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

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 5/22/12
INITIAL/DATE

COMMENTS:

SDG K3891 SAF RC-029

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Waste Site: 300-280

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

15 May 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 #	1205007
SDG #	K3891
SAF #	RC-029
Date Received	05/02/12
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	X
Pest/PCB	X
Glycols	
DRO/KRO/GRO	X
PAHs	X
Herbicides	
Metals	X
Inorganics	

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 67 pages.

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

CHAIN OF CUSTODY

Lionville Laboratory Use Only

1205007

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Lionville Laboratory
A Division of Eberline Analytical Corporation

Client WC. Hanford SAF# RC-029

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager Qulotte Johnson

QC SW Del SH TAT 15

Date Rec'd 5-2-12 Date Due 5-17-12

		A				B	C	D
Refrigerator #		2				2	2	2
#/Type Container	Liquid							
	Solid	1qal				1qal	1qal	1qal
Volume	Liquid							
	Solid	250				120	250	120
Preservatives		—				—	—	—
ANALYSES REQUESTED		ORGANIC						INORG
		VOA	BNA	~~Pest/~~ PCB	Herb	TPH-D	PAHs 8310	Metal + Hg / CN
		Lionville Laboratory Use Only						
			ABN 8270	PCB		DRO	8310	METD

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ABN 8270	PCB	DRO	8310	METD
01	JIN342	✓	✓	S	5-1-12	0915	X	X	X	X	X

Special Instructions:

METD = HSL + B, Mo, Si (NO TL)

Special Instructions:

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

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	5-2-12	0940

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-029-134

Collector	Company Contact: Joan Kessner Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 8C Data Turnaround: 15 Days
Project Designation: Remaining Sites Confirmation Sampling - Soil Full Protocol	Sampling Location: 300-280	SAF No.: RC-029	
Ice Chest No.: ~~NA~~ AF 5-1-12 RCC-07-002	Field Logbook No.: EL-1601-06 COA: C30280A000	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A116353	Bill of Lading/Air Bill No.: ~~NA~~ AF 5-1-12 See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

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

Special Handling and/or Storage

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

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C							
Type of Container	G/P	G	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	~~60mL~~ BH 5/1/12 120mL	120mL	~~120mL~~ BH 5/1/12 250mL	~~120mL~~ 250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	TPH-Diesel Range - WTPH-D +	PAHs - 8310	PCBs - 8082 SVOA 8260							
Sample No.	Matrix *	Sample Date	Sample Time								
J1N342	SOIL	BH 5/1/12 5/1/12	0915	X	X	X	X				
~~J1N343~~	SOIL										
~~J1N344~~	SOIL										
~~J1N345~~	SOIL										
~~J1N346~~ BH 5/1/12	SOIL										

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Quincy Stowe	5/1/12 1000	BHUDSON BHudson	5/1/12 1000
BHUDSON BHudson	5/1/12 1030	fridge 3 JOSHEA	5/1/12 1030
A. Freier	5-1-12 WCH 1335	Fed Ex	
[illegible]	5-2-12 0940	DSmith	5-2-12 0940

SPECIAL INSTRUCTIONS

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

5-1-12 CMB

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

REVIEWED BY CMB DATE 5-1-12

Matrix *

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

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

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC. Hanford
Project/SAF/SOW/Release #: RC-029

Date: 5-2-12

LvL Batch #: 1205007

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7935 1772 2076
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 3.9	°C	Cooler # RCC-07-002
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 _____	

SEMIVOLATILES

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/16/2012 09:58

Analytical Report for Semivolatile Organic Compounds by SW846 8270C

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1N342	1205007-01	Soil	05/01/2012 09:15	05/02/2012 09:40

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

Case Narrative

Client: WC-HANFORD RC-029 K3891
LVL #: 1205007

W.O. #: 60049-001-001-0001-00
Date Received: 05-02-2012

SEMIVOLATILE

One (1) soil sample was collected on 05-01-2012.

The sample and associated QC samples were extracted 05-03-2012 and analyzed 05-11,14-2012 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 client specified 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 a sample that met LvL's sample acceptance policy.

2. The sample was extracted and analyzed within holding time.

3. Due to the sample matrix, the samples had an elevated final volume of 4.0 mls. Reporting limits have been adjusted to reflect this change.

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

5. Three (3) samples required dilution due to the sample matrix. The samples J1N342, L205023-MS2 and L205023-MSD2 required a 3-fold dilution. Reporting limits have been adjusted to reflect the necessary dilutions.

6. All obtainable surrogate recoveries were within acceptance criteria.

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

8. One (1) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12MS099) has been enclosed.

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9. Ten (10) of one hundred and twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12MS099) has been enclosed. Several matrix spike recoveries were unobtainable due to dilution required for analysis.

10. The sample was reported on a dry weight basis.

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

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

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

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

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

Iain Daniels
LvL Laboratory Manager

5/16/12
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12MS099

Initiator: Shams Saylor
Date: 5-16-12
Client: WCHomland KJ851 11-019

Batch: 1205007
Samples: L205025-851, MS2, MSD2
Method: SW846/MCAWW/CLP/

Parameter: 8270C
Matrix: SOIL
Prep Batch: L205025

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-dichlorophenol in L205025-851
② low recovery of hexachlorocyclopentadiene and 2,4-dinitrophenol in L205025-msd2
③ low recovery of hexachloroethane, 2,4-dichlorophenol, hexachlorocyclopentadiene, 2,4,5-trichlorophenol, 2,4-dinitrophenol, 4-nitrophenol, and pentachlorophenol in L205025-ms2

2. Known or Probable Causes(s) ① Acidic phenols subject to erratic chromatographic behavior ② + ③ possible matrix effect samples required a 3 fold dilution for analysis, in addition had an elevated final volume of 4 mls.

RCS 5/16/12

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

Other Description: narrate

4. Project Manager Instructions...signature/date: 5/16/12
✓ 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: 5/16/12
__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

Other Explanation:

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

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

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

QA-139-A-0208

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. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/16/2012 09:58

J1N342
1205007-01 (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	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
1,2-Dichlorobenzene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
1,3-Dichlorobenzene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
1,4-Dichlorobenzene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2,4,5-Trichlorophenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2,4,6-Trichlorophenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2,4-Dichlorophenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2,4-Dimethylphenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2,4-Dinitrophenol	25000	U	25000	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2,4-Dinitrotoluene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2,6-Dinitrotoluene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2-Chloronaphthalene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2-Chlorophenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2-Methylnaphthalene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2-Methylphenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2-Nitroaniline	25000	U	25000	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
2-Nitrophenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
3,3'-Dichlorobenzidine	10000	U	10000	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
3-Nitroaniline	25000	U	25000	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
4,6-Dinitro-2-methylphenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
4-Bromophenyl Phenyl Ether	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
4-Chloro-3-methylphenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
4-Chloroaniline	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
4-Chlorophenyl Phenyl Ether	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
3- and/or 4-Methylphenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
4-Nitroaniline	25000	U	25000	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
4-Nitrophenol	25000	U	25000	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Acenaphthene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Acenaphthylene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Anthracene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Benz[a]anthracene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Benzo[a] pyrene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Benzo[b] fluoranthene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Benzo[g,h,i] perylene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Benzo[k] fluoranthene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Bis(2-chloroethoxy) methane	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C

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WC-Hanford, Inc.	Project: RC-029	
2620 Fermi Avenue	Project Number: K3891	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	05/16/2012 09:58

J1N342
1205007-01 (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	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Bis(2-chloroisopropyl) ether	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Bis(2-ethylhexyl) phthalate	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Butyl Benzyl Phthalate	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Carbazole	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Chrysene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Dibenz[a,h]anthracene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Dibenzofuran	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Diethyl Phthalate	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Dimethyl Phthalate	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Di-n-butyl Phthalate	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Di-n-octyl Phthalate	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Fluoranthene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Fluorene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Hexachlorobenzene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Hexachlorobutadiene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Hexachlorocyclopentadiene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Hexachloroethane	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Indeno[1,2,3-cd]pyrene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Isophorone	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Naphthalene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Nitrobenzene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
N-Nitrosodi-n-propylamine	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
N-Nitrosodiphenylamine	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Pentachlorophenol	25000	U	25000	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Phenanthrene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Phenol	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Pyrene	5010	U	5010	ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
TIC:Aldol Condensate 1	**4090**	D, J		ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
TIC:Aldol Condensate 2	**433000**	A, B, D, J		ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
TIC:Aldol Condensate 3	**2120**	D, J		ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
TIC:Unknown 1	**1210**	D, J		ug/kg dry	3	L205025	05/03/2012	05/14/2012	8270C
Surrogate: 2-Fluorophenol	*61 %*		*25-121*			*L205025*	*05/03/2012*	*05/14/2012*	*8270C*
Surrogate: Phenol-d5	*84 %*		*24-113*			*L205025*	*05/03/2012*	*05/14/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*70 %*		*23-120*			*L205025*	*05/03/2012*	*05/14/2012*	*8270C*
Surrogate: 2-Fluorobiphenyl	*74 %*		*30-115*			*L205025*	*05/03/2012*	*05/14/2012*	*8270C*

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Exton, PA 19341
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Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/16/2012 09:58

J1N342

1205007-01 (Soil)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2,4,6-Tribromophenol	*21 %*	*19-122*			*L205025*	*05/03/2012*	*05/14/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*89 %*	*18-137*			*L205025*	*05/03/2012*	*05/14/2012*	*8270C*

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

WC-Hanford, Inc.	Project: RC-029	
2620 Fermi Avenue	Project Number: K3891	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	05/16/2012 09:58

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 L205025 - SW 3540C										
Blank (L205025-BLK1)				Prepared: 05/03/2012 Analyzed: 05/11/2012						
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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Exton, PA 19341
Phone: 610-280-3000
Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/16/2012 09:58

