u>	Date/Time 10/15	Matrix *	
Relinquished By/Removed From <u>Blabson Blabson</u>	Date/Time 10/12-11/00	Received By/Stored In <u>A. Fries A. Fries</u>	Date/Time 1-10-12	(1) ICP Metals - 60 (OTR 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 - 7411 (CV) (2) German Spec (Client Lab) (Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-153); Gross Alpha & Gross Beta	
Relinquished By/Removed From <u>A. Fries A. Fries</u>	Date/Time 1-10-12	Received By/Stored In <u>John John</u>	Date/Time 1-10-12	(3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Strontium-89/90 - Total Sr; Technetium-99 Low Level Isotope Uranium (Uranium-233/234, Uranium-234, Uranium-238); Total Uranium	
Relinquished By/Removed From <u>John John</u>	Date/Time 1-10-12	Received By/Stored In <u>Lior Hershko</u>	Date/Time 0950	* PLEASE ADD LITHIUM TO ICP METALS LIST	
Relinquished By/Removed From <u>Lior Hershko</u>	Date/Time 1-10-12	Received By/Stored In <u>Lior Hershko</u>	Date/Time 1-10-12	** VOA ONLY JIN113 - NOT PCB.	
LABORATORY SECTION	Received By	Reviewed By <u>Cathy</u>	Date/Time 1-10-12	** 20 ml vial → 0% moisture, freeze upon receipt	
FINAL SAMPLE DEPOSITION	Disposal Method	Disposed By	Date/Time		

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		RC-029-127	
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code SC	8C	Price Code GP	8C
Sampling Location 300-32				Data Turnaround 15 Days			
Project Designation Remaining Sites Confirmation Sampling - Soil Full Protocol		Field Logbook No. EL-1663		COA C3037A.000		Method of Shipment <i>Fed Ex</i>	
Ice Chest No. NA 45 - 1-10-12	Offsite Property No. A100975	Bill of Lading/Air Bill No. NY A 8/10-1/2		See OSPL			
Shipped To BENEFIQUE SERVICES / LIONVILLE							
POSSIBLE SAMPLE HAZARDS/REMARKS							
<p><i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i></p> <p><i>L DOT L100175 As 1-10-12.</i></p> <p>Special Handling and/or Storage</p> <p>Please keep cool (+4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</p>							
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date	Sample Time				
JIN1NS	SOIL	1/10/12	0805	X	X	X	X
JIN1N6	SOIL	1/10/12	0830	X	X	X	X
JIN1N7	SOIL	1/10/12	0845	X	X	X	X
JIN1N8	SOIL	1/10/12	0900	X	X	X	X
JIN1N9	SOIL	1/10/12					
CHAIN OF POSSESSION							
Relinquished By/Removed From MIRANDA BURGESS	Date/Time 1-10-12	Received By/Stored In STUDSON Blndr	Date/Time 10/12	Signature Names <i>10/12</i>			
Relinquished By/Removed From A. Fischer	Date/Time 1/10/12	Received By/Stored In A. Fischer	Date/Time 1-10-12				
Relinquished By/Removed From A. Fischer	Date/Time 1/10/12	Received By/Stored In A. Fischer	Date/Time 1-10-12				
Relinquished By/Removed From Fed Ex	Date/Time 1/10/12	Received By/Stored In Fed Ex	Date/Time 10/12				
Relinquished By/Removed From Fed Ex	Date/Time 1/10/12	Received By/Stored In Fed Ex	Date/Time 10/12				
Relinquished By/Removed From Fed Ex	Date/Time 1/10/12	Received By/Stored In Fed Ex	Date/Time 10/12				
LABORATORY SECTION	Received By	Title <i>DATE 1/10/12</i>		Date/Time			
FINAL SAMPLE DISPOSITION	Disposal Method			Date/Time			

Appendix 5
Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: <i>300-32</i>			DATA PACKAGE: <i>K3796</i>		
VALIDATOR: <i>ELR</i>	LAB: <i>LLC</i>			DATE: <i>12/24/12</i>	
		SDG: <i>K3796</i>			
ANALYSES PERFORMED					
<i>SW-846 8260</i>	<i>SW-846 8260 (TCLP)</i>	<i>SW-846 8270</i>		<i>SW-846 8270 (TCLP)</i>	
SAMPLES/MATRIX					
<i>JINMO JINMI JINM2 JINM3 JINM4</i> <i>JINM5 JINM6 JINM7 JINM8 JINM9</i> <i>JINNO JINM1 JINM2 JINM4 JINM5</i> <i>JINM6 JINM7 JINM8</i> <i>Soil</i>					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVETechnical verification documentation present? Yes No N/AComments: _____

_____**2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)**GC/MS tuning/performance check acceptable? Yes No N/AInitial calibrations acceptable? Yes No N/AContinuing calibrations acceptable? Yes No N/AStandards traceable? Yes No N/AStandards expired? Yes No N/ACalculation check acceptable? Yes No N/AComments: _____

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: _____
-
- FB - MO Zobetato*
-
- N2 - Iobeta*
-

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: *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:

6. SYSTEM PERFORMANCE (Levels D and E)

- Internal standards analyzed? Yes No N/A
- Internal 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: 116 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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

Volatile Organic Compounds by SW846 8260B - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L201165 - SW 5030A									
Blank (L201165-BLK1)									
					Prepared & Analyzed: 01/11/2012				
1,1,1-Trichloroethane	5.00	U	5.00		ug/kg wet				
1,1,2,2-Tetrachloroethane	5.00	U	5.00		ug/kg wet				
1,1,2-Trichloroethane	5.00	U	5.00		ug/kg wet				
1,1-Dichloroethane	5.00	U	5.00		ug/kg wet				
1,1-Dichloroethene	5.00	U	5.00		ug/kg wet				
1,2-Dichloroethane	6.00	U	6.00		ug/kg wet				
1,2-Dichloroethene (total)	5.00	U	5.00		ug/kg wet				
1,2-Dichloropropane	5.00	U	5.00		ug/kg wet				
2-Butanone	12.0	U	12.0		ug/kg wet				
2-Hexanone	12.0	U	12.0		ug/kg wet				
4-Methyl-2-pentanone	12.0	U	12.0		ug/kg wet				
Acetone	12.0	U	12.0		ug/kg wet				
Benzene	5.00	U	5.00		ug/kg wet				
Bromodichloromethane	6.00	U	6.00		ug/kg wet				
Bromoform	5.00	U	5.00		ug/kg wet				
Bromomethane	10.0	U	10.0		ug/kg wet				
Carbon Disulfide	5.00	U	5.00		ug/kg wet				
Carbon Tetrachloride	5.00	U	5.00		ug/kg wet				
Chlorobenzene	5.00	U	5.00		ug/kg wet				
Chloroethane	10.0	U	10.0		ug/kg wet				
Chloroform	5.00	U	5.00		ug/kg wet				
Chloromethane	10.0	U	10.0		ug/kg wet				
cis-1,2-Dichloroethene	5.00	U	5.00		ug/kg wet				
cis-1,3-Dichloropropene	5.00	U	5.00		ug/kg wet				
Dibromochloromethane	5.00	U	5.00		ug/kg wet				
Ethylbenzene	5.00	U	5.00		ug/kg wet				
Methylene Chloride	6.00	U	6.00		ug/kg wet				
Styrene	5.00	U	5.00		ug/kg wet				
Tetrachloroethene	5.00	U	5.00		ug/kg wet				
trans-1,2-Dichloroethene	5.00	U	5.00		ug/kg wet				
Toluene	5.00	U	5.00		ug/kg wet				
trans-1,3-Dichloropropene	5.00	U	5.00		ug/kg wet				
Trichloroethene	5.00	U	5.00		ug/kg wet				
Vinyl chloride	10.0	U	10.0		ug/kg wet				
Xylenes, total	5.00	U	5.00		ug/kg wet				
Surrogate: 1,2-Dichloroethane-d4	51.6				ug/kg wet	50.000	103	60-130	

000000043



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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

Volatile Organic Compounds by SW846 8260B - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L201165 - SW 5030A									
Blank (L201165-BLK1)		Prepared & Analyzed: 01/11/2012							
<i>Surrogate: Toluene-d8</i>	44.2		ug/kg wet	50.000	88	72-117			
<i>Surrogate: 4-Bromofluorobenzene</i>	48.6		ug/kg wet	50.000	97	72-144			
LCS (L201165-BS1)		Prepared & Analyzed: 01/11/2012							
1,1,1-Trichloroethane	52.7	5.00	ug/kg wet	50.000	105	65-130			
1,1,2,2-Tetrachloroethane	52.4	5.00	ug/kg wet	50.000	105	50-130			
1,1,2-Trichloroethane	50.4	5.00	ug/kg wet	50.000	101	60-125			
1,1-Dichloroethane	51.9	5.00	ug/kg wet	50.000	104	70-130			
1,1-Dichloroethene	49.8	5.00	ug/kg wet	50.000	100	60-130			
1,2-Dichloroethane	55.0	6.00	ug/kg wet	50.000	110	60-130			
1,2-Dichloroethene (total)	100	5.00	ug/kg wet	100.00	100	75-125			
1,2-Dichloropropane	53.7	5.00	ug/kg wet	50.000	107	70-130			
2-Butanone	62.5	12.0	ug/kg wet	50.000	125	20-200			
2-Hexanone	48.6	12.0	ug/kg wet	50.000	97	20-200			
4-Methyl-2-pentanone	50.9	12.0	ug/kg wet	50.000	102	40-150			
Acetone	54.1	12.0	ug/kg wet	50.000	108	15-240			
Benzene	49.3	5.00	ug/kg wet	50.000	99	75-125			
Bromodichloromethane	53.8	6.00	ug/kg wet	50.000	108	65-135			
Bromoform	51.0	5.00	ug/kg wet	50.000	102	60-130			
Bromomethane	51.4	10.0	ug/kg wet	50.000	103	40-150			
Carbon Disulfide	47.1	5.00	ug/kg wet	50.000	94	55-140			
Carbon Tetrachloride	53.3	5.00	ug/kg wet	50.000	107	60-135			
Chlorobenzene	49.1	5.00	ug/kg wet	50.000	98	70-125			
Chloroethane	54.3	10.0	ug/kg wet	50.000	109	50-150			
Chloroform	53.2	5.00	ug/kg wet	50.000	106	70-130			
Chloromethane	47.7	10.0	ug/kg wet	50.000	95	40-130			
cis-1,2-Dichloroethene	49.9	5.00	ug/kg wet	50.000	100	70-125			
cis-1,3-Dichloropropene	47.4	5.00	ug/kg wet	50.000	95	70-125			
Dibromochloromethane	50.3	5.00	ug/kg wet	50.000	101	65-125			
Ethylbenzene	47.4	5.00	ug/kg wet	50.000	95	70-125			
Methylene Chloride	48.1	6.00	ug/kg wet	50.000	96	45-140			
Styrene	47.9	5.00	ug/kg wet	50.000	96	70-125			
Tetrachloroethene	48.7	5.00	ug/kg wet	50.000	97	60-130			
trans-1,2-Dichloroethene	50.5	5.00	ug/kg wet	50.000	101	65-130			
Toluene	46.4	5.00	ug/kg wet	50.000	93	70-125			
trans-1,3-Dichloropropene	48.9	5.00	ug/kg wet	50.000	98	65-125			
Trichloroethene	52.3	5.00	ug/kg wet	50.000	105	70-130			

