SAF-RC-155
618-10 & 618-11 Field Remediation – Other
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 7/31/12
INITIAL/DATE

COMMENTS:

SDG K3944 SAF-RC-155

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location/Waste Site: 618A-12-1779

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

24 July 2012

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

Subject: Analytical Data Package

Dear Ms. Kessner:

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

LvLI Batch #	1207005
SDG #	K3944
SAF #	RC-155
Date Received	07/03/12
# Samples	2
Matrix	OTHER LIQUID
Volatiles	X
Semivolatiles	X
Pest/PCB	X
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	X
Inorganics	

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 71 pages.

CHAIN OF CUSTODY

Lionville Laboratory Use Only

1207 005

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-155
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: O. Johnson
QC: SW Del: STD TAT: 21 Days
Date Rec'd: 7-3-12 Date Due: 7-24-12

Refrigerator #			A												
#/Type Container	Liquid		2												
	Solid		1AG												
Volume	Liquid		60												
	Solid														
Preservatives															
ANALYSES REQUESTED			ORGANIC							INORG					
			VOA	BNA	~~Pest/~~ PCB	Herb				Metal ~~Hg~~	CN				
			Lionville Laboratory Use Only												
			8260	8270	8082					Met①					

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260	8270	8082					Met①						
01	J1PTJ4			OIL	6/27/12	0850	X	X	X					X						
02	J1PTJ6			L	L	0922			X					X						

Special Instructions:
Potential PCBs < DOT Limits
Met① = HSL + B, Mo, Si, U, Zr (NOTL)

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

Relinquished by	Received by	Date	Time
FedEx	V Hundy	7/3/12	0945

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-155-030	Page 1 of 1

Collector: Brian Kelly	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: 9L	Data Turnaround: 21 Days		
Project Designation: 618-10 & 618-11 Field Remediation - Other	Sampling Location: 618A-12-1243	SAF No.: RC-155	
Ice Chest No.: WCH-11-025	Field Logbook No.: EL-1664	COA: R618102F20	Method of Shipment: fed Ex
Shipped To: EBERLINE SERVICES (LIONVILLE) RCF 6-28-12 CMB	Offsite Property No.: NA		Bill of Lading/Air Bill No.: See HMSR

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potentially~~ Radioactive, potential PCBs < DOT limits 6-28-12 CMB

Special Handling and/or Storage

Sample material presents similar hazards as sample material delivered to WCH 300 Area RCF on 6-26-12. AJ 6-28-12

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None					
Type of Container	aG	aG	aG	aG	aG					
No. of Container(s)	1	~~1~~ 0	0	0	1					
Volume	60mL	60mL	60mL	60mL	60mL					

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions. *	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	PCBs - 8082	RCF GEA Shipping Screen 6-27-12 CMB					
									RCF				
J1PTJ4	OTHER	6-27-12	0850	X	X	X	X	X	33817	31g			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Brian Kelly / Brian Kelly	6-27-12 / 0948	Doug Bowers Bowers	6-27-12/0948
Doug Bowers Bowers	6-27-12/1900	618-10 MO6107 RMA	6-27-12/1900
MO 6107 RMA	6-28-12/0850	Binham	0828-12 0850
[illegible]	6-28-12 1012 WCH	RCF [illegible]	6-28-12 1012
M. Kerrick [illegible]	6-28-12 1450 RCF	[illegible]	6-28-12 1450
[illegible] WCH	7-2-12 1055	Fed Ex	

SPECIAL INSTRUCTIONS

This sample will be fowarded on to Lionville from RCF.

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

Run all analysis from the one 60ml bottle AJ 6-27-12 * Sample material not cooled. AJ 6-28-12

* Sample custodian unavailable to relinquish samples 6-28-12 CMB

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

LABORATORY SECTION	Received By: Victor Hernandez	Title: Tech II	Date/Time: 7-3-12 @ 0945
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

REVIEWED BY AJ DATE 7-2-12

WCH-EE-011

000000004

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-155-032	Page 1 of 1

Collector: Brian Kelly	Company Contact: Joan Kessner	Telephone No.: 509-375-4688	Project Coordinator: KESSNER, JH
Price Code: 9L	Data Turnaround: 21 Days		
Project Designation: 618-10 & 618-11 Field Remediation - Other	Sampling Location: 618A-12-~~1455~~ 1779 & 6-27-12	SAF No.: RC-155	
Ice Chest No.: WCH-11-025	Field Logbook No.: EL-1664	COA: R618102F20	Method of Shipment: fed EX
Shipped To: EBERLINE SERVICES / LIONVILLE, CA 6-28-12 cmB	Offsite Property No.: NA		Bill of Lading/Air Bill No.: See HMSR

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potentially~~ Radioactive, Potential PCBs < Dot limits 6-28-12 cmB

Special Handling and/or Storage

Sample material presents similar hazards as sample material delivered to WCH 300 Area RCF on 6-26-12. AJ 6-28-12

Preservation	~~Cool 4C~~	~~Cool 4C~~	None									
Type of Container	aG	aG	aG									
No. of Container(s)	1	1	1									
Volume	60mL	60mL	60mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions. *	PCBs - 8082	RCF GEA Shipping Screen									
Sample No.	Matrix *	Sample Date	Sample Time				RCF					
J1PTJ6	OTHER	6-27-12	0922	X	X	X	33816	34g				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Brian Kelley / Brian Kelley	6-27-12 / 0948	Doug Bowers Bowers	6-27-12 / 0948
Doug Bowers Bowers	6-27-12 / 1500	618-10 MO 6107 RMA	6-27-12 / 1500
MO 6107 RMA	6-28-12 / 0850	A. Freier A. Freier	6-28-12 0850
A Freier A. Freier (WCH)	6-28-12 1012	M. Kelsch (RCF)	6-28-12 1012
M. Kelsch (RCF)	6-28-12 / 1450	Andrea Bingham	6-28-12 1450
Andrea Bingham (RCF)	7-2-12 1055	Fed Ex	

SPECIAL INSTRUCTIONS

This sample will be fowarded on to Lionville from RCF.

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

Run all analysis from the one 60 ml bottle AJ 6-27-12

* Sample cooling not maintained AJ 6-28-12

* Sample custodian unavailable to relinquish samples 6-28-12 cmB

Matrix *

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

LABORATORY SECTION	Received By: Victor Hernandez 7-3-12 @ 0945	Title
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By

REVIEWED BY AJ Date/Time DATE 7-2-12

WCH-EE-011

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WE Hanford

Project/SAF/SOW/Release #: RC-155

Date: 7/3/12

LvL Batch #: 1207 005

Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FED EX		Airbill # 7937 4545 2918
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 11-3	°C	Cooler # WCH-11-025
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	Sample Cooling not Maintained Per Client
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvL) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

SR-002-B.doc

VOLATILES

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/19/2012 13:46

Analytical Report for Volatile Organic Compounds by SW846 8260B

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PTJ4	1207005-01	Other Liquid	06/27/2012 08:50	07/03/2012 09:45

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-155 K3944
LVL #: 1207005

W.O. #: 60049-001-001-0001-00
Date Received: 07-03-2012

GC/MS VOLATILE

One (1) other liquid sample was collected on 06-27-2012.

The sample and associated QC samples were prepared and analyzed 07-05-2012 according to criteria set forth in Lionville Laboratory SOPs. The preparation procedure was based on SW846 Method 5030B and the analysis procedure was based on SW846 Method 8260B for TCL Volatile target compounds.

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

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

2. Samples were analyzed within holding time.

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

4. Samples were analyzed using a medium level preparation method, where for example approximately 4 grams of sample is dispersed in 10 ml of methanol; 100 ul of the methanol was added to the purge and trap and analyzed using the 8260 method. The effective starting sample amount (i.e., the amount of sample added to the purge and trap) was 1/100 of the actual initial sample aliquot. Reporting limits have been adjusted for the effective preparation factor of approximately 125.

5. Sample J1PTP4 required an additional 10-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 analytes.

8. All blank spike recoveries were within acceptance criteria.

9. Eight (8) of seventy (70) matrix spike recoveries were outside QC acceptance criteria. The recoveries were out of range due to the sample matrix. Several matrix spike recoveries were unobtainable due to the sample matrix.

10. All initial calibrations associated with this data set were within acceptance criteria using the mean RSD described in method 8000B. Per method 8000B/8260B, the attached Table 1

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.

provides the mean RSD and indicates the target compounds where the RSD exceeded 15%; results for the indicated target compounds are considered to have greater uncertainty. All internal standard area and retention time criteria were met.

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

12. All internal standard area and retention time criteria were met.

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

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

Iain Daniels
LvL Laboratory Manager

7/24/12
Date

TABLE 1

FULL LIST - 8000B/8260B COMPOUNDS WHERE THE MEAN %RSD IS USED TO MEET

CRITERIA FOR INITIAL CALIBRATION OF AN INDIVIDUAL COMPOUND

MEAN RSD USED FOR EVALUATION: 5.818 INSTRUMENT ID/DATE: 5973G 4/4/12

>15% RSD	Compound	>15% RSD	Compound	>15% RSD	Compound
	1,1,1,2-Tetrachloroethane		Carbon Disulfide		trans-1,4-Dichloro-2-butene
	1,1,1-Trichloroethane		Carbon Tetrachloride		Trichloroethene
	1,1,2,2-Tetrachloroethane		Chlorobenzene		Trichlorofluoromethane
	1,1,2-Trichloroethane		Chloroethane		Vinyl acetate
	1,1-Dichloroethane		Chloroform		Vinyl chloride
	1,1-Dichloroethene		Chloromethane		Xylenes, total
	1,1-Dichloropropene		cis-1,2-Dichloroethene		
	1,2,3-Trichlorobenzene		cis-1,3-Dichloropropene		
	1,2,3-Trichloropropane		Cyclohexane		
	1,2,3-Trimethylbenzene		Cyclohexanone		
	1,2,4-Trichlorobenzene		Dibromochloromethane		
	1,2,4-Trimethylbenzene		Dibromofluoromethane		
	1,2-Dibromo-3-chloropropane		Dibromomethane		
	1,2-Dibromoethane		Dichlorodifluoromethane		
	1,2-Dichlorobenzene		Diethyl Ether		
	1,2-Dichloroethane		Ethyl Acetate		
	1,2-Dichloroethene (total)		Ethyl Methacrylate		
	1,2-Dichloropropane		Ethylbenzene		**Surrogates:**
	1,2-Xylene		Ethylene oxide		1,2-Dichloroethane-d4
	1,3- and 1,4-Xylenes		Freon-113		Toluene-d8
	1,3,5-Trimethylbenzene		Freon-114		4-Bromofluorobenzene
	1,3-Dichlorobenzene		Hexachlorobutadiene		
	1,3-Dichloropropane		Hexane		
	1,3-Dichloropropene (total)		Iodomethane		
	1,4-Dichlorobenzene		Isobutyl alcohol		
	1,4-Dioxane		Isopropylbenzene		
	2,2-Dichloropropane		Methacrylonitrile		
	2-Butanone		Methyl Acetate		
	2-Chloro-1,3-butadiene		Methyl Methacrylate		
	2-Chloroethyl Vinyl Ether		Methylcyclohexane		
	2-Chlorotoluene		Methylene Chloride		
	2-Hexanone		Methyl-tert-Butyl Ether		
	2-Nitropropane		Naphthalene		
	3-Chloropropene		n-Butyl Alcohol		
	4-Chlorotoluene		n-Butylbenzene		
	4-Isopropyltoluene		n-Propylbenzene		
	4-Methyl-2-pentanone		Pentachloroethane		
	Acetone		Propionitrile		
	Acetonitrile		sec-Butylbenzene		
	Acrolein		Styrene		
	Acrylonitrile		tert-Butyl alcohol		
	Benzene		tert-Butylbenzene		
	Bromobenzene		Tetrachloroethene		
	Bromochloromethane		Tetrahydrofuran		
	Bromodichloromethane		Toluene		
18.997	Bromoform		trans-1,2-Dichloroethene		
	Bromomethane		trans-1,3-Dichloropropene		

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.