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 L205025 - SW 3540C										
Blank (L205025-BLK1)				Prepared: 05/03/2012 Analyzed: 05/11/2012						
Bis(2-chloroethyl) ether	330	U	330	ug/kg wet						
Bis(2-chloroisopropyl) ether	330	U	330	ug/kg wet						
Bis(2-ethylhexyl) phthalate	330	U	330	ug/kg wet						
Butyl Benzyl Phthalate	330	U	330	ug/kg wet						
Carbazole	330	U	330	ug/kg wet						
Chrysene	330	U	330	ug/kg wet						
Dibenz[a,h]anthracene	330	U	330	ug/kg wet						
Dibenzofuran	330	U	330	ug/kg wet						
Diethyl Phthalate	330	U	330	ug/kg wet						
Dimethyl Phthalate	330	U	330	ug/kg wet						
Di-n-butyl Phthalate	330	U	330	ug/kg wet						
Di-n-octyl Phthalate	330	U	330	ug/kg wet						
Fluoranthene	330	U	330	ug/kg wet						
Fluorene	330	U	330	ug/kg wet						
Hexachlorobenzene	330	U	330	ug/kg wet						
Hexachlorobutadiene	330	U	330	ug/kg wet						
Hexachlorocyclopentadiene	330	U	330	ug/kg wet						
Hexachloroethane	330	U	330	ug/kg wet						
Indeno[1,2,3-cd]pyrene	330	U	330	ug/kg wet						
Isophorone	330	U	330	ug/kg wet						
Naphthalene	330	U	330	ug/kg wet						
Nitrobenzene	330	U	330	ug/kg wet						
N-Nitrosodi-n-propylamine	330	U	330	ug/kg wet						
N-Nitrosodiphenylamine	330	U	330	ug/kg wet						
Pentachlorophenol	1650	U	1650	ug/kg wet						
Phenanthrene	330	U	330	ug/kg wet						
Phenol	330	U	330	ug/kg wet						
Pyrene	330	U	330	ug/kg wet						
Unknown 1 TICS	845	J		ug/kg wet						
Trichloro-1-propene	924	J		ug/kg wet						
Aldol Condensate 2	446	A, J		ug/kg wet						
Aldol Condensate 3	1690	A, J		ug/kg wet						
Aldol Condensate 1	31400	A, J		ug/kg wet						
Surrogate: 2-Fluorophenol	*1990*			*ug/kg wet*	*2500.0*		*80*	*25-121*		
Surrogate: Phenol-d5	*1370*			*ug/kg wet*	*2500.0*		*55*	*24-113*		
Surrogate: Nitrobenzene-d5	*749*			*ug/kg wet*	*1666.7*		*45*	*23-120*		

PKW 5/16/12

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/16/2012 09:58

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 L205025 - SW 3540C									
Blank (L205025-BLK1)			Prepared: 05/03/2012 Analyzed: 05/11/2012						
Surrogate: 2-Fluorobiphenyl	*853*		*ug/kg wet*	*1666.7*		*51*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1270*		*ug/kg wet*	*2500.0*		*51*	*19-122*		
Surrogate: p-Terphenyl-d14	*1130*		*ug/kg wet*	*1666.7*		*68*	*18-137*		
LCS (L205025-BS1)			Prepared: 05/03/2012 Analyzed: 05/11/2012						
1,2,4-Trichlorobenzene	1520		ug/kg wet	2000.0		76	45-110		
1,2-Dichlorobenzene	1330		ug/kg wet	2000.0		67	45-105		
1,3-Dichlorobenzene	1310		ug/kg wet	2000.0		65	40-100		
1,4-Dichlorobenzene	1370		ug/kg wet	2000.0		68	35-105		
2,4,5-Trichlorophenol	1410		ug/kg wet	2000.0		70	30-140		
2,4,6-Trichlorophenol	1110		ug/kg wet	2000.0		56	20-110		
2,4-Dichlorophenol	1630		ug/kg wet	2000.0		81	40-110		
2,4-Dimethylphenol	1490		ug/kg wet	2000.0		74	30-105		
2,4-Dinitrophenol	335		ug/kg wet	2000.0		17*	25-130		
2,4-Dinitrotoluene	1490		ug/kg wet	2000.0		75	50-115		
2,6-Dinitrotoluene	1450		ug/kg wet	2000.0		72	40-120		
2-Chloronaphthalene	1390		ug/kg wet	2000.0		69	45-115		
2-Chlorophenol	1410		ug/kg wet	2000.0		70	45-105		
2-Methylnaphthalene	1240		ug/kg wet	2000.0		62	45-110		
2-Methylphenol	1400		ug/kg wet	2000.0		70	40-120		
2-Nitroaniline	1460		ug/kg wet	2000.0		73	45-120		
2-Nitrophenol	1630		ug/kg wet	2000.0		81	40-110		
3,3'-Dichlorobenzidine	1520		ug/kg wet	2000.0		76	15-130		
3-Nitroaniline	1640		ug/kg wet	2000.0		82	40-130		
4,6-Dinitro-2-methylphenol	581		ug/kg wet	2000.0		29	20-140		
4-Bromophenyl Phenyl Ether	1460		ug/kg wet	2000.0		73	45-115		
4-Chloro-3-methylphenol	1390		ug/kg wet	2000.0		70	35-115		
4-Chloroaniline	1340		ug/kg wet	2000.0		67	10-100		
4-Chlorophenyl Phenyl Ether	1480		ug/kg wet	2000.0		74	45-110		
3- and/or 4-Methylphenol	1350		ug/kg wet	2000.0		67	40-120		
4-Nitroaniline	1530		ug/kg wet	2000.0		76	40-130		
4-Nitrophenol	1600		ug/kg wet	2000.0		80	15-140		
Acenaphthene	1420		ug/kg wet	2000.0		71	45-110		
Acenaphthylene	1230		ug/kg wet	2000.0		61	45-115		
Anthracene	1480		ug/kg wet	2000.0		74	45-130		
Benz[a]anthracene	1600		ug/kg wet	2000.0		80	45-130		
Benzo[a] pyrene	1510		ug/kg wet	2000.0		76	45-130		

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/16/2012 09:58

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 L205025 - SW 3540C									
LCS (L205025-BS1)			Prepared: 05/03/2012 Analyzed: 05/11/2012						
Benzo[b] fluoranthene	1580		ug/kg wet	2000.0		79	40-130		
Benzo[g,h,i] perylene	1470		ug/kg wet	2000.0		74	45-125		
Benzo[k] fluoranthene	1630		ug/kg wet	2000.0		82	45-125		
Bis(2-chloroethoxy) methane	1520		ug/kg wet	2000.0		76	45-110		
Bis(2-chloroethyl) ether	1510		ug/kg wet	2000.0		75	40-110		
Bis(2-chloroisopropyl) ether	1350		ug/kg wet	2000.0		67	30-115		
Bis(2-ethylhexyl) phthalate	1770		ug/kg wet	2000.0		89	40-145		
Butyl Benzyl Phthalate	1650		ug/kg wet	2000.0		83	50-125		
Carbazole	1650		ug/kg wet	2000.0		82	40-140		
Chrysene	1660		ug/kg wet	2000.0		83	45-130		
Dibenz[a,h]anthracene	1660		ug/kg wet	2000.0		83	45-125		
Dibenzofuran	1490		ug/kg wet	2000.0		75	45-120		
Diethyl Phthalate	1460		ug/kg wet	2000.0		73	50-125		
Dimethyl Phthalate	1340		ug/kg wet	2000.0		67	45-130		
Di-n-butyl Phthalate	1510		ug/kg wet	2000.0		76	50-130		
Di-n-octyl Phthalate	1800		ug/kg wet	2000.0		90	40-150		
Fluoranthene	1520		ug/kg wet	2000.0		76	45-130		
Fluorene	1480		ug/kg wet	2000.0		74	45-120		
Hexachlorobenzene	1570		ug/kg wet	2000.0		78	45-130		
Hexachlorobutadiene	1410		ug/kg wet	2000.0		71	45-105		
Hexachlorocyclopentadiene	451		ug/kg wet	2000.0		23	10-100		
Hexachloroethane	1290		ug/kg wet	2000.0		64	35-110		
Indeno[1,2,3-cd]pyrene	1520		ug/kg wet	2000.0		76	45-130		
Isophorone	1600		ug/kg wet	2000.0		80	40-110		
Naphthalene	1550		ug/kg wet	2000.0		78	40-110		
Nitrobenzene	1640		ug/kg wet	2000.0		82	40-105		
N-Nitrosodi-n-propylamine	1480		ug/kg wet	2000.0		74	30-130		
N-Nitrosodiphenylamine	1380		ug/kg wet	2000.0		69	50-120		
Pentachlorophenol	719		ug/kg wet	2000.0		36	25-120		
Phenanthrene	1540		ug/kg wet	2000.0		77	50-120		
Phenol	1290		ug/kg wet	2000.0		64	40-115		
Pyrene	1480		ug/kg wet	2000.0		74	45-125		
Surrogate: 2-Fluorophenol	*1920*		*ug/kg wet*	*2500.0*		*77*	*25-121*		
Surrogate: Phenol-d5	*2010*		*ug/kg wet*	*2500.0*		*80*	*24-113*		
Surrogate: Nitrobenzene-d5	*1480*		*ug/kg wet*	*1666.7*		*89*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1190*		*ug/kg wet*	*1666.7*		*71*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*1290*		*ug/kg wet*	*2500.0*		*51*	*19-122*		

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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-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/16/2012 09:58

