SAF-RC-198
300 Area D4 -Soil Full Protocol
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

No Distribution Required

COMMENTS:

SDG K3931 **SAF-RC-198**

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location: Borrow Pit 9 Test Pits

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

264 Welsh Pool Road
Exton, Pennsylvania 19341
Phone (610) 280-3000
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RECEIVED
JUL 2012

2 July 2012

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	1206058
SDG #	K3931
SAF #	RC-198
Date Received	06/19/12
# Samples	2
Matrix	SOIL
Volatiles	
Semivolatiles	X
Pest/PCB	X
Glycols	
DRO/KRO/GRO	X
PAHs	X
Herbicides	X
Metals	X
Inorganics	X

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 105 pages.

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

SEMIVOLATILES

LIONVILLE LABORATORY
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Phone: 610-280-3000
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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 11:32

Analytical Report for Semivolatile Organic Compounds by SW846 8270C

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PRR8	1206058-01	Soil	06/18/2012 12:40	06/19/2012 14:05
J1PRR9	1206058-02	Soil	06/18/2012 13:05	06/19/2012 14:05

LIONVILLE LABORATORY
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Case Narrative

Client: WC-HANFORD RC-198 K3931
LVL #: 1206058

W.O. #: 60049-001-001-0001-00
Date Received: 06-19-2012

SEMIVOLATILE

Two (2) soil samples were collected on 06-18-2012.

The samples and associated QC samples were extracted 06-21-2012 and analyzed 06-25,26-2012 according to Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C, and the analysis procedure was based on SW846 Method 8270C for TCL Semivolatile target compounds.

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

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

2. Samples were extracted and analyzed within holding time.

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

4. All obtainable surrogate recoveries were within acceptance criteria.

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

6. One (1) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12MS123) has been enclosed.

7. Forty-seven (47) of one hundred and twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12MS123) has been enclosed.

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

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

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

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

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

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

for Carol Schenkel
Iain Daniels
LvL Laboratory Manager

7/2/12
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12MS123

Initiator: Sharon Saylor
Date: 6-27-12
Client: WC Hen Grad RC-198 K3931

Batch: 1206058
Samples: L206174-BS1, MS1, MSD1
Method: SW846/MCAWW/CLP/

Parameter: 8270C
Matrix: SOIL
Prep Batch: L206174

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) low recovery of 2,4,6-trichlorophenol in L206174-BS1
(2) low recovery of Dibenz(a,h)anthracene in L206174-MS1 but L206174-MSD1 is OK 44% (45-125%)
(3) several spike recoveries outside QC acceptance limits in L206174-MSD1 (high biased)
PGS 7/2/12

2. Known or Probable Causes(s) (1) Acidic phenols subject to erratic chromatographic behavior (2)?
(3) possible spiking error?. Associated samples nondetect for target compounds

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

4. Project Manager Instructions...signature/date: Carl Schenkel for CS
✓ Concur with Proposed Action CS 7/2/12
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: JS 7/2/12 Other Explanation:
__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

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

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

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

QA-139-A-0208

GLOSSARY

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit, which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

GLOSSARY

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quantitation modifications are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quantitation modifications:

MP	-	Missed Peak: Manually added peak not found by automatic quantitation program.
PA	-	Peak Assignment: quantitation report was changed to reflect correct peak assignment.
RI	-	Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene, which are poorly resolved on the BNA column.
SP	-	Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
CB	-	Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background
PI	-	Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 11:32

J1PRR8

1206058-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
1,2-Dichlorobenzene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
1,3-Dichlorobenzene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
1,4-Dichlorobenzene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4,5-Trichlorophenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4,6-Trichlorophenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4-Dichlorophenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4-Dimethylphenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4-Dinitrophenol	1700	U	1700	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4-Dinitrotoluene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,6-Dinitrotoluene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Chloronaphthalene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Chlorophenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Methylnaphthalene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Methylphenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Nitroaniline	1700	U	1700	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Nitrophenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
3,3'-Dichlorobenzidine	682	U	682	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
3-Nitroaniline	1700	U	1700	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4,6-Dinitro-2-methylphenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Bromophenyl Phenyl Ether	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Chloro-3-methylphenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Chloroaniline	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Chlorophenyl Phenyl Ether	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
3- and/or 4-Methylphenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Nitroaniline	1700	U	1700	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Nitrophenol	1700	U	1700	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Acenaphthene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Acenaphthylene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Anthracene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Benz[a]anthracene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Benzo[a] pyrene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Benzo[b] fluoranthene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Benzo[g,h,i] perylene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Benzo[k] fluoranthene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Bis(2-chloroethoxy) methane	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 11:32

J1PRR8

1206058-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Bis(2-chloroisopropyl) ether	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Bis(2-ethylhexyl) phthalate	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Butyl Benzyl Phthalate	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Carbazole	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Chrysene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Dibenz[a,h]anthracene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Dibenzofuran	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Diethyl Phthalate	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Dimethyl Phthalate	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Di-n-butyl Phthalate	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Di-n-octyl Phthalate	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Fluoranthene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Fluorene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Hexachlorobenzene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Hexachlorobutadiene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Hexachlorocyclopentadiene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Hexachloroethane	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Indeno[1,2,3-cd]pyrene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Isophorone	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Naphthalene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Nitrobenzene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
N-Nitrosodi-n-propylamine	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
N-Nitrosodiphenylamine	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Pentachlorophenol	1700	U	1700	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Phenanthrene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Phenol	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Pyrene	341	U	341	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
TIC:Unknown 1	**231**	J		ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
TIC:Unknown 2	**39700**	B, J		ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
TIC:Aldol Condensate 3	**295**	A, B, J		ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
TIC:Aldol Condensate 2	**217**	A, J		ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
TIC:Aldol Condensate 1	**725**	A, B, J		ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Surrogate: 2-Fluorophenol	*72 %*		*25-121*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*
Surrogate: Phenol-d5	*73 %*		*24-113*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*67 %*		*23-120*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 11:32

J1PRR8

1206058-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*68 %*	*30-115*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*61 %*	*19-122*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*75 %*	*18-137*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	Reported: 07/02/2012 11:32

J1PRR9
1206058-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
1,2-Dichlorobenzene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
1,3-Dichlorobenzene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
1,4-Dichlorobenzene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4,5-Trichlorophenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4,6-Trichlorophenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4-Dichlorophenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4-Dimethylphenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4-Dinitrophenol	1690	U	1690	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,4-Dinitrotoluene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2,6-Dinitrotoluene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Chloronaphthalene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Chlorophenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Methylnaphthalene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Methylphenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Nitroaniline	1690	U	1690	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
2-Nitrophenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
3,3'-Dichlorobenzidine	677	U	677	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
3-Nitroaniline	1690	U	1690	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4,6-Dinitro-2-methylphenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Bromophenyl Phenyl Ether	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Chloro-3-methylphenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Chloroaniline	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Chlorophenyl Phenyl Ether	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
3- and/or 4-Methylphenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Nitroaniline	1690	U	1690	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
4-Nitrophenol	1690	U	1690	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Acenaphthene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Acenaphthylene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Anthracene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Benz[a]anthracene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Benzo[a] pyrene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Benzo[b] fluoranthene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Benzo[g,h,i] perylene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Benzo[k] fluoranthene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Bis(2-chloroethoxy) methane	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	Reported: 07/02/2012 11:32

J1PRR9

1206058-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Bis(2-chloroisopropyl) ether	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Bis(2-ethylhexyl) phthalate	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Butyl Benzyl Phthalate	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Carbazole	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Chrysene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Dibenz[a,h]anthracene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Dibenzofuran	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Diethyl Phthalate	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Dimethyl Phthalate	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Di-n-butyl Phthalate	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Di-n-octyl Phthalate	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Fluoranthene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Fluorene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Hexachlorobenzene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Hexachlorobutadiene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Hexachlorocyclopentadiene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Hexachloroethane	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Indeno[1,2,3-cd]pyrene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Isophorone	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Naphthalene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Nitrobenzene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
N-Nitrosodi-n-propylamine	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
N-Nitrosodiphenylamine	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Pentachlorophenol	1690	U	1690	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Phenanthrene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Phenol	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Pyrene	339	U	339	ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
TIC:Trichloro-1-propene	**494**	B, J		ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
TIC:Unknown 1	**30500**	B, J		ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
TIC:Aldol Condensate 3	**1370**	A, B, J		ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
TIC:Aldol Condensate 2	**292**	A, B, J		ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
TIC:Aldol Condensate 1	**592**	A, B, J		ug/kg dry	1	L206174	06/21/2012	06/25/2012	8270C
Surrogate: 2-Fluorophenol	*59 %*		*25-121*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*
Surrogate: Phenol-d5	*62 %*		*24-113*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*58 %*		*23-120*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 07/02/2012 11:32

J1PRR9

1206058-02 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*61 %*	*30-115*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*28 %*	*19-122*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*80 %*	*18-137*			*L206174*	*06/21/2012*	*06/25/2012*	*8270C*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	Reported: 07/02/2012 11:32

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 L206174 - SW 3540C										
Blank (L206174-BLK1)				Prepared: 06/21/2012 Analyzed: 06/25/2012						
1,2,4-Trichlorobenzene	330	U	330	ug/kg wet						
1,2-Dichlorobenzene	330	U	330	ug/kg wet						
1,3-Dichlorobenzene	330	U	330	ug/kg wet						
1,4-Dichlorobenzene	330	U	330	ug/kg wet						
2,4,5-Trichlorophenol	330	U	330	ug/kg wet						
2,4,6-Trichlorophenol	330	U	330	ug/kg wet						
2,4-Dichlorophenol	330	U	330	ug/kg wet						
2,4-Dimethylphenol	330	U	330	ug/kg wet						
2,4-Dinitrophenol	1650	U	1650	ug/kg wet						
2,4-Dinitrotoluene	330	U	330	ug/kg wet						
2,6-Dinitrotoluene	330	U	330	ug/kg wet						
2-Chloronaphthalene	330	U	330	ug/kg wet						
2-Chlorophenol	330	U	330	ug/kg wet						
2-Methylnaphthalene	330	U	330	ug/kg wet						
2-Methylphenol	330	U	330	ug/kg wet						
2-Nitroaniline	1650	U	1650	ug/kg wet						
2-Nitrophenol	330	U	330	ug/kg wet						
3,3'-Dichlorobenzidine	660	U	660	ug/kg wet						
3-Nitroaniline	1650	U	1650	ug/kg wet						
4,6-Dinitro-2-methylphenol	330	U	330	ug/kg wet						
4-Bromophenyl Phenyl Ether	330	U	330	ug/kg wet						
4-Chloro-3-methylphenol	330	U	330	ug/kg wet						
4-Chloroaniline	330	U	330	ug/kg wet						
4-Chlorophenyl Phenyl Ether	330	U	330	ug/kg wet						
3- and/or 4-Methylphenol	330	U	330	ug/kg wet						
4-Nitroaniline	1650	U	1650	ug/kg wet						
4-Nitrophenol	1650	U	1650	ug/kg wet						
Acenaphthene	330	U	330	ug/kg wet						
Acenaphthylene	330	U	330	ug/kg wet						
Anthracene	330	U	330	ug/kg wet						
Benz[a]anthracene	330	U	330	ug/kg wet						
Benzo[a] pyrene	330	U	330	ug/kg wet						
Benzo[b] fluoranthene	330	U	330	ug/kg wet						
Benzo[g,h,i] perylene	330	U	330	ug/kg wet						
Benzo[k] fluoranthene	330	U	330	ug/kg wet						
Bis(2-chloroethoxy) methane	330	U	330	ug/kg wet						

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	Reported: 07/02/2012 11:32

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 L206174 - SW 3540C										
Blank (L206174-BLK1)				Prepared: 06/21/2012 Analyzed: 06/25/2012						
Bis(2-chloroethyl) ether	330	U	330	ug/kg wet						
Bis(2-chloroisopropyl) ether	330	U	330	ug/kg wet						
Bis(2-ethylhexyl) phthalate	330	U	330	ug/kg wet						
Butyl Benzyl Phthalate	330	U	330	ug/kg wet						
Carbazole	330	U	330	ug/kg wet						
Chrysene	330	U	330	ug/kg wet						
Dibenz[a,h]anthracene	330	U	330	ug/kg wet						
Dibenzofuran	330	U	330	ug/kg wet						
Diethyl Phthalate	330	U	330	ug/kg wet						
Dimethyl Phthalate	330	U	330	ug/kg wet						
Di-n-butyl Phthalate	330	U	330	ug/kg wet						
Di-n-octyl Phthalate	330	U	330	ug/kg wet						
Fluoranthene	330	U	330	ug/kg wet						
Fluorene	330	U	330	ug/kg wet						
Hexachlorobenzene	330	U	330	ug/kg wet						
Hexachlorobutadiene	330	U	330	ug/kg wet						
Hexachlorocyclopentadiene	330	U	330	ug/kg wet						
Hexachloroethane	330	U	330	ug/kg wet						
Indeno[1,2,3-cd]pyrene	330	U	330	ug/kg wet						
Isophorone	330	U	330	ug/kg wet						
Naphthalene	330	U	330	ug/kg wet						
Nitrobenzene	330	U	330	ug/kg wet						
N-Nitrosodi-n-propylamine	330	U	330	ug/kg wet						
N-Nitrosodiphenylamine	330	U	330	ug/kg wet						
Pentachlorophenol	1650	U	1650	ug/kg wet						
Phenanthrene	330	U	330	ug/kg wet						
Phenol	330	U	330	ug/kg wet						
Pyrene	330	U	330	ug/kg wet						
Unknown 1 TIC 5	34500	J		ug/kg wet						
Trichloro-1-propene	493	J		ug/kg wet						
Aldol Condensate 2	297	A, J		ug/kg wet						
Aldol Condensate 3 RGT/2/12	1310	A, J		ug/kg wet						
Aldol Condensate 1	640	A, J		ug/kg wet						
Surrogate: 2-Fluorophenol	*1700*			*ug/kg wet*	*2500.0*		*68*	*25-121*		
Surrogate: Phenol-d5	*1780*			*ug/kg wet*	*2500.0*		*71*	*24-113*		
Surrogate: Nitrobenzene-d5	*1050*			*ug/kg wet*	*1666.7*		*63*	*23-120*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	Reported: 07/02/2012 11:32

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 L206174 - SW 3540C										
Blank (L206174-BLK1)				Prepared: 06/21/2012 Analyzed: 06/25/2012						
Surrogate: 2-Fluorobiphenyl	*1100*			*ug/kg wet*	*1666.7*		*66*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*669*			*ug/kg wet*	*2500.0*		*27*	*19-122*		
Surrogate: p-Terphenyl-d14	*1370*			*ug/kg wet*	*1666.7*		*82*	*18-137*		
LCS (L206174-BS1)				Prepared: 06/21/2012 Analyzed: 06/26/2012						
1,2,4-Trichlorobenzene	988		330	ug/kg wet	2000.0		49	45-110		
1,2-Dichlorobenzene	1110		330	ug/kg wet	2000.0		56	45-105		
1,3-Dichlorobenzene	1080		330	ug/kg wet	2000.0		54	40-100		
1,4-Dichlorobenzene	1100		330	ug/kg wet	2000.0		55	35-105		
2,4,5-Trichlorophenol	716		330	ug/kg wet	2000.0		36	30-140		
2,4,6-Trichlorophenol	358		330	ug/kg wet	2000.0		18*	20-110		
2,4-Dichlorophenol	954		330	ug/kg wet	2000.0		48	40-110		
2,4-Dimethylphenol	1020		330	ug/kg wet	2000.0		51	30-105		
2,4-Dinitrophenol	1530	J	1650	ug/kg wet	2000.0		76	25-130		
2,4-Dinitrotoluene	1390		330	ug/kg wet	2000.0		70	50-115		
2,6-Dinitrotoluene	1330		330	ug/kg wet	2000.0		66	40-120		
2-Chloronaphthalene	1180		330	ug/kg wet	2000.0		59	45-115		
2-Chlorophenol	1130		330	ug/kg wet	2000.0		56	45-105		
2-Methylnaphthalene	1000		330	ug/kg wet	2000.0		50	45-110		
2-Methylphenol	1180		330	ug/kg wet	2000.0		59	40-120		
2-Nitroaniline	1340	J	1650	ug/kg wet	2000.0		67	45-120		
2-Nitrophenol	985		330	ug/kg wet	2000.0		49	40-110		
3,3'-Dichlorobenzidine	1050		660	ug/kg wet	2000.0		52	15-130		
3-Nitroaniline	1240	J	1650	ug/kg wet	2000.0		62	40-130		
4,6-Dinitro-2-methylphenol	1500		330	ug/kg wet	2000.0		75	20-140		
4-Bromophenyl Phenyl Ether	1260		330	ug/kg wet	2000.0		63	45-115		
4-Chloro-3-methylphenol	1130		330	ug/kg wet	2000.0		56	35-115		
4-Chloroaniline	797		330	ug/kg wet	2000.0		40	10-100		
4-Chlorophenyl Phenyl Ether	1240		330	ug/kg wet	2000.0		62	45-110		
3- and/or 4-Methylphenol	1190		330	ug/kg wet	2000.0		60	40-120		
4-Nitroaniline	1240	J	1650	ug/kg wet	2000.0		62	40-130		
4-Nitrophenol	985	J	1650	ug/kg wet	2000.0		49	15-140		
Acenaphthene	1200		330	ug/kg wet	2000.0		60	45-110		
Acenaphthylene	1070		330	ug/kg wet	2000.0		54	45-115		
Anthracene	1310		330	ug/kg wet	2000.0		66	45-130		
Benz[a]anthracene	1320		330	ug/kg wet	2000.0		66	45-130		
Benzo[a] pyrene	1330		330	ug/kg wet	2000.0		66	45-130		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	Reported: 07/02/2012 11:32