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WC-Hanford, Inc.
2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

Volatile Organic Compounds by SW846 8260B - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L201165 - SW 5030A									
LCS (L201165-BS1)									
Vinyl chloride	50.7	10.0	ug/kg wet	50.000	101	50-150			
Xylenes, total	141	5.00	ug/kg wet	150.00	94	70-125			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	51.4		ug/kg wet	50.000	103	60-130			
<i>Surrogate: Toluene-d8</i>	44.3		ug/kg wet	50.000	89	72-117			
<i>Surrogate: 4-Bromofluorobenzene</i>	49.3		ug/kg wet	50.000	99	72-144			
Matrix Spike (L201165-MS1)									
	Source: 1201028-10				Prepared & Analyzed: 01/11/2012				
1,1,1-Trichloroethane	64.2	5.40	ug/kg dry	53.996	4.71 U	119	65-130		
1,1,2,2-Tetrachloroethane	52.0	5.40	ug/kg dry	53.996	4.71 U	96	50-130		
1,1,2-Trichloroethane	58.7	5.40	ug/kg dry	53.996	4.71 U	109	60-125		
1,1-Dichloroethane	58.3	5.40	ug/kg dry	53.996	4.71 U	108	70-130		
1,1-Dichloroethene	54.8	5.40	ug/kg dry	53.996	4.71 U	101	60-130		
1,2-Dichloroethane	69.9	6.48	ug/kg dry	53.996	5.65 U	129	60-130		
1,2-Dichloroethene (total)	111	5.40	ug/kg dry	107.99	4.71 U	103	75-125		
1,2-Dichloropropane	61.5	5.40	ug/kg dry	53.996	4.71 U	114	70-130		
2-Butanone	50.9	13.0	ug/kg dry	53.996	11.3 U	94	20-200		
2-Hexanone	40.1	13.0	ug/kg dry	53.996	11.3 U	74	20-200		
4-Methyl-2-pentanone	49.8	13.0	ug/kg dry	53.996	11.3 U	92	40-150		
Acetone	45.5	13.0	ug/kg dry	53.996	11.3 U	84	15-240		
Benzene	54.8	5.40	ug/kg dry	53.996	4.71 U	101	75-125		
Bromodichloromethane	65.9	6.48	ug/kg dry	53.996	5.65 U	122	65-135		
Bromoform	61.6	5.40	ug/kg dry	53.996	4.71 U	114	60-130		
Bromomethane	47.7	10.8	ug/kg dry	53.996	9.42 U	88	40-150		
Carbon Disulfide	53.5	5.40	ug/kg dry	53.996	4.71 U	99	55-140		
Carbon Tetrachloride	65.7	5.40	ug/kg dry	53.996	4.71 U	122	60-135		
Chlorobenzene	55.8	5.40	ug/kg dry	53.996	4.71 U	103	70-125		
Chloroethane	48.7	10.8	ug/kg dry	53.996	9.42 U	90	50-150		
Chloroform	65.2	5.40	ug/kg dry	53.996	4.71 U	121	70-130		
Chloromethane	38.6	10.8	ug/kg dry	53.996	9.42 U	71	40-130		
cis-1,2-Dichloroethene	55.8	5.40	ug/kg dry	53.996	4.71 U	103	70-125		
cis-1,3-Dichloropropene	50.4	5.40	ug/kg dry	53.996	4.71 U	93	70-125		
Dibromochloromethane	59.4	5.40	ug/kg dry	53.996	4.71 U	110	65-125		
Ethylbenzene	53.5	5.40	ug/kg dry	53.996	4.71 U	99	70-125		
Methylene Chloride	55.9	6.48	ug/kg dry	53.996	5.65 U	103	45-140		
Styrene	53.3	5.40	ug/kg dry	53.996	4.71 U	99	70-125		
Tetrachloroethene	56.1	5.40	ug/kg dry	53.996	4.71 U	104	60-130		
trans-1,2-Dichloroethene	55.4	5.40	ug/kg dry	53.996	4.71 U	103	65-130		

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2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

Volatile Organic Compounds by SW846 8260B - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L201165 - SW 5030A									
Matrix Spike (L201165-MS1)									
Source: 1201028-10 Prepared & Analyzed: 01/11/2012									
Toluene	51.4	5.40	ug/kg dry	53.996	4.71 U	95	70-125		
trans-1,3-Dichloropropene	53.1	5.40	ug/kg dry	53.996	4.71 U	98	65-125		
Trichloroethene	67.1	5.40	ug/kg dry	53.996	4.71 U	124	70-130		
Vinyl chloride	40.3	10.8	ug/kg dry	53.996	9.42 U	75	50-150		
Xylenes, total	160	5.40	ug/kg dry	161.99	4.71 U	99	70-125		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	65.6		ug/kg dry	53.996		122	60-130		
<i>Surrogate: Toluene-d8</i>	51.0		ug/kg dry	53.996		94	72-117		
<i>Surrogate: 4-Bromofluorobenzene</i>	54.4		ug/kg dry	53.996		101	72-144		
Matrix Spike Dup (L201165-MSD1)									
Source: 1201028-10 Prepared & Analyzed: 01/11/2012									
1,1,1-Trichloroethane	66.8	5.60	ug/kg dry	56.009	4.71 U	119	65-130	0.3	20
1,1,2,2-Tetrachloroethane	53.2	5.60	ug/kg dry	56.009	4.71 U	95	50-130	1	20
1,1,2-Trichloroethane	59.4	5.60	ug/kg dry	56.009	4.71 U	106	60-125	3	20
1,1-Dichloroethane	60.6	5.60	ug/kg dry	56.009	4.71 U	108	70-130	0.1	20
1,1-Dichloroethene	58.9	5.60	ug/kg dry	56.009	4.71 U	105	60-130	4	20
1,2-Dichloroethane	72.6	6.72	ug/kg dry	56.009	5.65 U	130	60-130	0.1	20
1,2-Dichloroethene (total)	118	5.60	ug/kg dry	112.02	4.71 U	105	75-125	2	20
1,2-Dichloropropane	66.7	5.60	ug/kg dry	56.009	4.71 U	119	70-130	5	20
2-Butanone	62.9	13.4	ug/kg dry	56.009	11.3 U	112	20-200	17	20
2-Hexanone	44.8	13.4	ug/kg dry	56.009	11.3 U	80	20-200	8	20
4-Methyl-2-pentanone	53.4	13.4	ug/kg dry	56.009	11.3 U	95	40-150	3	20
Acetone	56.0	13.4	ug/kg dry	56.009	11.3 U	100	15-240	17	20
Benzene	57.6	5.60	ug/kg dry	56.009	4.71 U	103	75-125	1	20
Bromodichloromethane	68.7	6.72	ug/kg dry	56.009	5.65 U	123	65-135	0.5	20
Bromoform	63.2	5.60	ug/kg dry	56.009	4.71 U	113	60-130	1	20
Bromomethane	52.2	11.2	ug/kg dry	56.009	9.42 U	93	40-150	5	20
Carbon Disulfide	56.4	5.60	ug/kg dry	56.009	4.71 U	101	55-140	1	20
Carbon Tetrachloride	68.7	5.60	ug/kg dry	56.009	4.71 U	123	60-135	0.8	20
Chlorobenzene	56.7	5.60	ug/kg dry	56.009	4.71 U	101	70-125	2	20
Chloroethane	54.0	11.2	ug/kg dry	56.009	9.42 U	96	50-150	7	20
Chloroform	67.7	5.60	ug/kg dry	56.009	4.71 U	121	70-130	0.03	20
Chloromethane	40.9	11.2	ug/kg dry	56.009	9.42 U	73	40-130	2	20
cis-1,2-Dichloroethene	58.4	5.60	ug/kg dry	56.009	4.71 U	104	70-125	0.8	20
cis-1,3-Dichloropropene	51.9	5.60	ug/kg dry	56.009	4.71 U	93	70-125	0.7	20
Dibromochloromethane	60.4	5.60	ug/kg dry	56.009	4.71 U	108	65-125	2	20
Ethylbenzene	53.6	5.60	ug/kg dry	56.009	4.71 U	96	70-125	3	20
Methylene Chloride	59.3	6.72	ug/kg dry	56.009	5.65 U	106	45-140	2	20

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2620 Fermi Avenue
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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

Volatile Organic Compounds by SW846 8260B - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L201165 - SW 5030A