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 L205025 - SW 3540C										
LCS (L205025-BS1)				Prepared: 05/03/2012 Analyzed: 05/11/2012						
Surrogate: p-Terphenyl-d14	*1350*			*ug/kg wet*	*1666.7*		*81*	*18-137*		
Matrix Spike (L205025-MS2)		**Source: 1205007-01**		Prepared: 05/03/2012 Analyzed: 05/14/2012						
1,2,4-Trichlorobenzene	1580	D		ug/kg dry	2502.6	5010 U	63	45-110		
1,2-Dichlorobenzene	1390	D		ug/kg dry	2502.6	5010 U	56	45-105		
1,3-Dichlorobenzene	1150	D		ug/kg dry	2502.6	5010 U	46	40-100		
1,4-Dichlorobenzene	1220	D		ug/kg dry	2502.6	5010 U	49	35-105		
2,4,5-Trichlorophenol	726	D		ug/kg dry	2502.6	5010 U	29*	30-140		
2,4,6-Trichlorophenol	733	D		ug/kg dry	2502.6	5010 U	29	20-110		
2,4-Dichlorophenol	612	D		ug/kg dry	2502.6	5010 U	24*	40-110		
2,4-Dimethylphenol	1480	D		ug/kg dry	2502.6	5010 U	59	30-105		
2,4-Dinitrophenol	0.00	U		ug/kg dry	2502.6	25000 U	*	25-130		
2,4-Dinitrotoluene	1330	D		ug/kg dry	2502.6	5010 U	53	50-115		
2,6-Dinitrotoluene	1670	D		ug/kg dry	2502.6	5010 U	67	40-120		
2-Chloronaphthalene	1810	D		ug/kg dry	2502.6	5010 U	72	45-115		
2-Chlorophenol	1230	D		ug/kg dry	2502.6	5010 U	49	45-105		
2-Methylnaphthalene	1720	D		ug/kg dry	2502.6	5010 U	69	45-110		
2-Methylphenol	1670	D		ug/kg dry	2502.6	5010 U	67	40-120		
2-Nitroaniline	1590	D		ug/kg dry	2502.6	25000 U	64	45-120		
2-Nitrophenol	1380	D		ug/kg dry	2502.6	5010 U	55	40-110		
3,3'-Dichlorobenzidine	981	D		ug/kg dry	2502.6	10000 U	39	15-130		
3-Nitroaniline	1460	D		ug/kg dry	2502.6	25000 U	58	40-130		
4,6-Dinitro-2-methylphenol	40.8	D		ug/kg dry	2502.6	5010 U	2*	20-140		
4-Bromophenyl Phenyl Ether	1770	D		ug/kg dry	2502.6	5010 U	71	45-115		
4-Chloro-3-methylphenol	1490	D		ug/kg dry	2502.6	5010 U	60	35-115		
4-Chloroaniline	1670	D		ug/kg dry	2502.6	5010 U	67	10-100		
4-Chlorophenyl Phenyl Ether	1830	D		ug/kg dry	2502.6	5010 U	73	45-110		
3- and/or 4-Methylphenol	1720	D		ug/kg dry	2502.6	5010 U	69	40-120		
4-Nitroaniline	1470	D		ug/kg dry	2502.6	25000 U	59	40-130		
4-Nitrophenol	313	D		ug/kg dry	2502.6	25000 U	13*	15-140		
Acenaphthene	1940	D		ug/kg dry	2502.6	5010 U	77	45-110		
Acenaphthylene	1500	D		ug/kg dry	2502.6	5010 U	60	45-115		
Anthracene	1820	D		ug/kg dry	2502.6	5010 U	73	45-130		
Benz[a]anthracene	1880	D		ug/kg dry	2502.6	5010 U	75	45-130		
Benzo[a] pyrene	1380	D		ug/kg dry	2502.6	5010 U	55	45-130		
Benzo[b] fluoranthene	1670	D		ug/kg dry	2502.6	5010 U	67	40-130		
Benzo[g,h,i] perylene	1370	D		ug/kg dry	2502.6	5010 U	55	45-125		

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/16/2012 09:58

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 L205025 - SW 3540C										
Matrix Spike (L205025-MS2)		**Source: 1205007-01**		Prepared: 05/03/2012 Analyzed: 05/14/2012						
Benzo[k] fluoranthene	1690	D		ug/kg dry	2502.6	5010 U	67	45-125		
Bis(2-chloroethoxy) methane	1900	D		ug/kg dry	2502.6	5010 U	76	45-110		
Bis(2-chloroethyl) ether	1820	D		ug/kg dry	2502.6	5010 U	73	40-110		
Bis(2-chloroisopropyl) ether	1800	D		ug/kg dry	2502.6	5010 U	72	30-115		
Bis(2-ethylhexyl) phthalate	1530	D		ug/kg dry	2502.6	5010 U	61	40-145		
Butyl Benzyl Phthalate	2010	D		ug/kg dry	2502.6	5010 U	80	50-125		
Carbazole	1810	D		ug/kg dry	2502.6	5010 U	72	40-140		
Chrysene	2130	D		ug/kg dry	2502.6	5010 U	85	45-130		
Dibenz[a,h]anthracene	1260	D		ug/kg dry	2502.6	5010 U	50	45-125		
Dibenzofuran	1880	D		ug/kg dry	2502.6	5010 U	75	45-120		
Diethyl Phthalate	1870	D		ug/kg dry	2502.6	5010 U	75	50-125		
Dimethyl Phthalate	1860	D		ug/kg dry	2502.6	5010 U	74	45-130		
Di-n-butyl Phthalate	1820	D		ug/kg dry	2502.6	5010 U	73	50-130		
Di-n-octyl Phthalate	1220	D		ug/kg dry	2502.6	5010 U	49	40-150		
Fluoranthene	1830	D		ug/kg dry	2502.6	5010 U	73	45-130		
Fluorene	1810	D		ug/kg dry	2502.6	5010 U	72	45-120		
Hexachlorobenzene	1890	D		ug/kg dry	2502.6	5010 U	75	45-130		
Hexachlorobutadiene	1390	D		ug/kg dry	2502.6	5010 U	56	45-105		
Hexachlorocyclopentadiene	0.00	U		ug/kg dry	2502.6	5010 U	*	10-100		
Hexachloroethane	781	D		ug/kg dry	2502.6	5010 U	31*	35-110		
Indeno[1,2,3-cd]pyrene	1260	D		ug/kg dry	2502.6	5010 U	50	45-130		
Isophorone	1710	D		ug/kg dry	2502.6	5010 U	68	40-110		
Naphthalene	2050	D		ug/kg dry	2502.6	5010 U	82	40-110		
Nitrobenzene	1810	D		ug/kg dry	2502.6	5010 U	73	40-105		
N-Nitrosodi-n-propylamine	1810	D		ug/kg dry	2502.6	5010 U	72	30-130		
N-Nitrosodiphenylamine	1840	D		ug/kg dry	2502.6	5010 U	74	50-120		
Pentachlorophenol	260	D		ug/kg dry	2502.6	25000 U	10*	25-120		
Phenanthrene	2020	D		ug/kg dry	2502.6	5010 U	81	50-120		
Phenol	1860	D		ug/kg dry	2502.6	5010 U	74	40-115		
Pyrene	2070	D		ug/kg dry	2502.6	5010 U	83	45-125		
Surrogate: 2-Fluorophenol	*1960*			*ug/kg dry*	*3128.3*		*63*	*25-121*		
Surrogate: Phenol-d5	*2620*			*ug/kg dry*	*3128.3*		*84*	*24-113*		
Surrogate: Nitrobenzene-d5	*1580*			*ug/kg dry*	*2085.5*		*76*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1700*			*ug/kg dry*	*2085.5*		*82*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*930*			*ug/kg dry*	*3128.3*		*30*	*19-122*		
Surrogate: p-Terphenyl-d14	*1860*			*ug/kg dry*	*2085.5*		*89*	*18-137*		