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 L206174 - SW 3540C										
LCS (L206174-BS1)				Prepared: 06/21/2012 Analyzed: 06/26/2012						
Benzo[b] fluoranthene	1300		330	ug/kg wet	2000.0		65	40-130		
Benzo[g,h,i] perylene	1380		330	ug/kg wet	2000.0		69	45-125		
Benzo[k] fluoranthene	1400		330	ug/kg wet	2000.0		70	45-125		
Bis(2-chloroethoxy) methane	1010		330	ug/kg wet	2000.0		50	45-110		
Bis(2-chloroethyl) ether	1110		330	ug/kg wet	2000.0		56	40-110		
Bis(2-chloroisopropyl) ether	1110		330	ug/kg wet	2000.0		56	30-115		
Bis(2-ethylhexyl) phthalate	1370		330	ug/kg wet	2000.0		69	40-145		
Butyl Benzyl Phthalate	1400		330	ug/kg wet	2000.0		70	50-125		
Carbazole	1230		330	ug/kg wet	2000.0		61	40-140		
Chrysene	1370		330	ug/kg wet	2000.0		68	45-130		
Dibenz[a,h]anthracene	928		330	ug/kg wet	2000.0		46	45-125		
Dibenzofuran	1240		330	ug/kg wet	2000.0		62	45-120		
Diethyl Phthalate	1310		330	ug/kg wet	2000.0		65	50-125		
Dimethyl Phthalate	1260		330	ug/kg wet	2000.0		63	45-130		
Di-n-butyl Phthalate	1280		330	ug/kg wet	2000.0		64	50-130		
Di-n-octyl Phthalate	1430		330	ug/kg wet	2000.0		72	40-150		
Fluoranthene	1340		330	ug/kg wet	2000.0		67	45-130		
Fluorene	1280		330	ug/kg wet	2000.0		64	45-120		
Hexachlorobenzene	1360		330	ug/kg wet	2000.0		68	45-130		
Hexachlorobutadiene	1070		330	ug/kg wet	2000.0		54	45-105		
Hexachlorocyclopentadiene	607		330	ug/kg wet	2000.0		30	10-100		
Hexachloroethane	1090		330	ug/kg wet	2000.0		54	35-110		
Indeno[1,2,3-cd]pyrene	1280		330	ug/kg wet	2000.0		64	45-130		
Isophorone	980		330	ug/kg wet	2000.0		49	40-110		
Naphthalene	1090		330	ug/kg wet	2000.0		55	40-110		
Nitrobenzene	980		330	ug/kg wet	2000.0		49	40-105		
N-Nitrosodi-n-propylamine	1220		330	ug/kg wet	2000.0		61	30-130		
N-Nitrosodiphenylamine	1270		330	ug/kg wet	2000.0		64	50-120		
Pentachlorophenol	719	J	1650	ug/kg wet	2000.0		36	25-120		
Phenanthrene	1330		330	ug/kg wet	2000.0		67	50-120		
Phenol	1180		330	ug/kg wet	2000.0		59	40-115		
Pyrene	1310		330	ug/kg wet	2000.0		65	45-125		
Surrogate: 2-Fluorophenol	*1520*			*ug/kg wet*	*2500.0*		*61*	*25-121*		
Surrogate: Phenol-d5	*1640*			*ug/kg wet*	*2500.0*		*66*	*24-113*		
Surrogate: Nitrobenzene-d5	*870*			*ug/kg wet*	*1666.7*		*52*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1040*			*ug/kg wet*	*1666.7*		*63*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*503*			*ug/kg wet*	*2500.0*		*20*	*19-122*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 07/02/2012 11:32

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 L206174 - SW 3540C										
LCS (L206174-BS1)				Prepared: 06/21/2012 Analyzed: 06/26/2012						
Surrogate: p-Terphenyl-d14	*1170*			*ug/kg wet*	*1666.7*		*70*	*18-137*		
Matrix Spike (L206174-MS1)		**Source: 1206058-01**		Prepared: 06/21/2012 Analyzed: 06/25/2012						
1,2,4-Trichlorobenzene	1000		343	ug/kg dry	2080.6	341 U	48	45-110		
1,2-Dichlorobenzene	1060		343	ug/kg dry	2080.6	341 U	51	45-105		
1,3-Dichlorobenzene	1030		343	ug/kg dry	2080.6	341 U	49	40-100		
1,4-Dichlorobenzene	1040		343	ug/kg dry	2080.6	341 U	50	35-105		
2,4,5-Trichlorophenol	1260		343	ug/kg dry	2080.6	341 U	60	30-140		
2,4,6-Trichlorophenol	1060		343	ug/kg dry	2080.6	341 U	51	20-110		
2,4-Dichlorophenol	1150		343	ug/kg dry	2080.6	341 U	55	40-110		
2,4-Dimethylphenol	1110		343	ug/kg dry	2080.6	341 U	53	30-105		
2,4-Dinitrophenol	829	J	1720	ug/kg dry	2080.6	1700 U	40	25-130		
2,4-Dinitrotoluene	1350		343	ug/kg dry	2080.6	341 U	65	50-115		
2,6-Dinitrotoluene	1320		343	ug/kg dry	2080.6	341 U	64	40-120		
2-Chloronaphthalene	1150		343	ug/kg dry	2080.6	341 U	55	45-115		
2-Chlorophenol	1160		343	ug/kg dry	2080.6	341 U	56	45-105		
2-Methylnaphthalene	1070		343	ug/kg dry	2080.6	341 U	52	45-110		
2-Methylphenol	1160		343	ug/kg dry	2080.6	341 U	56	40-120		
2-Nitroaniline	1330	J	1720	ug/kg dry	2080.6	1700 U	64	45-120		
2-Nitrophenol	1050		343	ug/kg dry	2080.6	341 U	50	40-110		
3,3'-Dichlorobenzidine	1200		687	ug/kg dry	2080.6	682 U	58	15-130		
3-Nitroaniline	1430	J	1720	ug/kg dry	2080.6	1700 U	69	40-130		
4,6-Dinitro-2-methylphenol	1110		343	ug/kg dry	2080.6	341 U	53	20-140		
4-Bromophenyl Phenyl Ether	1260		343	ug/kg dry	2080.6	341 U	61	45-115		
4-Chloro-3-methylphenol	1150		343	ug/kg dry	2080.6	341 U	55	35-115		
4-Chloroaniline	972		343	ug/kg dry	2080.6	341 U	47	10-100		
4-Chlorophenyl Phenyl Ether	1220		343	ug/kg dry	2080.6	341 U	59	45-110		
3- and/or 4-Methylphenol	1270		343	ug/kg dry	2080.6	341 U	61	40-120		
4-Nitroaniline	1590	J	1720	ug/kg dry	2080.6	1700 U	76	40-130		
4-Nitrophenol	1060	J	1720	ug/kg dry	2080.6	1700 U	51	15-140		
Acenaphthene	1210		343	ug/kg dry	2080.6	341 U	58	45-110		
Acenaphthylene	1020		343	ug/kg dry	2080.6	341 U	49	45-115		
Anthracene	1360		343	ug/kg dry	2080.6	341 U	66	45-130		
Benz[a]anthracene	1330		343	ug/kg dry	2080.6	341 U	64	45-130		
Benzo[a] pyrene	1310		343	ug/kg dry	2080.6	341 U	63	45-130		
Benzo[b] fluoranthene	1320		343	ug/kg dry	2080.6	341 U	63	40-130		
Benzo[g,h,i] perylene	1350		343	ug/kg dry	2080.6	341 U	65	45-125		

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 11:32

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 L206174 - SW 3540C										
Matrix Spike (L206174-MS1)		**Source: 1206058-01**		Prepared: 06/21/2012 Analyzed: 06/25/2012						
Benzo[k] fluoranthene	1320		343	ug/kg dry	2080.6	341 U	63	45-125		
Bis(2-chloroethoxy) methane	1120		343	ug/kg dry	2080.6	341 U	54	45-110		
Bis(2-chloroethyl) ether	1110		343	ug/kg dry	2080.6	341 U	53	40-110		
Bis(2-chloroisopropyl) ether	1200		343	ug/kg dry	2080.6	341 U	58	30-115		
Bis(2-ethylhexyl) phthalate	1480		343	ug/kg dry	2080.6	341 U	71	40-145		
Butyl Benzyl Phthalate	1400		343	ug/kg dry	2080.6	341 U	67	50-125		
Carbazole	2150		343	ug/kg dry	2080.6	341 U	103	40-140		
Chrysene	1400		343	ug/kg dry	2080.6	341 U	67	45-130		
Dibenz[a,h]anthracene	923		343	ug/kg dry	2080.6	341 U	44*	45-125		
Dibenzofuran	1280		343	ug/kg dry	2080.6	341 U	62	45-120		
Diethyl Phthalate	1300		343	ug/kg dry	2080.6	341 U	63	50-125		
Dimethyl Phthalate	1210		343	ug/kg dry	2080.6	341 U	58	45-130		
Di-n-butyl Phthalate	1370		343	ug/kg dry	2080.6	341 U	66	50-130		
Di-n-octyl Phthalate	1440		343	ug/kg dry	2080.6	341 U	69	40-150		
Fluoranthene	1390		343	ug/kg dry	2080.6	341 U	67	45-130		
Fluorene	1260		343	ug/kg dry	2080.6	341 U	61	45-120		
Hexachlorobenzene	1290		343	ug/kg dry	2080.6	341 U	62	45-130		
Hexachlorobutadiene	1030		343	ug/kg dry	2080.6	341 U	50	45-105		
Hexachlorocyclopentadiene	389		343	ug/kg dry	2080.6	341 U	19	10-100		
Hexachloroethane	1020		343	ug/kg dry	2080.6	341 U	49	35-110		
Indeno[1,2,3-cd]pyrene	1250		343	ug/kg dry	2080.6	341 U	60	45-130		
Isophorone	1070		343	ug/kg dry	2080.6	341 U	51	40-110		
Naphthalene	1180		343	ug/kg dry	2080.6	341 U	57	40-110		
Nitrobenzene	1080		343	ug/kg dry	2080.6	341 U	52	40-105		
N-Nitrosodi-n-propylamine	1150		343	ug/kg dry	2080.6	341 U	55	30-130		
N-Nitrosodiphenylamine	1320		343	ug/kg dry	2080.6	341 U	63	50-120		
Pentachlorophenol	614	J	1720	ug/kg dry	2080.6	1700 U	30	25-120		
Phenanthrene	1380		343	ug/kg dry	2080.6	341 U	66	50-120		
Phenol	1260		343	ug/kg dry	2080.6	341 U	61	40-115		
Pyrene	1300		343	ug/kg dry	2080.6	341 U	62	45-125		
Surrogate: 2-Fluorophenol	*1750*			*ug/kg dry*	*2600.8*		*67*	*25-121*		
Surrogate: Phenol-d5	*1890*			*ug/kg dry*	*2600.8*		*73*	*24-113*		
Surrogate: Nitrobenzene-d5	*1060*			*ug/kg dry*	*1733.8*		*61*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1110*			*ug/kg dry*	*1733.8*		*64*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1610*			*ug/kg dry*	*2600.8*		*62*	*19-122*		
Surrogate: p-Terphenyl-d14	*1210*			*ug/kg dry*	*1733.8*		*70*	*18-137*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	Reported: 07/02/2012 11:32

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 L206174 - SW 3540C									
Matrix Spike Dup (L206174-MSD1)	**Source: 1206058-01**	Prepared: 06/21/2012 Analyzed: 06/26/2012							
1,2,4-Trichlorobenzene	1800	345	ug/kg dry	2088.9	341 U	86	45-110	56*	40
1,2-Dichlorobenzene	2430	345	ug/kg dry	2088.9	341 U	116*	45-105	78*	40
1,3-Dichlorobenzene	2290	345	ug/kg dry	2088.9	341 U	110*	40-100	76*	40
1,4-Dichlorobenzene	2370	345	ug/kg dry	2088.9	341 U	113*	35-105	78*	40
2,4,5-Trichlorophenol	3070	345	ug/kg dry	2088.9	341 U	147*	30-140	83*	40
2,4,6-Trichlorophenol	3160	345	ug/kg dry	2088.9	341 U	151*	20-110	99*	40
2,4-Dichlorophenol	1970	345	ug/kg dry	2088.9	341 U	94	40-110	53*	40
2,4-Dimethylphenol	1830	345	ug/kg dry	2088.9	341 U	87	30-105	49*	40
2,4-Dinitrophenol	2310	1720	ug/kg dry	2088.9	1700 U	111	25-130	94*	40
2,4-Dinitrotoluene	3130	345	ug/kg dry	2088.9	341 U	150*	50-115	79*	40
2,6-Dinitrotoluene	3070	345	ug/kg dry	2088.9	341 U	147*	40-120	79*	40
2-Chloronaphthalene	2750	345	ug/kg dry	2088.9	341 U	132*	45-115	81*	40
2-Chlorophenol	2770	345	ug/kg dry	2088.9	341 U	133*	45-105	82*	40
2-Methylnaphthalene	1870	345	ug/kg dry	2088.9	341 U	89	45-110	54*	40
2-Methylphenol	2690	345	ug/kg dry	2088.9	341 U	129*	40-120	79*	40
2-Nitroaniline	3130	1720	ug/kg dry	2088.9	1700 U	150*	45-120	80*	40
2-Nitrophenol	1890	345	ug/kg dry	2088.9	341 U	90	40-110	57*	40
3,3'-Dichlorobenzidine	2790	689	ug/kg dry	2088.9	682 U	134*	15-130	79*	40
3-Nitroaniline	2490	1720	ug/kg dry	2088.9	1700 U	119	40-130	54*	40
4,6-Dinitro-2-methylphenol	2670	345	ug/kg dry	2088.9	341 U	128	20-140	82*	40
4-Bromophenyl Phenyl Ether	3150	345	ug/kg dry	2088.9	341 U	151*	45-115	85*	40
4-Chloro-3-methylphenol	2150	345	ug/kg dry	2088.9	341 U	103	35-115	60*	40
4-Chloroaniline	1450	345	ug/kg dry	2088.9	341 U	69	10-100	39	40
4-Chlorophenyl Phenyl Ether	3400	345	ug/kg dry	2088.9	341 U	163*	45-110	94*	40
3- and/or 4-Methylphenol	2810	345	ug/kg dry	2088.9	341 U	134*	40-120	75*	40
4-Nitroaniline	2930	1720	ug/kg dry	2088.9	1700 U	140*	40-130	59*	40
4-Nitrophenol	3370	1720	ug/kg dry	2088.9	1700 U	162*	15-140	104*	40
Acenaphthene	2810	345	ug/kg dry	2088.9	341 U	135*	45-110	79*	40
Acenaphthylene	2490	345	ug/kg dry	2088.9	341 U	119*	45-115	83*	40
Anthracene	2960	345	ug/kg dry	2088.9	341 U	142*	45-130	74*	40
Benz[a]anthracene	3180	345	ug/kg dry	2088.9	341 U	152*	45-130	82*	40
Benzo[a] pyrene	3120	345	ug/kg dry	2088.9	341 U	149*	45-130	81*	40
Benzo[b] fluoranthene	3080	345	ug/kg dry	2088.9	341 U	147*	40-130	80*	40
Benzo[g,h,i] perylene	3070	345	ug/kg dry	2088.9	341 U	147*	45-125	77*	40
Benzo[k] fluoranthene	3290	345	ug/kg dry	2088.9	341 U	158*	45-125	86*	40
Bis(2-chloroethoxy) methane	1840	345	ug/kg dry	2088.9	341 U	88	45-110	49*	40