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 13:46

J1PTJ4
1207005-01 (Other Liquid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
1,1,1-Trichloroethane	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
1,1,2,2-Tetrachloroethane	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
1,1,2-Trichloroethane	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
1,1-Dichloroethane	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
1,1-Dichloroethene	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
1,2-Dichloroethane	27800	U	27800	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
1,2-Dichloroethene (total)	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
1,2-Dichloropropane	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
2-Butanone	55600	U	55600	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
2-Hexanone	55600	U	55600	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
4-Methyl-2-pentanone	55600	U	55600	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Acetone	55600	U	55600	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Benzene	**19600**	J, D	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Bromodichloromethane	27800	U	27800	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Bromoform	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Bromomethane	46300	U	46300	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Carbon Disulfide	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Carbon Tetrachloride	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Chlorobenzene	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Chloroethane	46300	U	46300	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Chloroform	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Chloromethane	46300	U	46300	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
cis-1,2-Dichloroethene	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
cis-1,3-Dichloropropene	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Dibromochloromethane	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Ethylbenzene	**7630**	J, D	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Methylene Chloride	27800	U	27800	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Styrene	**18300**	J, D	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Tetrachloroethene	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
trans-1,2-Dichloroethene	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Toluene	**644000**	D	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
trans-1,3-Dichloropropene	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Trichloroethene	23100	U	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Vinyl chloride	46300	U	46300	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Xylenes, total	**8260**	J, D	23100	ug/kg	500	L207027	07/05/2012	07/05/2012	8260B

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 13:46

J1PTJ4
1207005-01 (Other Liquid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
TIC:Unknown 1	**30800**	J, D		ug/kg	500	L207027	07/05/2012	07/05/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*90 %*		*60-130*			*L207027*	*07/05/2012*	*07/05/2012*	*8260B*
Surrogate: Toluene-d8	*74 %*		*72-117*			*L207027*	*07/05/2012*	*07/05/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*90 %*		*72-144*			*L207027*	*07/05/2012*	*07/05/2012*	*8260B*

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 13:46

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207027 - SW 5030B										
Blank (L207027-BLK1)				Prepared & Analyzed: 07/05/2012						
1,1,1-Trichloroethane	2500	U	2500	ug/kg						
1,1,2,2-Tetrachloroethane	2500	U	2500	ug/kg						
1,1,2-Trichloroethane	2500	U	2500	ug/kg						
1,1-Dichloroethane	2500	U	2500	ug/kg						
1,1-Dichloroethene	2500	U	2500	ug/kg						
1,2-Dichloroethane	3000	U	3000	ug/kg						
1,2-Dichloroethene (total)	2500	U	2500	ug/kg						
1,2-Dichloropropane	2500	U	2500	ug/kg						
2-Butanone	6000	U	6000	ug/kg						
2-Hexanone	6000	U	6000	ug/kg						
4-Methyl-2-pentanone	6000	U	6000	ug/kg						
Acetone	6000	U	6000	ug/kg						
Benzene	2500	U	2500	ug/kg						
Bromodichloromethane	3000	U	3000	ug/kg						
Bromoform	2500	U	2500	ug/kg						
Bromomethane	5000	U	5000	ug/kg						
Carbon Disulfide	2500	U	2500	ug/kg						
Carbon Tetrachloride	2500	U	2500	ug/kg						
Chlorobenzene	2500	U	2500	ug/kg						
Chloroethane	5000	U	5000	ug/kg						
Chloroform	2500	U	2500	ug/kg						
Chloromethane	5000	U	5000	ug/kg						
cis-1,2-Dichloroethene	2500	U	2500	ug/kg						
cis-1,3-Dichloropropene	2500	U	2500	ug/kg						
Dibromochloromethane	2500	U	2500	ug/kg						
Ethylbenzene	2500	U	2500	ug/kg						
Methylene Chloride	3000	U	3000	ug/kg						
Styrene	2500	U	2500	ug/kg						
Tetrachloroethene	2500	U	2500	ug/kg						
trans-1,2-Dichloroethene	2500	U	2500	ug/kg						
Toluene	2500	U	2500	ug/kg						
trans-1,3-Dichloropropene	2500	U	2500	ug/kg						
Trichloroethene	2500	U	2500	ug/kg						
Vinyl chloride	5000	U	5000	ug/kg						
Xylenes, total	2500	U	2500	ug/kg						
Surrogate: 1,2-Dichloroethane-d4	*24200*			*ug/kg*	*25000*		*97*	*60-130*		

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 13:46

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207027 - SW 5030B										
Blank (L207027-BLK1)				Prepared & Analyzed: 07/05/2012						
Surrogate: Toluene-d8	*22600*			*ug/kg*	*25000*		*90*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*24400*			*ug/kg*	*25000*		*97*	*72-144*		
Blank (L207027-BLK2)				Prepared & Analyzed: 07/05/2012						
1,1,1-Trichloroethane	2500	U	2500	ug/kg						
1,1,2,2-Tetrachloroethane	2500	U	2500	ug/kg						
1,1,2-Trichloroethane	2500	U	2500	ug/kg						
1,1-Dichloroethane	2500	U	2500	ug/kg						
1,1-Dichloroethene	2500	U	2500	ug/kg						
1,2-Dichloroethane	3000	U	3000	ug/kg						
1,2-Dichloroethene (total)	2500	U	2500	ug/kg						
1,2-Dichloropropane	2500	U	2500	ug/kg						
2-Butanone	6000	U	6000	ug/kg						
2-Hexanone	6000	U	6000	ug/kg						
4-Methyl-2-pentanone	6000	U	6000	ug/kg						
Acetone	6000	U	6000	ug/kg						
Benzene	2500	U	2500	ug/kg						
Bromodichloromethane	3000	U	3000	ug/kg						
Bromoform	2500	U	2500	ug/kg						
Bromomethane	5000	U	5000	ug/kg						
Carbon Disulfide	2500	U	2500	ug/kg						
Carbon Tetrachloride	2500	U	2500	ug/kg						
Chlorobenzene	2500	U	2500	ug/kg						
Chloroethane	5000	U	5000	ug/kg						
Chloroform	2500	U	2500	ug/kg						
Chloromethane	5000	U	5000	ug/kg						
cis-1,2-Dichloroethene	2500	U	2500	ug/kg						
cis-1,3-Dichloropropene	2500	U	2500	ug/kg						
Dibromochloromethane	2500	U	2500	ug/kg						
Ethylbenzene	2500	U	2500	ug/kg						
Methylene Chloride	3000	U	3000	ug/kg						
Styrene	2500	U	2500	ug/kg						
Tetrachloroethene	2500	U	2500	ug/kg						
trans-1,2-Dichloroethene	2500	U	2500	ug/kg						
Toluene	2500	U	2500	ug/kg						
trans-1,3-Dichloropropene	2500	U	2500	ug/kg						
Trichloroethene	2500	U	2500	ug/kg						

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 13:46

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207027 - SW 5030B										
Blank (L207027-BLK2)				Prepared & Analyzed: 07/05/2012						
Vinyl chloride	5000	U	5000	ug/kg						
Xylenes, total	2500	U	2500	ug/kg						
Surrogate: 1,2-Dichloroethane-d4	*25400*			*ug/kg*	*25000*		*101*	*60-130*		
Surrogate: Toluene-d8	*24500*			*ug/kg*	*25000*		*98*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*25800*			*ug/kg*	*25000*		*103*	*72-144*		
LCS (L207027-BS1)				Prepared & Analyzed: 07/05/2012						
1,1,1-Trichloroethane	23000	D	2500	ug/kg	25000		92	65-130		
1,1,2,2-Tetrachloroethane	22400	D	2500	ug/kg	25000		90	50-130		
1,1,2-Trichloroethane	22900	D	2500	ug/kg	25000		92	60-125		
1,1-Dichloroethane	23100	D	2500	ug/kg	25000		93	70-130		
1,1-Dichloroethene	25300	D	2500	ug/kg	25000		101	60-130		
1,2-Dichloroethane	24200	D	3000	ug/kg	25000		97	60-130		
1,2-Dichloroethene (total)	46700	D	2500	ug/kg	50000		93	75-125		
1,2-Dichloropropane	22600	D	2500	ug/kg	25000		90	70-130		
2-Butanone	24000	D	6000	ug/kg	25000		96	20-200		
2-Hexanone	22500	D	6000	ug/kg	25000		90	20-200		
4-Methyl-2-pentanone	23000	D	6000	ug/kg	25000		92	40-150		
Acetone	28300	D	6000	ug/kg	25000		113	15-240		
Benzene	21900	D	2500	ug/kg	25000		88	75-125		
Bromodichloromethane	23800	D	3000	ug/kg	25000		95	65-135		
Bromoform	27600	D	2500	ug/kg	25000		110	60-130		
Bromomethane	16000	D	5000	ug/kg	25000		64	40-150		
Carbon Disulfide	24200	D	2500	ug/kg	25000		97	55-140		
Carbon Tetrachloride	27200	D	2500	ug/kg	25000		109	60-135		
Chlorobenzene	24300	D	2500	ug/kg	25000		97	70-125		
Chloroethane	19500	D	5000	ug/kg	25000		78	50-150		
Chloroform	24500	D	2500	ug/kg	25000		98	70-130		
Chloromethane	22800	D	5000	ug/kg	25000		91	40-130		
cis-1,2-Dichloroethene	23300	D	2500	ug/kg	25000		93	70-125		
cis-1,3-Dichloropropene	23800	D	2500	ug/kg	25000		95	70-125		
Dibromochloromethane	26100	D	2500	ug/kg	25000		104	65-125		
Ethylbenzene	24100	D	2500	ug/kg	25000		97	70-125		
Methylene Chloride	23100	D	3000	ug/kg	25000		93	45-140		
Styrene	24700	D	2500	ug/kg	25000		99	70-125		
Tetrachloroethene	24000	D	2500	ug/kg	25000		96	60-130		
trans-1,2-Dichloroethene	23300	D	2500	ug/kg	25000		93	65-130		

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 13:46

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207027 - SW 5030B										
LCS (L207027-BS1)				Prepared & Analyzed: 07/05/2012						
Toluene	22100	D	2500	ug/kg	25000		89	70-125		
trans-1,3-Dichloropropene	25400	D	2500	ug/kg	25000		102	65-125		
Trichloroethene	25500	D	2500	ug/kg	25000		102	70-130		
Vinyl chloride	21900	D	5000	ug/kg	25000		88	50-150		
Xylenes, total	72800	D	2500	ug/kg	75000		97	70-125		
Surrogate: 1,2-Dichloroethane-d4	*23200*			*ug/kg*	*25000*		*93*	*60-130*		
Surrogate: Toluene-d8	*23200*			*ug/kg*	*25000*		*93*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*25000*			*ug/kg*	*25000*		*100*	*72-144*		
LCS (L207027-BS2)				Prepared & Analyzed: 07/05/2012						
1,1,1-Trichloroethane	22300	D	2500	ug/kg	25000		89	65-130		
1,1,2,2-Tetrachloroethane	21800	D	2500	ug/kg	25000		87	50-130		
1,1,2-Trichloroethane	22300	D	2500	ug/kg	25000		89	60-125		
1,1-Dichloroethane	22900	D	2500	ug/kg	25000		92	70-130		
1,1-Dichloroethene	26400	D	2500	ug/kg	25000		105	60-130		
1,2-Dichloroethane	23800	D	3000	ug/kg	25000		95	60-130		
1,2-Dichloroethene (total)	46200	D	2500	ug/kg	50000		92	75-125		
1,2-Dichloropropane	22000	D	2500	ug/kg	25000		88	70-130		
2-Butanone	24400	D	6000	ug/kg	25000		98	20-200		
2-Hexanone	23300	D	6000	ug/kg	25000		93	20-200		
4-Methyl-2-pentanone	22800	D	6000	ug/kg	25000		91	40-150		
Acetone	26100	D	6000	ug/kg	25000		104	15-240		
Benzene	21600	D	2500	ug/kg	25000		86	75-125		
Bromodichloromethane	23100	D	3000	ug/kg	25000		92	65-135		
Bromoform	26600	D	2500	ug/kg	25000		107	60-130		
Bromomethane	14000	D	5000	ug/kg	25000		56	40-150		
Carbon Disulfide	24900	D	2500	ug/kg	25000		100	55-140		
Carbon Tetrachloride	26400	D	2500	ug/kg	25000		106	60-135		
Chlorobenzene	23800	D	2500	ug/kg	25000		95	70-125		
Chloroethane	17500	D	5000	ug/kg	25000		70	50-150		
Chloroform	24100	D	2500	ug/kg	25000		96	70-130		
Chloromethane	19400	D	5000	ug/kg	25000		78	40-130		
cis-1,2-Dichloroethene	22700	D	2500	ug/kg	25000		91	70-125		
cis-1,3-Dichloropropene	21200	D	2500	ug/kg	25000		85	70-125		
Dibromochloromethane	24600	D	2500	ug/kg	25000		98	65-125		
Ethylbenzene	23600	D	2500	ug/kg	25000		94	70-125		
Methylene Chloride	23000	D	3000	ug/kg	25000		92	45-140		