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/16/2012 09:58

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 L205025 - SW 3540C										
Matrix Spike Dup (L205025-MSD2)		**Source: 1205007-01**		Prepared: 05/03/2012 Analyzed: 05/14/2012						
1,2,4-Trichlorobenzene	1540	D		ug/kg dry	2461.8	5010 U	62	45-110	1	40
1,2-Dichlorobenzene	1370	D		ug/kg dry	2461.8	5010 U	56	45-105	0.1	40
1,3-Dichlorobenzene	1130	D		ug/kg dry	2461.8	5010 U	46	40-100	0.4	40
1,4-Dichlorobenzene	1200	D		ug/kg dry	2461.8	5010 U	49	35-105	0.3	40
2,4,5-Trichlorophenol	1320	D		ug/kg dry	2461.8	5010 U	54	30-140	60*	40
2,4,6-Trichlorophenol	927	D		ug/kg dry	2461.8	5010 U	38	20-110	25	40
2,4-Dichlorophenol	1620	D		ug/kg dry	2461.8	5010 U	66	40-110	92*	40
2,4-Dimethylphenol	1540	D		ug/kg dry	2461.8	5010 U	63	30-105	6	40
2,4-Dinitrophenol	336	D		ug/kg dry	2461.8	25000 U	14*	25-130		40
2,4-Dinitrotoluene	1720	D		ug/kg dry	2461.8	5010 U	70	50-115	27	40
2,6-Dinitrotoluene	1880	D		ug/kg dry	2461.8	5010 U	76	40-120	13	40
2-Chloronaphthalene	1870	D		ug/kg dry	2461.8	5010 U	76	45-115	5	40
2-Chlorophenol	1700	D		ug/kg dry	2461.8	5010 U	69	45-105	34	40
2-Methylnaphthalene	1760	D		ug/kg dry	2461.8	5010 U	71	45-110	4	40
2-Methylphenol	1780	D		ug/kg dry	2461.8	5010 U	72	40-120	8	40
2-Nitroaniline	1770	D		ug/kg dry	2461.8	25000 U	72	45-120	12	40
2-Nitrophenol	1540	D		ug/kg dry	2461.8	5010 U	63	40-110	13	40
3,3'-Dichlorobenzidine	1100	D		ug/kg dry	2461.8	10000 U	45	15-130	13	40
3-Nitroaniline	1690	D		ug/kg dry	2461.8	25000 U	69	40-130	16	40
4,6-Dinitro-2-methylphenol	1120	D		ug/kg dry	2461.8	5010 U	45	20-140	186*	40
4-Bromophenyl Phenyl Ether	2000	D		ug/kg dry	2461.8	5010 U	81	45-115	14	40
4-Chloro-3-methylphenol	1810	D		ug/kg dry	2461.8	5010 U	74	35-115	21	40
4-Chloroaniline	1720	D		ug/kg dry	2461.8	5010 U	70	10-100	5	40
4-Chlorophenyl Phenyl Ether	1950	D		ug/kg dry	2461.8	5010 U	79	45-110	8	40
3- and/or 4-Methylphenol	1840	D		ug/kg dry	2461.8	5010 U	75	40-120	8	40
4-Nitroaniline	1610	D		ug/kg dry	2461.8	25000 U	65	40-130	11	40
4-Nitrophenol	777	D		ug/kg dry	2461.8	25000 U	32	15-140	86*	40
Acenaphthene	2060	D		ug/kg dry	2461.8	5010 U	84	45-110	8	40
Acenaphthylene	1690	D		ug/kg dry	2461.8	5010 U	69	45-115	13	40
Anthracene	2030	D		ug/kg dry	2461.8	5010 U	82	45-130	13	40
Benz[a]anthracene	2000	D		ug/kg dry	2461.8	5010 U	81	45-130	8	40
Benzo[a] pyrene	1520	D		ug/kg dry	2461.8	5010 U	62	45-130	11	40
Benzo[b] fluoranthene	1770	D		ug/kg dry	2461.8	5010 U	72	40-130	7	40
Benzo[g,h,i] perylene	1520	D		ug/kg dry	2461.8	5010 U	62	45-125	13	40
Benzo[k] fluoranthene	1770	D		ug/kg dry	2461.8	5010 U	72	45-125	6	40
Bis(2-chloroethoxy) methane	1830	D		ug/kg dry	2461.8	5010 U	74	45-110	2	40

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Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/16/2012 09:58

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 L205025 - SW 3540C										
Matrix Spike Dup (L205025-MSD2)		**Source: 1205007-01**		Prepared: 05/03/2012 Analyzed: 05/14/2012						
Bis(2-chloroethyl) ether	1720	D		ug/kg dry	2461.8	5010 U	70	40-110	4	40
Bis(2-chloroisopropyl) ether	1630	D		ug/kg dry	2461.8	5010 U	66	30-115	8	40
Bis(2-ethylhexyl) phthalate	1630	D		ug/kg dry	2461.8	5010 U	66	40-145	7	40
Butyl Benzyl Phthalate	2190	D		ug/kg dry	2461.8	5010 U	89	50-125	10	40
Carbazole	2100	D		ug/kg dry	2461.8	5010 U	85	40-140	16	40
Chrysene	2190	D		ug/kg dry	2461.8	5010 U	89	45-130	5	40
Dibenz[a,h]anthracene	1510	D		ug/kg dry	2461.8	5010 U	61	45-125	19	40
Dibenzofuran	2090	D		ug/kg dry	2461.8	5010 U	85	45-120	12	40
Diethyl Phthalate	2120	D		ug/kg dry	2461.8	5010 U	86	50-125	14	40
Dimethyl Phthalate	2060	D		ug/kg dry	2461.8	5010 U	84	45-130	12	40
Di-n-butyl Phthalate	2040	D		ug/kg dry	2461.8	5010 U	83	50-130	13	40
Di-n-octyl Phthalate	1350	D		ug/kg dry	2461.8	5010 U	55	40-150	12	40
Fluoranthene	1900	D		ug/kg dry	2461.8	5010 U	77	45-130	5	40
Fluorene	2010	D		ug/kg dry	2461.8	5010 U	81	45-120	12	40
Hexachlorobenzene	2130	D		ug/kg dry	2461.8	5010 U	86	45-130	13	40
Hexachlorobutadiene	1370	D		ug/kg dry	2461.8	5010 U	56	45-105	0.2	40
Hexachlorocyclopentadiene	74.8	D		ug/kg dry	2461.8	5010 U	3*	10-100		40
Hexachloroethane	911	D		ug/kg dry	2461.8	5010 U	37	35-110	17	40
Indeno[1,2,3-cd]pyrene	1550	D		ug/kg dry	2461.8	5010 U	63	45-130	22	40
Isophorone	1680	D		ug/kg dry	2461.8	5010 U	68	40-110	0.2	40
Naphthalene	1960	D		ug/kg dry	2461.8	5010 U	80	40-110	3	40
Nitrobenzene	1670	D		ug/kg dry	2461.8	5010 U	68	40-105	7	40
N-Nitrosodi-n-propylamine	1840	D		ug/kg dry	2461.8	5010 U	75	30-130	3	40
N-Nitrosodiphenylamine	2060	D		ug/kg dry	2461.8	5010 U	84	50-120	13	40
Pentachlorophenol	650	D		ug/kg dry	2461.8	25000 U	26	25-120	87*	40
Phenanthrene	2230	D		ug/kg dry	2461.8	5010 U	90	50-120	12	40
Phenol	1960	D		ug/kg dry	2461.8	5010 U	80	40-115	7	40
Pyrene	2300	D		ug/kg dry	2461.8	5010 U	93	45-125	12	40
Surrogate: 2-Fluorophenol	*2040*			*ug/kg dry*	*3077.2*		*66*	*25-121*		
Surrogate: Phenol-d5	*2420*			*ug/kg dry*	*3077.2*		*79*	*24-113*		
Surrogate: Nitrobenzene-d5	*1300*			*ug/kg dry*	*2051.5*		*64*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*1560*			*ug/kg dry*	*2051.5*		*76*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*926*			*ug/kg dry*	*3077.2*		*30*	*19-122*		
Surrogate: p-Terphenyl-d14	*1870*			*ug/kg dry*	*2051.5*		*91*	*18-137*		

PREPARATION BENCH SHEET

L205025

Lionville Laboratory

Printed: 5/7/2012 1:37:43PM

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
1205006-01	8270C TCL SVOC	05/03/2012 13:03	30.27	1				500	WC-Hanford, Inc.	
1205007-01	8270C TCL SVOC	05/03/2012 13:03	30.42	4				500	WC-Hanford, Inc.	
1205008-01	8270C TCL SVOC	05/03/2012 13:03	30.52	4				500	WC-Hanford, Inc.	
1205008-02	8270C TCL SVOC	05/03/2012 13:03	20.88	4				500	WC-Hanford, Inc.	
1205008-03	8270C TCL SVOC	05/03/2012 13:03	31.84	4				500	WC-Hanford, Inc.	
1205008-04	8270C TCL SVOC	05/03/2012 13:03	22.94	1				500	WC-Hanford, Inc.	
L205025-BLK1	QC	05/03/2012 13:03	30	1				500		
L205025-BS1	QC	05/03/2012 13:03	30	1	1200337		600	500		
L205025-MS1	QC	05/03/2012 13:03	30.5	1	1200337	1205006-01	600	500		
L205025-MS2	QC	05/03/2012 13:03	30.73	4	1200337	1205007-01	600	500		
L205025-MS3	QC	05/03/2012 13:03	21.3	4	1200337	1205008-02	600	500		
L205025-MSD1	QC	05/03/2012 13:03	31.21	1	1200337	1205006-01	600	500		
L205025-MSD2	QC	05/03/2012 13:03	31.24	4	1200337	1205007-01	600	500		
L205025-MSD3	QC	05/03/2012 13:03	20.99	4	1200337	1205008-02	600	500		

Extracts Relinquished By 5/7/12 1350 Date

Extracts Received By 5/7/12 1400 Date

PCBS

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/12/2012 08:41

Analytical Report for Polychlorinated Biphenyls by SW846 8082

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1N342	1205007-01	Soil	05/01/2012 09:15	05/02/2012 09:40

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

Case Narrative

Client: WC-HANFORD RC-029 K3891
LVL #: 1205007

W.O. #: 60049-001-001-0001-00
Received: 05-02-2012

PCBs

One (1) soil sample was collected on 05-01-2012.

The sample and associated QC samples were extracted 05-03-2012 and analyzed 05-08,10-2012 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 a sample that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The sample was extracted with a reduced initial volume. Reporting limits have been adjusted to reflect the necessary changes.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. The method blank was below the reporting limits for all target compounds.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. The sample was 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.

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.

Iain Daniels
LvL Laboratory Manager

5/14/12
Date

LIONVILLE LABORATORY INC.