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 07/02/2012 11:32

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 L206174 - SW 3540C									
Matrix Spike Dup (L206174-MSD1)		**Source: 1206058-01**	Prepared: 06/21/2012 Analyzed: 06/26/2012						
Bis(2-chloroethyl) ether	2460	345	ug/kg dry	2088.9	341 U	118*	40-110	76*	40
Bis(2-chloroisopropyl) ether	2390	345	ug/kg dry	2088.9	341 U	114	30-115	66*	40
Bis(2-ethylhexyl) phthalate	3210	345	ug/kg dry	2088.9	341 U	154*	40-145	73*	40
Butyl Benzyl Phthalate	3110	345	ug/kg dry	2088.9	341 U	149*	50-125	75*	40
Carbazole	2990	345	ug/kg dry	2088.9	341 U	143*	40-140	32	40
Chrysene	3240	345	ug/kg dry	2088.9	341 U	155*	45-130	79*	40
Dibenz[a,h]anthracene	2220	345	ug/kg dry	2088.9	341 U	106	45-125	82*	40
Dibenzofuran	2920	345	ug/kg dry	2088.9	341 U	140*	45-120	78*	40
Diethyl Phthalate	2990	345	ug/kg dry	2088.9	341 U	143*	50-125	78*	40
Dimethyl Phthalate	2870	345	ug/kg dry	2088.9	341 U	137*	45-130	81*	40
Di-n-butyl Phthalate	2860	345	ug/kg dry	2088.9	341 U	137*	50-130	70*	40
Di-n-octyl Phthalate	3270	345	ug/kg dry	2088.9	341 U	157*	40-150	78*	40
Fluoranthene	3150	345	ug/kg dry	2088.9	341 U	151*	45-130	77*	40
Fluorene	3230	345	ug/kg dry	2088.9	341 U	155*	45-120	87*	40
Hexachlorobenzene	3420	345	ug/kg dry	2088.9	341 U	164*	45-130	90*	40
Hexachlorobutadiene	2010	345	ug/kg dry	2088.9	341 U	96	45-105	64*	40
Hexachlorocyclopentadiene	1260	345	ug/kg dry	2088.9	341 U	60	10-100	106*	40
Hexachloroethane	2320	345	ug/kg dry	2088.9	341 U	111*	35-110	77*	40
Indeno[1,2,3-cd]pyrene	2960	345	ug/kg dry	2088.9	341 U	142*	45-130	81*	40
Isophorone	1780	345	ug/kg dry	2088.9	341 U	85	40-110	50*	40
Naphthalene	2060	345	ug/kg dry	2088.9	341 U	99	40-110	54*	40
Nitrobenzene	1740	345	ug/kg dry	2088.9	341 U	83	40-105	46*	40
N-Nitrosodi-n-propylamine	2950	345	ug/kg dry	2088.9	341 U	141*	30-130	88*	40
N-Nitrosodiphenylamine	2930	345	ug/kg dry	2088.9	341 U	140*	50-120	76*	40
Pentachlorophenol	3810	1720	ug/kg dry	2088.9	1700 U	182*	25-120	144*	40
Phenanthrene	3100	345	ug/kg dry	2088.9	341 U	149*	50-120	77*	40
Phenol	2760	345	ug/kg dry	2088.9	341 U	132*	40-115	74*	40
Pyrene	3060	345	ug/kg dry	2088.9	341 U	146*	45-125	80*	40
Surrogate: 2-Fluorophenol	*1790*		*ug/kg dry*	*2611.2*		*69*	*25-121*		
Surrogate: Phenol-d5	*1950*		*ug/kg dry*	*2611.2*		*75*	*24-113*		
Surrogate: Nitrobenzene-d5	*809*		*ug/kg dry*	*1740.8*		*46*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1230*		*ug/kg dry*	*1740.8*		*70*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*2180*		*ug/kg dry*	*2611.2*		*84*	*19-122*		
Surrogate: p-Terphenyl-d14	*1340*		*ug/kg dry*	*1740.8*		*77*	*18-137*		

PREPARATION BENCH SHEET

L206174

Lionville Laboratory

Printed: 6/25/2012 1:35:12PM

000000024

Matrix: Solid **Prepared using: SVOCGCMS - SW 3540C** **Surrogate used: 1200548**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206058-01	8270C TCL SVOC	06/21/2012 15:48	30.33	1				500	WC-Hanford, Inc.	
1206058-02	8270C TCL SVOC	06/21/2012 15:48	30.37	1				500	WC-Hanford, Inc.	
1206061-01	8270C TCL SVOC	06/21/2012 15:48	30.38	1				500	WC-Hanford, Inc.	
1206061-02	8270C TCL SVOC	06/21/2012 15:48	30.68	1				500	WC-Hanford, Inc.	
1206061-03	8270C TCL SVOC	06/21/2012 15:48	30.5	1				500	WC-Hanford, Inc.	
1206061-04	8270C TCL SVOC	06/21/2012 15:48	30.21	1				500	WC-Hanford, Inc.	
1206061-05	8270C TCL SVOC	06/21/2012 15:48	30.09	1				500	WC-Hanford, Inc.	
1206061-06	8270C TCL SVOC	06/21/2012 15:48	30.12	1				500	WC-Hanford, Inc.	
1206061-07	8270C TCL SVOC	06/21/2012 15:48	30.58	1				500	WC-Hanford, Inc.	
1206061-08	8270C TCL SVOC	06/21/2012 15:48	30.68	1				500	WC-Hanford, Inc.	
1206061-09	8270C TCL SVOC	06/21/2012 15:48	30.81	1				500	WC-Hanford, Inc.	
1206061-10	8270C TCL SVOC	06/21/2012 15:48	30.08	1				500	WC-Hanford, Inc.	
1206061-11	8270C TCL SVOC	06/21/2012 15:48	30.01	1				500	WC-Hanford, Inc.	
1206061-12	8270C TCL SVOC	06/21/2012 15:48	30.34	1				500	WC-Hanford, Inc.	
1206061-13	8270C TCL SVOC	06/21/2012 15:48	30.16	1				500	WC-Hanford, Inc.	
L206174-BLK1	QC	06/21/2012 15:48	30	1				500		
L206174-BS1	QC	06/21/2012 15:48	30	1	1200337		600	500		
L206174-MS1	QC	06/21/2012 15:48	30.12	1	1200337	1206058-01	600	500		
L206174-MS2	QC	06/21/2012 15:48	30.01	1	1200337	1206061-02	600	500		
L206174-MSD1	QC	06/21/2012 15:48	30	1	1200337	1206058-01	600	500		

Extracts Relinquished By — Date 6/25/12 1340

Extracts Received By — Date 6/25/12 1342

PREPARATION BENCH SHEET

L206174

Lionville Laboratory

Printed: 6/25/2012 1:35:12PM

000000025

Matrix: Solid **Prepared using: SVOCGCMS - SW 3540C** **Surrogate used: 1200548**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L206174-MSD2	QC	06/21/2012 15:48	30.03	1	1200337	1206061-02	600	500		

Extracts Relinquished By 6/25/12 1340 Date

Extracts Received By 6/25/12 1342 Date

PESTICIDES

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	06/30/2012 08:25

Analytical Report for Organochlorine Pesticides by SW846 8081A

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PRR8	1206058-01	Soil	06/18/2012 12:40	06/19/2012 14:05
J1PRR9	1206058-02	Soil	06/18/2012 13:05	06/19/2012 14:05

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Case Narrative

Client: WC-HANFORD RC-198 K3931
LVL #: 1206058

W.O. #: 60049-001-001-0001-00
Date Received: 06-19-2012

CHLORINATED PESTICIDES

Two (2) soil samples were collected on 06-18-2012.

The samples and associated QC samples were extracted 06-27-2012 and analyzed 06-28-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C, and the analysis procedure was based on SW846 Method 8081A for client specified target compounds. All samples received Copper-Sulfur cleanup based on SW846 method 3660A.

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

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limit for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. The samples are reported on a dry weight basis.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

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

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

Carl Schenkel

for Iain Daniels
LvL Laboratory Manager

7/2/12
Date

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	06/30/2012 08:25

J1PRR8

1206058-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
gamma-BHC	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
beta-BHC	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
delta-BHC	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Heptachlor	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Aldrin	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Heptachlor epoxide	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
gamma-Chlordane	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
alpha-Chlordane	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endosulfan I	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
4,4'-DDE	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Dieldrin	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endrin	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
4,4'-DDD	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endosulfan II	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
4,4'-DDT	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endrin aldehyde	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endosulfan sulfate	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Methoxychlor	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endrin ketone	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Toxaphene	3.40	U	3.40	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*86.3 %*		*28-166*			*L206221*	*06/27/2012*	*06/28/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*77.0 %*		*37-153*			*L206221*	*06/27/2012*	*06/28/2012*	*8081A*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	Reported: 06/30/2012 08:25

J1PRR9

1206058-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Organochlorine Pesticides by SW846 8081A									
alpha-BHC	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
gamma-BHC	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
beta-BHC	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
delta-BHC	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Heptachlor	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Aldrin	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Heptachlor epoxide	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
gamma-Chlordane	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
alpha-Chlordane	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endosulfan I	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
4,4'-DDE	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Dieldrin	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endrin	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
4,4'-DDD	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endosulfan II	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
4,4'-DDT	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endrin aldehyde	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endosulfan sulfate	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Methoxychlor	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Endrin ketone	0.340	U	0.340	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Toxaphene	3.40	U	3.40	ug/kg dry	1	L206221	06/27/2012	06/28/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*34.1 %*		*28-166*			*L206221*	*06/27/2012*	*06/28/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*41.2 %*		*37-153*			*L206221*	*06/27/2012*	*06/28/2012*	*8081A*

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	06/30/2012 08:25

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206221 - SW 3540C										
Blank (L206221-BLK1)				Prepared: 06/27/2012 Analyzed: 06/28/2012						
alpha-BHC	0.330	U	0.330	ug/kg wet						
gamma-BHC	0.330	U	0.330	ug/kg wet						
beta-BHC	0.330	U	0.330	ug/kg wet						
delta-BHC	0.330	U	0.330	ug/kg wet						
Heptachlor	0.330	U	0.330	ug/kg wet						
Aldrin	0.330	U	0.330	ug/kg wet						
Heptachlor epoxide	0.330	U	0.330	ug/kg wet						
gamma-Chlordane	0.330	U	0.330	ug/kg wet						
alpha-Chlordane	0.330	U	0.330	ug/kg wet						
Endosulfan I	0.330	U	0.330	ug/kg wet						
4,4'-DDE	0.330	U	0.330	ug/kg wet						
Dieldrin	0.330	U	0.330	ug/kg wet						
Endrin	0.330	U	0.330	ug/kg wet						
4,4'-DDD	0.330	U	0.330	ug/kg wet						
Endosulfan II	0.330	U	0.330	ug/kg wet						
4,4'-DDT	0.330	U	0.330	ug/kg wet						
Endrin aldehyde	0.330	U	0.330	ug/kg wet						
Endosulfan sulfate	0.330	U	0.330	ug/kg wet						
Methoxychlor	0.330	U	0.330	ug/kg wet						
Endrin ketone	0.330	U	0.330	ug/kg wet						
Toxaphene	3.30	U	3.30	ug/kg wet						
Surrogate: Tetrachloro-meta-xylene	*33.3*			*ug/kg wet*	*33.337*		*100*	*28-166*		
Surrogate: Decachlorobiphenyl	*29.6*			*ug/kg wet*	*33.333*		*88.7*	*37-153*		
LCS (L206221-BS1)				Prepared: 06/27/2012 Analyzed: 06/28/2012						
alpha-BHC	37.2		0.330	ug/kg wet	33.333		112	65-145		
gamma-BHC	36.7		0.330	ug/kg wet	33.333		110	70-143		
beta-BHC	35.8		0.330	ug/kg wet	33.333		107	75-143		
delta-BHC	34.7		0.330	ug/kg wet	33.333		104	65-143		
Heptachlor	35.9		0.330	ug/kg wet	33.333		108	70-139		
Aldrin	34.7		0.330	ug/kg wet	33.333		104	70-143		
Heptachlor epoxide	33.0		0.330	ug/kg wet	33.333		99.1	71-138		
gamma-Chlordane	34.5		0.330	ug/kg wet	33.333		103	71-137		
alpha-Chlordane	33.7		0.330	ug/kg wet	33.333		101	72-136		
Endosulfan I	32.8		0.330	ug/kg wet	33.333		98.4	72-139		
4,4'-DDE	36.3		0.330	ug/kg wet	33.333		109	70-154		
Dieldrin	34.1		0.330	ug/kg wet	33.333		102	73-143		

LIONVILLE LABORATORY
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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	06/30/2012 08:25

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206221 - SW 3540C									
LCS (L206221-BS1)			Prepared: 06/27/2012 Analyzed: 06/28/2012						
Endrin	32.9	0.330	ug/kg wet	33.333		98.8	74-137		
4,4'-DDD	36.3	0.330	ug/kg wet	33.333		109	52-153		
Endosulfan II	32.7	0.330	ug/kg wet	33.333		98.0	72-139		
4,4'-DDT	33.5	0.330	ug/kg wet	33.333		101	58-148		
Endrin aldehyde	28.9	0.330	ug/kg wet	33.333		86.8	49-129		
Endosulfan sulfate	31.1	0.330	ug/kg wet	33.333		93.2	66-139		
Methoxychlor	32.5	0.330	ug/kg wet	33.333		97.4	50-144		
Endrin ketone	31.5	0.330	ug/kg wet	33.333		94.4	70-139		
Surrogate: Tetrachloro-meta-xylene	*32.3*		*ug/kg wet*	*33.337*		*96.8*	*28-166*		
Surrogate: Decachlorobiphenyl	*27.5*		*ug/kg wet*	*33.333*		*82.5*	*37-153*		
Matrix Spike (L206221-MS1)		**Source: 1206058-01**	Prepared: 06/27/2012 Analyzed: 06/28/2012						
alpha-BHC	35.7	0.337	ug/kg dry	34.022	0.340 U	105	65-145		
gamma-BHC	35.5	0.337	ug/kg dry	34.022	0.340 U	104	70-143		
beta-BHC	34.6	0.337	ug/kg dry	34.022	0.340 U	102	75-143		
delta-BHC	33.0	0.337	ug/kg dry	34.022	0.340 U	97.0	65-143		
Heptachlor	35.1	0.337	ug/kg dry	34.022	0.340 U	103	70-139		
Aldrin	33.7	0.337	ug/kg dry	34.022	0.340 U	99.1	70-143		
Heptachlor epoxide	32.2	0.337	ug/kg dry	34.022	0.340 U	94.6	71-138		
gamma-Chlordane	33.2	0.337	ug/kg dry	34.022	0.340 U	97.7	71-137		
alpha-Chlordane	33.7	0.337	ug/kg dry	34.022	0.340 U	99.2	72-136		
Endosulfan I	32.0	0.337	ug/kg dry	34.022	0.340 U	94.0	72-139		
4,4'-DDE	34.8	0.337	ug/kg dry	34.022	0.340 U	102	70-154		
Dieldrin	32.9	0.337	ug/kg dry	34.022	0.340 U	96.6	73-143		
Endrin	32.3	0.337	ug/kg dry	34.022	0.340 U	95.0	74-137		
4,4'-DDD	34.6	0.337	ug/kg dry	34.022	0.340 U	102	52-153		
Endosulfan II	31.5	0.337	ug/kg dry	34.022	0.340 U	92.6	72-139		
4,4'-DDT	33.1	0.337	ug/kg dry	34.022	0.340 U	97.3	58-148		
Endrin aldehyde	29.5	0.337	ug/kg dry	34.022	0.340 U	86.8	49-129		
Endosulfan sulfate	30.4	0.337	ug/kg dry	34.022	0.340 U	89.3	66-139		
Methoxychlor	32.0	0.337	ug/kg dry	34.022	0.340 U	94.0	50-144		
Endrin ketone	30.6	0.337	ug/kg dry	34.022	0.340 U	90.0	70-139		
Surrogate: Tetrachloro-meta-xylene	*30.0*		*ug/kg dry*	*34.025*		*88.3*	*28-166*		
Surrogate: Decachlorobiphenyl	*26.2*		*ug/kg dry*	*34.022*		*77.0*	*37-153*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/30/2012 08:25