Matrix Spike Dup (L201165-MSD1)	Source: 1201028-10	Prepared & Analyzed: 01/11/2012							
Styrene	53.7	5.60	ug/kg dry	56.009	4.71 U	96	70-125	3	20
Tetrachloroethene	57.2	5.60	ug/kg dry	56.009	4.71 U	102	60-130	2	20
trans-1,2-Dichloroethene	59.5	5.60	ug/kg dry	56.009	4.71 U	106	65-130	3	20
Toluene	52.2	5.60	ug/kg dry	56.009	4.71 U	93	70-125	2	20
trans-1,3-Dichloropropene	54.4	5.60	ug/kg dry	56.009	4.71 U	97	65-125	1	20
Trichloroethene	70.8	5.60	ug/kg dry	56.009	4.71 U	126	70-130	2	20
Vinyl chloride	47.3	11.2	ug/kg dry	56.009	9.42 U	85	50-150	12	20
Xylenes, total	161	5.60	ug/kg dry	168.03	4.71 U	96	70-125	3	20
<i>Surrogate: 1,2-Dichloroethane-d4</i>	68.2		ug/kg dry	56.009		122	60-130		
<i>Surrogate: Toluene-d8</i>	51.9		ug/kg dry	56.009		93	72-117		
<i>Surrogate: 4-Bromofluorobenzene</i>	55.9		ug/kg dry	56.009		100	72-144		

Batch L201167 - SW 5030A

Blank (L201167-BLK1)	Prepared & Analyzed: 01/12/2012							
1,1,1-Trichloroethane	5.00	U	5.00	ug/kg wet				
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/kg wet				
1,1,2-Trichloroethane	5.00	U	5.00	ug/kg wet				
1,1-Dichloroethane	5.00	U	5.00	ug/kg wet				
1,1-Dichloroethene	5.00	U	5.00	ug/kg wet				
1,2-Dichloroethane	6.00	U	6.00	ug/kg wet				
1,2-Dichloroethene (total)	5.00	U	5.00	ug/kg wet				
1,2-Dichloropropane	5.00	U	5.00	ug/kg wet				
2-Butanone	12.0	U	12.0	ug/kg wet				
2-Hexanone	12.0	U	12.0	ug/kg wet				
4-Methyl-2-pentanone	12.0	U	12.0	ug/kg wet				
Acetone	12.0	U	12.0	ug/kg wet				
Benzene	5.00	U	5.00	ug/kg wet				
Bromodichloromethane	6.00	U	6.00	ug/kg wet				
Bromoform	5.00	U	5.00	ug/kg wet				
Bromomethane	10.0	U	10.0	ug/kg wet				
Carbon Disulfide	5.00	U	5.00	ug/kg wet				
Carbon Tetrachloride	5.00	U	5.00	ug/kg wet				
Chlorobenzene	5.00	U	5.00	ug/kg wet				
Chloroethane	10.0	U	10.0	ug/kg wet				
Chloroform	5.00	U	5.00	ug/kg wet				
Chloromethane	10.0	U	10.0	ug/kg wet				
cis-1,2-Dichloroethene	5.00	U	5.00	ug/kg wet				

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2620 Fermi Avenue
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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

Volatile Organic Compounds by SW846 8260B - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit		
Batch L201167 - SW 5030A												
Blank (L201167-BLK1)												
Prepared & Analyzed: 01/12/2012												
cis-1,3-Dichloropropene	5.00	U	5.00	ug/kg wet								
Dibromochloromethane	5.00	U	5.00	ug/kg wet								
Ethylbenzene	5.00	U	5.00	ug/kg wet								
Methylene Chloride	6.00	U	6.00	ug/kg wet								
Styrene	5.00	U	5.00	ug/kg wet								
Tetrachloroethene	5.00	U	5.00	ug/kg wet								
trans-1,2-Dichloroethene	5.00	U	5.00	ug/kg wet								
Toluene	5.00	U	5.00	ug/kg wet								
trans-1,3-Dichloropropene	5.00	U	5.00	ug/kg wet								
Trichloroethene	5.00	U	5.00	ug/kg wet								
Vinyl chloride	10.0	U	10.0	ug/kg wet								
Xylenes, total	5.00	U	5.00	ug/kg wet								
Surrogate: 1,2-Dichloroethane-d4	55.8			ug/kg wet	50.000	112	60-130					
Surrogate: Toluene-d8	45.6			ug/kg wet	50.000	91	72-117					
Surrogate: 4-Bromo fluoro benzene	48.5			ug/kg wet	50.000	97	72-144					
LCS (L201167-BS1)												
Prepared & Analyzed: 01/12/2012												
1,1,1-Trichloroethane	57.8		5.00	ug/kg wet	50.000	116	65-130					
1,1,2,2-Tetrachloroethane	51.3		5.00	ug/kg wet	50.000	103	50-130					
1,1,2-Trichloroethane	51.5		5.00	ug/kg wet	50.000	103	60-125					
1,1-Dichloroethane	54.6		5.00	ug/kg wet	50.000	109	70-130					
1,1-Dichloroethene	53.3		5.00	ug/kg wet	50.000	107	60-130					
1,2-Dichloroethane	61.0		6.00	ug/kg wet	50.000	122	60-130					
1,2-Dichloroethene (total)	108		5.00	ug/kg wet	100.00	108	75-125					
1,2-Dichloropropane	56.4		5.00	ug/kg wet	50.000	113	70-130					
2-Butanone	53.9		12.0	ug/kg wet	50.000	108	20-200					
2-Hexanone	42.8		12.0	ug/kg wet	50.000	86	20-200					
4-Methyl-2-pentanone	48.2		12.0	ug/kg wet	50.000	96	40-150					
Acetone	44.8		12.0	ug/kg wet	50.000	90	15-240					
Benzene	52.3		5.00	ug/kg wet	50.000	105	75-125					
Bromodichloromethane	58.5		6.00	ug/kg wet	50.000	117	65-135					
Bromoform	53.4		5.00	ug/kg wet	50.000	107	60-130					
Bromomethane	53.7		10.0	ug/kg wet	50.000	107	40-150					
Carbon Disulfide	51.2		5.00	ug/kg wet	50.000	102	55-140					
Carbon Tetrachloride	59.7		5.00	ug/kg wet	50.000	119	60-135					
Chlorobenzene	51.8		5.00	ug/kg wet	50.000	104	70-125					
Chloroethane	52.8		10.0	ug/kg wet	50.000	106	50-150					

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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

Volatile Organic Compounds by SW846 8260B - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L201167 - SW 5030A

LCS (L201167-BS1)		Prepared & Analyzed: 01/12/2012					
Chloroform	58.5	5.00	ug/kg wet	50.000	117	70-130	
Chloromethane	46.3	10.0	ug/kg wet	50.000	93	40-130	
cis-1,2-Dichloroethene	54.0	5.00	ug/kg wet	50.000	108	70-125	
cis-1,3-Dichloropropene	49.3	5.00	ug/kg wet	50.000	99	70-125	
Dibromochloromethane	53.2	5.00	ug/kg wet	50.000	106	65-125	
Ethylbenzene	50.6	5.00	ug/kg wet	50.000	101	70-125	
Methylene Chloride	49.9	6.00	ug/kg wet	50.000	100	45-140	
Styrene	50.4	5.00	ug/kg wet	50.000	101	70-125	
Tetrachloroethene	52.3	5.00	ug/kg wet	50.000	105	60-130	
trans-1,2-Dichloroethene	54.3	5.00	ug/kg wet	50.000	109	65-130	
Toluene	49.6	5.00	ug/kg wet	50.000	99	70-125	
trans-1,3-Dichloropropene	50.4	5.00	ug/kg wet	50.000	101	65-125	
Trichloroethene	57.4	5.00	ug/kg wet	50.000	115	70-130	
Vinyl chloride	50.0	10.0	ug/kg wet	50.000	100	50-150	
Xylenes, total	152	5.00	ug/kg wet	150.00	102	70-125	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	56.7		ug/kg wet	50.000	113	60-130	
<i>Surrogate: Toluene-d8</i>	47.7		ug/kg wet	50.000	95	72-117	
<i>Surrogate: 4-Bromo/fluorobenzene</i>	50.4		ug/kg wet	50.000	101	72-144	

Matrix Spike (L201167-MS1)	Source: 1201028-19	Prepared & Analyzed: 01/12/2012					
1,1,1-Trichloroethane	78.8	6.28	ug/kg dry	62.822	5.72 U	125	65-130
1,1,2,2-Tetrachloroethane	65.2	6.28	ug/kg dry	62.822	5.72 U	104	50-130
1,1,2-Trichloroethane	70.0	6.28	ug/kg dry	62.822	5.72 U	111	60-125
1,1-Dichloroethane	70.9	6.28	ug/kg dry	62.822	5.72 U	113	70-130
1,1-Dichloroethene	66.9	6.28	ug/kg dry	62.822	5.72 U	107	60-130
1,2-Dichloroethane	86.5	7.54	ug/kg dry	62.822	6.87 U	138*	60-130
1,2-Dichloroethene (total)	138	6.28	ug/kg dry	125.64	5.72 U	110	75-125
1,2-Dichloropropane	81.4	6.28	ug/kg dry	62.822	5.72 U	130	70-130
2-Butanone	65.6	15.1	ug/kg dry	62.822	13.7 U	104	20-200
2-Hexanone	43.0	15.1	ug/kg dry	62.822	13.7 U	68	20-200
4-Methyl-2-pentanone	59.1	15.1	ug/kg dry	62.822	13.7 U	94	40-150
Acetone	62.7	15.1	ug/kg dry	62.822	13.7 U	100	15-240
Benzene	67.5	6.28	ug/kg dry	62.822	5.72 U	107	75-125
Bromodichloromethane	80.5	7.54	ug/kg dry	62.822	6.87 U	128	65-135
Bromoform	73.1	6.28	ug/kg dry	62.822	5.72 U	116	60-130
Bromomethane	67.5	12.6	ug/kg dry	62.822	11.4 U	107	40-150
Carbon Disulfide	64.4	6.28	ug/kg dry	62.822	5.72 U	102	55-140

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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

Volatile Organic Compounds by SW846 8260B - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L201167 - SW 5030A