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 13:46

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207027 - SW 5030B										
LCS (L207027-BS2)				Prepared & Analyzed: 07/05/2012						
Styrene	22800	D	2500	ug/kg	25000		91	70-125		
Tetrachloroethene	23600	D	2500	ug/kg	25000		95	60-130		
trans-1,2-Dichloroethene	23500	D	2500	ug/kg	25000		94	65-130		
Toluene	21800	D	2500	ug/kg	25000		87	70-125		
trans-1,3-Dichloropropene	24900	D	2500	ug/kg	25000		100	65-125		
Trichloroethene	25700	D	2500	ug/kg	25000		103	70-130		
Vinyl chloride	19200	D	5000	ug/kg	25000		77	50-150		
Xylenes, total	71100	D	2500	ug/kg	75000		95	70-125		
Surrogate: 1,2-Dichloroethane-d4	*24400*			*ug/kg*	*25000*		*98*	*60-130*		
Surrogate: Toluene-d8	*24200*			*ug/kg*	*25000*		*97*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*25600*			*ug/kg*	*25000*		*102*	*72-144*		
Matrix Spike (L207027-MS1)		**Source: 1207005-01**		Prepared & Analyzed: 07/05/2012						
1,1,1-Trichloroethane	15500	J, D	24500	ug/kg	24510	23100 U	63*	65-130		
1,1,2,2-Tetrachloroethane	19600	J, D	24500	ug/kg	24510	23100 U	80	50-130		
1,1,2-Trichloroethane	19000	J, D	24500	ug/kg	24510	23100 U	78	60-125		
1,1-Dichloroethane	19500	J, D	24500	ug/kg	24510	23100 U	79	70-130		
1,1-Dichloroethene	21400	J, D	24500	ug/kg	24510	23100 U	87	60-130		
1,2-Dichloroethane	21000	J, D	29400	ug/kg	24510	27800 U	86	60-130		
1,2-Dichloroethene (total)	38000	D	24500	ug/kg	49020	23100 U	78	75-125		
1,2-Dichloropropane	17400	J, D	24500	ug/kg	24510	23100 U	71	70-130		
2-Butanone	22900	J, D	58800	ug/kg	24510	55600 U	93	20-200		
2-Hexanone	58800	U	58800	ug/kg	24510	55600 U	*	20-200		
4-Methyl-2-pentanone	58800	U	58800	ug/kg	24510	55600 U	*	40-150		
Acetone	40600	J, D	58800	ug/kg	24510	55600 U	166	15-240		
Benzene	38300	D	24500	ug/kg	24510	19600	76	75-125		
Bromodichloromethane	16800	J, D	29400	ug/kg	24510	27800 U	69	65-135		
Bromoform	17500	J, D	24500	ug/kg	24510	23100 U	71	60-130		
Bromomethane	13100	J, D	49000	ug/kg	24510	46300 U	54	40-150		
Carbon Disulfide	15300	J, D	24500	ug/kg	24510	23100 U	62	55-140		
Carbon Tetrachloride	16000	J, D	24500	ug/kg	24510	23100 U	65	60-135		
Chlorobenzene	19500	J, D	24500	ug/kg	24510	23100 U	80	70-125		
Chloroethane	15800	J, D	49000	ug/kg	24510	46300 U	65	50-150		
Chloroform	20500	J, D	24500	ug/kg	24510	23100 U	83	70-130		
Chloromethane	14800	J, D	49000	ug/kg	24510	46300 U	61	40-130		
cis-1,2-Dichloroethene	18700	J, D	24500	ug/kg	24510	23100 U	76	70-125		
cis-1,3-Dichloropropene	15400	J, D	24500	ug/kg	24510	23100 U	63*	70-125		

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 13:46

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207027 - SW 5030B										
Matrix Spike (L207027-MS1)		**Source: 1207005-01**		Prepared & Analyzed: 07/05/2012						
Dibromochloromethane	15300	J, D	24500	ug/kg	24510	23100 U	62*	65-125		
Ethylbenzene	24600	D	24500	ug/kg	24510	7630	69*	70-125		
Methylene Chloride	23200	J, D	29400	ug/kg	24510	27800 U	95	45-140		
Styrene	35700	D	24500	ug/kg	24510	18300	71	70-125		
Tetrachloroethene	17700	J, D	24500	ug/kg	24510	23100 U	72	60-130		
trans-1,2-Dichloroethene	19300	J, D	24500	ug/kg	24510	23100 U	79	65-130		
Toluene	663000	D	24500	ug/kg	24510	644000	79	70-125		
trans-1,3-Dichloropropene	17700	J, D	24500	ug/kg	24510	23100 U	72	65-125		
Trichloroethene	20700	J, D	24500	ug/kg	24510	23100 U	84	70-130		
Vinyl chloride	14700	J, D	49000	ug/kg	24510	46300 U	60	50-150		
Xylenes, total	62600	D	24500	ug/kg	73529	8260	74	70-125		
Surrogate: 1,2-Dichloroethane-d4	*21500*			*ug/kg*	*24510*		*88*	*60-130*		
Surrogate: Toluene-d8	*18700*			*ug/kg*	*24510*		*76*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*24200*			*ug/kg*	*24510*		*99*	*72-144*		
Matrix Spike Dup (L207027-MSD1)		**Source: 1207005-01**		Prepared & Analyzed: 07/05/2012						
1,1,1-Trichloroethane	16600	J, D	23400	ug/kg	23364	23100 U	71	65-130	12	20
1,1,2,2-Tetrachloroethane	18500	J, D	23400	ug/kg	23364	23100 U	79	50-130	1	20
1,1,2-Trichloroethane	19800	J, D	23400	ug/kg	23364	23100 U	85	60-125	9	20
1,1-Dichloroethane	19500	J, D	23400	ug/kg	23364	23100 U	84	70-130	5	20
1,1-Dichloroethene	20600	J, D	23400	ug/kg	23364	23100 U	88	60-130	0.7	20
1,2-Dichloroethane	19500	J, D	28000	ug/kg	23364	27800 U	84	60-130	3	20
1,2-Dichloroethene (total)	39300	D	23400	ug/kg	46729	23100 U	84	75-125	8	20
1,2-Dichloropropane	18200	J, D	23400	ug/kg	23364	23100 U	78	70-130	9	20
2-Butanone	21100	J, D	56100	ug/kg	23364	55600 U	90	20-200	3	20
2-Hexanone	21200	J, D	56100	ug/kg	23364	55600 U	91	20-200		20
4-Methyl-2-pentanone	18700	J, D	56100	ug/kg	23364	55600 U	80	40-150		20
Acetone	28000	J, D	56100	ug/kg	23364	55600 U	120	15-240	32*	20
Benzene	38200	D	23400	ug/kg	23364	19600	80	75-125	5	20
Bromodichloromethane	17000	J, D	28000	ug/kg	23364	27800 U	73	65-135	6	20
Bromoform	17700	J, D	23400	ug/kg	23364	23100 U	76	60-130	6	20
Bromomethane	11800	J, D	46700	ug/kg	23364	46300 U	50	40-150	6	20
Carbon Disulfide	14400	J, D	23400	ug/kg	23364	23100 U	62	55-140	0.9	20
Carbon Tetrachloride	16600	J, D	23400	ug/kg	23364	23100 U	71	60-135	9	20
Chlorobenzene	19200	J, D	23400	ug/kg	23364	23100 U	82	70-125	3	20
Chloroethane	15900	J, D	46700	ug/kg	23364	46300 U	68	50-150	5	20
Chloroform	19400	J, D	23400	ug/kg	23364	23100 U	83	70-130	0.4	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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 13:46

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207027 - SW 5030B										
Matrix Spike Dup (L207027-MSD1)		**Source: 1207005-01**		Prepared & Analyzed: 07/05/2012						
Chloromethane	14100	J, D	46700	ug/kg	23364	46300 U	60	40-130	0.2	20
cis-1,2-Dichloroethene	19800	J, D	23400	ug/kg	23364	23100 U	85	70-125	11	20
cis-1,3-Dichloropropene	15100	J, D	23400	ug/kg	23364	23100 U	65*	70-125	3	20
Dibromochloromethane	17400	J, D	23400	ug/kg	23364	23100 U	74	65-125	18	20
Ethylbenzene	24100	D	23400	ug/kg	23364	7630	71	70-125	2	20
Methylene Chloride	21300	J, D	28000	ug/kg	23364	27800 U	91	45-140	4	20
Styrene	37200	D	23400	ug/kg	23364	18300	81	70-125	13	20
Tetrachloroethene	17000	J, D	23400	ug/kg	23364	23100 U	73	60-130	0.7	20
trans-1,2-Dichloroethene	19500	J, D	23400	ug/kg	23364	23100 U	83	65-130	6	20
Toluene	676000	D	23400	ug/kg	23364	644000	139*	70-125	55*	20
trans-1,3-Dichloropropene	17800	J, D	23400	ug/kg	23364	23100 U	76	65-125	6	20
Trichloroethene	20400	J, D	23400	ug/kg	23364	23100 U	87	70-130	4	20
Vinyl chloride	15200	J, D	46700	ug/kg	23364	46300 U	65	50-150	8	20
Xylenes, total	65900	D	23400	ug/kg	70093	8260	82	70-125	11	20
Surrogate: 1,2-Dichloroethane-d4	*21100*			*ug/kg*	*23364*		*90*	*60-130*		
Surrogate: Toluene-d8	*18100*			*ug/kg*	*23364*		*77*	*72-117*		
Surrogate: 4-Bromofluorobenzene	*21100*			*ug/kg*	*23364*		*90*	*72-144*		

PREPARATION BENCH SHEET

L207027

Lionville Laboratory

Printed: 7/5/2012 10:24:52PM

00000024

Matrix: Waste **Prepared using: VOAGCMS - SW 5030B** **Surrogate used: 0902344**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1207005-01	8260B TCL VOC	07/05/2012 20:30	1.08	10				500	WC-Hanford, Inc.	
L207027-BLK1	QC	07/05/2012 17:07	1	10				500		
L207027-BLK2	QC	07/05/2012 18:28	1	10				500		
L207027-BS1	QC	07/05/2012 16:33	1	10	1200748		500	500		
L207027-BS2	QC	07/05/2012 17:53	1	10	1200748		500	500		
L207027-MS1	QC	07/05/2012 21:19	1.02	10	1200748	1207005-01	500	500		
L207027-MSD1	QC	07/05/2012 21:53	1.07	10	1200748	1207005-01	500	500		

R 7/14/12

NA Rev 7/13/12

Extracts Relinquished By Date Extracts Received By Date

SEMIVOLATILES

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/18/2012 12:45

Analytical Report for Semivolatile Organic Compounds by SW846 8270C

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PTJ4	1207005-01	Other Liquid	06/27/2012 08:50	07/03/2012 09:45

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-155 K3944
LVL #: 1207005

W.O. #: 60049-001-001
Date Received: 07-03-2012

SEMIVOLATILE

One (1) other liquid sample was collected on 06-27-2012.

The samples and associated QC samples were extracted 07-10-2012 and analyzed 07-10,11-2012 according to Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3580A (Waste Dilution Protocol, 0.1g into 2.1 mL DCM), and the analysis procedure was based on SW846 Method 8270C for client specified Semivolatile target compounds.