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206221 - SW 3540C									
Matrix Spike Dup (L206221-MSD1)	**Source: 1206058-01**		Prepared: 06/27/2012 Analyzed: 06/28/2012						
alpha-BHC	34.1	0.339	ug/kg dry	34.234	0.340 U	99.7	65-145	4.99	40
gamma-BHC	34.2	0.339	ug/kg dry	34.234	0.340 U	99.8	70-143	4.31	40
beta-BHC	32.9	0.339	ug/kg dry	34.234	0.340 U	96.1	75-143	5.56	40
delta-BHC	32.0	0.339	ug/kg dry	34.234	0.340 U	93.5	65-143	3.67	40
Heptachlor	34.1	0.339	ug/kg dry	34.234	0.340 U	99.5	70-139	3.75	40
Aldrin	32.7	0.339	ug/kg dry	34.234	0.340 U	95.6	70-143	3.60	40
Heptachlor epoxide	31.5	0.339	ug/kg dry	34.234	0.340 U	92.1	71-138	2.68	40
gamma-Chlordane	32.5	0.339	ug/kg dry	34.234	0.340 U	94.8	71-137	3.01	40
alpha-Chlordane	33.5	0.339	ug/kg dry	34.234	0.340 U	97.8	72-136	1.42	40
Endosulfan I	31.5	0.339	ug/kg dry	34.234	0.340 U	92.0	72-139	2.15	40
4,4'-DDE	33.7	0.339	ug/kg dry	34.234	0.340 U	98.5	70-154	3.88	40
Dieldrin	32.7	0.339	ug/kg dry	34.234	0.340 U	95.5	73-143	1.15	40
Endrin	31.8	0.339	ug/kg dry	34.234	0.340 U	93.0	74-137	2.13	40
4,4'-DDD	33.7	0.339	ug/kg dry	34.234	0.340 U	98.5	52-153	3.10	40
Endosulfan II	31.0	0.339	ug/kg dry	34.234	0.340 U	90.7	72-139	2.07	40
4,4'-DDT	33.0	0.339	ug/kg dry	34.234	0.340 U	96.5	58-148	0.826	40
Endrin aldehyde	29.2	0.339	ug/kg dry	34.234	0.340 U	85.3	49-129	1.74	40
Endosulfan sulfate	30.1	0.339	ug/kg dry	34.234	0.340 U	87.8	66-139	1.69	40
Methoxychlor	31.3	0.339	ug/kg dry	34.234	0.340 U	91.3	50-144	2.91	40
Endrin ketone	30.2	0.339	ug/kg dry	34.234	0.340 U	88.2	70-139	2.02	40
Surrogate: Tetrachloro-meta-xylene	*29.4*		*ug/kg dry*	*34.237*		*86.0*	*28-166*		
Surrogate: Decachlorobiphenyl	*26.1*		*ug/kg dry*	*34.234*		*76.3*	*37-153*		

PREPARATION BENCH SHEET

L206221

Lionville Laboratory

Printed: 6/28/2012 2:02:00PM

000000036

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

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206058-01	8081A TCL Pesticides	06/27/2012 13:35	30.45	10				250	WC-Hanford, Inc.	
1206058-01	8082 PCBs	06/27/2012 13:35	30.45	10				250	WC-Hanford, Inc.	
1206058-02	8081A TCL Pesticides	06/27/2012 13:35	30.26	10				250	WC-Hanford, Inc.	
1206058-02	8082 PCBs	06/27/2012 13:35	30.26	10				250	WC-Hanford, Inc.	
~~1206068-01~~	~~8081A TCL Pesticides~~ VOID	~~06/27/2012 13:35~~	~~30.45~~	~~10~~		VOID		~~250~~	~~WC-Hanford, Inc.~~ 6/28/12	~~Added for BatchQC in: L206221~~
1206068-01	8082 PCBs	06/27/2012 13:35	30.45	10				250	WC-Hanford, Inc.	
1206068-02	8082 PCBs	06/27/2012 13:35	30.1	10				250	WC-Hanford, Inc.	
1206071-01	8081A TCL Pesticides	06/27/2012 13:35	30.14	10				250	WC-Hanford, Inc.	
1206071-01	8082 PCBs	06/27/2012 13:35	30.14	10				250	WC-Hanford, Inc.	
~~1206072-01~~	~~8081A TCL Pesticides~~ VOID	~~06/27/2012 13:35~~	~~30.22~~	~~10~~		VOID		~~250~~	~~WC-Hanford, Inc.~~ 6/28/12	~~Added for BatchQC in: L206221~~
1206072-01	8082 PCBs	06/27/2012 13:35	30.22	10				250	WC-Hanford, Inc.	
~~1206075-02~~	~~8081A TCL Pesticides~~ VOID	~~06/27/2012 13:35~~	~~30.42~~	~~10~~		VOID		~~250~~	~~WC-Hanford, Inc.~~ 6/28/12	~~Added for BatchQC in: L206221~~
1206075-02	8082 PCBs	06/27/2012 13:35	30.42	10				250	WC-Hanford, Inc.	
1206075-03	8082 PCBs	06/27/2012 13:35	30.59	10				250	WC-Hanford, Inc.	
1206075-04	8082 PCBs	06/27/2012 13:35	30.01	10				250	WC-Hanford, Inc.	
~~1206076-01~~	~~8081A TCL Pesticides~~ VOID	~~06/27/2012 13:35~~	~~30.18~~	~~10~~		VOID		~~250~~	~~Fluor-B&W Portsmouth~~ 6/28/12	~~Added for BatchQC in: L206221~~
1206076-01	8082 PCBs	06/27/2012 13:35	30.18	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-02	8082 PCBs	06/27/2012 13:35	30.8	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-03	8082 PCBs	06/27/2012 13:35	30.22	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-04	8082 PCBs	06/27/2012 13:35	30.43	10				250	Fluor-B&W Portsmouth	Report wet weight

Cu S cleaned Cu lot G16W031

6/28/12 1410 — Extracts Relinquished By — Date

06.28.12 14:00 — Extracts Received By — Date

PREPARATION BENCH SHEET

L206221

Lionville Laboratory

Printed: 6/28/2012 2:02:00PM

000000037

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

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206076-05	8082 PCBs	06/27/2012 13:35	30.71	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-06	8082 PCBs	06/27/2012 13:35	30.64	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-07	8082 PCBs	06/27/2012 13:35	30.89	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-08	8082 PCBs	06/27/2012 13:35	30.41	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-09	8082 PCBs	06/27/2012 13:35	30.19	10				250	Fluor-B&W Portsmouth	Report wet weight
L206221-BLK1	QC	06/27/2012 13:35	30	10				250		PEST
L206221-BLK2	QC	06/27/2012 13:35	30	10				250		PCB
L206221-BS1	QC	06/27/2012 13:35	30	10	1200281		250	250		PEST
L206221-BS2	QC	06/27/2012 13:35	30	10	1200123		250	250		PCB
L206221-MS1	QC	06/27/2012 13:35	30.7	10	1200281	1206058-01	250	250		Pest
L206221-MS2	QC	06/27/2012 13:35	30.6	10	1200123	1206058-01	250	250		PCB
L206221-MS3	QC	06/27/2012 13:35	30.09	10	1200123	1206068-01	250	250		PCB
L206221-MS4	QC	06/27/2012 13:35	30.17	10	1200281	1206071-01	250	250		PEST
L206221-MS5	QC	06/27/2012 13:35	30.1	10	1200123	1206071-01	250	250		PCB
L206221-MS6	QC	06/27/2012 13:35	30.23	10	1200123	1206072-01	250	250		PCB
L206221-MS7	QC	06/27/2012 13:35	30.11	10	1200123	1206075-02	250	250		PCB
L206221-MS8	QC	06/27/2012 13:35	30.03	10	1200123	1206076-01	250	250		PCB
L206221-MSD1	QC	06/27/2012 13:35	30.51	10	1200281	1206058-01	250	250		Pest
L206221-MSD2	QC	06/27/2012 13:35	30.51	10	1200123	1206058-01	250	250		PCB
L206221-MSD3	QC	06/27/2012 13:35	30.46	10	1200123	1206068-01	250	250		PCB

S cleaned Cu lot 616W031

6/28/12 1410 — Extracts Relinquished By — Date

06.28.12 14.10 — Extracts Received By — Date

PREPARATION BENCH SHEET

L206221

Lionville Laboratory

Printed: 6/28/2012 2:02:00PM

000000038

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

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L206221-MSD4	QC	06/27/2012 13:35	30.58	10	1200281	1206071-01	250	250		PEST
L206221-MSD5	QC	06/27/2012 13:35	30.7	10	1200123	1206071-01	250	250		PCB
L206221-MSD6	QC	06/27/2012 13:35	30.83	10	1200123	1206072-01	250	250		PCB
L206221-MSD7	QC	06/27/2012 13:35	30.15	10	1200123	1206075-02	250	250		PCB
L206221-MSD8	QC	06/27/2012 13:35	30.07	10	1200123	1206076-01	250	250		PCB

S cleaned
Cu lot G160031

6/28/12 1410 SZak 06.28.12 14.10

Extracts Relinquished By Date Extracts Received By Date

PCBS

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Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/30/2012 09:20

Analytical Report for Polychlorinated Biphenyls by SW846 8082

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PRR8	1206058-01	Soil	06/18/2012 12:40	06/19/2012 14:05
J1PRR9	1206058-02	Soil	06/18/2012 13:05	06/19/2012 14:05

LIONVILLE LABORATORY
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Exton, Pennsylvania 19341
Phone (610) 280-3000
Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-198 K3931
LVL #: 1206058

W.O. #: 60049-001-001-0001-00
Received: 06-19-2012

PCBs

Two (2) soil samples were collected on 06-18-2012.

The samples and associated QC samples were extracted 06-27-2012 and analyzed 06-29-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8082. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on SW846 methods 3660A and 3665A.

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

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. One (1) of twelve (12) surrogate recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC101) has been enclosed.
4. The method blank was below the reporting limits for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. The samples are reported on a dry weight basis.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or a designee as verified by the following signature.

for Carl Schrenbel
Iain Daniels
LvL Laboratory Manager

7/2/12
Date

r:\group\data\2012\pcb\wc hanford\1206058jes.doc

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12GC101

Initiator: Catherine Carey
Date: 06/30/12
Client: WCH Hanford

Batch: 1206058
Samples: #02 (JIPR R9)
Method: SW846/MCAWW/CLP/

Parameter: PCB
Matrix: SOIL
Prep Batch: L206221

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)

TCX recovery is low in sample #02 (35%)

2. Known or Probable Causes(s)

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

4. Project Manager Instructions...signature/date: CS for OJ 7/2/12
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: KS 7/2/12 Other Explanation:
✓ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

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

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

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

QA-139-A-0208

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

264 Welsh Pool Road
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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	06/30/2012 09:20

J1PRR8

1206058-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1221	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1232	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1242	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1248	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1254	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1260	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1262	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1268	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Surrogate: Decachlorobiphenyl	*106 %*		*43-144*			*L206221*	*06/27/2012*	*06/29/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*90 %*		*52-141*			*L206221*	*06/27/2012*	*06/29/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/30/2012 09:20

J1PRR9

1206058-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1221	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1232	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1242	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1248	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1254	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1260	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1262	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Aroclor 1268	13.7	U	13.7	ug/kg dry	1	L206221	06/27/2012	06/29/2012	8082
Surrogate: Decachlorobiphenyl	*54 %* ✓		*43-144*			*L206221*	*06/27/2012*	*06/29/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*35 % **		*52-141*			*L206221*	*06/27/2012*	*06/29/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/30/2012 09:20

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 L206221 - SW 3540C										
Blank (L206221-BLK2)				Prepared: 06/27/2012 Analyzed: 06/29/2012						
Aroclor 1016	13.3	U	13.3	ug/kg wet						
Aroclor 1221	13.3	U	13.3	ug/kg wet						
Aroclor 1232	13.3	U	13.3	ug/kg wet						
Aroclor 1242	13.3	U	13.3	ug/kg wet						
Aroclor 1248	13.3	U	13.3	ug/kg wet						
Aroclor 1254	13.3	U	13.3	ug/kg wet						
Aroclor 1260	13.3	U	13.3	ug/kg wet						
Aroclor 1262	13.3	U	13.3	ug/kg wet						
Aroclor 1268	13.3	U	13.3	ug/kg wet						
Surrogate: Decachlorobiphenyl	*38.2*			*ug/kg wet*	*33.333*		*115*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*32.6*			*ug/kg wet*	*33.337*		*98*	*52-141*		
LCS (L206221-BS2)				Prepared: 06/27/2012 Analyzed: 06/29/2012						
Aroclor 1016	103		13.3	ug/kg wet	166.67		62	50-138		
Aroclor 1260	125		13.3	ug/kg wet	166.67		75	50-148		
Surrogate: Decachlorobiphenyl	*29.7*			*ug/kg wet*	*33.333*		*89*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*27.7*			*ug/kg wet*	*33.337*		*83*	*52-141*		
Matrix Spike (L206221-MS2)		**Source: 1206058-01**		Prepared: 06/27/2012 Analyzed: 06/29/2012						
Aroclor 1016	112		13.6	ug/kg dry	170.66	13.7 U	66	50-138		
Aroclor 1260	140		13.6	ug/kg dry	170.66	13.7 U	82	50-148		
Surrogate: Decachlorobiphenyl	*33.6*			*ug/kg dry*	*34.133*		*98*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*29.1*			*ug/kg dry*	*34.136*		*85*	*52-141*		
Matrix Spike Dup (L206221-MSD2)		**Source: 1206058-01**		Prepared: 06/27/2012 Analyzed: 06/29/2012						
Aroclor 1016	121		13.7	ug/kg dry	171.17	13.7 U	71	50-138	7	40
Aroclor 1260	151		13.7	ug/kg dry	171.17	13.7 U	88	50-148	7	40
Surrogate: Decachlorobiphenyl	*36.3*			*ug/kg dry*	*34.234*		*106*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*31.3*			*ug/kg dry*	*34.237*		*91*	*52-141*		

PREPARATION BENCH SHEET

L206221

Lionville Laboratory

Printed: 6/28/2012 2:02:00PM

000000047

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

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206058-01	8081A TCL Pesticides	06/27/2012 13:35	30.45	10				250	WC-Hanford, Inc.	
1206058-01	8082 PCBs	06/27/2012 13:35	30.45	10				250	WC-Hanford, Inc.	
1206058-02	8081A TCL Pesticides	06/27/2012 13:35	30.26	10				250	WC-Hanford, Inc.	
1206058-02	8082 PCBs	06/27/2012 13:35	30.26	10				250	WC-Hanford, Inc.	
1206068-01	8081A TCL Pesticides VOID	06/27/2012 13:35	30.45	10		VOID		250	~~WC-Hanford, Inc.~~ 6/28/12	~~Added for BatchQC in: L206221~~
1206068-01	8082 PCBs	06/27/2012 13:35	30.45	10				250	WC-Hanford, Inc.	
1206068-02	8082 PCBs	06/27/2012 13:35	30.1	10				250	WC-Hanford, Inc.	
1206071-01	8081A TCL Pesticides	06/27/2012 13:35	30.14	10				250	WC-Hanford, Inc.	
1206071-01	8082 PCBs	06/27/2012 13:35	30.14	10				250	WC-Hanford, Inc.	
~~1206072-01~~	~~8081A TCL Pesticides~~ VOID	~~06/27/2012 13:35~~	~~30.22~~	~~10~~		VOID		~~250~~	~~WC-Hanford, Inc.~~ 6/28/12	~~Added for BatchQC in: L206221~~
1206072-01	8082 PCBs	06/27/2012 13:35	30.22	10				250	WC-Hanford, Inc.	
1206075-02	8081A TCL Pesticides VOID	06/27/2012 13:35	30.42	10		VOID		250	~~WC-Hanford, Inc.~~ 6/28/12	~~Added for BatchQC in: L206221~~
1206075-02	8082 PCBs	06/27/2012 13:35	30.42	10				250	WC-Hanford, Inc.	
1206075-03	8082 PCBs	06/27/2012 13:35	30.59	10				250	WC-Hanford, Inc.	
1206075-04	8082 PCBs	06/27/2012 13:35	30.01	10				250	WC-Hanford, Inc.	
1206076-01	8081A TCL Pesticides VOID	06/27/2012 13:35	30.18	10		VOID		250	~~Fluor-B&W Portsmouth~~ 6/28/12	~~Added for BatchQC in: L206221~~
1206076-01	8082 PCBs	06/27/2012 13:35	30.18	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-02	8082 PCBs	06/27/2012 13:35	30.8	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-03	8082 PCBs	06/27/2012 13:35	30.22	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-04	8082 PCBs	06/27/2012 13:35	30.43	10				250	Fluor-B&W Portsmouth	Report wet weight