Matrix Spike (L201167-MS1)	Source: 1201028-19	Prepared & Analyzed: 01/12/2012					
Carbon Tetrachloride	79.3	6.28	ug/kg dry	62.822	5.72 U	126	60-135
Chlorobenzene	65.2	6.28	ug/kg dry	62.822	5.72 U	104	70-125
Chloroethane	67.4	12.6	ug/kg dry	62.822	11.4 U	107	50-150
Chloroform	79.4	6.28	ug/kg dry	62.822	5.72 U	126	70-130
Chloromethane	55.5	12.6	ug/kg dry	62.822	11.4 U	88	40-130
cis-1,2-Dichloroethene	69.0	6.28	ug/kg dry	62.822	5.72 U	110	70-125
cis-1,3-Dichloropropene	58.9	6.28	ug/kg dry	62.822	5.72 U	94	70-125
Dibromochloromethane	71.6	6.28	ug/kg dry	62.822	5.72 U	114	65-125
Ethylbenzene	63.7	6.28	ug/kg dry	62.822	5.72 U	101	70-125
Methylene Chloride	68.9	7.54	ug/kg dry	62.822	6.87 U	110	45-140
Styrene	62.7	6.28	ug/kg dry	62.822	5.72 U	100	70-125
Tetrachloroethene	65.6	6.28	ug/kg dry	62.822	5.72 U	104	60-130
trans-1,2-Dichloroethene	69.0	6.28	ug/kg dry	62.822	5.72 U	110	65-130
Toluene	61.9	6.28	ug/kg dry	62.822	5.72 U	99	70-125
trans-1,3-Dichloropropene	63.9	6.28	ug/kg dry	62.822	5.72 U	102	65-125
Trichloroethene	80.1	6.28	ug/kg dry	62.822	5.72 U	127	70-130
Vinyl chloride	59.5	12.6	ug/kg dry	62.822	11.4 U	95	50-150
Xylenes, total	185	6.28	ug/kg dry	188.46	5.72 U	98	70-125
<i>Surrogate: 1,2-Dichloroethane-d4</i>	81.0		ug/kg dry	62.822	129		60-130
<i>Surrogate: Toluene-d8</i>	60.5		ug/kg dry	62.822	96		72-117
<i>Surrogate: 4-Bromo Fluorobenzene</i>	66.8		ug/kg dry	62.822	106		72-144

Matrix Spike Dup (L201167-MSD1)	Source: 1201028-19	Prepared & Analyzed: 01/12/2012					
1,1,1-Trichloroethane	75.3	6.09	ug/kg dry	60.927	5.72 U	124	65-130
1,1,2,2-Tetrachloroethane	65.7	6.09	ug/kg dry	60.927	5.72 U	108	50-130
1,1,2-Trichloroethane	67.9	6.09	ug/kg dry	60.927	5.72 U	111	60-125
1,1-Dichloroethane	67.2	6.09	ug/kg dry	60.927	5.72 U	110	70-130
1,1-Dichloroethene	63.7	6.09	ug/kg dry	60.927	5.72 U	105	60-130
1,2-Dichloroethane	81.2	7.31	ug/kg dry	60.927	6.87 U	133*	60-130
1,2-Dichloroethene (total)	130	6.09	ug/kg dry	121.85	5.72 U	107	75-125
1,2-Dichloropropane	76.1	6.09	ug/kg dry	60.927	5.72 U	125	70-130
2-Butanone	68.6	14.6	ug/kg dry	60.927	13.7 U	113	20-200
2-Hexanone	42.1	14.6	ug/kg dry	60.927	13.7 U	69	20-200
4-Methyl-2-pentanone	58.5	14.6	ug/kg dry	60.927	13.7 U	96	40-150
Acetone	58.9	14.6	ug/kg dry	60.927	13.7 U	97	15-240
Benzene	64.1	6.09	ug/kg dry	60.927	5.72 U	105	75-125
Bromodichloromethane	76.5	7.31	ug/kg dry	60.927	6.87 U	126	65-135

000000050



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2620 Fermi Avenue
Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/20/2012 08:38

Volatile Organic Compounds by SW846 8260B - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L201167 - SW 5030A									
Matrix Spike Dup (L201167-MSD1)		Source: 1201028-19			Prepared & Analyzed: 01/12/2012				
Bromoform	71.6	6.09	ug/kg dry	60.927	5.72 U 118	60-130	0.9	20	
Bromomethane	59.5	12.2	ug/kg dry	60.927	11.4 U 98	40-150	10	20	
Carbon Disulfide	60.6	6.09	ug/kg dry	60.927	5.72 U 100	55-140	3	20	
Carbon Tetrachloride	74.4	6.09	ug/kg dry	60.927	5.72 U 122	60-135	3	20	
Chlorobenzene	63.0	6.09	ug/kg dry	60.927	5.72 U 103	70-125	0.3	20	
Chloroethane	64.4	12.2	ug/kg dry	60.927	11.4 U 106	50-150	2	20	
Chloroform	75.6	6.09	ug/kg dry	60.927	5.72 U 124	70-130	2	20	
Chloromethane	57.0	12.2	ug/kg dry	60.927	11.4 U 94	40-130	6	20	
cis-1,2-Dichloroethene	65.2	6.09	ug/kg dry	60.927	5.72 U 107	70-125	3	20	
cis-1,3-Dichloropropene	58.3	6.09	ug/kg dry	60.927	5.72 U 96	70-125	2	20	
Dibromochloromethane	69.3	6.09	ug/kg dry	60.927	5.72 U 114	65-125	0.08	20	
Ethylbenzene	57.7	6.09	ug/kg dry	60.927	5.72 U 95	70-125	7	20	
Methylene Chloride	65.5	7.31	ug/kg dry	60.927	6.87 U 108	45-140	2	20	
Styrene	59.4	6.09	ug/kg dry	60.927	5.72 U 97	70-125	2	20	
Tetrachloroethene	62.2	6.09	ug/kg dry	60.927	5.72 U 102	60-130	2	20	
trans-1,2-Dichloroethene	64.9	6.09	ug/kg dry	60.927	5.72 U 107	65-130	3	20	
Toluene	59.2	6.09	ug/kg dry	60.927	5.72 U 97	70-125	1	20	
trans-1,3-Dichloropropene	62.8	6.09	ug/kg dry	60.927	5.72 U 103	65-125	1	20	
Trichloroethene	75.2	6.09	ug/kg dry	60.927	5.72 U 123	70-130	3	20	
Vinyl chloride	57.9	12.2	ug/kg dry	60.927	11.4 U 95	50-150	0.4	20	
Xylenes, total	178	6.09	ug/kg dry	182.78	5.72 U 98	70-125	0.7	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	76.3		ug/kg dry	60.927		125	60-130		
<i>Surrogate: Toluene-d8</i>	58.1		ug/kg dry	60.927		95	72-117		
<i>Surrogate: 4-Bromo fluoro benzene</i>	65.7		ug/kg dry	60.927		108	72-144		

Date: 31 December 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: Remaining Sites Confirmation Sampling – Soil Full Protocol – Waste Site 300-32
Subject: Wet Chemistry - Data Package No. K3796-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K3796 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
J1N1M1	1/9/12	Soil	C	See note 1
J1N1M2	1/9/12	Soil	C	See note 1
J1N1M3	1/9/12	Soil	C	See note 1
J1N1M4	1/9/12	Soil	C	See note 1
J1N1M5	1/9/12	Soil	C	See note 1
J1N1M6	1/9/12	Soil	C	See note 1
J1N1M7	1/9/12	Soil	C	See note 1
J1N1M8	1/9/12	Soil	C	See note 1
J1N1M9	1/9/12	Soil	C	See note 1
J1N1N0	1/9/12	Soil	C	See note 1
J1N1N1	1/9/12	Soil	C	See note 1
J1N1N4	1/10/12	Soil	C	See note 1
J1N1N5	1/10/12	Soil	C	See note 1
J1N1N6	1/10/12	Soil	C	See note 1
J1N1N7	1/10/12	Soil	C	See note 1
J1N1N8	1/10/12	Soil	C	See note 1

1 – IC anions by 300.0, hexavalent chromium by 7196A and nitrate/nitrite by 353.2.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, Rev. 3). 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 28 days for nitrate/nitrite, chloride, fluoride, bromide, sulfate; 14 days for cyanide; and 7 days for sulfide; 48 hours for nitrate, nitrite and orthophosphate.

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 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.

Due to method blank contamination, the sulfate results in samples J1N1M3, J1N1M4, J1N1M5, J1N1M6, J1N1M8, J1N1N0, J1N1N1 and J1N1N6 were qualified as undetected and flagged "U".

All other method blank results were acceptable.

Field Blanks

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 (J1N1N0/J1N1N1) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were 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 K3796 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 78%.

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 deficiencies were noted;

- Due to the holding time being exceeded by greater than twice the limit, all detected nitrate, nitrite and orthophosphate results were qualified as estimates and flagged "J".
- Due to method blank contamination, the sulfate results in samples J1N1M3, J1N1M4, J1N1M5, J1N1M6, J1N1M8, J1N1N0, J1N1N1 and J1N1N6 were qualified as undetected and flagged "U".

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-2001-48, Rev. 3, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 2004.