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

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

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

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

4. Samples J1JTJ4, L207044-MS1 and L207044-MSD1 required 3-fold instrument dilutions due to the matrix. Reporting limits have been adjusted to reflect the necessary dilution.

5. Three (3) of thirty (30) surrogate recoveries were outside acceptance criteria. The surrogate recovery criteria were not met for samples L207044-BLK and L207044-MS1; the recoveries were biased high.

6. The method blank as below the reporting limit for all target compounds.

7. Nineteen (19) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12MS135) has been enclosed.

8. Twenty-six (26) of one hundred and twenty-eight (128) obtainable matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12MS135) has been enclosed.

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

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

mean RSD described in method 8000B. Per method 8000B/8270C, the attached Table 1 provides the mean RSD and indicates the target compounds where the RSD exceeded 15%; results for the indicated target compounds are considered to have greater uncertainty. Refer to the Analysis Batch Sequence Summary Form(s) to associate the calibration with samples.

10. Internal standard area criteria were not met for sample L207044-BLK1. The associated blank spike analyses fulfills its reanalysis requirements.

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

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

Iain Daniels
LvL Laboratory Manager

7/18/12
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12MS135

Initiator: Sharon Saylor
Date: 7-16-12
Client: WCHanford RC-155

Batch: 1207005
Samples: L207044-BS1, MS1, MSD1
Method: (SW846)/MCAWW/CLP/

Parameter: 8270C
Matrix: OIL
Prep Batch: L207044

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) Spike recoveries outside QC acceptance Limits in L207044-BS1 (all high biased except 3-nitroaniline Benzidine and 4 nitroaniline)
(2) Spike recoveries outside QC acceptance Limits in L207044-MS1 and MSD1 (all highbiased)

2. Known or Probable Causes(s) nitroanilines subject to erratic chromatographic behavior.
Associated sample nondetect for all target compounds
RCE 7/17/12

3. Discussion and Proposed Action Other Description:

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

narrate

4. Project Manager Instructions...signature/date: 7/18/12

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

5. Final Action...signature/date: 7/18/12 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

TABLE 1

TCL - 8000B/8270C COMPOUNDS WHERE THE MEAN %RSD IS USED TO MEET CRITERIA FOR INITIAL CALIBRATION OF AN INDIVIDUAL COMPOUND

MEAN RSD USED FOR EVALUATION: 10.14 CALIBRATION: 1207008

>15% RSD	Compound	>15% RSD	Compound	>15% RSD	Compound
	1,2,4-Trichlorobenzene		Di-n-butyl Phthalate		**Surrogates:**
	1,2-Dichlorobenzene		Di-n-octyl Phthalate		2-Fluorophenol
	1,3-Dichlorobenzene		Fluoranthene		Phenol-d5
	1,4-Dichlorobenzene		Fluorene		Nitrobenzene-d5
	2,4,5-Trichlorophenol		Hexachlorobenzene		2-Fluorobiphenyl
	2,4,6-Trichlorophenol		Hexachlorobutadiene		2,4,6-Tribromophenol
	2,4-Dichlorophenol		Hexachlorocyclopentadiene		p-Terphenyl-d14
	2,4-Dimethylphenol		Hexachloroethane		
✓	2,4-Dinitrophenol		Indeno[1,2,3-cd]pyrene		
	2,4-Dinitrotoluene		Isophorone		
	2,6-Dinitrotoluene		Naphthalene		
	2-Chloronaphthalene		Nitrobenzene		
	2-Chlorophenol		N-Nitrosodi-n-propylamine		
	2-Methylnaphthalene		N-Nitrosodiphenylamine		
	2-Methylphenol		Pentachlorophenol		
	2-Nitroaniline		Phenanthrene		
	2-Nitrophenol		Phenol		
	3- and/or 4-Methylphenol	✓	Pyrene		
	3,3'-Dichlorobenzidine				
✓	3-Nitroaniline				
	4,6-Dinitro-2-methylphenol		**OLM04.2 TCL addons:**		
	4-Bromophenyl Phenyl Ether		1,1-Biphenyl		
	4-Chloro-3-methylphenol		Atrazine		
✓	4-Chloroaniline		Benzaldehyde		
	4-Chlorophenyl Phenyl Ether		Caprolactam		
	4-Nitroaniline				
✓	4-Nitrophenol		**NonTCL addons:**		
	Acenaphthene		1,2-Diphenylhydrazine		
	Acenaphthylene		1,4-Dioxane		
	Anthracene		1-Methylnapthalene		
	Benz[a]anthracene		2,3,4,6-Tetrachlorophenol		
	Benzo[a] pyrene		Acetophenone		
	Benzo[b] fluoranthene		Aniline		
	Benzo[g,h,i] perylene		Benzidine		
	Benzo[k] fluoranthene		Benzoic Acid		
	Benzyl alcohol		N-Nitrosodimethylamine		
	Bis(2-chloroethoxy) methane		Pyridine		
	Bis(2-chloroethyl) ether		Tributylphosphate		
	Bis(2-chloroisopropyl) ether				
	Bis(2-ethylhexyl) phthalate				
	Butyl Benzyl Phthalate				
✓	Carbazole				
	Chrysene				
	Dibenz[a,h]anthracene				
	Dibenzofuran				
	Diethyl Phthalate				
	Dimethyl Phthalate				

TABLE 1

TCL - 8000B/8270C COMPOUNDS WHERE THE MEAN %RSD IS USED TO MEET CRITERIA FOR INITIAL CALIBRATION OF AN INDIVIDUAL COMPOUND

MEAN RSD USED FOR EVALUATION: 9.13 CALIBRATION: 1207009

>15% RSD	Compound	>15% RSD	Compound	>15% RSD	Compound
	1,2,4-Trichlorobenzene		Di-n-butyl Phthalate		**Surrogates:**
	1,2-Dichlorobenzene		Di-n-octyl Phthalate		2-Fluorophenol
	1,3-Dichlorobenzene		Fluoranthene		Phenol-d5
	1,4-Dichlorobenzene		Fluorene		Nitrobenzene-d5
	2,4,5-Trichlorophenol		Hexachlorobenzene		2-Fluorobiphenyl
	2,4,6-Trichlorophenol		Hexachlorobutadiene		2,4,6-Tribromophenol
	2,4-Dichlorophenol		Hexachlorocyclopentadiene		p-Terphenyl-d14
	2,4-Dimethylphenol		Hexachloroethane		
✓	2,4-Dinitrophenol		Indeno[1,2,3-cd]pyrene		
	2,4-Dinitrotoluene		Isophorone		
	2,6-Dinitrotoluene		Naphthalene		
	2-Chloronaphthalene		Nitrobenzene		
	2-Chlorophenol		N-Nitrosodi-n-propylamine		
	2-Methylnaphthalene		N-Nitrosodiphenylamine		
	2-Methylphenol		Pentachlorophenol		
	2-Nitroaniline		Phenanthrene		
	2-Nitrophenol		Phenol		
	3- and/or 4-Methylphenol		Pyrene		
	3,3'-Dichlorobenzidine				
✓	3-Nitroaniline				
	4,6-Dinitro-2-methylphenol		**OLM04.2 TCL addons:**		
	4-Bromophenyl Phenyl Ether		1,1-Biphenyl		
	4-Chloro-3-methylphenol		Atrazine		
	4-Chloroaniline		Benzaldehyde		
	4-Chlorophenyl Phenyl Ether		Caprolactam		
	4-Nitroaniline				
	4-Nitrophenol		**NonTCL addons:**		
	Acenaphthene		1,2-Diphenylhydrazine		
	Acenaphthylene		1,4-Dioxane		
	Anthracene		1-Methylnapthalene		
	Benz[a]anthracene		2,3,4,6-Tetrachlorophenol		
	Benzo[a] pyrene		Acetophenone		
	Benzo[b] fluoranthene		Aniline		
	Benzo[g,h,i] perylene		Benzidine		
	Benzo[k] fluoranthene		Benzoic Acid		
	Benzyl alcohol		N-Nitrosodimethylamine		
	Bis(2-chloroethoxy) methane		Pyridine		
	Bis(2-chloroethyl) ether		Tributylphosphate		
	Bis(2-chloroisopropyl) ether				
	Bis(2-ethylhexyl) phthalate				
	Butyl Benzyl Phthalate				
	Carbazole				
	Chrysene				
	Dibenz[a,h]anthracene				
	Dibenzofuran				
	Diethyl Phthalate				
	Dimethyl Phthalate				

ANALYSIS BATCH (SEQUENCE) SUMMARY
8270C

Laboratory:	Lionville Laboratory	SDG:	
Client:	WC-Hanford, Inc.	Project:	RC-155
Sequence:	2070046	Instrument:	HP5972N
Matrix:	Waste	Calibration:	1207008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	2070046-TUN1	N071001.D	07/10/12 11:41
Cal Standard	2070046-CAL2	N071002.D	07/10/12 12:07
Cal Standard	2070046-CAL5	N071003.D	07/10/12 12:57
Cal Standard	2070046-CAL1	N071004.D	07/10/12 13:47
Cal Standard	2070046-CAL3	N071005.D	07/10/12 14:38
Cal Standard	2070046-CAL4	N071006.D	07/10/12 15:29
Secondary Cal Check	2070046-SCV1	N071007.D	07/10/12 16:20
LCS	L207044-BS1	N071008.D	07/10/12 17:11
Blank	L207044-BLK1	N071009.D	07/10/12 18:01

ANALYSIS BATCH (SEQUENCE) SUMMARY
8270C

Laboratory:	Lionville Laboratory	SDG:	
Client:	WC-Hanford, Inc.	Project:	RC-155
Sequence:	2070047	Instrument:	HP5972N
Matrix:	Waste	Calibration:	1207009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	2070047-TUN1	N071101.D	07/11/12 11:49
Cal Standard	2070047-CAL2	N071102.D	07/11/12 12:15
Cal Standard	2070047-CAL5	N071103.D	07/11/12 13:07
Cal Standard	2070047-CAL1	N071104.D	07/11/12 13:58
Cal Standard	2070047-CAL3	N071105.D	07/11/12 14:49
Cal Standard	2070047-CAL4	N071106.D	07/11/12 15:40
Secondary Cal Check	2070047-SCV1	N071107.D	07/11/12 16:30
J1PTJ4	1207005-01	N071113.D	07/11/12 21:33
J1PTJ4	L207044-MS1	N071114.D	07/11/12 22:23
J1PTJ4	L207044-MSD1	N071115.D	07/11/12 23:14

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.