Cu S cleaned Cu lot 616W031

6/28/12 1410 — Extracts Relinquished By — Date

06.28.12 14:10 — Extracts Received By — Date

PREPARATION BENCH SHEET

L206221

Lionville Laboratory

Printed: 6/28/2012 2:02:00PM

000000048

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

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206076-05	8082 PCBs	06/27/2012 13:35	30.71	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-06	8082 PCBs	06/27/2012 13:35	30.64	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-07	8082 PCBs	06/27/2012 13:35	30.89	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-08	8082 PCBs	06/27/2012 13:35	30.41	10				250	Fluor-B&W Portsmouth	Report wet weight
1206076-09	8082 PCBs	06/27/2012 13:35	30.19	10				250	Fluor-B&W Portsmouth	Report wet weight
L206221-BLK1	QC	06/27/2012 13:35	30	10				250		PEST
L206221-BLK2	QC	06/27/2012 13:35	30	10				250		PCB
L206221-BS1	QC	06/27/2012 13:35	30	10	1200281		250	250		PEST
L206221-BS2	QC	06/27/2012 13:35	30	10	1200123		250	250		PCB
L206221-MS1	QC	06/27/2012 13:35	30.7	10	1200281	1206058-01	250	250		Pest
L206221-MS2	QC	06/27/2012 13:35	30.6	10	1200123	1206058-01	250	250		PCB
L206221-MS3	QC	06/27/2012 13:35	30.09	10	1200123	1206068-01	250	250		PCB
L206221-MS4	QC	06/27/2012 13:35	30.17	10	1200281	1206071-01	250	250		PEST
L206221-MS5	QC	06/27/2012 13:35	30.1	10	1200123	1206071-01	250	250		PCB
L206221-MS6	QC	06/27/2012 13:35	30.23	10	1200123	1206072-01	250	250		PCB
L206221-MS7	QC	06/27/2012 13:35	30.11	10	1200123	1206075-02	250	250		PCB
L206221-MS8	QC	06/27/2012 13:35	30.03	10	1200123	1206076-01	250	250		PCB
L206221-MSD1	QC	06/27/2012 13:35	30.51	10	1200281	1206058-01	250	250		Pest
L206221-MSD2	QC	06/27/2012 13:35	30.51	10	1200123	1206058-01	250	250		PCB
L206221-MSD3	QC	06/27/2012 13:35	30.46	10	1200123	1206068-01	250	250		PCB

S cleaned Cu lot 616W031

Extracts Relinquished By 6/28/12 1410 Date

Extracts Received By 06.28.12 14.10 Date

PREPARATION BENCH SHEET

L206221

Lionville Laboratory

Printed: 6/28/2012 2:02:00PM

000000049

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

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L206221-MSD4	QC	06/27/2012 13:35	30.58	10	1200281	1206071-01	250	250		PEST
L206221-MSD5	QC	06/27/2012 13:35	30.7	10	1200123	1206071-01	250	250		PCB
L206221-MSD6	QC	06/27/2012 13:35	30.83	10	1200123	1206072-01	250	250		PCB
L206221-MSD7	QC	06/27/2012 13:35	30.15	10	1200123	1206075-02	250	250		PCB
L206221-MSD8	QC	06/27/2012 13:35	30.07	10	1200123	1206076-01	250	250		PCB

S cleaned
Cu lot G160031

Extracts Relinquished By Date 6/28/12 1410

Extracts Received By Date S Zah 06.28.12 14.10

DIESEL

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/25/2012 18:36

Analytical Report for Extractable Petroleum Hydrocarbons by SW846 8015

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PRR8	1206058-01	Soil	06/18/2012 12:40	06/19/2012 14:05
J1PRR9	1206058-02	Soil	06/18/2012 13:05	06/19/2012 14:05

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-198 K3931
LVL #: 1206058

W.O. #: 60049-001-001-0001-00
Date Received: 06-19-2012

DIESEL RANGE ORGANICS

Two (2) soil samples were collected on 06-18-2012.

The samples and associated QC samples were extracted 06-212012 and analyzed 06-23-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8015B for Diesel Range Organics.

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

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

Iain Daniels
LvL Laboratory Manager

6/27/12
Date

r:\group\data\2012\dro\wc hanford\1206058jes.doc

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

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/25/2012 18:36

Extractable Petroleum Hydrocarbons by SW846 8015
Lionville Laboratory

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PRR8 (1206058-01) Soil								
Surrogate: p-Terphenyl	*62 %*	*39-129*			*L206173*	*06/21/2012*	*06/23/2012*	*8015M*
Diesel Range Organics	1060 J	3370	ug/kg dry	1	L206173	06/21/2012	06/23/2012	8015M
Motor Oil	10100 U	10100	ug/kg dry	1	L206173	06/21/2012	06/23/2012	8015M
J1PRR9 (1206058-02) Soil								
Surrogate: p-Terphenyl	*76 %*	*39-129*			*L206173*	*06/21/2012*	*06/23/2012*	*8015M*
Diesel Range Organics	1940 J	3440	ug/kg dry	1	L206173	06/21/2012	06/23/2012	8015M
Motor Oil	10300 U	10300	ug/kg dry	1	L206173	06/21/2012	06/23/2012	8015M

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	06/25/2012 18:36

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 L206173 - SW 3540C									
Blank (L206173-BLK1)			Prepared: 06/21/2012 Analyzed: 06/23/2012						
Diesel Range Organics	3330 U	3330	ug/kg wet						
Motor Oil	10000 U	10000	ug/kg wet						
Surrogate: p-Terphenyl	*4360*		*ug/kg wet*	*6666.7*		*65*	*39-129*		
LCS (L206173-BS1)			Prepared: 06/21/2012 Analyzed: 06/23/2012						
Diesel Range Organics	48500	3330	ug/kg wet	66667		73	42-133		
Surrogate: p-Terphenyl	*4370*		*ug/kg wet*	*6666.7*		*66*	*39-129*		
Matrix Spike (L206173-MS1)	**Source: 1206058-01**		Prepared: 06/21/2012 Analyzed: 06/23/2012						
Diesel Range Organics	52200	3450	ug/kg dry	69033	1060	74	42-133		
Surrogate: p-Terphenyl	*5160*		*ug/kg dry*	*6903.3*		*75*	*39-129*		
Matrix Spike Dup (L206173-MSD1)	**Source: 1206058-01**		Prepared: 06/21/2012 Analyzed: 06/23/2012						
Diesel Range Organics	56100	3480	ug/kg dry	69631	1060	79	42-133	7	40
Surrogate: p-Terphenyl	*6190*		*ug/kg dry*	*6963.1*		*89*	*39-129*		

PREPARATION BENCH SHEET

L206173

Lionville Laboratory

Printed: 6/22/2012 1:46:17PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1200549**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206058-01	8015M DRO	06/21/2012 15:45	30.99	1				1000	WC-Hanford, Inc.	
1206058-02	8015M DRO	06/21/2012 15:45	30.17	1				1000	WC-Hanford, Inc.	
1206061-01	8015M DRO	06/21/2012 15:45	30.4	1				1000	WC-Hanford, Inc.	
1206061-02	8015M DRO	06/21/2012 15:45	30.41	1				1000	WC-Hanford, Inc.	
1206061-03	8015M DRO	06/21/2012 15:45	30.24	1				1000	WC-Hanford, Inc.	
1206061-04	8015M DRO	06/21/2012 15:45	30.9	1				1000	WC-Hanford, Inc.	
1206061-05	8015M DRO	06/21/2012 15:45	30.78	1				1000	WC-Hanford, Inc.	
1206061-06	8015M DRO	06/21/2012 15:45	30	1				1000	WC-Hanford, Inc.	
1206061-07	8015M DRO	06/21/2012 15:45	30.12	1				1000	WC-Hanford, Inc.	
1206061-08	8015M DRO	06/21/2012 15:45	30.62	1				1000	WC-Hanford, Inc.	
1206061-11	8015M DRO	06/21/2012 15:45	30.33	1				1000	WC-Hanford, Inc.	
1206061-12	8015M DRO	06/21/2012 15:45	30.21	1				1000	WC-Hanford, Inc.	
L206173-BLK1	QC	06/21/2012 15:45	30	1				1000		
L206173-BS1	QC	06/21/2012 15:45	30	1	1101936		1000	1000		
L206173-MS1	QC	06/21/2012 15:45	30.26	1	1101936	1206058-01	1000	1000		
L206173-MS2	QC	06/21/2012 15:45	30.11	1	1101936	1206061-01	1000	1000		
L206173-MSD1	QC	06/21/2012 15:45	30	1	1101936	1206058-01	1000	1000		
L206173-MSD2	QC	06/21/2012 15:45	30.92	1	1101936	1206061-01	1000	1000		

Extracts Relinquished By — Date: 6/22/12 1400

Extracts Received By — Date: 6-22-12

PAHs

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Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 07/03/2012 15:56

Analytical Report for Polynuclear Aromatic Compounds by SW846 8310

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PRR8	1206058-01	Soil	06/18/2012 12:40	06/19/2012 14:05
J1PRR9	1206058-02	Soil	06/18/2012 13:05	06/19/2012 14:05

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Exton, Pennsylvania 19341
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Fax (610) 280-3041

Case Narrative

Client: WC-HANFORD RC-198 K3931
LVL #: 1206058

W.O. #: 60049-001-001-0001-00
Date Received: 06-19-2012

POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)

Two (2) soil samples were collected on 06-18-2012.

The samples and associated QC samples were extracted 06-26-2012 and analyzed 07-03-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3540C and the analysis procedure was based on SW846 Method 8310.

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

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limits for all target compounds.
5. One (1) of sixteen (16) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC107) has been enclosed.
6. Two (2) of thirty-two (32) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC107) 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.

for

Iain Daniels
LvL Laboratory Manager

7/3/12
Date

r:\group\data\2012\pah 8310\wc hanford\1206058jes.doc
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12GC107

Initiator: L. Kauffman
Date: 7-3-2012
Client: W.C. Hanford RC-19r

Batch: 120605J
Samples: BS, MS, MSD
Method: SW846/MCAWW/CLP/

Parameter: 8310
Matrix: Solid
Prep Batch: L 206218

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)

Naphthalene exceeded the acceptance range (0-127%) on the BS1 (123%), MS1 (291%) and MSD1 (264%). All other QC was within the acceptance range.

2. Known or Probable Causes(s)

~~Sample matrix or extraction~~ LM 7.5.12, May be a problem with spiking solution.

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: No info in sample therefore no original or data

LM 7.5.12

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

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____ 7.5.12
__ Add
__ Cancel

5. Final Action...signature/date: _____ 7/3/12

Other Explanation:

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

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

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

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

QA-139-A-0208

GLOSSARY OF DATA

DATA QUALIFIERS

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

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
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NPM	=	No pattern match for multi-component target analytes.

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/03/2012 15:56

J1PRR8
1206058-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Acenaphthylene	**6.32**		3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Acenaphthene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Fluorene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Phenanthrene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Anthracene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Fluoranthene	**7.35**		3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Indeno[1,2,3-cd]pyrene	**2.90**	J	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Pyrene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Benz[a]anthracene	**1.02**	J	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Chrysene	**0.854**	J	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Benzo[b] fluoranthene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Benzo[k] fluoranthene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Benzo[a] pyrene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Dibenz[a,h]anthracene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Benzo[g,h,i] perylene	3.41	U	3.41	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Surrogate: Triphenylene	*94 %*		*68-129*			*L206218*	*06/26/2012*	*07/03/2012*	*8310*

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/03/2012 15:56

J1PRR9
1206058-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Acenaphthylene	**19.2**		3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Acenaphthene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Fluorene	**1.87**	J	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Phenanthrene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Anthracene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Fluoranthene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Indeno[1,2,3-cd]pyrene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Pyrene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Benz[a]anthracene	**1.19**	J	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Chrysene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Benzo[b] fluoranthene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Benzo[k] fluoranthene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Benzo[a] pyrene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Dibenz[a,h]anthracene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Benzo[g,h,i] perylene	3.40	U	3.40	ug/kg dry	1	L206218	06/26/2012	07/03/2012	8310
Surrogate: Triphenylene	*97 %*		*68-129*			*L206218*	*06/26/2012*	*07/03/2012*	*8310*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 07/03/2012 15:56

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 L206218 - SW 3540C										
Blank (L206218-BLK1)				Prepared: 06/26/2012 Analyzed: 07/03/2012						
Naphthalene	3.33	U	3.33	ug/kg wet						
Acenaphthylene	3.33	U	3.33	ug/kg wet						
Acenaphthene	3.33	U	3.33	ug/kg wet						
Fluorene	3.33	U	3.33	ug/kg wet						
Phenanthrene	3.33	U	3.33	ug/kg wet						
Anthracene	3.33	U	3.33	ug/kg wet						
Fluoranthene	3.33	U	3.33	ug/kg wet						
Indeno[1,2,3-cd]pyrene	3.33	U	3.33	ug/kg wet						
Pyrene	3.33	U	3.33	ug/kg wet						
Benz[a]anthracene	0.833	J	3.33	ug/kg wet						
Chrysene	3.33	U	3.33	ug/kg wet						
Benzo[b] fluoranthene	3.33	U	3.33	ug/kg wet						
Benzo[k] fluoranthene	3.33	U	3.33	ug/kg wet						
Benzo[a] pyrene	3.33	U	3.33	ug/kg wet						
Dibenz[a,h]anthracene	3.33	U	3.33	ug/kg wet						
Benzo[g,h,i] perylene	3.33	U	3.33	ug/kg wet						
Surrogate: Triphenylene	*163*			*ug/kg wet*	*166.67*		*98*	*68-129*		
LCS (L206218-BS1)				Prepared: 06/26/2012 Analyzed: 07/03/2012						
Naphthalene	539		3.33	ug/kg wet	166.67		323*	0-127		
Acenaphthylene	151		3.33	ug/kg wet	166.67		90	50-140		
Acenaphthene	142		3.33	ug/kg wet	166.67		85	17-139		
Fluorene	144		3.33	ug/kg wet	166.67		86	28-145		
Phenanthrene	141		3.33	ug/kg wet	166.67		85	30-152		
Anthracene	73.0		3.33	ug/kg wet	166.67		44	19-171		
Fluoranthene	145		3.33	ug/kg wet	166.67		87	34-159		
Indeno[1,2,3-cd]pyrene	148		3.33	ug/kg wet	166.67		89	31-156		
Pyrene	142		3.33	ug/kg wet	166.67		85	33-152		
Benz[a]anthracene	139		3.33	ug/kg wet	166.67		83	32-157		
Chrysene	150		3.33	ug/kg wet	166.67		90	31-159		
Benzo[b] fluoranthene	142		3.33	ug/kg wet	166.67		85	33-164		
Benzo[k] fluoranthene	148		3.33	ug/kg wet	166.67		89	28-161		
Benzo[a] pyrene	135		3.33	ug/kg wet	166.67		81	29-149		
Dibenz[a,h]anthracene	133		3.33	ug/kg wet	166.67		80	27-153		
Benzo[g,h,i] perylene	134		3.33	ug/kg wet	166.67		80	32-157		
Surrogate: Triphenylene	*170*			*ug/kg wet*	*166.67*		*102*	*68-129*		

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2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/03/2012 15:56