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: K3796	REVIEWER: ELR	Project: 300-32	PAGE <u>1</u> OF <u>1</u>
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate	J	J1N1M1, J1N1M2 J1N1M3, J1N1M4 J1N1M5, J1N1M6 J1N1M7, J1N1M8 J1N1M9, J1N1N0 J1N1N1, J1N1N4 J1N1N5, J1N1N6 J1N1N7	Hold time
Nitrate	UR	J1N1N8	Hold time
Nitrite	UR	J1N1M1, J1N1M2 J1N1M3, J1N1M4 J1N1M5, J1N1M6 J1N1M7, J1N1M8 J1N1M9, J1N1N0 J1N1N1, J1N1N4 J1N1N6, J1N1N7 J1N1N8	Hold time
Nitrite	J	J1N1N5	Hold time
Orthophosphate	UR	J1N1M3, J1N1M4 J1N1M5, J1N1M6 J1N1M7, J1N1M8 J1N1M9, J1N1N0 J1N1N7, J1N1N8	Hold time
Orthophosphate	J	J1N1M1, J1N1M2 J1N1N1, J1N1N4 J1N1N5, J1N1N6	Hold time
Sulfate	U	J1N1M3, J1N1M4 J1N1M5, J1N1M6 J1N1M8, J1N1N0 J1N1N1, J1N1N6	Method blank contamination

* - 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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Richland WA, 99354

Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/27/2012 17:36

Wet Chemistry
Lionville Laboratory

✓ 12/30/12

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1M1 (1201028-02) Soil									
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	3.1 B	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	72.1 J	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	2.4 B J	2.0	10.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	47.0	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	16.3 D	0.20	1.02	mg/kg dry	2	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1M2 (1201028-03) Soil									
Bromide	1.0 U	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	4.2 B	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.1 B	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	29.6 J	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	2.2 B J	2.0	10.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	44.8	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	6.75	0.10	0.50	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1M3 (1201028-04) Soil									
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	3.6 B	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	10.3 J	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/27/2012 17:36

Wet Chemistry
Lionville Laboratory

V 12/30/12

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1M3 (1201028-04) Soil									
Nitrite	1.0 U R	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	2.0 U R	2.0	10.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	12.5 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	2.34	0.10	0.51	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1M4 (1201028-05) Soil									
Bromide	0.9 U	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	1.5 B	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	0.9 U	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	2.7 B J	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	0.9 U R	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	1.8 U R	1.8	9.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	5.8 U	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	0.75	0.09	0.46	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1M5 (1201028-06) Soil									
Bromide	1.0 U	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	1.1 B	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	2.1 B J	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	2.0 U R	2.0	9.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	4.6 B U	1.0	5.0	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	0.53	0.10	0.50	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2



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Project: RC-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/27/2012 17:36

Wet Chemistry
Lionville Laboratory

12/36/12

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1M6 (1201028-07) Soil									
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	1.5 B	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	4.5 B J	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	2.0 U R	2.0	10.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	14.1 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	1.18	0.10	0.51	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1M7 (1201028-08) Soil									
Bromide	0.9 U	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	5.5	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	0.9 U	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	16.0 J	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	0.9 U R	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	1.8 U R	1.8	9.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	62.0	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	3.62	0.09	0.46	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1M8 (1201028-09) Soil									
Bromide	1.0 U	1.0	4.8	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	1.3 B	1.0	4.8	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	4.8	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	3.3 B J	1.0	4.8	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	4.8	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	1.9 U R	1.9	9.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)



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Project Number: K3796
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Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1M8 (1201028-09) Soil									
Sulfate	14.4 U	1.0	4.8	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	0.83	0.10	0.48	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1M9 (1201028-10) Soil									
Bromide	0.9 U	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	10.9	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	0.9 U	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	11.1 J	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	0.9 U R	0.9	4.6	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	1.8 U R	1.8	9.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	135 D	1.8	9.2	mg/kg dry	2	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	2.57	0.09	0.46	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1N0 (1201028-11) Soil									
Bromide	0.9 U	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	2.0 B	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	0.9 U	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	8.5 J	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	0.9 U R	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	1.9 U R	1.9	9.3	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	9.8 U	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	2.23	0.09	0.47	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1N1 (1201028-12) Soil									
Bromide	0.9 U	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	2.0 B	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	0.9 U	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)



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Wet Chemistry
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Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1N1 (1201028-12) Soil									
Nitrate	8.7 J	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	0.9 U R	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	2.2 B J	1.9	9.4	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	9.8 U	0.9	4.7	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	2.11	0.09	0.47	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1N4 (1201028-15) Soil									
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	1.3 B	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	6.7 J	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U R	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	3.2 B J	2.0	10.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	24.7	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	1.59	0.10	0.51	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1N5 (1201028-16) Soil									
Bromide	1.0 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	4.3 B	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	21.1 J	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	1.5 B J	1.0	5.1	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	2.2 B J	2.1	10.3	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	105 D	2.1	10.3	mg/kg dry	2	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	5.06	0.10	0.51	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2



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Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1N6 (1201028-17) Soil									
Bromide	1.0 U	1.0	5.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	1.3 B	1.0	5.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	3.6 B <i>J</i>	1.0	5.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U <i>R</i>	1.0	5.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	3.9 B <i>J</i>	2.1	10.5	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	3.0 B <i>J</i>	1.0	5.2	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	0.80	0.10	0.52	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1N7 (1201028-18) Soil									
Bromide	2.2 B	1.0	4.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	312 D	4.9	24.5	mg/kg dry	5	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	4.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	39.4 <i>J</i>	1.0	4.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U <i>R</i>	1.0	4.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	2.0 U <i>R</i>	2.0	9.8	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Sulfate	246 D	4.9	24.5	mg/kg dry	5	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	8.18	0.10	0.49	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2
J1N1N8 (1201028-19) Soil									
Bromide	1.0 U	1.0	4.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Chloride	3.2 B	1.0	4.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	4.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate	1.0 U <i>R</i>	1.0	4.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U <i>R</i>	1.0	4.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Orthophosphate	2.0 U <i>R</i>	2.0	9.8	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)

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Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1N8 (1201028-19) Soil									
Sulfate	41.6	1.0	4.9	mg/kg dry	1	L201276	01/26/2012	01/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	0.10 U	0.10	0.49	mg/kg dry	1	L201287	01/26/2012	01/27/2012	EPA 353.2

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Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1M0 (1201028-01) Soil									
%Solids	100	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
%Moisture	0.10 U	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1M1 (1201028-02) Soil									
%Solids	97.7	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	2.29	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1M2 (1201028-03) Soil									
%Solids	97.3	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.21 U	0.21	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	2.70	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1M3 (1201028-04) Soil									
%Solids	98.3	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	1.70	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1M4 (1201028-05) Soil									
%Solids	97.7	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	2.28	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1M5 (1201028-06) Soil									
%Solids	97.9	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	2.08	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216



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Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1M6 (1201028-07) Soil									
%Solids	98.2	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	1.79	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1M7 (1201028-08) Soil									
%Solids	98.1	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	1.90	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1M8 (1201028-09) Soil									
%Solids	97.8	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	2.19	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1M9 (1201028-10) Soil									
%Solids	97.9	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	2.12	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1M0 (1201028-11) Soil									
%Solids	97.9	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.20 U	0.20	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	2.05	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1M1 (1201028-12) Soil									
%Solids	97.5	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.21 U	0.21	0.51	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	2.52	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216



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Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1N2 (1201028-13) Soil									
%Solids	100	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
%Moisture	0.10 U	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1N3 (1201028-14) Soil									
%Solids	100	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
J1N1N4 (1201028-15) Soil									
%Solids	96.4	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.21 U	0.21	0.52	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	0.10 U	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1N5 (1201028-16) Soil									
%Solids	96.4	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.21 U	0.21	0.52	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	3.56	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1N6 (1201028-17) Soil									
%Solids	94.8	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.21 U	0.21	0.53	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	3.61	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216
J1N1N7 (1201028-18) Soil									
%Solids	95.7	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.21 U	0.21	0.52	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	5.21	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216

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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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/23/2012 15:09

Wet Chemistry
Lionville Laboratory

✓ 12/30/12

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1N1N8 (1201028-19) Soil									
%Solids	95.2	0.1	0.1	% by Weight	1	L201125	01/13/2012	01/13/2012	SM2540G
Hexavalent Chromium	0.21 U	0.21	0.53	mg/kg dry	1	L201128	01/13/2012	01/17/2012	SW846 7196A
%Moisture	4.28	0.10	0.10	% by Weight	1	L201126	01/13/2012	01/13/2012	D2216

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation



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-029 K3796
LVL#: 1201028

Date Received: 01-11-12

INORGANIC NARRATIVE

1. This narrative covers the analyses of 16 soil samples.
 2. The samples were prepared and analyzed in accordance with the methods indicated on the data summary report.
- Lionville Lab (LvL) is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.
3. Sample holding times as required by the method and/or contract were met with the exception of Nitrate, Nitrite and Orthophosphate as these analyses were requested past hold.
 4. The results presented in this report are derived from samples that met LvL's sample acceptance policy with the exceptions noted on the Sample Receipt Checklist.
 5. The method blanks were within the method criteria.
 6. The Laboratory Control Samples (LCS) were within the laboratory control limits.
 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.

Carol Schenkel
Iain Daniels
Laboratory Manager
Lionville Laboratory
njp\01-028

1/27/12

Date

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 20 pages.

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

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BTR

Washington Closure Hanford			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST										RC-029-127		Page 3 of 3	
Collector Simonds	Company Contact Jean Kessner	Telephone No. 375-4688	Sampling Location 300-32			Project Coordinator KESSNER, JH			Price Code 8C			Data Turnaround 15 Days				
Project Destination Remaining Sites Confirmation Sampling - Soil Full Protocol			Field Logbook No. EL-1663			COA C30032A.000			Method of Shipment Sea Lading/Air Bill No. NA-1 Q. 11 Count			Bill of Lading/Air Bill No. NA-1 Q. 11 Count				
Ice Chest No. <u>BC-02-007</u> Date Ad-9-12			Offsite Property No. <u>A100975</u>													
Shipped To <u>BERKEANE SERVICES, LIONVILLE</u>																
POSSIBLE SAMPLE HAZARD/REMARKS																
<p>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</p> <p>Special Handling and/or Storage Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</p>																
SAMPLE ANALYSIS																
Sample No.	Matrix *	Sample Date	Sample Time	Cool 4C	Cool AC	Cool AC	Freeze	Cool AC	Cool AC	Cool AC	Cool AC	Cool AC	Cool AC	Date/Time	Matrix *	
JINNO	SOIL	1/9/12	1430	X	X	X	X	X	X	X	X	X	X	1/9/12	(1) ICP Metals - 6010TR (Chloro-ac Lat) (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)	
JINNI	SOIL	1/9/12	1435	X	X	X	X	X	X	X	X	X	X	1/9/12	(2) Gamma Spec (Clean Lat) (Americium-241, Cadmium-113, Cobalt-60, Europium-152, Europium-154, Americium-155); Gross Alpha & Gross Beta	
JHANZ	SOIL														(3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Strontium-89, 90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium	
JHANZ	SOIL	1/9/12														
CHAIN OF POSSESSION																
Received By/Stored In <u>MICHAEL SUMMERS</u>	Date/Time <u>1-9-12 1531</u>	Received By/Stored In <u>BILL HUBBARD</u>	Date/Time <u>1/9/12 1531</u>	Signature/Print Name <u>BILL HUBBARD</u>												
Received By/Removed From <u>Michael Summers</u>	Date/Time <u>1-9-12 1620</u>	Received By/Stored In <u>A. Fischer</u>	Date/Time <u>1-9-12 1620</u>	Signature/Print Name <u>A. Fischer</u>												
Received By/Removed From <u>Michael Summers</u>	Date/Time <u>1-10-12 1245</u>	Received By/Stored In <u>A. Fischer</u>	Date/Time <u>1-10-12 1245</u>	Signature/Print Name <u>A. Fischer</u>												
Received By/Removed From <u>Michael Summers</u>	Date/Time <u>1-11-12 0951</u>	Received By/Removed From <u>Michael Summers</u>	Date/Time <u>1-11-12 0955</u>	Signature/Print Name <u>Michael Summers</u>												
Requisitioned By/Removed From <u>Michael Summers</u>	Date/Time <u>1-11-12 1345</u>	Received By/Removed From <u>Michael Summers</u>	Date/Time <u>1-11-12 1345</u>	Signature/Print Name <u>Michael Summers</u>												
SPECIAL INSTRUCTIONS																
<p>PLEASE ADD LITURATE TO ICP METALS LIST</p> <p>20 ml vial → % moisture</p> <p>* freeze upon receipt</p>																
LABORATORY SECTION	Received By	Disposal Method	DATE	Title												
FINAL SAMPLE DISPOSITION				Date/Time												