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/18/2012 12:45

J1PTJ4
1207005-01 (Other Liquid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
1,2,4-Trichlorobenzene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
1,2-Dichlorobenzene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
1,3-Dichlorobenzene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
1,4-Dichlorobenzene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2,4,5-Trichlorophenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2,4,6-Trichlorophenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2,4-Dichlorophenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2,4-Dimethylphenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2,4-Dinitrophenol	3080000	U	3080000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2,4-Dinitrotoluene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2,6-Dinitrotoluene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2-Chloronaphthalene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2-Chlorophenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2-Methylnaphthalene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2-Methylphenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2-Nitroaniline	3080000	U	3080000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
2-Nitrophenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
3,3'-Dichlorobenzidine	1230000	U	1230000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
3-Nitroaniline	3080000	U	3080000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
4,6-Dinitro-2-methylphenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
4-Bromophenyl Phenyl Ether	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
4-Chloro-3-methylphenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
4-Chloroaniline	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
4-Chlorophenyl Phenyl Ether	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
3- and/or 4-Methylphenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
4-Nitroaniline	3080000	U	3080000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
4-Nitrophenol	3080000	U	3080000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Acenaphthene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Acenaphthylene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Anthracene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Benz[a]anthracene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Benzo[a] pyrene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Benzo[b] fluoranthene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Benzo[g,h,i] perylene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Benzo[k] fluoranthene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Bis(2-chloroethoxy) methane	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/18/2012 12:45

J1PTJ4
1207005-01 (Other Liquid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Semivolatile Organic Compounds by SW846 8270C									
Bis(2-chloroethyl) ether	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Bis(2-chloroisopropyl) ether	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Bis(2-ethylhexyl) phthalate	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Butyl Benzyl Phthalate	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Carbazole	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Chrysene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Dibenz[a,h]anthracene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Dibenzofuran	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Diethyl Phthalate	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Dimethyl Phthalate	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Di-n-butyl Phthalate	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Di-n-octyl Phthalate	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Fluoranthene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Fluorene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Hexachlorobenzene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Hexachlorobutadiene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Hexachlorocyclopentadiene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Hexachloroethane	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Indeno[1,2,3-cd]pyrene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Isophorone	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Naphthalene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Nitrobenzene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
N-Nitrosodi-n-propylamine	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
N-Nitrosodiphenylamine	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Pentachlorophenol	3080000	U	3080000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Phenanthrene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Phenol	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Pyrene	616000	U	616000	ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
TIC:Alkane 1	**1980000**	D, J		ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
TIC:Alkane 2	**1590000**	D, J		ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
TIC:Alkane 3	**2370000**	J, D		ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
TIC:Toluene	**1350000**	J, D N RC-7/19/12		ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
TIC:Unknown 1	**1370000**	J, D		ug/kg	3	L207044	07/10/2012	07/11/2012	8270C
Surrogate: 2-Fluorophenol	*85 %*		*25-121*			*L207044*	*07/10/2012*	*07/11/2012*	*8270C*
Surrogate: Phenol-d5	*63 %*		*24-113*			*L207044*	*07/10/2012*	*07/11/2012*	*8270C*
Surrogate: Nitrobenzene-d5	*98 %*		*23-120*			*L207044*	*07/10/2012*	*07/11/2012*	*8270C*

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/18/2012 12:45

J1PTJ4

1207005-01 (Other Liquid)

Analyte	Result and Qualifier	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory								
Semivolatile Organic Compounds by SW846 8270C								
Surrogate: 2-Fluorobiphenyl	*106 %*	*30-115*			*L207044*	*07/10/2012*	*07/11/2012*	*8270C*
Surrogate: 2,4,6-Tribromophenol	*82 %*	*19-122*			*L207044*	*07/10/2012*	*07/11/2012*	*8270C*
Surrogate: p-Terphenyl-d14	*118 %*	*18-137*			*L207044*	*07/10/2012*	*07/11/2012*	*8270C*

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/18/2012 12:45

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 L207044 - SW 3580A										
Blank (L207044-BLK1)			Prepared & Analyzed: 07/10/2012							
1,2,4-Trichlorobenzene	208000	U	208000	ug/kg						
1,2-Dichlorobenzene	208000	U	208000	ug/kg						
1,3-Dichlorobenzene	208000	U	208000	ug/kg						
1,4-Dichlorobenzene	208000	U	208000	ug/kg						
2,4,5-Trichlorophenol	208000	U	208000	ug/kg						
2,4,6-Trichlorophenol	208000	U	208000	ug/kg						
2,4-Dichlorophenol	208000	U	208000	ug/kg						
2,4-Dimethylphenol	208000	U	208000	ug/kg						
2,4-Dinitrophenol	1040000	U	1040000	ug/kg						
2,4-Dinitrotoluene	208000	U	208000	ug/kg						
2,6-Dinitrotoluene	208000	U	208000	ug/kg						
2-Chloronaphthalene	208000	U	208000	ug/kg						
2-Chlorophenol	208000	U	208000	ug/kg						
2-Methylnaphthalene	208000	U	208000	ug/kg						
2-Methylphenol	208000	U	208000	ug/kg						
2-Nitroaniline	1040000	U	1040000	ug/kg						
2-Nitrophenol	208000	U	208000	ug/kg						
3,3'-Dichlorobenzidine	416000	U	416000	ug/kg						
3-Nitroaniline	1040000	U	1040000	ug/kg						
4,6-Dinitro-2-methylphenol	208000	U	208000	ug/kg						
4-Bromophenyl Phenyl Ether	208000	U	208000	ug/kg						
4-Chloro-3-methylphenol	208000	U	208000	ug/kg						
4-Chloroaniline	208000	U	208000	ug/kg						
4-Chlorophenyl Phenyl Ether	208000	U	208000	ug/kg						
3- and/or 4-Methylphenol	208000	U	208000	ug/kg						
4-Nitroaniline	1040000	U	1040000	ug/kg						
4-Nitrophenol	1040000	U	1040000	ug/kg						
Acenaphthene	208000	U	208000	ug/kg						
Acenaphthylene	208000	U	208000	ug/kg						
Anthracene	208000	U	208000	ug/kg						
Benz[a]anthracene	208000	U	208000	ug/kg						
Benzo[a] pyrene	208000	U	208000	ug/kg						
Benzo[b] fluoranthene	208000	U	208000	ug/kg						
Benzo[g,h,i] perylene	208000	U	208000	ug/kg						
Benzo[k] fluoranthene	208000	U	208000	ug/kg						
Bis(2-chloroethoxy) methane	208000	U	208000	ug/kg						

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	07/18/2012 12:45

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 L207044 - SW 3580A										
Blank (L207044-BLK1)				Prepared & Analyzed: 07/10/2012						
Bis(2-chloroethyl) ether	208000	U	208000	ug/kg						
Bis(2-chloroisopropyl) ether	208000	U	208000	ug/kg						
Bis(2-ethylhexyl) phthalate	208000	U	208000	ug/kg						
Butyl Benzyl Phthalate	208000	U	208000	ug/kg						
Carbazole	208000	U	208000	ug/kg						
Chrysene	208000	U	208000	ug/kg						
Dibenz[a,h]anthracene	208000	U	208000	ug/kg						
Dibenzofuran	208000	U	208000	ug/kg						
Diethyl Phthalate	208000	U	208000	ug/kg						
Dimethyl Phthalate	208000	U	208000	ug/kg						
Di-n-butyl Phthalate	208000	U	208000	ug/kg						
Di-n-octyl Phthalate	208000	U	208000	ug/kg						
Fluoranthene	208000	U	208000	ug/kg						
Fluorene	208000	U	208000	ug/kg						
Hexachlorobenzene	208000	U	208000	ug/kg						
Hexachlorobutadiene	208000	U	208000	ug/kg						
Hexachlorocyclopentadiene	208000	U	208000	ug/kg						
Hexachloroethane	208000	U	208000	ug/kg						
Indeno[1,2,3-cd]pyrene	208000	U	208000	ug/kg						
Isophorone	208000	U	208000	ug/kg						
Naphthalene	208000	U	208000	ug/kg						
Nitrobenzene	208000	U	208000	ug/kg						
N-Nitrosodi-n-propylamine	208000	U	208000	ug/kg						
N-Nitrosodiphenylamine	208000	U	208000	ug/kg						
Pentachlorophenol	1040000	U	1040000	ug/kg						
Phenanthrene	208000	U	208000	ug/kg						
Phenol	208000	U	208000	ug/kg						
Pyrene	208000	U	208000	ug/kg						
Surrogate: 2-Fluorophenol	*762000*			*ug/kg*	*750000*		*102*	*25-121*		
Surrogate: Phenol-d5	*738000*			*ug/kg*	*750000*		*98*	*24-113*		
Surrogate: Nitrobenzene-d5	*567000*			*ug/kg*	*500000*		*113*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*614000*			*ug/kg*	*500000*		*123**	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*767000*			*ug/kg*	*750000*		*102*	*19-122*		
Surrogate: p-Terphenyl-d14	*769000*			*ug/kg*	*500000*		*154**	*18-137*		

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/18/2012 12:45

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 L207044 - SW 3580A									
LCS (L207044-BS1)			Prepared & Analyzed: 07/10/2012						
1,2,4-Trichlorobenzene	673000		ug/kg	600000		112*	45-110		
1,2-Dichlorobenzene	679000		ug/kg	600000		113*	45-105		
1,3-Dichlorobenzene	668000		ug/kg	600000		111*	40-100		
1,4-Dichlorobenzene	674000		ug/kg	600000		112*	35-105		
2,4,5-Trichlorophenol	714000		ug/kg	600000		119	30-140		
2,4,6-Trichlorophenol	681000		ug/kg	600000		113*	20-110		
2,4-Dichlorophenol	646000		ug/kg	600000		108	40-110		
2,4-Dimethylphenol	635000		ug/kg	600000		106*	30-105		
2,4-Dinitrophenol	691000		ug/kg	600000		115	25-130		
2,4-Dinitrotoluene	697000		ug/kg	600000		116*	50-115		
2,6-Dinitrotoluene	695000		ug/kg	600000		116	40-120		
2-Chloronaphthalene	696000		ug/kg	600000		116*	45-115		
2-Chlorophenol	609000		ug/kg	600000		102	45-105		
2-Methylnaphthalene	651000		ug/kg	600000		108	45-110		
2-Methylphenol	625000		ug/kg	600000		104	40-120		
2-Nitroaniline	324000		ug/kg	600000		54	45-120		
2-Nitrophenol	943000		ug/kg	600000		157*	40-110		
3,3'-Dichlorobenzidine	208000		ug/kg	600000		35	15-130		
3-Nitroaniline	29100		ug/kg	600000		5*	40-130		
4,6-Dinitro-2-methylphenol	727000		ug/kg	600000		121	20-140		
4-Bromophenyl Phenyl Ether	703000		ug/kg	600000		117*	45-115		
4-Chloro-3-methylphenol	659000		ug/kg	600000		110	35-115		
4-Chloroaniline	104000		ug/kg	600000		17	10-100		
4-Chlorophenyl Phenyl Ether	681000		ug/kg	600000		114*	45-110		
3- and/or 4-Methylphenol	597000		ug/kg	600000		99	40-120		
4-Nitroaniline	198000		ug/kg	600000		33*	40-130		
4-Nitrophenol	632000		ug/kg	600000		105	15-140		
Acenaphthene	703000		ug/kg	600000		117*	45-110		
Acenaphthylene	620000		ug/kg	600000		103	45-115		
Anthracene	719000		ug/kg	600000		120	45-130		
Benz[a]anthracene	726000		ug/kg	600000		121	45-130		
Benzo[a] pyrene	682000		ug/kg	600000		114	45-130		
Benzo[b] fluoranthene	698000		ug/kg	600000		116	40-130		
Benzo[g,h,i] perylene	712000		ug/kg	600000		119	45-125		
Benzo[k] fluoranthene	677000		ug/kg	600000		113	45-125		
Bis(2-chloroethoxy) methane	662000		ug/kg	600000		110	45-110		

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/18/2012 12:45

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 L207044 - SW 3580A									
LCS (L207044-BS1)			Prepared & Analyzed: 07/10/2012						
Bis(2-chloroethyl) ether	617000		ug/kg	600000		103	40-110		
Bis(2-chloroisopropyl) ether	645000		ug/kg	600000		107	30-115		
Bis(2-ethylhexyl) phthalate	738000		ug/kg	600000		123	40-145		
Butyl Benzyl Phthalate	708000		ug/kg	600000		118	50-125		
Carbazole	653000		ug/kg	600000		109	40-140		
Chrysene	750000		ug/kg	600000		125	45-130		
Dibenz[a,h]anthracene	566000		ug/kg	600000		94	45-125		
Dibenzofuran	706000		ug/kg	600000		118	45-120		
Diethyl Phthalate	684000		ug/kg	600000		114	50-125		
Dimethyl Phthalate	658000		ug/kg	600000		110	45-130		
Di-n-butyl Phthalate	684000		ug/kg	600000		114	50-130		
Di-n-octyl Phthalate	686000		ug/kg	600000		114	40-150		
Fluoranthene	727000		ug/kg	600000		121	45-130		
Fluorene	702000		ug/kg	600000		117	45-120		
Hexachlorobenzene	706000		ug/kg	600000		118	45-130		
Hexachlorobutadiene	723000		ug/kg	600000		121*	45-105		
Hexachlorocyclopentadiene	508000		ug/kg	600000		85	10-100		
Hexachloroethane	663000		ug/kg	600000		111*	35-110		
Indeno[1,2,3-cd]pyrene	662000		ug/kg	600000		110	45-130		
Isophorone	606000		ug/kg	600000		101	40-110		
Naphthalene	756000		ug/kg	600000		126*	40-110		
Nitrobenzene	655000		ug/kg	600000		109*	40-105		
N-Nitrosodi-n-propylamine	712000		ug/kg	600000		119	30-130		
N-Nitrosodiphenylamine	351000		ug/kg	600000		58	50-120		
Pentachlorophenol	849000		ug/kg	600000		141*	25-120		
Phenanthrene	721000		ug/kg	600000		120	50-120		
Phenol	598000		ug/kg	600000		100	40-115		
Pyrene	662000		ug/kg	600000		110	45-125		
Surrogate: 2-Fluorophenol	*721000*		*ug/kg*	*750000*		*96*	*25-121*		
Surrogate: Phenol-d5	*751000*		*ug/kg*	*750000*		*100*	*24-113*		
Surrogate: Nitrobenzene-d5	*554000*		*ug/kg*	*500000*		*111*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*567000*		*ug/kg*	*500000*		*113*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*866000*		*ug/kg*	*750000*		*115*	*19-122*		
Surrogate: p-Terphenyl-d14	*534000*		*ug/kg*	*500000*		*107*	*18-137*		