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 L206218 - SW 3540C									
Matrix Spike (L206218-MS1)		**Source: 1206058-02**	Prepared: 06/26/2012 Analyzed: 07/03/2012						
Naphthalene	494	3.39	ug/kg dry	169.77	3.40 U	291*	0-127		
Acenaphthylene	168	3.39	ug/kg dry	169.77	19.2	87	50-140		
Acenaphthene	132	3.39	ug/kg dry	169.77	3.40 U	78	17-139		
Fluorene	163	3.39	ug/kg dry	169.77	1.87	95	28-145		
Phenanthrene	166	3.39	ug/kg dry	169.77	3.40 U	98	30-152		
Anthracene	84.7	3.39	ug/kg dry	169.77	3.40 U	50	19-171		
Fluoranthene	167	3.39	ug/kg dry	169.77	3.40 U	98	34-159		
Indeno[1,2,3-cd]pyrene	168	3.39	ug/kg dry	169.77	3.40 U	99	31-156		
Pyrene	159	3.39	ug/kg dry	169.77	3.40 U	94	33-152		
Benz[a]anthracene	154	3.39	ug/kg dry	169.77	1.19	90	32-157		
Chrysene	164	3.39	ug/kg dry	169.77	3.40 U	97	31-159		
Benzo[b] fluoranthene	157	3.39	ug/kg dry	169.77	3.40 U	92	33-164		
Benzo[k] fluoranthene	165	3.39	ug/kg dry	169.77	3.40 U	97	28-161		
Benzo[a] pyrene	158	3.39	ug/kg dry	169.77	3.40 U	93	29-149		
Dibenz[a,h]anthracene	149	3.39	ug/kg dry	169.77	3.40 U	88	27-153		
Benzo[g,h,i] perylene	152	3.39	ug/kg dry	169.77	3.40 U	89	32-157		
Surrogate: Triphenylene	*185*		*ug/kg dry*	*169.77*		*109*	*68-129*		
Matrix Spike Dup (L206218-MSD1)		**Source: 1206058-02**	Prepared: 06/26/2012 Analyzed: 07/03/2012						
Naphthalene	452	3.42	ug/kg dry	170.95	3.40 U	264*	0-127	10	40
Acenaphthylene	182	3.42	ug/kg dry	170.95	19.2	95	50-140	8	40
Acenaphthene	154	3.42	ug/kg dry	170.95	3.40 U	90	17-139	14	40
Fluorene	152	3.42	ug/kg dry	170.95	1.87	88	28-145	8	40
Phenanthrene	156	3.42	ug/kg dry	170.95	3.40 U	91	30-152	7	40
Anthracene	76.4	3.42	ug/kg dry	170.95	3.40 U	45	19-171	11	40
Fluoranthene	149	3.42	ug/kg dry	170.95	3.40 U	87	34-159	12	40
Indeno[1,2,3-cd]pyrene	154	3.42	ug/kg dry	170.95	3.40 U	90	31-156	10	40
Pyrene	143	3.42	ug/kg dry	170.95	3.40 U	84	33-152	11	40
Benz[a]anthracene	141	3.42	ug/kg dry	170.95	1.19	82	32-157	10	40
Chrysene	150	3.42	ug/kg dry	170.95	3.40 U	88	31-159	10	40
Benzo[b] fluoranthene	142	3.42	ug/kg dry	170.95	3.40 U	83	33-164	11	40
Benzo[k] fluoranthene	149	3.42	ug/kg dry	170.95	3.40 U	87	28-161	10	40
Benzo[a] pyrene	143	3.42	ug/kg dry	170.95	3.40 U	83	29-149	11	40
Dibenz[a,h]anthracene	135	3.42	ug/kg dry	170.95	3.40 U	79	27-153	11	40
Benzo[g,h,i] perylene	140	3.42	ug/kg dry	170.95	3.40 U	82	32-157	9	40
Surrogate: Triphenylene	*175*		*ug/kg dry*	*170.95*		*102*	*68-129*		

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-198-013	Page 1 of 1

Collector: R STRICKLAND	Company Contact: Tom Edmundson	Telephone No.: 509.947.5192	Project Coordinator: KESSNER, JH
Price Code: 8K	Data Turnaround: 15 Days		
Project Designation: 300 Area D4 - Soil Full Protocol	Sampling Location: Borrow Pit 9 Test Pits		SAF No.: RC-198
Ice Chest No.: WCH-11-055	Field Logbook No.: EL-1518-25	COA: RD4MXX2F00	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A11D 4DZ		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool to 4 degrees C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	G/P	G/P	G	G	G	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	60mL	125mL	120mL	250mL	120mL	120mL	120mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Sulfides - 9030	Total Cyanide - 9010	TPH-Diesel Range - WTPH-D +	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	Chloro-Herbicides - EPA8151
J1PRR8	SOIL	06/18/12	1240	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
J1PRR9	SOIL	06/18/12	1305	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Strickland WCH	06/18/12 1400	FED EX	
FED EX	6-19-12 14:05	[illegible]	6-19-12 1405

SPECIAL INSTRUCTIONS

N/A

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

(2) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2 {Nitrogen in Nitrite and Nitrate}

REVIEWED BY SMS DATE 6/18/12

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

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

WCH-EE-011

000000066

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford

Project/SAF/SOW/Release #: RC-198

Date: 6-19-12

LvL Batch #: 1206058

Sample Custodian: D. [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7985 2429 8310
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 3.5	°C	Cooler # WCH-11-55
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvL) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

SR-002-B.doc

PREPARATION BENCH SHEET

L206218

Lionville Laboratory

Printed: 6/27/2012 3:12:16PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1200612**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206058-01	8310 PAH	06/26/2012 15:50	30.57	5				50	WC-Hanford, Inc.	
1206058-02	8310 PAH	06/26/2012 15:50	30.54	5				50	WC-Hanford, Inc.	
1206068-01	8310 PAH	06/26/2012 15:50	31.17	5				50	WC-Hanford, Inc.	
1206068-02	8310 PAH	06/26/2012 15:50	30.32	5				50	WC-Hanford, Inc.	
1206071-01	8310 PAH	06/26/2012 15:50	30.95	5				50	WC-Hanford, Inc.	
1206072-01	8310 PAH	06/26/2012 15:50	30.34	5				50	WC-Hanford, Inc.	
1206075-02	8310 PAH	06/26/2012 15:50	30.75	5				50	WC-Hanford, Inc.	
1206075-03	8310 PAH	06/26/2012 15:50	30.49	5				50	WC-Hanford, Inc.	
1206075-04	8310 PAH	06/26/2012 15:50	30.41	5				50	WC-Hanford, Inc.	
L206218-BLK1	QC	06/26/2012 15:50	30	5				50		
L206218-BS1	QC	06/26/2012 15:50	30	5	1200436		50	50		
L206218-MS1	QC	06/26/2012 15:50	30.59	5	1200436	1206058-02	50	50		
L206218-MS2	QC	06/26/2012 15:50	30.8	5	1200436	1206068-01	50	50		
L206218-MS3	QC	06/26/2012 15:50	30.31	5	1200436	1206071-01	50	50		
L206218-MS4	QC	06/26/2012 15:50	30.05	5	1200436	1206072-01	50	50		
L206218-MS5	QC	06/26/2012 15:50	31.06	5	1200436	1206075-02	50	50		
L206218-MSD1	QC	06/26/2012 15:50	30.38	5	1200436	1206058-02	50	50		
L206218-MSD2	QC	06/26/2012 15:50	30.6	5	1200436	1206068-01	50	50		
L206218-MSD3	QC	06/26/2012 15:50	30.8	5	1200436	1206071-01	50	50		
L206218-MSD4	QC	06/26/2012 15:50	30.25	5	1200436	1206072-01	50	50		

Extracts Relinquished By 6/27/12 1515 Date

LK 6-27-12 Extracts Received By Date

PREPARATION BENCH SHEET

L206218

Lionville Laboratory

Printed: 6/27/2012 3:12:16PM

Matrix: Solid **Prepared using: GC - SW 3540C** **Surrogate used: 1200612**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
L206218-MSD5	QC	06/26/2012 15:50	30.87	5	1200436	1206075-02	50	50		

Extracts Relinquished By 6/27/12 Date 1515

Extracts Received By UC 6-27-12 Date

HERBICIDES

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

WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 20:11

Analytical Report for Chlorinated Herbicides by SW846 8151A

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PRR8	1206058-01	Soil	06/18/2012 12:40	06/19/2012 14:05
J1PRR9	1206058-02	Soil	06/18/2012 13:05	06/19/2012 14:05

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-198 K3931
LVL #: 1206058

W.O. #: 60049-001-001-0001
Date Received: 06-19-2012

HERBICIDE

Two (2) soil samples were collected on 06-18-2012.

The samples and their associated QC samples were extracted 06-26-2012 and analyzed 06-29-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction and analysis procedures were based on SW846 Method 8151A.

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

1. The results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limits for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. Eight (8) of sixteen (16) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12GC106) has been enclosed.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. The samples were reported on a dry weight basis.
9. All initial calibrations associated with this data set were within acceptance criteria.
10. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria with the exception of all target compounds analyzed on 06-29-2012 at 23:04 on both columns. The data reflected an increase in instrument response, so the ability to identify target compounds was not impaired.

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

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

Judy Stm

Iain Daniels
LvL Laboratory Manager

7/3/12
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 126C106

Initiator: Catherine Carey
Date: 07/02/12
Client: Lx Hanford

Batch: 1206058
Samples: MS1 + MSD1
Method: SW846/MCAWW/CLP/

Parameter: Herb
Matrix: SOIL
Prep Batch: L2062116

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)

several spike recoveries are low in MS1 + MSD1

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

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

4. Project Manager Instructions...signature/date: gh 7/3/12

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

5. Final Action...signature/date: CB 7/3/12 Other Explanation:

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

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

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

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

QA-139-A-0208

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 07/02/2012 20:11

J1PRR8
1206058-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Chlorinated Herbicides by SW846 8151A									
Dalapon	34.7	U	34.7	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
Dicamba	34.7	U	34.7	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
Dichloroprop	34.7	U	34.7	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
2,4-D	34.7	U	34.7	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
2,4,5-TP (Silvex)	34.7	U	34.7	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
2,4,5-T	34.7	U	34.7	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
Dinoseb	34.7	U	34.7	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
2,4-DB	34.7	U	34.7	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
Surrogate: DCAA	*53 %*		*25-130*			*L206216*	*06/26/2012*	*06/29/2012*	*8151A*

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 07/02/2012 20:11

J1PRR9

1206058-02 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Chlorinated Herbicides by SW846 8151A									
Dalapon	34.2	U	34.2	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
Dicamba	34.2	U	34.2	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
Dichloroprop	34.2	U	34.2	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
2,4-D	34.2	U	34.2	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
2,4,5-TP (Silvex)	34.2	U	34.2	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
2,4,5-T	34.2	U	34.2	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
Dinoseb	34.2	U	34.2	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
2,4-DB	34.2	U	34.2	ug/kg dry	1	L206216	06/26/2012	06/29/2012	8151A
Surrogate: DCAA	*45 %*		*25-130*			*L206216*	*06/26/2012*	*06/29/2012*	*8151A*

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

WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 20:11

Chlorinated Herbicides by SW846 8151A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206216 - SW 8151A										
Blank (L206216-BLK1)				Prepared: 06/26/2012 Analyzed: 06/29/2012						
Dalapon	33.3	U	33.3	ug/kg wet						
Dicamba	33.3	U	33.3	ug/kg wet						
Dichloroprop	33.3	U	33.3	ug/kg wet						
2,4-D	33.3	U	33.3	ug/kg wet						
2,4,5-TP (Silvex)	33.3	U	33.3	ug/kg wet						
2,4,5-T	33.3	U	33.3	ug/kg wet						
Dinoseb	33.3	U	33.3	ug/kg wet						
2,4-DB	33.3	U	33.3	ug/kg wet						
Surrogate: DCAA	*98.8*			*ug/kg wet*	*166.67*		*59*	*25-130*		
LCS (L206216-BS1)				Prepared: 06/26/2012 Analyzed: 06/29/2012						
Dalapon	77.1		33.3	ug/kg wet	166.67		46	40-120		
Dicamba	142		33.3	ug/kg wet	166.67		85	40-120		
Dichloroprop	150		33.3	ug/kg wet	166.67		90	40-120		
2,4-D	120		33.3	ug/kg wet	166.67		72	40-120		
2,4,5-TP (Silvex)	164		33.3	ug/kg wet	166.67		98	50-120		
2,4,5-T	111		33.3	ug/kg wet	166.67		67	60-120		
Dinoseb	108		33.3	ug/kg wet	166.67		65	5-120		
2,4-DB	163		33.3	ug/kg wet	166.67		98	40-120		
Surrogate: DCAA	*113*			*ug/kg wet*	*166.67*		*68*	*25-130*		
Matrix Spike (L206216-MS1)		**Source: 1206058-01**		Prepared: 06/26/2012 Analyzed: 06/29/2012						
Dalapon	19.1	J	34.2	ug/kg dry	171.22	34.7 U	11*	40-120		
Dicamba	87.8		34.2	ug/kg dry	171.22	34.7 U	51	40-120		
Dichloroprop	122		34.2	ug/kg dry	171.22	34.7 U	72	40-120		
2,4-D	87.8		34.2	ug/kg dry	171.22	34.7 U	51	40-120		
2,4,5-TP (Silvex)	154		34.2	ug/kg dry	171.22	34.7 U	90	50-120		
2,4,5-T	98.2		34.2	ug/kg dry	171.22	34.7 U	57*	60-120		
Dinoseb	94.9		34.2	ug/kg dry	171.22	34.7 U	55	5-120		
2,4-DB	166		34.2	ug/kg dry	171.22	34.7 U	97	40-120		
Surrogate: DCAA	*127*			*ug/kg dry*	*171.22*		*74*	*25-130*		

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-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 07/02/2012 20:11

Chlorinated Herbicides by SW846 8151A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206216 - SW 8151A										
Matrix Spike Dup (L206216-MSD1)		**Source: 1206058-01**		Prepared: 06/26/2012 Analyzed: 06/29/2012						
Dalapon	33.7	U	33.7	ug/kg dry	168.63	34.7 U	*	40-120		40
Dicamba	33.7	U	33.7	ug/kg dry	168.63	34.7 U	*	40-120		40
Dichloroprop	40.3		33.7	ug/kg dry	168.63	34.7 U	24*	40-120	100*	40
2,4-D	33.7	U	33.7	ug/kg dry	168.63	34.7 U	*	40-120		40
2,4,5-TP (Silvex)	59.3		33.7	ug/kg dry	168.63	34.7 U	35*	50-120	87*	40
2,4,5-T	23.7	J	33.7	ug/kg dry	168.63	34.7 U	14*	60-120	121*	40
Dinoseb	87.9		33.7	ug/kg dry	168.63	34.7 U	52	5-120	6	40
2,4-DB	104		33.7	ug/kg dry	168.63	34.7 U	62	40-120	45*	40
Surrogate: DCAA	*62.5*			*ug/kg dry*	*168.63*		*37*	*25-130*		

PREPARATION BENCH SHEET

L206216

Lionville Laboratory

Printed: 6/29/2012 12:04:17PM

Matrix: Solid **Prepared using: GC - SW 8151A** **Surrogate used: 1200605**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206058-01	8151A Herbicides	06/26/2012 14:31	30.05	10				100	WC-Hanford, Inc.	
1206058-02	8151A Herbicides	06/26/2012 14:31	30.31	10				100	WC-Hanford, Inc.	
L206216-BLK1	QC	06/26/2012 14:31	30	10				100		
L206216-BS1	QC	06/26/2012 14:31	30	10	1200606		100	100		
L206216-MS1	QC	06/26/2012 14:31	30.5	10	1200606	1206058-01	100	100		
L206216-MSD1	QC	06/26/2012 14:31	30.97	10	1200606	1206058-01	100	100		

6/29/12 1204
Extracts Relinquished By Date

LC 6-29-12
Extracts Received By Date

8151A Herbicides
Analytes with %Difference or %Drift >15%, Where Mean is Used for Continuing Calibration

Analyte	CCV1 06.29.12 04:29:51 PM		CCV2 06.29.12 11:04.22 PM		CCV3		CCV4		CCV5		CCV6		CCV7		CCV8	
	Primary ok	Secondary ok	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary	Primary	Secondary
DCAA (surrogate)				✓												
2,4-D			✓	✓												
2,4-DB			✓													
2,4,5-T			✓													
2,4,5-TP (Silvex)			✓	✓												
Dalapon				✓												
Dicamba				✓												
Dichloroprop			✓													
Dinoseb			✓	✓												
Pentachlorophenol				✓												
MCPA NA																
MCPP NA																
Mean %D or %Drift			20.31	22.97												

Sample results reported from affected CCV:

CCV1: _____

CCV2: No hits

CCV3: _____

CCV4: _____

CCV5: _____

CCV6: _____

CCV7: _____

CCV8: _____

METALS

264 Welsh Pool Road
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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	06/26/2012 07:53

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PRR8	1206058-01	Soil	06/18/2012 12:40	06/19/2012 14:05
J1PRR9	1206058-02	Soil	06/18/2012 13:05	06/19/2012 14:05

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Case Narrative

Client: WC-HANFORD RC-198
LVL#: 1206058
SDG/SAF#: K3931/RC-198

W.O.#: 60049-001-001-0001-00
Date Received: 06-19-12

METALS

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

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

1. This narrative covers the analyses of 2 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) with the exception of CCB2 for Iron (65.0µg/L, RDL=50µg/L). The method blank L206156-MB1 was below client detection limit for Iron and the sample results for Iron were well above the reporting limit.