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127			
Collector	Company Contact	Telephone No.	Project Coordinator	Price Code	8C	Date Turnaround	
Simonds	Jean Kessner	375-4688	KESSNER, JH				
Project Destination	Sampling Location	300-32	SAF No.				
Remaining Sites Confirmation Sampling - Soil Full Protocol	Field Notebook No.	COA	Method of Shipment				
Ice Chest No. JAK-AJ-10-12	ERC-02-007	C30032A000	BILL of Lading/Air Bill No.				
Shipped To <u>3M Unis</u> <u>SHARPSHEEVE LIONVILLE</u>	Office Property No.	A 100975	NTR A/F 1-10-12				
POSSIBLE SAMPLE HAZARD/REMARKS				See OSPC			
<p>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</p> <p>✓ DDT L, rrrr-tcs A/g 1-10-12</p> <p>Special Handling and/or Storage</p> <p>Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</p>							
SAMPLE ANALYSIS				See Item (3) in Special Instructions.			
Sample No.	Matrix *	Sample Date	Sample Time	See Item (3) in Special Instructions.			
JIN1N1	SOIL	1/10/12	0715	*			
JIN1N2	SOIL	1/10/12	0740	*			
JIN1N3	SOIL	1/10/12	0730	*			
JIN1N4	SOIL	1/10/12	0730	*			
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From <u>MICROGRAM Samples</u> <u>1-10-12</u>	Received By/Stored In <u>Blu DSDN Bludon</u> <u>10/15</u>	Date/Time	10/15	(1) ICP Metals : 60 IOTR (Chromium, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Molybdenum, Nitrate, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7071 (CV)			
Relinquished By/Removed From <u>Blu DSDN Bludon</u> <u>10/12-11/0</u>	Received By/Stored In <u>A. Freier A. Freier</u> <u>1245</u>	Date/Time	11/0	(2) Gamma Spec (ICP/Spec Ltd) (Antimony-241, Cadmium-113, Cobalt-60, Europium-152, Europium-153); Gross Alpha & Gross Beta			
Relinquished By/Removed From <u>A. Freier A. Freier</u> <u>10/12-11/0</u>	Received By/Stored In <u>Lester Herathader</u> <u>0950</u>	Date/Time	11/0	(3) Americium-241; Nickel-63; Isotopic Plutonium (Plutonium-238, Plutonium-239/240); Strontium-89/90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium			
Relinquished By/Removed From <u>Lester Herathader</u> <u>0950</u>	Received By/Stored In <u>✓ 20 ml vial</u>	Date/Time		* PLEASE ADD LITTRUM TO ICP METALS LIST			
Relinquished By/Removed From <u>✓ 20 ml vial</u>	Received By/Stored In <u>✓ 20 ml vial</u>	Date/Time		** SVOA ONLY JIN1N3 NOT PCB.			
Relinquished By/Removed From <u>✓ 20 ml vial</u>	Received By/Stored In <u>✓ 20 ml vial</u>	Date/Time		** VOA freeze upon receipt			
LABORATORY SECTION	Received By	Reviewed By		Disposed By		Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method						

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127 Page 6 of 7			
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	8C	Date Turnaround 15 Days	
Protect Destination Remaining Sites Confirmation Sampling -Soil Full Protocol				SAP No. RC-029			
Ice Chest No. NCR 44 - 1-10-12	Field Logbook No. EL-1663	COA C30032A00	Method of Shipment	Bill of Lading/Air Bill No. NKA 45, 0-1/2			
Shipped To B4 Mail ENVIRONMENTAL SERVICES / LIONVILLE	Offsite Property No. A100975	See OSC				Fed Ex	
POSSIBLE SAMPLE HAZARDS/REMARKS							
<p><i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i></p> <p><i>L DOT L1m, 1s As 1-10-12</i></p> <p>Special Handling and/or Storage</p> <p><i>Please keep cool (4 deg C) those requiring coolers, as shown on "Preservation" heading. Thank You.</i></p>							
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS			
JIN1N5	SOIL	1/10/12	0805	X	X	X	X
JIN1N6	SOIL	1/10/12	0830	X	X	X	X
JIN1N7	SOIL	1/10/12	0845	X	X	X	X
JIN1N8	SOIL	1/10/12	0900	X	X	X	X
JAHMS-34	SOIL	1/10/12	*	*	*	*	*
CHAIN OF POSSESSION							
Relinquished By/Removed From MICANADA SAMSON	Date/Time 1-10-12 105	Received By/Stored In BHDSON Blodke	Date/Time 1/10/12 105				
Relinquished By/Removed From Blodke	Date/Time 1/10/12	Received By/Stored In A. freezer A. J. essner	Date/Time 1-10-12				
Relinquished By/Removed From A. freezer A. J. essner	Date/Time 1/10-12	Received By/Stored In Fed Ex	Date/Time				
Relinquished By/Removed From Fed Ex	Date/Time 1/10-12	Received By/Stored In REVIEWED	Date/Time 1/10-12				
Relinquished By/Removed From Fed Ex	Date/Time 1/10-12	Received By/Stored In REVIEWED	Date/Time 1/10-12				
LABORATORY SECTION	Received By SECTION	Disposal Method	Title				
FINAL SAMPLE DISPOSITION			Date/Time				
			Date/Time				



A Division of Ritterine Analytical Corporation

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

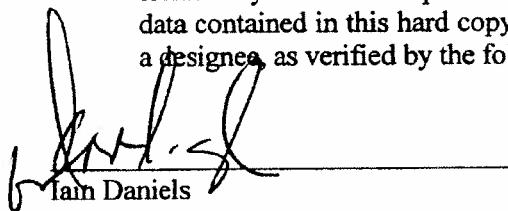
Case Narrative

Client: WC-HANFORD RC-029 K3796
LVL#: 1201028

Date Received: 01-11-12

INORGANIC NARRATIVE

1. This narrative covers the analyses of 19 soil samples.
 2. The samples were prepared and analyzed in accordance with the methods indicated on the data summary report.
- Lionville Lab (LvL) is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.
3. Sample holding times as required by the method and/or contract were met.
 4. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
 5. The method blank for Hexavalent Chromium (Cr^{6+}) was within the method criteria.
 6. The Laboratory Control Samples (LCS) for Cr^{6+} were within the laboratory control limits.
 7. The matrix spike recoveries for Cr^{6+} 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.



Ian Daniels
Laboratory Manager
Lionville Laboratory

njp\01-028

1/24/12
Date

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 16 pages.

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Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					
Collector Simmonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days		
Remaining Sites Confirmation Sampling - Soil Full Protocol		Sampling Location 300-32	SAF No. RC-029				
Ice Chest No. AN-A# 1 - 9-12	ERC-02-007	Field Logbook No. EL-1663	COA C30032A000				
Shipped To <u>BH 141-12</u> EVERETTE-SHERWOOD LIONVILLE		Office Property No. A 100975	Method of Shipment Bill of Lading/Air Bill No. N/A # 1-9-12				

RECEIVED BY
FERDIE E. FERDIE

POSSIBLE SAMPLE HAZARDS/REMARKS

Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.

Special Handling and/or Storage

Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Preservation	Cool 4C	Cool 4C	Freeze	Cool AC	Cool AC	GR	GR	None	None
JINIM0	SOIL	01/09/12	1145				*						
JINIM1	SOIL	01/09/12	1215	X	X	X	X	X	X	X	X	X	X
JINIM2	SOIL	01/09/12	1230	X	X	X	X	X	X	X	X	X	X
JINIM3	SOIL	01/09/12	1240	X	X	X	X	X	X	X	X	X	X
JINIM4	SOIL	01/09/12	1250	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION

Relinquished By/Removed From <u>MARSHALL SWAGGARD</u>	Date/Time 1-9-12 1531	Received By/Stored In <u>BH 141-12</u>	Date/Time 1-9-12 1531	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-9-12 1620	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-9-12 1620	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-10-12 1245	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545
Relinquished By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545
Relinquished By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545
Relinquished By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545
Relinquished By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545	Received By/Removed From <u>FERDIE E. FERDIE</u>	Date/Time 1-11-12 1545

SPECIAL INSTRUCTIONS

- (1) ICP Metals - 6010TR (Check-out List) | Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Molybdenum, Nickel, Potassium, Selenium, Sulfur, Sodium, Silver, Zinc; Mercury - 7471 - (CV)
- (2) Gamma Spec (Client List) | Americium-241, Cerium-137, Cobalt-60, Europium-152, Europium-154, Europium-155; Gross Alpha & Gross Beta
- (3) Americium-241; Nickel-63; Isotope Photostim | Plutonium-238, Plutonium-239/240; Strontium-89 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium

* PLEASE ADD LITHIUM TO ICP METALS LIST
** 20 ml vial → % moisture
*** freeze upon receipt A4 1-10-12.