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-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/12/2012 08:41

J1N342
1205007-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	47.1	U	47.1	ug/kg dry	1	L205024	05/03/2012	05/10/2012	8082
Aroclor 1221	47.1	U	47.1	ug/kg dry	1	L205024	05/03/2012	05/10/2012	8082
Aroclor 1232	47.1	U	47.1	ug/kg dry	1	L205024	05/03/2012	05/10/2012	8082
Aroclor 1242	47.1	U	47.1	ug/kg dry	1	L205024	05/03/2012	05/10/2012	8082
Aroclor 1248	47.1	U	47.1	ug/kg dry	1	L205024	05/03/2012	05/10/2012	8082
Aroclor 1254	**83.1**		47.1	ug/kg dry	1	L205024	05/03/2012	05/10/2012	8082
Aroclor 1260	**28.2**	J	47.1	ug/kg dry	1	L205024	05/03/2012	05/10/2012	8082
Aroclor 1262	47.1	U	47.1	ug/kg dry	1	L205024	05/03/2012	05/10/2012	8082
Aroclor 1268	47.1	U	47.1	ug/kg dry	1	L205024	05/03/2012	05/10/2012	8082
Surrogate: Decachlorobiphenyl	*110 %*		*43-144*			*L205024*	*05/03/2012*	*05/10/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*95 %*		*52-141*			*L205024*	*05/03/2012*	*05/10/2012*	*8082*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/12/2012 08:41

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 L205024 - SW 3540C										
Blank (L205024-BLK1)				Prepared: 05/03/2012 Analyzed: 05/08/2012						
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	*33.3*			*ug/kg wet*	*33.333*		*100*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*35.7*			*ug/kg wet*	*33.337*		*107*	*52-141*		
LCS (L205024-BS1)				Prepared: 05/03/2012 Analyzed: 05/08/2012						
Aroclor 1016	143		13.3	ug/kg wet	166.67		86	50-138		40
Aroclor 1260	161		13.3	ug/kg wet	166.67		97	50-148		40
Surrogate: Decachlorobiphenyl	*32.7*			*ug/kg wet*	*33.333*		*98*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*35.0*			*ug/kg wet*	*33.337*		*105*	*52-141*		
Matrix Spike (L205024-MS4)		**Source: 1205007-01**		Prepared: 05/03/2012 Analyzed: 05/10/2012						
Aroclor 1016	539		50.3	ug/kg dry	630.17	47.1 U	86	50-138		40
Aroclor 1260	618		50.3	ug/kg dry	630.17	28.2	94	50-148		40
Surrogate: Decachlorobiphenyl	*123*			*ug/kg dry*	*126.03*		*97*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*111*			*ug/kg dry*	*126.05*		*88*	*52-141*		
Matrix Spike Dup (L205024-MSD4)		**Source: 1205007-01**		Prepared: 05/03/2012 Analyzed: 05/10/2012						
Aroclor 1016	551		49.0	ug/kg dry	614.46	47.1 U	90	50-138	5	40
Aroclor 1260	621		49.0	ug/kg dry	614.46	28.2	97	50-148	3	40
Surrogate: Decachlorobiphenyl	*123*			*ug/kg dry*	*122.89*		*100*	*43-144*		
Surrogate: Tetrachloro-meta-xylene	*110*			*ug/kg dry*	*122.90*		*90*	*52-141*		

PREPARATION BENCH SHEET

L205024

Lionville Laboratory

Printed: 5/8/2012 11:54:33AM

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
1204069-01	8082 PCBs	05/03/2012 12:20	15.23	10				250	WC-Hanford, Inc.	RADH
1204080-01	8082 PCBs	05/03/2012 12:20	30.12	10				250	WC-Hanford, Inc.	
1205006-01	8082 PCBs	05/03/2012 12:20	25.17	10				250	WC-Hanford, Inc.	
1205007-01	8082 PCBs	05/03/2012 12:20	10.86	10				250	WC-Hanford, Inc.	
1205008-01	8082 PCBs	05/03/2012 12:20	10.05	10				250	WC-Hanford, Inc.	
1205008-02	8082 PCBs	05/03/2012 12:20	10.13	10				250	WC-Hanford, Inc.	
1205008-03	8082 PCBs	05/03/2012 12:20	20.13	10				250	WC-Hanford, Inc.	
1205008-04	8082 PCBs	05/03/2012 12:20	21.85	10				250	WC-Hanford, Inc.	
L205024-BLK1	QC	05/03/2012 12:20	30	10				250		
L205024-BS1	QC	05/03/2012 12:20	30	10	1200123		250	250		
L205024-MS1	QC	05/03/2012 12:20	15.3	10	1200123	1204069-01	250	250		
L205024-MS2	QC	05/03/2012 12:20	30.73	10	1200123	1204080-01	250	250		
L205024-MS3	QC	05/03/2012 12:20	25.17	10	1200123	1205006-01	250	250		
L205024-MS4	QC	05/03/2012 12:20	10.17	10	1200123	1205007-01	250	250		
L205024-MS5	QC	05/03/2012 12:20	10.01	10	1200123	1205008-01	250	250		
L205024-MSD1	QC	05/03/2012 12:20	15.19	10	1200123	1204069-01	250	250		
L205024-MSD2	QC	05/03/2012 12:20	30.47	10	1200123	1204080-01	250	250		
L205024-MSD3	QC	05/03/2012 12:20	25.24	10	1200123	1205006-01	250	250		
L205024-MSD4	QC	05/03/2012 12:20	10.43	10	1200123	1205007-01	250	250		
L205024-MSD5	QC	05/03/2012 12:20	10.15	10	1200123	1205008-01	250	250		

S cleaned 05.08.12 SZ (CH 616W031)

5/8/12 1210
Extracts Relinquished By — Date

S Zak 05.08.12 12:10
Extracts Received By — Date

DIESEL

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/13/2012 08:28

Analytical Report for Extractable Petroleum Hydrocarbons by SW846 8015

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1N342	1205007-01	Soil	05/01/2012 09:15	05/02/2012 09:40

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-029 K3891
LVL #: 1205007

W.O. #: 60049-001-001-0001-00
Date Received: 05-02-2012

DIESEL RANGE ORGANICS

One (1) soil sample was collected on 05-01-2012.

The sample and associated QC samples were extracted 05-03-2012 and analyzed 05-12,13-2012 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 a sample that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. Due to the nature of the matrix, samples J1N342, L205023-MS3 and L205023-MSD3 were extracted with reduced initial volumes and had elevated final volume of 4.0 ml. Reporting limits have been adjusted to reflect these changes.
4. All obtainable surrogate recoveries were within acceptance criteria.
5. The method blank was below the reporting limits for all target compounds.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. 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. The sample was reported on a dry weight basis.

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

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.

for Iain Daniels
LvL Laboratory Manager

5/16/12
Date

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/13/2012 08:28

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

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/13/2012 08:28

J1N342
1205007-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Extractable Petroleum Hydrocarbons by SW846 8015									
Diesel Range Organics	50900	U	50900	ug/kg dry	1	L205023	05/03/2012	05/12/2012	8015M
Motor Oil	153000	U	153000	ug/kg dry	1	L205023	05/03/2012	05/12/2012	8015M
Surrogate: p-Terphenyl	*112 %*		*39-129*			*L205023*	*05/03/2012*	*05/12/2012*	*8015M*

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/13/2012 08:28

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 L205023 - SW 3540C										
Blank (L205023-BLK1)				Prepared: 05/03/2012 Analyzed: 05/12/2012						
Diesel Range Organics	3330	U	3330	ug/kg wet						
Motor Oil	10000	U	10000	ug/kg wet						
Surrogate: p-Terphenyl	*7850*			*ug/kg wet*	*6666.7*		*118*	*39-129*		
LCS (L205023-BS1)				Prepared: 05/03/2012 Analyzed: 05/12/2012						
Diesel Range Organics	65600		3330	ug/kg wet	66667		98	42-133		40
Surrogate: p-Terphenyl	*7360*			*ug/kg wet*	*6666.7*		*110*	*39-129*		
Matrix Spike (L205023-MS3)		**Source: 1205007-01**		Prepared: 05/03/2012 Analyzed: 05/12/2012						
Diesel Range Organics	211000		46500	ug/kg dry	232630	50900 U	91	42-133		40
Surrogate: p-Terphenyl	*25500*			*ug/kg dry*	*23263*		*109*	*39-129*		
Matrix Spike Dup (L205023-MSD3)		**Source: 1205007-01**		Prepared: 05/03/2012 Analyzed: 05/13/2012						
Diesel Range Organics	213000		48200	ug/kg dry	241160	50900 U	88	42-133	3	40
Surrogate: p-Terphenyl	*24700*			*ug/kg dry*	*24116*		*103*	*39-129*		

PREPARATION BENCH SHEET

L205023

Lionville Laboratory

Printed: 5/7/2012 1:37:29PM

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
1204080-01	8015M DRO	05/03/2012 12:07	30.21	1				1000	WC-Hanford, Inc.	
1205006-01	8015M DRO	05/03/2012 12:07	30.64	1				1000	WC-Hanford, Inc.	
1205007-01	8015M DRO	05/03/2012 12:07	10.08	4				1000	WC-Hanford, Inc.	
1205008-01	8015M DRO	05/03/2012 12:07	20.44	1				1000	WC-Hanford, Inc.	
1205008-02	8015M DRO	05/03/2012 12:07	21.81	4				1000	WC-Hanford, Inc.	
1205008-03	8015M DRO	05/03/2012 12:07	22.28	4				1000	WC-Hanford, Inc.	
1205008-04	8015M DRO	05/03/2012 12:07	20.13	1				1000	WC-Hanford, Inc.	
L205023-BLK1	QC	05/03/2012 12:07	30	1				1000		
L205023-BS1	QC	05/03/2012 12:07	30	1	1101936		1000	1000		
L205023-MS1	QC	05/03/2012 12:07	30.58	1	1101936	1204080-01	1000	1000		
L205023-MS2	QC	05/03/2012 12:07	30.42	1	1101936	1205006-01	1000	1000		
L205023-MS3	QC	05/03/2012 12:07	11.02	4	1101936	1205007-01	1000	1000		
L205023-MS4	QC	05/03/2012 12:07	21.69	4	1101936	1205008-03	1000	1000		
L205023-MSD1	QC	05/03/2012 12:07	30.52	1	1101936	1204080-01	1000	1000		
L205023-MSD2	QC	05/03/2012 12:07	30.49	1	1101936	1205006-01	1000	1000		
L205023-MSD3	QC	05/03/2012 12:07	10.63	4	1101936	1205007-01	1000	1000		
L205023-MSD4	QC	05/03/2012 12:07	20.48	4	1101936	1205008-03	1000	1000		

5/7/12 1350
Extracts Relinquished By Date

5/8/12
Extracts Received By Date

PAHs

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/17/2012 15:26

Analytical Report for Polynuclear Aromatic Compounds by SW846 8310

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1N342	1205007-01	Soil	05/01/2012 09:15	05/02/2012 09:40

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

Case Narrative

Client: WC-HANFORD RC-029 K3891
LVL #: 1205007

W.O. #: 60049-001-001-0001-00
Date Received: 05-02-2012

POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)

One (1) soil sample was collected on 05-01-2012.