7. All preparation/method blanks (MB) were within method criteria {less than the Limit of Quantitation, or samples were greater than 20X MB value}. The Aluminum result for Method blank L206156-BLK1 does not exceed 5% of the measured concentration present in the associated samples. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

9. All Standard Reference Material (SRM) analytes were within the Prediction Interval control limits supplied by the manufacturer. There is no Uranium result for reference sample

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

L206156-SRM1 due to the standard reference material does not contain Uranium. The soil samples were reported for Uranium as per the project manager.

10. The matrix spike (MS) recoveries for 20 analytes were outside the 75-125% control limits.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J1PRR8	Aluminum	22,000	61.6
	Antimony	100	82.6
	Arsenic	100	84.4
	Barium	1,100	75.0
	Beryllium	100	81.8
	Boron	100	80.2
	Cadmium	100	84.8
	Chromium	100	73.2
	Cobalt	100	80.0
	Iron	42,000	33.8
	Lead	100	74.3
	Magnesium	21,600	53.6
	Molybdenum	100	83.2
	Nickel	100	77.6
	Selenium	100	81.7
	Silicon	2,100	66.1
	Silver	100	77.2
	Strontium	100	81.6
	Tin	100	75.7
	Uranium	1,000	74.0

12. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limit critieria. The ± 20% RPD control limit applies to sample results greater than ten times the MDL. The sample result for Boron was less than ten times the MDL.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

7/2/12
Date

alm/06-058ccbhg%.doc

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/26/2012 07:53

Notes and Definitions

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

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/26/2012 07:53

J1PRR8
1206058-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
			Lionville Laboratory						
Metals by SW846 6000/7000 series									
Aluminum	**5130**		4.35	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Antimony	0.522	U	0.522	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Arsenic	**1.87**		0.870	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Barium	**80.4**		0.435	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Beryllium	**0.217**		0.174	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Boron	**1.67**	B	1.74	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Cadmium	**0.0729**	B	0.174	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Calcium	**4270**		87.0	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Chromium	**8.49**		0.174	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Cobalt	**5.76**		1.74	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Copper	**11.1**		0.870	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Iron	**19200**		17.4	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Lead	**2.82**		0.435	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Lithium	**4.76**		2.18	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Magnesium	**3570**		65.3	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Manganese	**266**		4.35	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Molybdenum	**0.342**	B	1.74	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Nickel	**8.68**		3.48	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Potassium	**865**		348	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Selenium	0.261	U	0.261	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Silicon	**579**		1.74	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Silver	0.174	U	0.174	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Sodium	**208**		43.5	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Strontium	**24.1**		0.870	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Tin	8.70	U	8.70	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Uranium	17.4	U	17.4	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Vanadium	**56.5**		2.18	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Zinc	**37.1**		8.70	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Mercury	0.0254	U	0.0254	mg/kg dry	1	L206167	06/21/2012	06/21/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/26/2012 07:53

J1PRR9

1206058-02 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**4440**		3.46	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Antimony	0.415	U	0.415	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Arsenic	**1.42**		0.692	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Barium	**66.0**		0.346	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Beryllium	**0.191**		0.138	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Boron	**0.585**	B	1.38	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Cadmium	**0.0582**	B	0.138	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Calcium	**5380**		69.2	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Chromium	**11.3**		0.138	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Cobalt	**4.71**		1.38	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Copper	**11.2**		0.692	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Iron	**16300**		13.8	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Lead	**2.18**		0.346	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Lithium	**4.10**		1.73	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Magnesium	**2740**		51.9	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Manganese	**247**		3.46	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Molybdenum	**1.23**	B	1.38	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Nickel	**9.51**		2.77	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Potassium	**502**		277	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Selenium	0.208	U	0.208	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Silicon	**304**		1.38	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Silver	0.138	U	0.138	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Sodium	**212**		34.6	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Strontium	**23.4**		0.692	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Tin	**0.767**	B	6.92	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Uranium	13.8	U	13.8	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Vanadium	**49.0**		1.73	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Zinc	**33.7**		6.92	mg/kg dry	1	L206156	06/20/2012	06/21/2012	6010B
Mercury	**0.00943**	B	0.0246	mg/kg dry	1	L206167	06/21/2012	06/21/2012	7471A

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/26/2012 07:53

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 L206156 - SW 3050B										
Blank (L206156-BLK1)				Prepared: 06/20/2012 Analyzed: 06/21/2012						
Aluminum	4.70		3.91	mg/kg wet						
Antimony	0.469	U	0.469	mg/kg wet						
Arsenic	0.781	U	0.781	mg/kg wet						
Barium	0.391	U	0.391	mg/kg wet						
Beryllium	0.156	U	0.156	mg/kg wet						
Boron	1.56	U	1.56	mg/kg wet						
Cadmium	0.156	U	0.156	mg/kg wet						
Calcium	12.2	B	78.1	mg/kg wet						
Chromium	0.156	U	0.156	mg/kg wet						
Cobalt	1.56	U	1.56	mg/kg wet						
Copper	0.781	U	0.781	mg/kg wet						
Iron	15.6	U	15.6	mg/kg wet						
Lead	0.391	U	0.391	mg/kg wet						
Lithium	1.95	U	1.95	mg/kg wet						
Magnesium	2.64	B	58.6	mg/kg wet						
Manganese	3.91	U	3.91	mg/kg wet						
Molybdenum	1.56	U	1.56	mg/kg wet						
Nickel	3.12	U	3.12	mg/kg wet						
Potassium	312	U	312	mg/kg wet						
Selenium	0.234	U	0.234	mg/kg wet						
Silicon	1.56	U	1.56	mg/kg wet						
Silver	0.156	U	0.156	mg/kg wet						
Sodium	39.1	U	39.1	mg/kg wet						
Strontium	0.781	U	0.781	mg/kg wet						
Tin	0.816	B	7.81	mg/kg wet						
Uranium	15.6	U	15.6	mg/kg wet						
Vanadium	1.95	U	1.95	mg/kg wet						
Zinc	7.81	U	7.81	mg/kg wet						

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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 L206156 - SW 3050B										
Duplicate (L206156-DUP1)		**Source: 1206058-01**		Prepared: 06/20/2012 Analyzed: 06/21/2012						
Aluminum	5460		4.28	mg/kg dry		5130			6.18	20
Antimony	0.514	U	0.514	mg/kg dry		0.522 U				20
Arsenic	1.99		0.856	mg/kg dry		1.87			6.39	20
Barium	264		0.428	mg/kg dry		80.4			107*	20
Beryllium	0.225		0.171	mg/kg dry		0.217			3.66	20
Boron	1.18	B	1.71	mg/kg dry		1.67			34.5*	20
Cadmium	0.0870	B	0.171	mg/kg dry		0.0729			17.7	20
Calcium	4890		85.6	mg/kg dry		4270			13.6	20
Chromium	6.79		0.171	mg/kg dry		8.49			22.3*	20
Cobalt	5.45		1.71	mg/kg dry		5.76			5.50	20
Copper	10.9		0.856	mg/kg dry		11.1			2.20	20
Iron	19200		17.1	mg/kg dry		19200			0.0573	20
Lead	2.75		0.428	mg/kg dry		2.82			2.64	20
Lithium	4.77		2.14	mg/kg dry		4.76			0.142	20
Magnesium	3410		64.2	mg/kg dry		3570			4.77	20
Manganese	269		4.28	mg/kg dry		266			1.25	20
Molybdenum	0.334	B	1.71	mg/kg dry		0.342			2.09	20
Nickel	5.99		3.42	mg/kg dry		8.68			36.7*	20
Potassium	916		342	mg/kg dry		865			5.68	20
Selenium	0.257	U	0.257	mg/kg dry		0.261 U				20
Silicon	580		1.71	mg/kg dry		579			0.105	20
Silver	0.171	U	0.171	mg/kg dry		0.174 U				20
Sodium	217		42.8	mg/kg dry		208			4.22	20
Strontium	20.1		0.856	mg/kg dry		24.1			17.9	20
Tin	8.56	U	8.56	mg/kg dry		8.70 U				20
Uranium	17.1	U	17.1	mg/kg dry		17.4 U				20
Vanadium	55.3		2.14	mg/kg dry		56.5			2.22	20
Zinc	37.2		8.56	mg/kg dry		37.1			0.273	20

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/26/2012 07:53

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 L206156 - SW 3050B									
Matrix Spike (L206156-MS1)		**Source: 1206058-01**	Prepared: 06/20/2012 Analyzed: 06/21/2012						
Aluminum	6400	4.43	mg/kg dry	177.03	5130	716*	75-125		
Antimony	15.5	0.531	mg/kg dry	44.257	0.522 U	35.0*	75-125		
Arsenic	130	0.885	mg/kg dry	177.03	1.87	72.5*	75-125		
Barium	198	0.443	mg/kg dry	177.03	80.4	66.6*	75-125		
Beryllium	3.44	0.177	mg/kg dry	4.4257	0.217	72.9*	75-125		
Boron	61.0	1.77	mg/kg dry	88.514	1.67	67.0*	75-125		
Cadmium	3.21	0.177	mg/kg dry	4.4257	0.0729	70.9*	75-125		
Calcium	6480	88.5	mg/kg dry	2212.9	4270	99.8	75-125		
Chromium	19.0	0.177	mg/kg dry	17.703	8.49	59.3*	75-125		
Cobalt	36.9	1.77	mg/kg dry	44.257	5.76	70.5*	75-125		
Copper	28.5	0.885	mg/kg dry	22.129	11.1	78.5	75-125		
Iron	19800	17.7	mg/kg dry	88.514	19200	727*	75-125		
Lead	31.7	0.443	mg/kg dry	44.257	2.82	65.3*	75-125		
Lithium	73.8	2.21	mg/kg dry	88.514	4.76	78.0	75-125		
Magnesium	5020	66.4	mg/kg dry	2212.9	3570	65.4*	75-125		
Manganese	303	4.43	mg/kg dry	44.257	266	84.8	75-125		
Molybdenum	64.7	1.77	mg/kg dry	88.514	0.342	72.8*	75-125		
Nickel	37.0	3.54	mg/kg dry	44.257	8.68	64.1*	75-125		
Potassium	2530	354	mg/kg dry	2212.9	865	75.3	75-125		
Selenium	119	0.266	mg/kg dry	177.03	0.261 U	67.3*	75-125		
Silicon	747	1.77	mg/kg dry	88.514	579	189*	75-125		
Silver	3.23	0.177	mg/kg dry	4.4257	0.174 U	73.1*	75-125		
Sodium	2020	44.3	mg/kg dry	2212.9	208	81.8	75-125		
Strontium	88.3	0.885	mg/kg dry	88.514	24.1	72.5*	75-125		
Tin	58.3	8.85	mg/kg dry	88.514	8.70 U	65.8*	75-125		
Uranium	315	17.7	mg/kg dry	442.57	17.4 U	71.1*	75-125		
Vanadium	90.9	2.21	mg/kg dry	44.257	56.5	77.7	75-125		
Zinc	71.3	8.85	mg/kg dry	44.257	37.1	77.2	75-125		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 06/26/2012 07:53

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 L206156 - SW 3050B									
Reference (L206156-SRM1)			Prepared: 06/20/2012 Analyzed: 06/21/2012						
Aluminum	8210	9.74	mg/kg wet	6670.0		123	0-200.89		
Antimony	45.4	1.17	mg/kg wet	53.000		85.6	0-235.8		
Arsenic	110	1.95	mg/kg wet	114.00		96.5	82.8-117.54		
Barium	289	0.974	mg/kg wet	307.00		94.1	79.8-120.2		
Beryllium	103	0.390	mg/kg wet	108.00		95.8	82.8-117.6		
Boron	76.1	3.90	mg/kg wet	85.100		89.4	67.5-132.8		
Cadmium	218	0.390	mg/kg wet	225.00		96.8	83.6-116.4		
Calcium	3110	195	mg/kg wet	3360.0		92.6	83.3-116.9		
Chromium	74.6	0.390	mg/kg wet	77.200		96.6	73.3-126.4		
Cobalt	156	3.90	mg/kg wet	166.00		94.1	80.7-118.7		
Copper	260	1.95	mg/kg wet	271.00		96.0	80.8-119.2		
Iron	8090	39.0	mg/kg wet	8420.0		96.0	78.6-121.1		
Lead	169	0.974	mg/kg wet	190.00		89.1	81.6-118.4		
Lithium	115	4.87	mg/kg wet	114.00		101	50.9-148.2		
Magnesium	7800	146	mg/kg wet	8570.0		91.0	83.2-116.7		
Manganese	917	9.74	mg/kg wet	965.00		95.0	69.3-130.5		
Molybdenum	230	3.90	mg/kg wet	235.00		97.9	76.2-123.8		
Nickel	210	7.79	mg/kg wet	221.00		94.8	79.6-120.8		
Potassium	13600	779	mg/kg wet	14400		94.8	81.9-118.1		
Selenium	177	0.584	mg/kg wet	187.00		94.5	75.9-124.6		
Silicon	329	3.90	mg/kg wet	807.00		40.7	0-219.3		
Silver	79.3	0.390	mg/kg wet	83.500		95.0	82.7-117.1		
Sodium	8910	97.4	mg/kg wet	9730.0		91.6	82.5-117.2		
Strontium	176	1.95	mg/kg wet	175.00		101	69.7-130.3		
Tin	94.1	19.5	mg/kg wet	101.00		93.1	77.3-122.8		
Vanadium	98.0	4.87	mg/kg wet	98.700		99.3	75.9-123.6		
Zinc	190	19.5	mg/kg wet	199.00		95.6	78.4-121.6		

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	06/26/2012 07:53

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 L206167 - SW 7471A Prep										
Blank (L206167-BLK1)				Prepared & Analyzed: 06/21/2012						
Mercury	0.0281	U	0.0281	mg/kg wet						
Duplicate (L206167-DUP2)		**Source: 1206058-01**		Prepared & Analyzed: 06/21/2012						
Mercury	0.0247	U	0.0247	mg/kg dry		0.0254 U				20
Matrix Spike (L206167-MS2)		**Source: 1206058-01**		Prepared & Analyzed: 06/21/2012						
Mercury	0.151		0.0254	mg/kg dry	0.14114	0.0254 U	107	75-125		20
Reference (L206167-SRM1)				Prepared & Analyzed: 06/21/2012						
Mercury	1.27		0.0273	mg/kg wet	1.2900		98.8	62.6-138		

Lionville Laboratory

Logbook #: 1128

SAMPLE DIGESTION RECORD

Digestion Batch #: L206156
Date/Time Initiated: 6/20/12 1040
Date/Time Completed: 6/20/12 1550
Analyst: JJS
Matrix (circle): Soil Water Other
Method (circle one): 3005A 3010A 3050 200.7 (1994)
pH/Turbidity: N/A for Solids.