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

WCH-EE-011

REVIEWED
BY
FERDIE E. FERDIE
DATE
10/12/12

Disposed By

Date/Time

Title

Date/Time

Title

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B11912

Page 2 of 43

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127		Page 2 of 43	
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH SAF No. RC-029	Price Code 8C	Days Turnaround 15 Days		
Project Destination Remaining Sites Confirmation Sampling - Soil Full Protocol Ice Chest No. AA 1-9-12 ERG-02-007 Shipped To 8N 4/11- CONVILLE PERILINE SERVICES / CONVILLE				Method of Shipment Bill of Lading/Air Bill No. NA-1-9-12 contd See OSPC fed ex			
Offsite Property No. A100975							
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i>							
Special Handling and/or Storage <i>Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</i>							
SAMPLE ANALYSIS <i>*</i>							
Sample No.	Matrix *	Sample Date	Sample Time				
11N1M5	SOIL	1/9/12	13:00	X		X	X
11N1M8	SOIL	1/9/12	1320	X		X	X
11N1M7	SOIL	1/9/12	1345	X		X	X
11N1M8	SOIL	1/9/12	1355	X		X	X
11N1M9	SOIL	1/9/12	1420	X		X	X
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS			
Relinquished By/Received From MIRAGREE SIMONDS	Date/Time 1-9-12 1531	Received By/Stored In BUDWEISER BUDWEISER	Date/Time 1-9-12 1531				
Relinquished By/Received From BUDWEISER BUDWEISER	Date/Time 1-9-12 1620	Received By/Stored In A. Feier & Feier A. Feier & Feier	Date/Time 1-9-12 1620				
Relinquished By/Received From A. Feier & Feier	Date/Time 1-10-12 1245	Received By/Stored In Fed Ex	Date/Time 1-10-12 1245				
Relinquished By/Received From CMB	Date/Time 1-11-12 0852	Received By/Stored In CMB	Date/Time 1-11-12 0852				
Relinquished By/Removed From CMB	Date/Time 1-11-12 0855	Received By/Stored In CMB	Date/Time 1-11-12 0855	* RELEASE ADD UPTICKWA TO ICP METALS LIST * 20ml vial → % moisture * freeze upon receipt			
LABORATORY SECTION FINAL SAMPLE DISPOSITION				Received By Disposal Method DATE 1-10-12			
				Date/Time Date/Time			

BKT 1417

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						RC-029-127		Page 1 of 4	
Collector Simonds	Company Contact Joan Kestner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days				
Project Designation Remaining Sites Confirmation Sampling - Soil Full Protocol		Sample Location 300-332		SAF No. RC-0729		Method of Shipment <i>Seal 5X</i>			
Ice Chest No. <i>3A 1412</i> ERL-02-007		Field Logbook No. EL-1663		COA C30032A000		Bill of Lading/Air Bill No. <i>1-A-12 charts</i>			
Shipped To <i>3A 1412 ERL-02-007</i> DOE-DOE-BERKES & LIONVILLE		Offsite Property No. <i>A100975</i>							
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i>									
Special Handling and/or Storage <i>Please keep cool (< deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</i>									
SAMPLE ANALYSIS						<i>VOA samples frozen upon collection</i>			
Sample No.	Matrix *	Sample Date	Sample Time				SPECIAL INSTRUCTIONS		
JIN1N0	SOIL	1/9/12	1430	X	X	X	<i>See Item (1) in Special Instructions.</i>		
JIN1N1	SOIL	1/9/12	1435	X	X	X	<i>See Item (1) in Special Instructions.</i>		
JHM1N2	SOIL						<i>See Item (1) in Special Instructions.</i>		
JHM1N3	SOIL						<i>See Item (1) in Special Instructions.</i>		
JHM1N4	SOIL						<i>See Item (1) in Special Instructions.</i>		
CHAIN OF POSSESSION						Matrix *			
Relinquished By/Removed From <i>MICHAELA SUMMERS</i>	Date/Time <i>1-11-12 1531</i>	Received By/Stored In <i>BILL HOBSON BLACKER</i>	Date/Time <i>1-11-12 1531</i>	(1) ICP Metals - 60 (OTR (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, Zinc); Mercury - 7471 - (CV) (2) Gamma Spec (Client List) (Americium-241, Cobalt-60, Cobalt-137, Cobalt-60, Europium-152, Europium-153); Gross Alpha & Gross Beta (3) Americium-241; Nickel-63; Isotopic Phosphorus (Phosphorus-32, Phosphorus-33/240); Strontium-89,90 - Total Sr; Technetium-99 Low Level; Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238); Total Uranium					
Relinquished By/Removed From <i>STUDIOS 2000</i>	Date/Time <i>1-11-12 1620</i>	Received By/Stored In <i>A. Freier</i>	Date/Time <i>1-11-12</i>						
Relinquished By/Removed From <i>A. Freier</i>	Date/Time <i>1-10-12 1245</i>	Received By/Stored In <i>Fred Ex</i>	Date/Time <i>1-11-12 0950</i>						
Relinquished By/Removed From <i>Fred Ex</i>	Date/Time <i>1-11-12 0950</i>	Received By/Stored In <i>Patricia Hechteller</i>	Date/Time <i>1-11-12 0950</i>						
Relinquished By/Removed From <i>Patricia Hechteller</i>	Date/Time <i>1-11-12 1545</i>	Received By/Stored In <i>KITTE Hechteller</i>	Date/Time <i>1-11-12 1545</i>						
Relinquished By/Removed From <i>KITTE Hechteller</i>	Date/Time <i>1-11-12 1535</i>	Received By/Storage <i>REVIEWED</i>	Date/Time <i>1-10-12</i>						
LABORATORY SECTION	Received By <i>CMB</i>	Reviewed By <i>CMB</i>	Date/Time <i>1-10-12</i>						
FINAL SAMPLE DISPOSITION	Disposal Method	DATE <i>1-10-12</i>	Date/Time						

WCH-EE-011

100000000

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127				Page 3 of 7				
Collector Simonds	Company Contact Joan Kestner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	8C	8C	8C	Date Turnaround 15 Days				
Sample Location 300-32				SAF No. RC-029				Method of Shipment				
Ice Chest No. JK-A3 r-10-12	Field Logbook No. EL-1063	COA C3002A000										
Shipped To SM INHS Environmental Services / LIONVILLE	Office Property No. A 100975			Bill of Lading/Air Bill No. DHL A# 1-10-12								
POSSIBLE SAMPLE HAZARDS/REMARKS				Preservation				Cool 4C	Cool AC	Cool AC	Cool AC	
Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.				CP	CP	0	0	0	0	0	0	
DOT L17777-75 A # 1-10-12				Type of Container	1	1	1	1	1	1	1	1
Special Handling and/or Storage				No. of Container(s)	60mL	60mL	120mL	40mL	120mL	120mL	250mL	60mL
Please keep cool (# deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.				Volume								
				See Item (1) in Special Instructions.	TPH-Diesel Range - WTPH-D+	VOC-AZOBISBUTYLIC ACID (TCA)	VOC-AZOBISBUTYLIC ACID (TCA)	PABA - 8310	PABA - 8310	PCBs - 8310	PCBs - 8310	
SAMPLE ANALYSIS				*	*	*	*	*	*	*	*	
Sample No.	Matrix *	Sample Date	Sample Time	Date/Time Received By/Stored In	Date/Time Received By/Stored In	Date/Time Received By/Stored In	Date/Time Received By/Stored In	Date/Time Received By/Stored In	Date/Time Received By/Stored In	Date/Time Received By/Stored In	Date/Time Received By/Stored In	
JIN1N1A	SOIL			10/12/12	10/12/12	10/12/12	10/12/12	10/12/12	10/12/12	10/12/12	10/12/12	
JIN1N1B	SOIL	1/10/12	0715									
JIN1N1C	SOIL	1/10/12	0740									
JIN1N1D	SOIL	1/10/12	0750									
SPECIAL INSTRUCTIONS												
<p>PLEASE ADD LITHIUM TO ICP METALS (15T)</p> <p>(1) ICP Metals - 60/0TR (Close-out L40) (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 - 141 - (CV) (2) German Spec (Clean L40) (Antimony-241, Cadmium-113, Cadmium-137, Cadmium-60, Cadmium-111, Cadmium-113; Gross Alpha & Gross Beta) (3) Americium-241; Nickel-63; Technetium-99 Low Level; Uranium-238/240; Strontium-89,90 - Total Sr; Technetium-99; Uranium-233/234; Uranium-235, Uranium-238; Total Uranium</p>												
LABORATORY SECTION	Received By	Reviewed By										
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By										