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/18/2012 12:45

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 L207044 - SW 3580A										
Matrix Spike (L207044-MS1)		**Source: 1207005-01**		Prepared: 07/10/2012 Analyzed: 07/11/2012						
1,2,4-Trichlorobenzene	641000	D		ug/kg	575540	616000 U	111*	45-110		
1,2-Dichlorobenzene	660000	D		ug/kg	575540	616000 U	115*	45-105		
1,3-Dichlorobenzene	646000	D		ug/kg	575540	616000 U	112*	40-100		
1,4-Dichlorobenzene	645000	D		ug/kg	575540	616000 U	112*	35-105		
2,4,5-Trichlorophenol	443000	D		ug/kg	575540	616000 U	77	30-140		
2,4,6-Trichlorophenol	575000	D		ug/kg	575540	616000 U	100	20-110		
2,4-Dichlorophenol	615000	D		ug/kg	575540	616000 U	107	40-110		
2,4-Dimethylphenol	464000	D		ug/kg	575540	616000 U	81	30-105		
2,4-Dinitrophenol	304000	D		ug/kg	575540	3080000 U	53	25-130		
2,4-Dinitrotoluene	794000	D		ug/kg	575540	616000 U	138*	50-115		
2,6-Dinitrotoluene	598000	D		ug/kg	575540	616000 U	104	40-120		
2-Chloronaphthalene	643000	D		ug/kg	575540	616000 U	112	45-115		
2-Chlorophenol	568000	D		ug/kg	575540	616000 U	99	45-105		
2-Methylnaphthalene	649000	D		ug/kg	575540	616000 U	113*	45-110		
2-Methylphenol	510000	D		ug/kg	575540	616000 U	89	40-120		
2-Nitroaniline	568000	D		ug/kg	575540	3080000 U	99	45-120		
2-Nitrophenol	592000	D		ug/kg	575540	616000 U	103	40-110		
3,3'-Dichlorobenzidine	703000	D		ug/kg	575540	1230000 U	122	15-130		
3-Nitroaniline	582000	D		ug/kg	575540	3080000 U	101	40-130		
4,6-Dinitro-2-methylphenol	464000	D		ug/kg	575540	616000 U	81	20-140		
4-Bromophenyl Phenyl Ether	740000	D		ug/kg	575540	616000 U	128*	45-115		
4-Chloro-3-methylphenol	369000	D		ug/kg	575540	616000 U	64	35-115		
4-Chloroaniline	639000	D		ug/kg	575540	616000 U	111*	10-100		
4-Chlorophenyl Phenyl Ether	615000	D		ug/kg	575540	616000 U	107	45-110		
3- and/or 4-Methylphenol	430000	D		ug/kg	575540	616000 U	75	40-120		
4-Nitroaniline	726000	D		ug/kg	575540	3080000 U	126	40-130		
4-Nitrophenol	363000	D		ug/kg	575540	3080000 U	63	15-140		
Acenaphthene	654000	D		ug/kg	575540	616000 U	114*	45-110		
Acenaphthylene	608000	D		ug/kg	575540	616000 U	106	45-115		
Anthracene	680000	D		ug/kg	575540	616000 U	118	45-130		
Benz[a]anthracene	661000	D		ug/kg	575540	616000 U	115	45-130		
Benzo[a] pyrene	611000	D		ug/kg	575540	616000 U	106	45-130		
Benzo[b] fluoranthene	631000	D		ug/kg	575540	616000 U	110	40-130		
Benzo[g,h,i] perylene	514000	D		ug/kg	575540	616000 U	89	45-125		
Benzo[k] fluoranthene	636000	D		ug/kg	575540	616000 U	111	45-125		
Bis(2-chloroethoxy) methane	622000	D		ug/kg	575540	616000 U	108	45-110		

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/18/2012 12:45

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 L207044 - SW 3580A										
Matrix Spike (L207044-MS1)		**Source: 1207005-01**		Prepared: 07/10/2012 Analyzed: 07/11/2012						
Bis(2-chloroethyl) ether	623000	D		ug/kg	575540	616000 U	108	40-110		
Bis(2-chloroisopropyl) ether	634000	D		ug/kg	575540	616000 U	110	30-115		
Bis(2-ethylhexyl) phthalate	764000	D		ug/kg	575540	616000 U	133	40-145		
Butyl Benzyl Phthalate	797000	D		ug/kg	575540	616000 U	138*	50-125		
Carbazole	802000	D		ug/kg	575540	616000 U	139	40-140		
Chrysene	671000	D		ug/kg	575540	616000 U	117	45-130		
Dibenz[a,h]anthracene	443000	D		ug/kg	575540	616000 U	77	45-125		
Dibenzofuran	656000	D		ug/kg	575540	616000 U	114	45-120		
Diethyl Phthalate	708000	D		ug/kg	575540	616000 U	123	50-125		
Dimethyl Phthalate	625000	D		ug/kg	575540	616000 U	109	45-130		
Di-n-butyl Phthalate	625000	D		ug/kg	575540	616000 U	109	50-130		
Di-n-octyl Phthalate	755000	D		ug/kg	575540	616000 U	131	40-150		
Fluoranthene	655000	D		ug/kg	575540	616000 U	114	45-130		
Fluorene	654000	D		ug/kg	575540	616000 U	114	45-120		
Hexachlorobenzene	686000	D		ug/kg	575540	616000 U	119	45-130		
Hexachlorobutadiene	647000	D		ug/kg	575540	616000 U	112*	45-105		
Hexachlorocyclopentadiene	126000	D		ug/kg	575540	616000 U	22	10-100		
Hexachloroethane	599000	D		ug/kg	575540	616000 U	104	35-110		
Indeno[1,2,3-cd]pyrene	528000	D		ug/kg	575540	616000 U	92	45-130		
Isophorone	588000	D		ug/kg	575540	616000 U	102	40-110		
Naphthalene	749000	D		ug/kg	575540	616000 U	130*	40-110		
Nitrobenzene	584000	D		ug/kg	575540	616000 U	102	40-105		
N-Nitrosodi-n-propylamine	592000	D		ug/kg	575540	616000 U	103	30-130		
N-Nitrosodiphenylamine	688000	D		ug/kg	575540	616000 U	119	50-120		
Pentachlorophenol	596000	D		ug/kg	575540	3080000 U	104	25-120		
Phenanthrene	677000	D		ug/kg	575540	616000 U	118	50-120		
Phenol	506000	D		ug/kg	575540	616000 U	88	40-115		
Pyrene	705000	D		ug/kg	575540	616000 U	123	45-125		
Surrogate: 2-Fluorophenol	*659000*			*ug/kg*	*719420*		*92*	*25-121*		
Surrogate: Phenol-d5	*693000*			*ug/kg*	*719420*		*96*	*24-113*		
Surrogate: Nitrobenzene-d5	*524000*			*ug/kg*	*479620*		*109*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*557000*			*ug/kg*	*479620*		*116**	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*829000*			*ug/kg*	*719420*		*115*	*19-122*		
Surrogate: p-Terphenyl-d14	*598000*			*ug/kg*	*479620*		*125*	*18-137*		

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/18/2012 12:45

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 L207044 - SW 3580A										
Matrix Spike Dup (L207044-MSD1)		**Source: 1207005-01**		Prepared: 07/10/2012 Analyzed: 07/11/2012						
1,2,4-Trichlorobenzene	685000	D		ug/kg	590730	616000 U	116*	45-110	4	40
1,2-Dichlorobenzene	703000	D		ug/kg	590730	616000 U	119*	45-105	4	40
1,3-Dichlorobenzene	687000	D		ug/kg	590730	616000 U	116*	40-100	4	40
1,4-Dichlorobenzene	696000	D		ug/kg	590730	616000 U	118*	35-105	5	40
2,4,5-Trichlorophenol	522000	D		ug/kg	590730	616000 U	88	30-140	14	40
2,4,6-Trichlorophenol	590000	D		ug/kg	590730	616000 U	100	20-110	0.05	40
2,4-Dichlorophenol	640000	D		ug/kg	590730	616000 U	108	40-110	1	40
2,4-Dimethylphenol	546000	D		ug/kg	590730	616000 U	92	30-105	14	40
2,4-Dinitrophenol	256000	D		ug/kg	590730	3080000 U	43	25-130	20	40
2,4-Dinitrotoluene	650000	D		ug/kg	590730	616000 U	110	50-115	23	40
2,6-Dinitrotoluene	604000	D		ug/kg	590730	616000 U	102	40-120	2	40
2-Chloronaphthalene	649000	D		ug/kg	590730	616000 U	110	45-115	2	40
2-Chlorophenol	621000	D		ug/kg	590730	616000 U	105	45-105	6	40
2-Methylnaphthalene	694000	D		ug/kg	590730	616000 U	117*	45-110	4	40
2-Methylphenol	573000	D		ug/kg	590730	616000 U	97	40-120	9	40
2-Nitroaniline	547000	D		ug/kg	590730	3080000 U	93	45-120	6	40
2-Nitrophenol	604000	D		ug/kg	590730	616000 U	102	40-110	0.6	40
3,3'-Dichlorobenzidine	747000	D		ug/kg	590730	1230000 U	127	15-130	3	40
3-Nitroaniline	580000	D		ug/kg	590730	3080000 U	98	40-130	3	40
4,6-Dinitro-2-methylphenol	451000	D		ug/kg	590730	616000 U	76	20-140	5	40
4-Bromophenyl Phenyl Ether	812000	D		ug/kg	590730	616000 U	137*	45-115	7	40
4-Chloro-3-methylphenol	427000	D		ug/kg	590730	616000 U	72	35-115	12	40
4-Chloroaniline	688000	D		ug/kg	590730	616000 U	116*	10-100	5	40
4-Chlorophenyl Phenyl Ether	651000	D		ug/kg	590730	616000 U	110	45-110	3	40
3- and/or 4-Methylphenol	494000	D		ug/kg	590730	616000 U	84	40-120	11	40
4-Nitroaniline	686000	D		ug/kg	590730	3080000 U	116	40-130	8	40
4-Nitrophenol	451000	D		ug/kg	590730	3080000 U	76	15-140	19	40
Acenaphthene	679000	D		ug/kg	590730	616000 U	115*	45-110	1	40
Acenaphthylene	613000	D		ug/kg	590730	616000 U	104	45-115	2	40
Anthracene	716000	D		ug/kg	590730	616000 U	121	45-130	3	40
Benz[a]anthracene	692000	D		ug/kg	590730	616000 U	117	45-130	2	40
Benzo[a] pyrene	644000	D		ug/kg	590730	616000 U	109	45-130	3	40
Benzo[b] fluoranthene	669000	D		ug/kg	590730	616000 U	113	40-130	3	40
Benzo[g,h,i] perylene	542000	D		ug/kg	590730	616000 U	92	45-125	3	40
Benzo[k] fluoranthene	673000	D		ug/kg	590730	616000 U	114	45-125	3	40
Bis(2-chloroethoxy) methane	664000	D		ug/kg	590730	616000 U	112*	45-110	4	40