The sample and associated QC samples were extracted 05-10-2012 and analyzed 05-15,16-2012 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 a sample that met LvL's sample acceptance policy.

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

3. One (1) of five (5) surrogate recoveries was outside 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. Twenty-five (25) of thirty-two (32) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC086) has been enclosed.

7. Samples J1N342, L205086-MS1 and L205086-MSD1 required 25-fold dilutions due to high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.

8. The 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. The sample was reported on a dry weight basis.

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

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

Iain Daniels
LvL Laboratory Manager

5/17/12
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12GC086

Initiator: Catherine Corey
Date: 05/16/12
Client: WC Hanford

Batch: 1205007
Samples: 01, MS1/MSD1
Method: SW846/MCAWW/CLP/

Parameter: PAH
Matrix: SOIL
Prep Batch: L205086

1. Reason for SDR

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

b. General Discrepancy

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

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

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

surrogate recovery is high in sample #01

multiple spike recoveries outside QC limits

2. Known or Probable Causes(s)

Interference from high levels of target and non target compounds

3. Discussion and Proposed Action Other Description:

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

Narrate ID.

4. Project Manager Instructions...signature/date: 5/17/12

✓ 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: 5/17/12 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

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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-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/17/2012 15:26

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).
D	Results reported from a dilution; related reporting limits are elevated due to the presence of an interference or a high target value.
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

LIONVILLE LABORATORY INC.

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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Phone: 610-280-3000
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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/17/2012 15:26

J1N342
1205007-01 (Soil)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	104	U	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Acenaphthylene	104	U	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Acenaphthene	104	U	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Fluorene	104	U	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Phenanthrene	**219**	D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Anthracene	104	U	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Fluoranthene	**771**	D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Indeno[1,2,3-cd]pyrene	**621**	D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Pyrene	**1320**	D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Benz[a]anthracene	**1400**	D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Chrysene	**1580**	D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Benzo[b] fluoranthene	**708**	D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Benzo[k] fluoranthene	**307**	D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Benzo[a] pyrene	**1950**	D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Dibenz[a,h]anthracene	**101**	J, D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Benzo[g,h,i] perylene	**999**	D	104	ug/kg dry	25	L205086	05/10/2012	05/16/2012	8310
Surrogate: Triphenylene	*236 % **		*68-129*			*L205086*	*05/10/2012*	*05/16/2012*	*8310*

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/17/2012 15:26

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 L205086 - SW 3540C										
Blank (L205086-BLK1)				Prepared: 05/10/2012 Analyzed: 05/16/2012						
Naphthalene	3.33	U	3.33	ug/kg wet						
Acenaphthylene	3.33	U	3.33	ug/kg wet						
Acenaphthene	3.33	U	3.33	ug/kg wet						
Fluorene	3.33	U	3.33	ug/kg wet						
Phenanthrene	3.33	U	3.33	ug/kg wet						
Anthracene	3.33	U	3.33	ug/kg wet						
Fluoranthene	3.33	U	3.33	ug/kg wet						
Indeno[1,2,3-cd]pyrene	3.33	U	3.33	ug/kg wet						
Pyrene	3.33	U	3.33	ug/kg wet						
Benz[a]anthracene	3.33	U	3.33	ug/kg wet						
Chrysene	3.33	U	3.33	ug/kg wet						
Benzo[b] fluoranthene	3.33	U	3.33	ug/kg wet						
Benzo[k] fluoranthene	3.33	U	3.33	ug/kg wet						
Benzo[a] pyrene	3.33	U	3.33	ug/kg wet						
Dibenz[a,h]anthracene	3.33	U	3.33	ug/kg wet						
Benzo[g,h,i] perylene	3.33	U	3.33	ug/kg wet						
Surrogate: Triphenylene	*162*			*ug/kg wet*	*166.67*		*97*	*68-129*		
LCS (L205086-BS1)				Prepared: 05/10/2012 Analyzed: 05/15/2012						
Naphthalene	199		3.33	ug/kg wet	166.67		120	0-127		40
Acenaphthylene	148		3.33	ug/kg wet	166.67		89	50-140		40
Acenaphthene	136		3.33	ug/kg wet	166.67		81	17-139		40
Fluorene	153		3.33	ug/kg wet	166.67		92	28-145		40
Phenanthrene	159		3.33	ug/kg wet	166.67		95	30-152		40
Anthracene	117		3.33	ug/kg wet	166.67		70	19-171		40
Fluoranthene	160		3.33	ug/kg wet	166.67		96	34-159		40
Indeno[1,2,3-cd]pyrene	172		3.33	ug/kg wet	166.67		103	31-156		40
Pyrene	142		3.33	ug/kg wet	166.67		85	33-152		40
Benz[a]anthracene	166		3.33	ug/kg wet	166.67		100	32-157		40
Chrysene	159		3.33	ug/kg wet	166.67		95	31-159		40
Benzo[b] fluoranthene	162		3.33	ug/kg wet	166.67		97	33-164		40
Benzo[k] fluoranthene	162		3.33	ug/kg wet	166.67		97	28-161		40
Benzo[a] pyrene	182		3.33	ug/kg wet	166.67		109	29-149		40
Dibenz[a,h]anthracene	147		3.33	ug/kg wet	166.67		88	27-153		40
Benzo[g,h,i] perylene	158		3.33	ug/kg wet	166.67		95	32-157		40
Surrogate: Triphenylene	*174*			*ug/kg wet*	*166.67*		*104*	*68-129*		

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/17/2012 15:26

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 L205086 - SW 3540C										
Matrix Spike (L205086-MS1)		**Source: 1205007-01**		Prepared: 05/10/2012 Analyzed: 05/16/2012						
Naphthalene	282	D	106	ug/kg dry	211.65	104 U	133*	0-127		40
Acenaphthylene	113	D	106	ug/kg dry	211.65	104 U	53	50-140		40
Acenaphthene	320	D	106	ug/kg dry	211.65	104 U	151*	17-139		40
Fluorene	186	D	106	ug/kg dry	211.65	104 U	88	28-145		40
Phenanthrene	161	D	106	ug/kg dry	211.65	219	-27*	30-152		40
Anthracene	26.6	J, D	106	ug/kg dry	211.65	104 U	13*	19-171		40
Fluoranthene	180	D	106	ug/kg dry	211.65	771	-279*	34-159		40
Indeno[1,2,3-cd]pyrene	193	D	106	ug/kg dry	211.65	621	-202*	31-156		40
Pyrene	145	D	106	ug/kg dry	211.65	1320	-554*	33-152		40
Benz[a]anthracene	184	D	106	ug/kg dry	211.65	1400	-577*	32-157		40
Chrysene	171	D	106	ug/kg dry	211.65	1580	-665*	31-159		40
Benzo[b] fluoranthene	171	D	106	ug/kg dry	211.65	708	-254*	33-164		40
Benzo[k] fluoranthene	176	D	106	ug/kg dry	211.65	307	-62*	28-161		40
Benzo[a] pyrene	222	D	106	ug/kg dry	211.65	1950	-818*	29-149		40
Dibenz[a,h]anthracene	215	D	106	ug/kg dry	211.65	101	54	27-153		40
Benzo[g,h,i] perylene	345	D	106	ug/kg dry	211.65	999	-309*	32-157		40
Surrogate: Triphenylene	*193*			*ug/kg dry*	*211.65*		*91*	*68-129*		
Matrix Spike Dup (L205086-MSD1)		**Source: 1205007-01**		Prepared: 05/10/2012 Analyzed: 05/16/2012						
Naphthalene	335	D	105	ug/kg dry	209.64	104 U	160*	0-127	18	40
Acenaphthylene	87.5	J, D	105	ug/kg dry	209.64	104 U	42*	50-140	24	40
Acenaphthene	154	D	105	ug/kg dry	209.64	104 U	74	17-139	69*	40
Fluorene	189	D	105	ug/kg dry	209.64	104 U	90	28-145	3	40
Phenanthrene	188	D	105	ug/kg dry	209.64	219	-15*	30-152	-60	40
Anthracene	49.8	J, D	105	ug/kg dry	209.64	104 U	24	19-171	62*	40
Fluoranthene	226	D	105	ug/kg dry	209.64	771	-260*	34-159	-7	40
Indeno[1,2,3-cd]pyrene	203	D	105	ug/kg dry	209.64	621	-199*	31-156	-2	40
Pyrene	196	D	105	ug/kg dry	209.64	1320	-535*	33-152	-3	40
Benz[a]anthracene	190	D	105	ug/kg dry	209.64	1400	-579*	32-157	-0.4	40
Chrysene	199	D	105	ug/kg dry	209.64	1580	-658*	31-159	-1	40
Benzo[b] fluoranthene	178	D	105	ug/kg dry	209.64	708	-253*	33-164	-0.4	40
Benzo[k] fluoranthene	195	D	105	ug/kg dry	209.64	307	-53*	28-161	-15	40
Benzo[a] pyrene	207	D	105	ug/kg dry	209.64	1950	-833*	29-149	-2	40
Dibenz[a,h]anthracene	183	D	105	ug/kg dry	209.64	101	39	27-153	32	40
Benzo[g,h,i] perylene	181	D	105	ug/kg dry	209.64	999	-390*	32-157	-23	40
Surrogate: Triphenylene	*218*			*ug/kg dry*	*209.64*		*104*	*68-129*		