20F2

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-029-127	Page 8 of 12
Collector Simonds	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8C	Data Turnaround 15 Days
Project Destination Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location 300-32 EL-1663	Field Logbook No. EL-1663	COA C30032A000	Method of Shipment BY AIR A/F 10-12	Bill of Lading/Air Bill No. See OSPC
Ice Chest No. NA F - 1 - 10-12	Offsite Property No. A100975	Preservation G/P	Cool AC G	Cool 4C G*	Cool 4C G*
Shipped To BELLERIVE-SERVICES / LIONVILLE	Type of Container L	Type of Container I	Freeze 1	gG 5	gG 1
POSSIBLE SAMPLE HAZARDS/REMARKS	No. of Container(s) 1	No. of Container(s) 1			
<i>Samples may contain hazardous chemicals at levels that pose a risk to human health and/or the environment. Please handle accordingly.</i> L DOT Lmn, f-s A/F 1-10-12	Volume 60mL	Volume 60mL	120mL 40mL	120mL 250mL	500mL 00mL
<i>Special Handling and/or Storage</i> <i>Please keep cool (4 deg C) those requiring coolness, as shown on "Preservation" heading. Thank You.</i>	Specimen (1) in Chromat Hcr - 71%	Specimen (1) in Chromat Hcr - 71%	VOA- 827DA (TCU)	PCB- 8310 827DA (TCU)	See Item (1) in Spec Instructions.
SAMPLE ANALYSIS					
Sample No. JIN1N5	Matrix * SOIL	Sample Date 1/10/12	Sample Time 0805	Sign/Print Name Blender	SPECIAL INSTRUCTIONS K
JIN1N6	SOIL	1/10/12	0830		K
JIN1N7	SOIL	1/10/12	0845		K
JIN1N8	SOIL	1/10/12	0900		X
CHAIN OF POSSESSION					
Relinquished By/Removed From MARINA BAGNO	Date/Time 1-10-12 105	Received By/Stored In Blender	Date/Time 1-10-12 0805	Sign/Print Name Blender	Date/Time 10/12
Relinquished By/Removed From Blender	Date/Time 1-10-12 1100	Received By/Stored In A. Freezer A.	Date/Time 1-10-12 1245	Sign/Print Name A. Freezer A.	Date/Time 1-10-12
Relinquished By/Removed From A. Freezer A.	Date/Time 1-10-12 0930	Received By/Stored In Fed Ex	Date/Time 1-10-12 0750	Sign/Print Name Fed Ex	Date/Time 10/12
Relinquished By/Removed From Fed Ex	Date/Time 1-10-12 1545	Received By/Stored In REVIEWED	Date/Time 1-11-12 1545	Sign/Print Name REVIEWED	Date/Time 11/12
Relinquished By/Removed From	Date/Time	Received By/Stored In John	Date/Time	Sign/Print Name John	Date/Time
LABORATORY SECTION	Received By	DATE 1/10/12			
FINAL SAMPLE DISPOSITION	Disposal Method	Date/Time			

Appendix 5
Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: <i>300-32</i>			DATA PACKAGE: <i>K3796</i>		
VALIDATOR: <i>ELR</i>	LAB: <i>LLI</i>			DATE: <i>12/29/12</i>	
		SDG: <i>K3796</i>			
ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH 418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	<i>Chromium-VI</i>	pH	<i>NO₃/NO₂</i>
Sulfate	TDS	TKN	Phosphate		
SAMPLES/MATRIX					
JINM1	JINM2	JINM3	JINM4	JINM5	
JINM6	JINM7	JINM8	JINM9	JINM0	
JINM1	JINM4	JINM5	JINM6	JINM7	
JINM8					
<i>soil</i>					

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
 Yes No N/A
- ICB and CCB results acceptable? (Levels D, E) Yes No N/A
 Yes No N/A
- Laboratory blanks analyzed? Yes No N/A
 Yes No N/A
- Laboratory blank results acceptable? Yes No N/A
 Yes No N/A
- Field blanks analyzed? (Levels C, D, E) Yes No N/A
 Yes No N/A
- Field blank results acceptable? (Levels C, D, E) Yes No N/A
 Yes No N/A
- Transcription/calculation errors? (Levels D, E) Yes No N/A
 Yes No N/A

Comments: Sulfate - m3 m4 m5 m6 m8 m11 m14 - UJno FR

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

- Spike samples analyzed? Yes No N/A
 Yes No N/A
- Spike recoveries acceptable? Yes No N/A
 Yes No N/A
- Spike standards NIST traceable? (Levels D, E) Yes No N/A
 Yes No N/A
- Spike standards expired? (Levels D, E) Yes No N/A
 Yes No N/A
- LCS/BSS samples analyzed? Yes No N/A
 Yes No N/A
- LCS/BSS results acceptable? Yes No N/A
 Yes No N/A
- Standards traceable? (Levels D, E) Yes No N/A
 Yes No N/A
- Standards expired? (Levels D, E) Yes No N/A
 Yes No N/A
- Transcription/calculation errors? (Levels D, E) Yes No N/A
 Yes No N/A
- Performance audit sample(s) analyzed? Yes No N/A
 Yes No N/A
- Performance audit sample results acceptable? Yes No N/A
 Yes No N/A

Comments: no BAS

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: nitrile, nitrate + ortho - JUR > 21

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



A division of Eberle 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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/27/2012 17:36

Wet Chemistry - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L201276 - Default Prep GenChem

Blank (L201276-BLK1)	Prepared & Analyzed: 01/26/2012								
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	3.2 B	1.0	5.0	mg/kg wet					
Nitrate	1.0 U	1.0	5.0	mg/kg wet					
Nitrite	1.0 U	1.0	5.0	mg/kg wet					

LCS (L201276-BS1)	Prepared & Analyzed: 01/26/2012								
Fluoride	53.0	1.0	5.0	mg/kg wet	50.000	106	80-120		20
Chloride	50.5	1.0	5.0	mg/kg wet	50.000	101	80-120		20
Bromide	51.0	1.0	5.0	mg/kg wet	50.000	102	80-120		20
Orthophosphate	51.3	2.0	10.0	mg/kg wet	50.000	103	80-120		20
Sulfate	54.4	1.0	5.0	mg/kg wet	50.000	109	80-120		20
Nitrate	51.2	1.0	5.0	mg/kg wet	50.000	102	80-120		20
Nitrite	51.6	1.0	5.0	mg/kg wet	50.000	103	80-120		20

Duplicate (L201276-DUP1)	Source: 1201028-02	Prepared & Analyzed: 01/26/2012								
Fluoride	0.9 U	0.9	4.7	mg/kg dry		1.0 U				20
Chloride	2.8 B	0.9	4.7	mg/kg dry		3.1			10.1	20
Bromide	0.9 U	0.9	4.7	mg/kg dry		1.0 U				20
Orthophosphate	2.4 B	1.9	9.5	mg/kg dry		2.4			2.76	20
Sulfate	43.6	0.9	4.7	mg/kg dry		47.0			7.48	20
Nitrate	66.8	0.9	4.7	mg/kg dry		72.1			7.68	20
Nitrite	0.9 U	0.9	4.7	mg/kg dry		1.0 U				20

Matrix Spike (L201276-MS1)	Source: 1201028-02	Prepared & Analyzed: 01/26/2012								
Fluoride	50.9	1.0	5.1	mg/kg dry	50.530	1.0 U	101	75-125		20
Chloride	51.3	1.0	5.1	mg/kg dry	50.530	3.1	95.4	75-125		20
Bromide	48.7	1.0	5.1	mg/kg dry	50.530	1.0 U	96.4	75-125		20
Orthophosphate	51.9	2.0	10.1	mg/kg dry	50.530	2.4	98.0	75-125		20
Sulfate	99.8	1.0	5.1	mg/kg dry	50.530	47.0	105	75-125		20
Nitrite	49.1	1.0	5.1	mg/kg dry	50.530	1.0 U	97.2	75-125		20



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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/27/2012 17:36

Wet Chemistry - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Batch L201276 - Default Prep GenChem

Matrix Spike (L201276-MS2)		Source: 1201028-02		Prepared & Analyzed: 01/26/2012						
Nitrate	177		2.0	10.2 mg/kg dry	102.34	72.1	103	75-125		20

Batch L201287 - Default Prep GenChem

Blank (L201287-BLK1)				Prepared: 01/26/2012 Analyzed: 01/27/2012						
Nitrate/Nitrite as N	0.10 U		0.10	0.49 mg/kg wet						
LCS (L201287-BS1)				Prepared: 01/26/2012 Analyzed: 01/27/2012						
Nitrate/Nitrite as N	5.26		0.10	0.49 mg/kg wet	4.8956		107	90-110		
Duplicate (L201287-DUP1)		Source: 1201028-02		Prepared: 01/26/2012 Analyzed: 01/27/2012						
Nitrate/Nitrite as N	15.0 D		0.19	0.95 mg/kg dry		16.3			8.46	20
Matrix Spike (L201287-MS1)		Source: 1201028-02		Prepared: 01/26/2012 Analyzed: 01/27/2012						
Nitrate/Nitrite as N	40.6 D		0.49	2.47 mg/kg dry	24.664	16.3	98.3	75-125		



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-029
Project Number: K3796
Project Manager: Joan Kessner

Reported:
01/23/2012 15:09

Wet Chemistry - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L201125 - % Solids										
Duplicate (L201125-DUP1)	Source: 1201028-19					Prepared & Analyzed: 01/13/2012				
%Solids	94.8		0.1	0.1	% by Weight	95.2			0.4	20
Batch L201126 - Default Prep GenChem										
Duplicate (L201126-DUP1)	Source: 1201028-19					Prepared & Analyzed: 01/13/2012				
%Moisture	4.80		0.10	0.10	% by Weight	4.28			11.4	20
Batch L201128 - SW 3060A										
Blank (L201128-BLK1)						Prepared: 01/13/2012 Analyzed: 01/17/2012				
Hexavalent Chromium	0.20	U		0.20	0.50	mg/kg wet				
LCS (L201128-BS1)						Prepared: 01/13/2012 Analyzed: 01/17/2012				
Hexavalent Chromium	3.44		0.20	0.50	mg/kg wet	4.0000	86	80-120		
LCS (L201128-BS2)						Prepared: 01/13/2012 Analyzed: 01/17/2012				
Hexavalent Chromium	838	D		20.0	50.0	mg/kg wet	1017.5	82	80-120	
Duplicate (L201128-DUP1)	Source: 1201028-02					Prepared: 01/13/2012 Analyzed: 01/17/2012				
Hexavalent Chromium	0.51	B		0.20	0.51	mg/kg dry	0.20	U		20
Matrix Spike (L201128-MS1)	Source: 1201028-02					Prepared: 01/13/2012 Analyzed: 01/17/2012				
Hexavalent Chromium	4.34		0.20	0.51	mg/kg dry	4.0936	0.20	U	106	75-125
Matrix Spike (L201128-MS2)	Source: 1201028-02					Prepared: 01/13/2012 Analyzed: 01/17/2012				
Hexavalent Chromium	920	D		20.5	51.2	mg/kg dry	1008.4	0.20	U	91
										75-125