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/18/2012 12:45

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 L207044 - SW 3580A										
Matrix Spike Dup (L207044-MSD1)		**Source: 1207005-01**		Prepared: 07/10/2012 Analyzed: 07/11/2012						
Bis(2-chloroethyl) ether	641000	D		ug/kg	590730	616000 U	109	40-110	0.2	40
Bis(2-chloroisopropyl) ether	646000	D		ug/kg	590730	616000 U	109	30-115	0.7	40
Bis(2-ethylhexyl) phthalate	797000	D		ug/kg	590730	616000 U	135	40-145	2	40
Butyl Benzyl Phthalate	834000	D		ug/kg	590730	616000 U	141*	50-125	2	40
Carbazole	849000	D		ug/kg	590730	616000 U	144*	40-140	3	40
Chrysene	706000	D		ug/kg	590730	616000 U	120	45-130	3	40
Dibenz[a,h]anthracene	460000	D		ug/kg	590730	616000 U	78	45-125	1	40
Dibenzofuran	669000	D		ug/kg	590730	616000 U	113	45-120	0.7	40
Diethyl Phthalate	732000	D		ug/kg	590730	616000 U	124	50-125	0.8	40
Dimethyl Phthalate	654000	D		ug/kg	590730	616000 U	111	45-130	2	40
Di-n-butyl Phthalate	684000	D		ug/kg	590730	616000 U	116	50-130	6	40
Di-n-octyl Phthalate	813000	D		ug/kg	590730	616000 U	138	40-150	5	40
Fluoranthene	723000	D		ug/kg	590730	616000 U	122	45-130	7	40
Fluorene	682000	D		ug/kg	590730	616000 U	115	45-120	2	40
Hexachlorobenzene	733000	D		ug/kg	590730	616000 U	124	45-130	4	40
Hexachlorobutadiene	694000	D		ug/kg	590730	616000 U	118*	45-105	4	40
Hexachlorocyclopentadiene	140000	D		ug/kg	590730	616000 U	24	10-100	8	40
Hexachloroethane	612000	D		ug/kg	590730	616000 U	104	35-110	0.5	40
Indeno[1,2,3-cd]pyrene	551000	D		ug/kg	590730	616000 U	93	45-130	2	40
Isophorone	602000	D		ug/kg	590730	616000 U	102	40-110	0.3	40
Naphthalene	802000	D		ug/kg	590730	616000 U	136*	40-110	4	40
Nitrobenzene	617000	D		ug/kg	590730	616000 U	105	40-105	3	40
N-Nitrosodi-n-propylamine	605000	D		ug/kg	590730	616000 U	102	30-130	0.5	40
N-Nitrosodiphenylamine	691000	D		ug/kg	590730	616000 U	117	50-120	2	40
Pentachlorophenol	665000	D		ug/kg	590730	3080000 U	113	25-120	8	40
Phenanthrene	721000	D		ug/kg	590730	616000 U	122*	50-120	4	40
Phenol	579000	D		ug/kg	590730	616000 U	98	40-115	11	40
Pyrene	740000	D		ug/kg	590730	616000 U	125	45-125	2	40
Surrogate: 2-Fluorophenol	*738000*			*ug/kg*	*738410*		*100*	*25-121*		
Surrogate: Phenol-d5	*736000*			*ug/kg*	*738410*		*100*	*24-113*		
Surrogate: Nitrobenzene-d5	*523000*			*ug/kg*	*492270*		*106*	*23-120*		
Surrogate: 2-Fluorobiphenyl	*548000*			*ug/kg*	*492270*		*111*	*30-115*		
Surrogate: 2,4,6-Tribromophenol	*856000*			*ug/kg*	*738410*		*116*	*19-122*		
Surrogate: p-Terphenyl-d14	*592000*			*ug/kg*	*492270*		*120*	*18-137*		

PREPARATION BENCH SHEET

L207044

Lionville Laboratory

Printed: 7/16/2012 1:45:44PM

00000048

Matrix: Waste

Prepared using: SVOCGCMS - SW 3580A

Surrogate used: 1200845

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1207005-01	8270C TCL SVOC	07/10/2012 12:47	0.10119	2.1				500	WC-Hanford, Inc.	
L207044-BLK1	QC	07/10/2012 12:47	0.1	2.1				500		
L207044-BS1	QC	07/10/2012 12:47	0.1	2.1	1200337		600	500		
L207044-MS1	QC	07/10/2012 12:47	0.10425	2.1	1200337	1207005-01	600	500		
L207044-MSD1	QC	07/10/2012 12:47	0.10157	2.1	1200337	1207005-01	600	500		

Revision for FV 2.1

7/16/12 1355

Extracts Relinquished By Date

Extracts Received By Date

PREPARATION BENCH SHEET

L207044

Lionville Laboratory

Printed: 7/10/2012 1:27:47PM

000000049

Matrix: Waste

Prepared using: SVOCGCMS - SW 3580A

Surrogate used: 1200845

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1207005-01	8270C TCL SVOC	07/10/2012 12:47	0.10119	3.1				500	WC-Hanford, Inc.	
L207044-BLK1	QC	07/10/2012 12:47	0.1	3.1				500		
L207044-BS1	QC	07/10/2012 12:47	0.1	3.1	1200337		600	500		
L207044-MS1	QC	07/10/2012 12:47	0.10425	3.1	1200337	1207005-01	600	500		
L207044-MSD1	QC	07/10/2012 12:47	0.10157	3.1	1200337	1207005-01	600	500		

Extracts Relinquished By — Date: 7/10/12 1327

Extracts Received By — Date: 7/10/12 1340

PCBS

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 14:41

Analytical Report for Polychlorinated Biphenyls by SW846 8082

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PTJ4	1207005-01	Other Liquid	06/27/2012 08:50	07/03/2012 09:45
J1PTJ6	1207005-02	Other Liquid	06/27/2012 09:22	07/03/2012 09:45

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-155 K3944
LVL #: 1207005

W.O. #: 60049-001-001-0001-00
Received: 07-03-2012

PCBs

Two (2) other liquid samples were collected on 06-27-2012.

The samples and associated QC samples were extracted 07-10-2012 and analyzed 07-11-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3580A (waste dilution 1 g into 10 mls hexane) and the analysis procedure was based on SW846 Method 8082 for client specified target compounds. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on SW846 methods 3660A and 3665A, respectively.

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

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

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

3. All obtainable surrogate recoveries were within acceptance criteria.

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

5. The blank spike recovery was within acceptance criteria.

6. One (1) of four (4) matrix spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC116) has been enclosed.

7. Sample J1PTJ6 required a 10-fold instrument dilution due to high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.

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

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

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

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

Iain Daniels
LvL Laboratory Manager

7/24/12
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12GC116

Initiator: Robert Carden
Date: 7/19/12
Client: WC Hanford BC155 K3944

Batch: 1207005
Samples: MSD
Method: SW846/MCAWW/CLP/

Parameter: PCB
Matrix: oil
Prep Batch: L207047

1. Reason for SDR

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

b. General Discrepancy

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

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

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

Spike recovery for Aroclor 1260 slightly below QC acceptance criteria in MSD 49% (50-149%)

2. Known or Probable Causes(s) Possible matrix effect

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: Oil samples routinely give lower MS recoveries

Narrate ID.

4. Project Manager Instructions...signature/date: 7/23/12

__ 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: Julie Sanders 7/24/12

Other Explanation:

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

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

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

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

QA-139-A-0208

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 14:41

J1PTJ4
1207005-01 (Other Liquid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	380	U	380	ug/kg	1	L207047	07/10/2012	07/11/2012	8082
Aroclor 1221	380	U	380	ug/kg	1	L207047	07/10/2012	07/11/2012	8082
Aroclor 1232	380	U	380	ug/kg	1	L207047	07/10/2012	07/11/2012	8082
Aroclor 1242	380	U	380	ug/kg	1	L207047	07/10/2012	07/11/2012	8082
Aroclor 1248	380	U	380	ug/kg	1	L207047	07/10/2012	07/11/2012	8082
Aroclor 1254	**530**		380	ug/kg	1	L207047	07/10/2012	07/11/2012	8082
Aroclor 1260	380	U	380	ug/kg	1	L207047	07/10/2012	07/11/2012	8082
Aroclor 1262	380	U	380	ug/kg	1	L207047	07/10/2012	07/11/2012	8082
Aroclor 1268	380	U	380	ug/kg	1	L207047	07/10/2012	07/11/2012	8082
Surrogate: Decachlorobiphenyl	*38 %*		*10-150*			*L207047*	*07/10/2012*	*07/11/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*40 %*		*10-150*			*L207047*	*07/10/2012*	*07/11/2012*	*8082*

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/23/2012 11:12

J1PTJ6
1207005-02 (Other Liquid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polychlorinated Biphenyls by SW846 8082									
Aroclor 1016	3210	U	3210	ug/kg	10	L207047	07/10/2012	07/11/2012	8082
Aroclor 1221	3210	U	3210	ug/kg	10	L207047	07/10/2012	07/11/2012	8082
Aroclor 1232	3210	U	3210	ug/kg	10	L207047	07/10/2012	07/11/2012	8082
Aroclor 1242	3210	U	3210	ug/kg	10	L207047	07/10/2012	07/11/2012	8082
Aroclor 1248	3210	U	3210	ug/kg	10	L207047	07/10/2012	07/11/2012	8082
Aroclor 1254	**23600**	D	3210	ug/kg	10	L207047	07/10/2012	07/11/2012	8082
Aroclor 1260	**2750**	J, D	3210	ug/kg	10	L207047	07/10/2012	07/11/2012	8082
Aroclor 1262	3210	U	3210	ug/kg	10	L207047	07/10/2012	07/11/2012	8082
Aroclor 1268	3210	U	3210	ug/kg	10	L207047	07/10/2012	07/11/2012	8082
Surrogate: Decachlorobiphenyl	*134 %*		*10-150*			*L207047*	*07/10/2012*	*07/11/2012*	*8082*
Surrogate: Tetrachloro-meta-xylene	*100 %*		*10-150*			*L207047*	*07/10/2012*	*07/11/2012*	*8082*

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

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/19/2012 14:41

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 L207047 - SW 3580A										
Blank (L207047-BLK1)				Prepared: 07/10/2012 Analyzed: 07/11/2012						
Aroclor 1016	400	U	400	ug/kg						
Aroclor 1221	400	U	400	ug/kg						
Aroclor 1232	400	U	400	ug/kg						
Aroclor 1242	400	U	400	ug/kg						
Aroclor 1248	400	U	400	ug/kg						
Aroclor 1254	400	U	400	ug/kg						
Aroclor 1260	400	U	400	ug/kg						
Aroclor 1262	400	U	400	ug/kg						
Aroclor 1268	400	U	400	ug/kg						
Surrogate: Decachlorobiphenyl	*1260*			*ug/kg*	*1000.0*		*126*	*10-150*		
Surrogate: Tetrachloro-meta-xylene	*1140*			*ug/kg*	*1000.1*		*114*	*10-150*		
LCS (L207047-BS1)				Prepared: 07/10/2012 Analyzed: 07/11/2012						
Aroclor 1016	4680		400	ug/kg	5000.0		94	50-138		
Aroclor 1260	5440		400	ug/kg	5000.0		109	50-148		
Surrogate: Decachlorobiphenyl	*1250*			*ug/kg*	*1000.0*		*125*	*10-150*		
Surrogate: Tetrachloro-meta-xylene	*1160*			*ug/kg*	*1000.1*		*116*	*10-150*		
Matrix Spike (L207047-MS1)		**Source: 1207005-01**		Prepared: 07/10/2012 Analyzed: 07/11/2012						
Aroclor 1016	2310		372	ug/kg	4650.3	380 U	50	50-138		
Aroclor 1260	2350		372	ug/kg	4650.3	380 U	51	50-148		
Surrogate: Decachlorobiphenyl	*408*			*ug/kg*	*930.06*		*44*	*10-150*		
Surrogate: Tetrachloro-meta-xylene	*419*			*ug/kg*	*930.15*		*45*	*10-150*		
Matrix Spike Dup (L207047-MSD1)		**Source: 1207005-01**		Prepared: 07/10/2012 Analyzed: 07/11/2012						
Aroclor 1016	2440		390	ug/kg	4873.8	380 U	50	50-138	0.9	40
Aroclor 1260	2410		390	ug/kg	4873.8	380 U	49*	50-148	2	40
Surrogate: Decachlorobiphenyl	*410*			*ug/kg*	*974.75*		*42*	*10-150*		
Surrogate: Tetrachloro-meta-xylene	*439*			*ug/kg*	*974.85*		*45*	*10-150*		

PREPARATION BENCH SHEET

L207047

Lionville Laboratory

Printed: 7/10/2012 5:03:54PM

Matrix: Waste **Prepared using: GC - SW 3580A** **Surrogate used: 1200502**

Lab Number	Analysis	Prepared	Initial (g)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1207005-01	8082 PCBs	07/10/2012 16:31	1.0531	10				250	WC-Hanford, Inc.	
1207005-02	8082 PCBs	07/10/2012 16:31	1.246	10				250	WC-Hanford, Inc.	
L207047-BLK1	QC	07/10/2012 16:31	1	10				250		
L207047-BS1	QC	07/10/2012 16:31	1	10	1200123		250	250		
L207047-MS1	QC	07/10/2012 16:31	1.0752	10	1200123	1207005-01	250	250		
L207047-MSD1	QC	07/10/2012 16:31	1.0259	10	1200123	1207005-01	250	250		

S cleaned 07.11.12 SL
Cu lot # 616W031

Extracts Relinquished By 7/10/12 17:15 Date

Extracts Received By 07.11.12 6:30 Date

METALS

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 09:59

Analytical Report for Metals by SW846 6000/7000 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PTJ4	1207005-01	Other Liquid	06/27/2012 08:50	07/03/2012 09:45
J1PTJ6	1207005-02	Other Liquid	06/27/2012 09:22	07/03/2012 09:45

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-155
LVL#: 1207005
SDG/SAF#: K3944/RC-155

W.O.#: 60049-001-001-0001-00
Date Received: 07-03-12

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 2 oil samples.