PREPARATION BENCH SHEET

L205086

Lionville Laboratory

Printed: 5/11/2012 1:29:16PM

00000053

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

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1205007-01	8310 PAH	05/10/2012 15:17	30.91	5				50	WC-Hanford, Inc.	
1205008-01	8310 PAH	05/10/2012 15:17	20.72	5				50	WC-Hanford, Inc.	
1205008-02	8310 PAH	05/10/2012 15:17	29.26	10				50	WC-Hanford, Inc.	
1205008-03	8310 PAH	05/10/2012 15:17	20.12	5				50	WC-Hanford, Inc.	
1205008-04	8310 PAH	05/10/2012 15:17	21.78	5				50	WC-Hanford, Inc.	
1205014-01	8310 PAH	05/10/2012 15:17	30.25	5				50	WC-Hanford, Inc.	
L205086-BLK1	QC	05/10/2012 15:17	30	5				50		
L205086-BS1	QC	05/10/2012 15:17	30	5	1200436		50	50		
L205086-MS1	QC	05/10/2012 15:17	30.28	5	1200436	1205007-01	50	50		
L205086-MS2	QC	05/10/2012 15:17	20.87	5	1200436	1205008-04	50	50		
L205086-MS3	QC	05/10/2012 15:17	30.14	5	1200436	1205014-01	50	50		
L205086-MSD1	QC	05/10/2012 15:17	30.57	5	1200436	1205007-01	50	50		
L205086-MSD2	QC	05/10/2012 15:17	21.92	5	1200436	1205008-04	50	50		
L205086-MSD3	QC	05/10/2012 15:17	30.21	5	1200436	1205014-01	50	50		

5/11/12 1342

Extracts Relinquished By Date

05.11.12 13:42

Extracts Received By Date

METALS

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/10/2012 06:59

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1N342	1205007-01	Soil	05/01/2012 09:15	05/02/2012 09:40

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A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-029
LVL#: 1205007
SDG/SAF#: K3891/RC-029

W.O.#: 60049-001-001-0001-00
Date Received: 05-02-12

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 analysis of 1 soil sample.

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

   The sample was analyzed and reported with a 3-fold dilution for ICP metals due to sample matrix.

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

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

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

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the LOQ) with the exception of CCB1 for Aluminum (51.0µg/L, RDL=50µg/L). The method blank L205029-MB1 was well below the 50µg/L RDL and the sample results for Aluminum were above the reporting limit.

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

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

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

9. All Standard Reference Material (SRM) analytes were within the Prediction Interval control limits supplied by the manufacturer with the exception of Silicon at 222.7% (0-219.3% range). The sample result for Silicon may be slightly biased high.

10. The matrix spike (MS) recoveries for 9 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
J1N342	Aluminum	22,000	93.0
	Antimony	100	104.6
	Calcium	20,800	70.1
	Chromium	100	97.6
	Copper	100	106.2
	Iron	42,000	49.7
	Lead	100	84.7
	Silicon	2,100	104.5
	Silver	100	101.9

12. The duplicate analyses for 5 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 results for Antimony, Boron, Cadmium and Molybdenum were less than ten times the MDL.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

5/10/12
Date

alm/05-007hg%

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A division of Eberline Analytical Corporation

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/10/2012 06:59

Notes and Definitions

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

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/10/2012 06:59

J1N342
1205007-01 (Soil)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	**7570**		14.3	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Antimony	**3.82**		1.72	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Arsenic	**8.27**		2.87	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Barium	**171**		1.43	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Beryllium	**0.218**	B	0.574	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Boron	**20.1**		5.74	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Cadmium	**1.63**		0.574	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Calcium	**30600**		287	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Chromium	**51.5**		0.574	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Cobalt	**13.2**		5.74	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Copper	**118**		2.87	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Iron	**75800**		57.4	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Lead	**98.5**		1.43	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Magnesium	**4160**		215	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Manganese	**617**		14.3	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Molybdenum	**8.62**		5.74	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Nickel	**48.8**		11.5	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Potassium	**1570**		1150	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Selenium	0.861	U	0.861	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Silicon	**571**		5.74	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Silver	**15.8**		0.574	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Sodium	**539**		143	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Vanadium	**52.5**		7.17	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Zinc	**585**		28.7	mg/kg dry	3	L205029	05/04/2012	05/08/2012	6010B
Mercury	**0.0119**	B	0.0330	mg/kg dry	1	L205038	05/07/2012	05/09/2012	7471A

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/10/2012 06:59

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L205029 - SW 3050B										
Blank (L205029-BLK1)				Prepared: 05/04/2012 Analyzed: 05/08/2012						
Aluminum	4.39	U	4.39	mg/kg wet						
Antimony	0.526	U	0.526	mg/kg wet						
Arsenic	0.877	U	0.877	mg/kg wet						
Barium	0.439	U	0.439	mg/kg wet						
Beryllium	0.175	U	0.175	mg/kg wet						
Boron	1.75	U	1.75	mg/kg wet						
Cadmium	0.175	U	0.175	mg/kg wet						
Calcium	87.7	U	87.7	mg/kg wet						
Chromium	0.175	U	0.175	mg/kg wet						
Cobalt	1.75	U	1.75	mg/kg wet						
Copper	0.877	U	0.877	mg/kg wet						
Iron	17.5	U	17.5	mg/kg wet						
Lead	0.439	U	0.439	mg/kg wet						
Magnesium	65.8	U	65.8	mg/kg wet						
Manganese	4.39	U	4.39	mg/kg wet						
Molybdenum	1.75	U	1.75	mg/kg wet						
Nickel	3.51	U	3.51	mg/kg wet						
Potassium	351	U	351	mg/kg wet						
Selenium	0.263	U	0.263	mg/kg wet						
Silicon	1.75	U	1.75	mg/kg wet						
Silver	0.175	U	0.175	mg/kg wet						
Sodium	43.9	U	43.9	mg/kg wet						
Vanadium	2.19	U	2.19	mg/kg wet						
Zinc	8.77	U	8.77	mg/kg wet						
Duplicate (L205029-DUP2)		**Source: 1205007-01**		Prepared: 05/04/2012 Analyzed: 05/08/2012						
Aluminum	7100		17.2	mg/kg dry		7570			6.40	20
Antimony	2.20		2.06	mg/kg dry		3.82			53.7*	20
Arsenic	6.78		3.43	mg/kg dry		8.27			19.8	20
Barium	147		1.72	mg/kg dry		171			15.6	20
Beryllium	0.223	B	0.687	mg/kg dry		0.218			1.96	20
Boron	15.7		6.87	mg/kg dry		20.1			24.4*	20
Cadmium	1.09		0.687	mg/kg dry		1.63			39.4*	20
Calcium	26300		343	mg/kg dry		30600			14.9	20
Chromium	36.2		0.687	mg/kg dry		51.5			35.0*	20
Cobalt	11.8		6.87	mg/kg dry		13.2			11.2	20
Copper	109		3.43	mg/kg dry		118			8.39	20

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Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/10/2012 06:59

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L205029 - SW 3050B										
Duplicate (L205029-DUP2)		**Source: 1205007-01**		Prepared: 05/04/2012 Analyzed: 05/08/2012						
Iron	55300		68.7	mg/kg dry		75800			31.2*	20
Lead	89.0		1.72	mg/kg dry		98.5			10.1	20
Magnesium	3790		257	mg/kg dry		4160			9.18	20
Manganese	550		17.2	mg/kg dry		617			11.6	20
Molybdenum	6.09	B	6.87	mg/kg dry		8.62			34.3*	20
Nickel	34.9		13.7	mg/kg dry		48.8			33.2*	20
Potassium	1560		1370	mg/kg dry		1570			0.602	20
Selenium	1.03	U	1.03	mg/kg dry		0.861 U				20
Silicon	739		6.87	mg/kg dry		571			25.6*	20
Silver	8.34		0.687	mg/kg dry		15.8			61.9*	20
Sodium	524		172	mg/kg dry		539			2.94	20
Vanadium	50.9		8.58	mg/kg dry		52.5			3.15	20
Zinc	498		34.3	mg/kg dry		585			16.1	20
Matrix Spike (L205029-MS2)		**Source: 1205007-01**		Prepared: 05/04/2012 Analyzed: 05/09/2012						
Aluminum	10600		18.5	mg/kg dry	246.49	7570	1250*	75-125		20
Antimony	32.8		2.22	mg/kg dry	61.624	3.82	47.1*	75-125		20
Arsenic	245		3.70	mg/kg dry	246.49	8.27	95.9	75-125		20
Barium	423		1.85	mg/kg dry	246.49	171	102	75-125		20
Beryllium	5.92		0.739	mg/kg dry	6.1624	0.218	92.5	75-125		20
Boron	125		7.39	mg/kg dry	123.25	20.1	85.4	75-125		20
Cadmium	7.34		0.739	mg/kg dry	6.1624	1.63	92.7	75-125		20
Calcium	24800		370	mg/kg dry	3081.2	30600	-187*	75-125		20
Chromium	61.4		0.739	mg/kg dry	24.649	51.5	40.1*	75-125		20
Cobalt	69.0		7.39	mg/kg dry	61.624	13.2	90.6	75-125		20
Copper	307		3.70	mg/kg dry	30.812	118	611*	75-125		20
Iron	58000		73.9	mg/kg dry	123.25	75800	-14400*	75-125		20
Lead	214		1.85	mg/kg dry	61.624	98.5	188*	75-125		20
Magnesium	7440		277	mg/kg dry	3081.2	4160	107	75-125		20
Manganese	676		18.5	mg/kg dry	61.624	617	94.5	75-125		20
Molybdenum	120		7.39	mg/kg dry	123.25	8.62	90.5	75-125		20
Nickel	95.1		14.8	mg/kg dry	61.624	48.8	75.1	75-125		20
Potassium	4790		1480	mg/kg dry	3081.2	1570	104	75-125		20
Selenium	227		1.11	mg/kg dry	246.49	0.861 U	92.2	75-125		20
Silicon	917		7.39	mg/kg dry	123.25	571	281*	75-125		20
Silver	16.3		0.739	mg/kg dry	6.1624	15.8	8.58*	75-125		20
Sodium	3870		185	mg/kg dry	3081.2	539	108	75-125		20