Digested / Undigested (circle one)
Balance #: B14
Balance Cal Verification: Y NA
Temp: 96
BLOCK 1 2 3 (circle one)

NOTE: All temperatures are recorded as corrected temperatures

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/TC	Texture	Color / Appearance	Artifact	Turb
1206058-01		0.60	50		TO	Fine	Brown	N/A	N/A
L206156-Rgl		0.61	50						
* -MS	0.5	0.59	50						
1206058-02		0.75	50			Fine	Brown/white		
L206156 MSA		0.64	50			coarse	Boiling clay		
SMS	0	0.77	50			Fine	pink sand		

JJS 6/20/12

Spiking IDs / Expiration Date:
MS#: 1200458 6/20/12
1200457
LCS#: 1101357

Reagent IDs:
HNO_3 K4A023
HCl L01031
H_2O_2 K09A03
1:1 HNO_3 637-066-02
1:1 HCl

File ID#:

Data Review By/Date: 6/21/12

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* 1200380 25ml

Page #:

PREPARATION BENCH SHEET

L206156

Lionville Laboratory

Printed: 6/20/2012 2:27:50PM

Matrix: Solid **Prepared using: METALS - SW 3050B** **(No Surrogate)**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206058-01	6010B HSL Metals	06/20/2012 10:32	0.6	50					WC-Hanford, Inc.	HSL + B, Li, Mo, Si, Sr, Sn, U (no TL)
1206058-02	6010B HSL Metals	06/20/2012 10:32	0.75	50					WC-Hanford, Inc.	HSL + B, Li, Mo, Si, Sr, Sn, U (no TL)
L206156-BLK1	QC	06/20/2012 10:32	0.64	50						
L206156-DUP1	QC	06/20/2012 10:32	0.61	50		1206058-01				
L206156-MS1	QC	06/20/2012 10:32	0.59	50	1200457	1206058-01	500			
L206156-SRM1	QC	06/20/2012 10:32	0.77	50	1101357		770			

JJS 6/20/12
Extracts Relinquished By Date

Brooke 06/20/12
Extracts Received By Date

Lionville Laboratory

MERCURY PREPARATION

Analyst: [illegible]
Date 6/21/12
Start Time/Temp: 1625/93°
End Time/Temp: 1658/97°

Instrument ID: HG3.2
Balance # B29 /NA
Pipette Calibration (Daily) (Y)

Logbook # 1132
Prep Batch: L206167
Worksheet: H0062102
SOP No. ME-HgCVAA
BLOCK (1) 2 (circle one)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
Blank				10ml	50	
0.2 µg/L		0.100		10ml	50	
1.0 µg/L		0.500		10ml	50	
2.0 µg/L		1.000		10ml	50	
5.0 µg/L		2.500		10ml	50	
10.0 µg/L		5.000		10ml	50	
ICV		0.125	2.5	10ml	50	
CCV		0.250	5.0	10ml	50	
ICB/CCB				10ml	50	
L206167-BLK1				0.32	50	
SRM1				0.33	50	
1206057-01				0.35	50	
L206167-DUP1				0.35	50	
MS1		0.500	1.0	0.36	50	
1206057-02				0.35	50	
03				0.34	50	
04				0.36	50	
05				0.33	50	
06				0.34	50	
07				0.39	50	
08				0.36	50	
1206058-01				0.37	50	
L206167-DUP2				0.38	50	
MS2		0.500	1.0	0.37	50	
1206058-02				0.38	50	
	MM 6/21/12					

Standard:	ID	Prep Date/Time
ICAL/MS	RI 1200588	6/21/12 1100
ICV/CCV/LCS	(I.V. 1201532)	N/A

Reviewed By/Date: [illegible] 6/22/12

se book # 9368 for std traceability information

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

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

ME-HgCVAA-Prep0910

Page #:

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INORGANICS

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 16:27

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PRR8	1206058-01	Soil	06/18/2012 12:40	06/19/2012 14:05
J1PRR9	1206058-02	Soil	06/18/2012 13:05	06/19/2012 14:05

LIONVILLE LABORATORY
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Case Narrative

Client: WC-HANFORD RC-198 K3931
LVL#: 1206058 **Date Received:** 06-19-12

INORGANIC NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

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

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

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

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

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 with the exception of Nitrate Nitrite at 54% that may be attributed to sample inhomogeneity.

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

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

for Carol Schrenkel
Iain Daniels
Laboratory Manager
Lionville Laboratory

7/2/12
Date

njp\i06-058

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 10 pages.

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Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 16:27

Notes and Definitions

U	Analyte included in the analysis, but not detected
B	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
*	Value outside QC acceptance criteria
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
Dry	Sample results reported on a dry weight basis
Wet	Sample results reported on a wet weight basis
RPD	Relative Percent Difference
LOD	Limit of Detection (LOD): the minimum estimated concentration of a target analyte that can be detected reliably. Concentrations at the LOD or between the LOD and LOQ are flagged estimated with either a 'J' qualifier or client-specific qualifier.
LOQ	Limit of Quantitation (LOQ): the minimum concentration of a target analyte that can be quantified reliably

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 16:27

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PRR8 (1206058-01) Soil									
%Solids	**95.7**		0.1	% by Weight	1	L206182	06/22/2012	06/22/2012	SM2540G
Bromide	1.0 U	1.0	5.2	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Chloride	1.0 U	1.0	5.2	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	5.2	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Nitrate	**4.1** B	1.0	5.2	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U	1.0	5.2	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Orthophosphate	2.1 U	2.1	10.4	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Sulfate	**3.4** B	1.0	5.2	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**1.70**	0.10	0.52	mg/kg dry	1	L206215	06/26/2012	06/26/2012	EPA 353.2
Cyanide	0.50 U	0.50	1.00	mg/kg dry	1	L206245	06/29/2012	07/02/2012	SW846 9014
Sulfide	41.8 U	41.8	104	mg/kg dry	1	L206178	06/21/2012	06/21/2012	SW846 9034
J1PRR9 (1206058-02) Soil									
%Solids	**96.3**		0.1	% by Weight	1	L206182	06/22/2012	06/22/2012	SM2540G
Bromide	1.0 U	1.0	4.9	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Chloride	**4.0** B	1.0	4.9	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Fluoride	1.0 U	1.0	4.9	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Nitrate	**10.6**	1.0	4.9	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Nitrite	1.0 U	1.0	4.9	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Orthophosphate	2.0 U	2.0	9.8	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Sulfate	**41.7**	1.0	4.9	mg/kg dry	1	L206214	06/26/2012	06/26/2012	EPA 300.0 (1993)
Nitrate/Nitrite as N	**2.55**	0.10	0.49	mg/kg dry	1	L206215	06/26/2012	06/26/2012	EPA 353.2
Cyanide	0.51 U	0.51	1.02	mg/kg dry	1	L206245	06/29/2012	07/02/2012	SW846 9014
Sulfide	41.5 U	41.5	104	mg/kg dry	1	L206178	06/21/2012	06/21/2012	SW846 9034

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 16:27

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206178 - SW 9030B										
Blank (L206178-BLK1)				Prepared & Analyzed: 06/21/2012						
Sulfide	40.0 U	40.0	100	mg/kg wet						
LCS (L206178-BS1)				Prepared & Analyzed: 06/21/2012						
Sulfide	216	40.0	100	mg/kg wet	211.56		102	80-120		
LCS (L206178-BS2)				Prepared & Analyzed: 06/21/2012						
Sulfide	225	40.0	100	mg/kg wet	198.25		113	80-120		
Duplicate (L206178-DUP1)	**Source: 1206058-01**			Prepared & Analyzed: 06/21/2012						
Sulfide	41.8 U	41.8	104	mg/kg dry		41.8 U				20
Matrix Spike (L206178-MS1)	**Source: 1206058-01**			Prepared & Analyzed: 06/21/2012						
Sulfide	223	41.8	104	mg/kg dry	216.41	41.8 U	103	75-125		
Batch L206182 - % Solids										
Duplicate (L206182-DUP2)	**Source: 1206058-01**			Prepared & Analyzed: 06/22/2012						
%Solids	95.5		0.1	% by Weight		95.7			0.2	20
Batch L206214 - Default Prep GenChem										
Blank (L206214-BLK1)				Prepared & Analyzed: 06/26/2012						
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	1.0 U	1.0	5.0	mg/kg wet						
Nitrate	1.0 U	1.0	5.0	mg/kg wet						
Nitrite	1.0 U	1.0	5.0	mg/kg wet						

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WC-Hanford, Inc.	Project: RC-198	
2620 Fermi Avenue	Project Number: K3931	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/02/2012 16:27

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206214 - Default Prep GenChem										
LCS (L206214-BS1)				Prepared & Analyzed: 06/26/2012						
Fluoride	49.9	1.0	5.0	mg/kg wet	50.000		99.8	80-120		
Chloride	46.8	1.0	5.0	mg/kg wet	50.000		93.6	80-120		
Bromide	48.5	1.0	5.0	mg/kg wet	50.000		97.0	80-120		
Orthophosphate	47.6	2.0	10.0	mg/kg wet	50.000		95.2	80-120		
Sulfate	48.1	1.0	5.0	mg/kg wet	50.000		96.2	80-120		
Nitrate	47.8	1.0	5.0	mg/kg wet	50.000		95.6	80-120		
Nitrite	48.9	1.0	5.0	mg/kg wet	50.000		97.8	80-120		
Duplicate (L206214-DUP1)		**Source: 1206058-01**		Prepared & Analyzed: 06/26/2012						
Fluoride	1.0 U	1.0	5.2	mg/kg dry		1.0 U				20
Chloride	1.0 U	1.0	5.2	mg/kg dry		1.0 U				20
Bromide	1.0 U	1.0	5.2	mg/kg dry		1.0 U				20
Orthophosphate	2.1 B	2.1	10.4	mg/kg dry		2.1 U				20
Sulfate	3.2 B	1.0	5.2	mg/kg dry		3.4			6.88	20
Nitrate	4.0 B	1.0	5.2	mg/kg dry		4.1			0.630	20
Nitrite	1.0 U	1.0	5.2	mg/kg dry		1.0 U				20
Matrix Spike (L206214-MS1)		**Source: 1206058-01**		Prepared & Analyzed: 06/26/2012						
Fluoride	54.1	1.0	5.2	mg/kg dry	51.502	1.0 U	105	75-125		
Chloride	51.4	1.0	5.2	mg/kg dry	51.502	1.0 U	99.8	75-125		
Bromide	51.9	1.0	5.2	mg/kg dry	51.502	1.0 U	101	75-125		
Orthophosphate	51.9	2.1	10.3	mg/kg dry	51.502	2.1 U	101	75-125		
Sulfate	55.5	1.0	5.2	mg/kg dry	51.502	3.4	101	75-125		
Nitrate	55.7	1.0	5.2	mg/kg dry	51.502	4.1	100	75-125		
Nitrite	52.9	1.0	5.2	mg/kg dry	51.502	1.0 U	103	75-125		
Batch L206215 - Default Prep GenChem										
Blank (L206215-BLK1)				Prepared & Analyzed: 06/26/2012						
Nitrate/Nitrite as N	0.10 U	0.10	0.49	mg/kg wet						

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-198 Project Number: K3931 Project Manager: Joan Kessner	**Reported:** 07/02/2012 16:27

Wet Chemistry - Quality Control
Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206215 - Default Prep GenChem										
LCS (L206215-BS1)				Prepared & Analyzed: 06/26/2012						
Nitrate/Nitrite as N	5.06	0.09	0.47	mg/kg wet	4.6671		108	90-110		
Duplicate (L206215-DUP1)	**Source: 1206058-01**			Prepared & Analyzed: 06/26/2012						
Nitrate/Nitrite as N	0.98	0.10	0.52	mg/kg dry		1.70			54.0*	20
Matrix Spike (L206215-MS1)	**Source: 1206058-01**			Prepared & Analyzed: 06/26/2012						
Nitrate/Nitrite as N	5.97	0.10	0.52	mg/kg dry	5.1502	1.70	83.0	75-125		
Batch L206245 - SW 9010B										
Blank (L206245-BLK1)				Prepared: 06/29/2012 Analyzed: 07/02/2012						
Cyanide	0.49 U	0.49	0.97	mg/kg wet						
LCS (L206245-BS1)				Prepared: 06/29/2012 Analyzed: 07/02/2012						
Cyanide	1.93	0.48	0.97	mg/kg wet	1.9320		100	80-120		
LCS (L206245-BS2)				Prepared: 06/29/2012 Analyzed: 07/02/2012						
Cyanide	9.21	0.48	0.96	mg/kg wet	9.5712		96.2	80-120		
Duplicate (L206245-DUP1)	**Source: 1206058-01**			Prepared: 06/29/2012 Analyzed: 07/02/2012						
Cyanide	0.48 U	0.48	0.97	mg/kg dry		0.50 U				20
Matrix Spike (L206245-MS1)	**Source: 1206058-01**			Prepared: 06/29/2012 Analyzed: 07/02/2012						
Cyanide	4.61	0.50	1.00	mg/kg dry	4.9984	0.50 U	92.2	75-125		

K3931

Lionville Laboratory Use Only: 1206058

Custody Transfer Record/Lab Work Request

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Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client W.C. Hanford SAF # RC-198
Est. Final Proj. Sampling Date
Project#
Project Contact/Phone#
Lionville Laboratory Project Manager Arletta Johnson
QC SW Del Std. TAT 15 days

Date Rec'd 6-19-12 Date Due 7-04-12

		A	B	C	D	E	F	G	H	I	J
Refrigerator #		2	2	2	2	2	2	2	2	2	2
#/Type Container	Liquid										
	Solid	1aal	1aal	1aal	1aal	1aal	1aal	1aal	1aal	1aal	1aal
Volume	Liquid										
	Solid	250	120	120	120	120	120	60	125	60	60
Preservatives		—	—	—	—	—	—	—	—	—	—
ANALYSES REQUESTED		VOA	BNA	Pest/PCB	Chlorp Herb	TPH-D	PAHS 8310	PCBs	(1) Metal + Hg	CN	SFD
		ORGANIC						INORG			

Lionville Laboratory Use Only

Lab ID	Client ID/Description (SDG#)	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8270	8081	8151	DRO	8310	8082	METALS	CYANIDE	SULFIDES	ANIONS	NBN2
01	JIPRR8			S	6-18-12	1240	X	X	X	X	X	X	X	X	X	X	X
02	JIPRR9			J	J	1305	X	X	X	X	X	X	X	X	X	X	X

K3931

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

Special Instructions:
① Met = HSL + B, Li, Mg, Si, Sr, Sn, Zr (no TL)

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

Relinquished by	Received by	Date	Time
FedEx	[signature]	6-19-12	14:05

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

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Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-198-013	Page 1 of 1
Collector: R STRICKLAND	Company Contact: Tom Edmundson	Telephone No.: 509.947.5192	Project Coordinator: KESSNER, JH	Price Code: 8K — Data Turnaround: 15 Days
Project Designation: 300 Area D4 - Soil Full Protocol	Sampling Location: Borrow Pit 9 Test Pits K3931		SAF No.: RC-198	
Ice Chest No.: WCH-11-055	Field Logbook No.: EL-1518-25	COA: RD4MXX2F00	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A11D 402		Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool to 4 degrees C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
Type of Container	G/P	G/P	G	G	G	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60mL	60mL	60mL	125mL	120mL	250mL	120mL	120mL	120mL	120mL
SAMPLE ANALYSIS (SDG# K3931)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Sulfides - 9030	Total Cyanide - 9010	TPH-Diesel Range - WTPH-D +	Semi-VOA - 8270A (TCL)	PAHs - 8310	PCBs - 8082	Pesticides - 8081	Chloro-Herbicides - EPA8151
Sample No. / Matrix * / Sample Date / Sample Time										
J1PRR8 / SOIL / 06/18/12 / 1240	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
J1PRR9 / SOIL / 06/18/12 / 1305	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R STRICKLAND WCH	06/18/12 1400	FED EX	
FED EX	6-19-12/14:05	[illegible]	6/19-12/1405

SPECIAL INSTRUCTIONS

N/A

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

(2) IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2 {Nitrogen in Nitrite and Nitrate}

REVIEWED BY SMS DATE 6/18/12

Matrix *

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

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

WCH-EE-011

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Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: W.C. Hanford Date: 6-19-12

Project/SAF/SOW/Release #: RC-198

LvL Batch #: 1206058 Sample Custodian: D. [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7985 2429 8310
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 3.5	°C	Cooler # WCH-11-55
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvL) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A
Person Contacted _____		Date _____	

SR-002-B.doc