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/10/2012 06:59

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L205029 - SW 3050B									
Matrix Spike (L205029-MS2)		**Source: 1205007-01**	Prepared: 05/04/2012 Analyzed: 05/09/2012						
Vanadium	122	9.24	mg/kg dry	61.624	52.5	113	75-125		20
Zinc	662	37.0	mg/kg dry	61.624	585	125	75-125		20
Reference (L205029-SRM1)			Prepared: 05/04/2012 Analyzed: 05/09/2012						
Aluminum	11600	14.4	mg/kg wet	6670.0		174	0-200.89		
Antimony	41.5	1.73	mg/kg wet	53.000		78.4	0-235.8		
Arsenic	107	2.88	mg/kg wet	114.00		94.1	82.8-117.54		
Barium	298	1.44	mg/kg wet	307.00		97.0	79.8-120.2		
Beryllium	96.6	0.577	mg/kg wet	108.00		89.5	82.8-117.6		
Boron	74.6	5.77	mg/kg wet	85.100		87.6	67.5-132.8		
Cadmium	207	0.577	mg/kg wet	225.00		92.0	83.6-116.4		
Calcium	2970	288	mg/kg wet	3360.0		88.3	83.3-116.9		
Chromium	77.7	0.577	mg/kg wet	77.200		101	73.3-126.4		
Cobalt	151	5.77	mg/kg wet	166.00		91.1	80.7-118.7		
Copper	250	2.88	mg/kg wet	271.00		92.4	80.8-119.2		
Iron	7710	57.7	mg/kg wet	8420.0		91.5	78.6-121.1		
Lead	171	1.44	mg/kg wet	190.00		90.2	81.6-118.4		
Magnesium	7570	216	mg/kg wet	8570.0		88.4	83.2-116.7		
Manganese	892	14.4	mg/kg wet	965.00		92.4	69.3-130.5		
Molybdenum	221	5.77	mg/kg wet	235.00		93.9	76.2-123.8		
Nickel	204	11.5	mg/kg wet	221.00		92.3	79.6-120.8		
Potassium	13700	1150	mg/kg wet	14400		94.9	81.9-118.1		
Selenium	177	0.865	mg/kg wet	187.00		94.9	75.9-124.6		
Silicon	1800	5.77	mg/kg wet	807.00		223*	0-219.3		
Silver	75.6	0.577	mg/kg wet	83.500		90.5	82.7-117.1		
Sodium	8690	144	mg/kg wet	9730.0		89.3	82.5-117.2		
Vanadium	99.4	7.21	mg/kg wet	98.700		101	75.9-123.6		
Zinc	183	28.8	mg/kg wet	199.00		91.8	78.4-121.6		

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-029 Project Number: K3891 Project Manager: Joan Kessner	**Reported:** 05/10/2012 06:59

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L205038 - SW 7471A Prep										
Blank (L205038-BLK1)				Prepared: 05/07/2012 Analyzed: 05/09/2012						
Mercury	0.0281	U	0.0281	mg/kg wet						
Duplicate (L205038-DUP3)		**Source: 1205007-01**		Prepared: 05/07/2012 Analyzed: 05/09/2012						
Mercury	0.0312	U	0.0312	mg/kg dry		0.0119				20
Matrix Spike (L205038-MS3)		**Source: 1205007-01**		Prepared: 05/07/2012 Analyzed: 05/09/2012						
Mercury	0.206		0.0312	mg/kg dry	0.17321	0.0119	112	75-125		20
Reference (L205038-SRM1)				Prepared: 05/07/2012 Analyzed: 05/09/2012						
Mercury	1.17		0.0290	mg/kg wet	1.2900		90.4	62.6-138		

Lionville Laboratory

Logbook #: 1111

SAMPLE DIGESTION RECORD

Digestion Batch #: L205029
Date/Time Initiated: 5/9/12 1115
Date/Time Completed: 5/8/12 1205
Analyst: JS
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: 98
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
L205005-01		0.59	50		TO	coarse	Offwhite Sand		N/A
-02		0.65	50			coarse	Black	Rock	
L205029-Rp1		0.72	50						
-MS1	0.5	0.71	50						
L205005-03		0.58	50			Coarse	Brown	Rocks	
L205007-01		0.67	50			Coarse	Black	Rocky	
L205009-Rp2		0.56	50						
-MS2	0.5	0.52	50						
-MB1		0.57	50			Coarse	Building chips		
SRM1	2	0.52	50			fine	pinkish		

JS 5/8/12

Spiking IDs / Expiration Date:
MS#: L200457
LCS#: 2 1101357

Reagent IDs:
HNO_3 K49023
HCl L01031
H_2O_2 M09A03
1:1 HNO_3 637-66-02
1:1 HCl

File ID#:

Data Review By/Date: Qm 5/9/12

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

*: 6072-09146 2 solve
1 1 12 2

Page #:

000000064

Lionville Laboratory

MERCURY PREPARATION

Analyst: [illegible]
Date 5/7/12-5/8/12
Start Time/Temp: 1410/95°
End Time/Temp: 1440/97°

Instrument ID: HG3.1/HG3.2
Balance # B29 /NA
Pipette Calibration (Daily) (Y)

Logbook # 1094
Prep Batch: L205038
Worksheet: HG050901/HG050902
SOP No. ME-HgCVAA
BLOCK 1 2 (3) (circle one)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
Blank				10ml	50	
0.2 µg/L		0.100		10ml	50	
1.0 µg/L		0.500		10ml	50	
2.0 µg/L		1.000		10ml	50	
5.0 µg/L		2.500		10ml	50	
10.0 µg/L		5.000		10ml	50	
ICV		0.125	2.5	10ml	50	
CCV		0.250	5.0	10ml	50	
ICB/CCB				10ml	50	
L205038-BLK1				0.32	50	
-SRM1		(*)	(*)	0.31	50	
1204092-01				0.32	50	
L205038-DUP1				0.32	50	
MS1		0.500	1.0	0.33	50	
1205006-01				0.35	50	
L205038-DUP2				0.36	50	
MS2		0.500	1.0	0.36	50	
1205007-01				0.35	50	
L205038-DUP3				0.37	50	
MS3		0.500	1.0	0.37	50	
1205008-01				0.32	50	
L205038-DUP4				0.34	50	
MS4		0.500	1.0	0.33	50	
1205008-02				0.34	50	
03				0.36	50	
04				0.32	50	
1205013-01				0.35	50	

Standard:	ID	Prep Date/Time
ICAL/MS	RI 1200588	5/8/12 1140
ICV/CCV/LCS	I.V. 1101477	

Reviewed By/Date: [illegible] 5/9/12

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
after LCS Spiking Concentration: 1.0 µg/ml

A

ME-HgCVAA-Prep0910

Page #:

Lionville Laboratory

MERCURY PREPARATION

Analyst: [illegible] 5/7/12
Date 5/7/12 - 5/8/12
Start Time/Temp: Temp 098
End Time/Temp: Temp 098

Instrument ID: HG3.1 / HG3.2
Balance # B29 /NA
Pipette Calibration (Daily) (Y) ____

Logbook # 1094
Prep Batch: L205038
Worksheet: HG050901 / HG050902
SOP No. ME-HgCVAA
BLOCK 1 2 (3) (circle one)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
L205038-DUP5				0.34	50	
MS5		0.500	1.0	0.37	50	
1205013-02				0.35	50	
1205014-01				0.33	50	
L205038-DUP6				0.33	50	
MS6		0.500	1.0	0.35	50	

MW 5/8/12

Standard:	ID	Prep Date/Time
ICAL/MS		
ICV/CCV/LCS		

Reviewed By/Date: [illegible] 5/9/12

Soil LCS True Value = Temp 098 mg/Kg
Standard # ____

se book # 9368 for std traceability information
Water Matrix Spiking Solution Concentration = 0.1 µg/ml
after LCS Spiking Concentration: 1.0 µg/ml

A

ME-HgCVAA-Prep0910

Page #:

PREPARATION BENCH SHEET

L205029

Lionville Laboratory

Printed: 5/8/2012 12:05:19PM

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
1205005-01	6010B ICP Metals	05/04/2012 09:37	0.59	50					WC-Hanford, Inc.	HSL + B, Mo, Si (no TL)
1205005-02	6010B ICP Metals	05/04/2012 09:37	0.65	50					WC-Hanford, Inc.	HSL + B, Mo, Si (no TL)
1205005-03	6010B ICP Metals	05/04/2012 09:37	0.78	50					WC-Hanford, Inc.	HSL + B, Mo, Si (no TL)
1205007-01	6010B ICP Metals	05/04/2012 09:37	0.67	50					WC-Hanford, Inc.	HSL + B, Mo, Si (no TL)
L205029-BLK1	QC	05/04/2012 09:37	0.57	50						
L205029-DUP1	QC	05/04/2012 09:37	0.72	50		1205005-01				
L205029-DUP2	QC	05/04/2012 09:37	0.56	50		1205007-01				
L205029-MS1	QC	05/04/2012 09:37	0.71	50	1200457	1205005-01	500			
L205029-MS2	QC	05/04/2012 09:37	0.52	50	1200457	1205007-01	500			
L205029-SRM1	QC	05/04/2012 09:37	0.52	50	1101357		520			

JJS 5/8/12
Extracts Relinquished By Date

Brooke 05/08/12
Extracts Received By Date