2. The samples were prepared and analyzed in accordance with methods listed on the data report forms. The samples were reported on a wet weight, 'as-received' basis.

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

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

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

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

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

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

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

10. The matrix spike (MS) recoveries for 1 analyte was 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:

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.

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J1PTJ4	Copper	1100	106.5

12. All duplicate analyses for analytes were within the 20% Relative Percent Difference (RPD) control limits. The ± 20% RPD control limit applies to sample results greater than ten times the MDL. The sample result for Calcium was less than 10 times the MDL.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

7/24/12
Date

rgc/07-005hgn%

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/24/2012 09:59

Notes and Definitions

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

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 09:59

J1PTJ4
1207005-01 (Other Liquid)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by SW846 6000/7000 series									
Aluminum	19.6	U	19.6	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Antimony	0.980	U	0.980	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Arsenic	0.980	U	0.980	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Barium	0.490	U	0.490	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Beryllium	0.196	U	0.196	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Cadmium	0.245	U	0.245	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Calcium	**6.27**	B	19.6	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Chromium	**0.276**	B	0.980	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Cobalt	2.94	U	2.94	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Copper	**149**		1.96	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Iron	**8.78**	B	19.6	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Lead	**1.56**		0.980	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Magnesium	**2.30**	B	4.90	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Manganese	0.980	U	0.980	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Nickel	2.45	U	2.45	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Potassium	98.0	U	98.0	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Selenium	**0.805**	B	0.980	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Silver	0.980	U	0.980	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Sodium	49.0	U	49.0	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Thallium	0.980	U	0.980	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Vanadium	**24.2**		0.980	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Zinc	**74.4**		2.94	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Mercury	0.0290	U	0.0290	mg/kg	1	L207069	07/12/2012	07/17/2012	7471A

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 09:59

J1PTJ6
1207005-02 (Other Liquid)

Lionville Laboratory

Metals by SW846 6000/7000 series

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Aluminum	20.0	U	20.0	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Antimony	1.00	U	1.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Arsenic	**0.331**	B	1.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Barium	0.500	U	0.500	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Beryllium	**0.899**		0.200	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Cadmium	**0.190**	B	0.250	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Calcium	**12.3**	B	20.0	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Chromium	1.00	U	1.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Cobalt	3.00	U	3.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Copper	**0.785**	B	2.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Iron	**35.5**		20.0	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Lead	1.00	U	1.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Magnesium	**3.67**	B	5.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Manganese	**0.593**	B	1.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Nickel	2.50	U	2.50	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Potassium	100	U	100	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Selenium	**1.39**		1.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Silver	1.00	U	1.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Sodium	**11.6**	B	50.0	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Thallium	1.00	U	1.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Vanadium	1.00	U	1.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Zinc	**1.79**	B	3.00	mg/kg	1	L207102	07/19/2012	07/20/2012	6010B
Mercury	0.0281	U	0.0281	mg/kg	1	L207069	07/12/2012	07/17/2012	7471A

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 09:59

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207069 - SW 7471A Prep										
Blank (L207069-BLK1)				Prepared: 07/12/2012 Analyzed: 07/17/2012						
Mercury	0.0290	U	0.0290	mg/kg						
Duplicate (L207069-DUP1)		**Source: 1207005-01**		Prepared: 07/12/2012 Analyzed: 07/17/2012						
Mercury	0.0290	U	0.0290	mg/kg		0.0290 U				20
Matrix Spike (L207069-MS1)		**Source: 1207005-01**		Prepared: 07/12/2012 Analyzed: 07/17/2012						
Mercury	0.158		0.0300	mg/kg	0.16667	0.0290 U	95.0	75-125		
Reference (L207069-SRM1)				Prepared: 07/12/2012 Analyzed: 07/17/2012						
Mercury	1.28		0.0290	mg/kg	1.2900		98.9	62.6-138		
Batch L207102 - SW 3050B										
Blank (L207102-BLK1)				Prepared: 07/19/2012 Analyzed: 07/20/2012						
Aluminum	19.2	U	19.2	mg/kg						
Antimony	0.962	U	0.962	mg/kg						
Arsenic	0.962	U	0.962	mg/kg						
Barium	0.481	U	0.481	mg/kg						
Beryllium	0.192	U	0.192	mg/kg						
Cadmium	0.240	U	0.240	mg/kg						
Calcium	19.2	U	19.2	mg/kg						
Chromium	0.962	U	0.962	mg/kg						
Cobalt	2.88	U	2.88	mg/kg						
Copper	1.92	U	1.92	mg/kg						
Iron	19.2	U	19.2	mg/kg						
Lead	0.962	U	0.962	mg/kg						
Magnesium	1.60	B	4.81	mg/kg						
Manganese	0.962	U	0.962	mg/kg						
Nickel	2.40	U	2.40	mg/kg						
Potassium	96.2	U	96.2	mg/kg						
Selenium	0.962	U	0.962	mg/kg						
Silver	0.962	U	0.962	mg/kg						
Sodium	48.1	U	48.1	mg/kg						
Thallium	0.962	U	0.962	mg/kg						
Vanadium	0.962	U	0.962	mg/kg						
Zinc	2.88	U	2.88	mg/kg						

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-155 Project Number: K3944 Project Manager: Joan Kessner	**Reported:** 07/24/2012 09:59

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207102 - SW 3050B										
Duplicate (L207102-DUP1)		**Source: 1207005-01**		Prepared: 07/19/2012 Analyzed: 07/20/2012						
Aluminum	19.6	U	19.6	mg/kg		19.6 U				20
Antimony	0.980	U	0.980	mg/kg		0.980 U				20
Arsenic	0.980	U	0.980	mg/kg		0.980 U				20
Barium	0.490	U	0.490	mg/kg		0.490 U				20
Beryllium	0.196	U	0.196	mg/kg		0.196 U				20
Cadmium	0.245	U	0.245	mg/kg		0.245 U				20
Calcium	7.83	B	19.6	mg/kg		6.27			22*	20
Chromium	0.234	B	0.980	mg/kg		0.276			17	20
Cobalt	2.94	U	2.94	mg/kg		2.94 U				20
Copper	135		1.96	mg/kg		149			10	20
Iron	7.26	B	19.6	mg/kg		8.78			19	20
Lead	1.49		0.980	mg/kg		1.56			5	20
Magnesium	4.90	U	4.90	mg/kg		2.30				20
Manganese	0.980	U	0.980	mg/kg		0.980 U				20
Nickel	2.45	U	2.45	mg/kg		2.45 U				20
Potassium	98.0	U	98.0	mg/kg		98.0 U				20
Selenium	0.850	B	0.980	mg/kg		0.805			5	20
Silver	0.980	U	0.980	mg/kg		0.980 U				20
Sodium	49.0	U	49.0	mg/kg		49.0 U				20
Thallium	0.980	U	0.980	mg/kg		0.980 U				20
Vanadium	20.8		0.980	mg/kg		24.2			15	20
Zinc	70.3		2.94	mg/kg		74.4			6	20
Matrix Spike (L207102-MS1)		**Source: 1207005-01**		Prepared: 07/19/2012 Analyzed: 07/20/2012						
Aluminum	187		18.9	mg/kg	188.68	19.6 U	99	75-125		
Antimony	46.6		0.943	mg/kg	47.170	0.980 U	99	75-125		
Arsenic	190		0.943	mg/kg	188.68	0.980 U	100	75-125		
Barium	193		0.472	mg/kg	188.68	0.490 U	102	75-125		
Beryllium	4.77		0.189	mg/kg	4.7170	0.196 U	101	75-125		
Cadmium	4.14		0.236	mg/kg	4.7170	0.245 U	88	75-125		
Calcium	2320		18.9	mg/kg	2358.5	6.27	98	75-125		
Chromium	19.6		0.943	mg/kg	18.868	0.276	102	75-125		
Cobalt	48.5		2.83	mg/kg	47.170	2.94 U	103	75-125		
Copper	187		1.89	mg/kg	23.585	149	162*	75-125		
Iron	104		18.9	mg/kg	94.340	8.78	101	75-125		
Lead	47.7		0.943	mg/kg	47.170	1.56	98	75-125		
Magnesium	2310		4.72	mg/kg	2358.5	2.30	98	75-125		

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

WC-Hanford, Inc.	Project: RC-155	
2620 Fermi Avenue	Project Number: K3944	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	07/24/2012 09:59

Metals by SW846 6000/7000 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L207102 - SW 3050B									
Matrix Spike (L207102-MS1)	**Source: 1207005-01**		Prepared: 07/19/2012 Analyzed: 07/20/2012						
Manganese	47.7	0.943	mg/kg	47.170	0.980 U	101	75-125		
Nickel	48.0	2.36	mg/kg	47.170	2.45 U	102	75-125		
Potassium	2270	94.3	mg/kg	2358.5	98.0 U	96	75-125		
Selenium	187	0.943	mg/kg	188.68	0.805	98	75-125		
Silver	4.18	0.943	mg/kg	4.7170	0.980 U	89	75-125		
Sodium	2300	47.2	mg/kg	2358.5	49.0 U	98	75-125		
Thallium	182	0.943	mg/kg	188.68	0.980 U	96	75-125		
Vanadium	77.9	0.943	mg/kg	47.170	24.2	114	75-125		
Zinc	129	2.83	mg/kg	47.170	74.4	115	75-125		
Reference (L207102-SRM1)			Prepared: 07/19/2012 Analyzed: 07/20/2012						
Aluminum	9470	60.0	mg/kg	6670.0		142	0-200.89		
Antimony	47.5	3.00	mg/kg	53.000		90	0-235.8		
Arsenic	111	3.00	mg/kg	114.00		97	82.8-117.54		
Barium	300	1.50	mg/kg	307.00		98	79.8-120.2		
Beryllium	104	0.600	mg/kg	108.00		97	82.8-117.6		
Cadmium	222	0.750	mg/kg	225.00		99	83.6-116.4		
Calcium	3180	60.0	mg/kg	3360.0		95	83.3-116.9		
Chromium	77.7	3.00	mg/kg	77.200		101	73.3-126.4		
Cobalt	160	9.00	mg/kg	166.00		97	80.7-118.7		
Copper	267	6.00	mg/kg	271.00		99	80.8-119.2		
Iron	8270	60.0	mg/kg	8420.0		98	78.6-121.1		
Lead	177	3.00	mg/kg	190.00		93	81.6-118.4		
Magnesium	8260	15.0	mg/kg	8570.0		96	83.2-116.7		
Manganese	840	3.00	mg/kg	965.00		87	69.3-130.5		
Nickel	212	7.50	mg/kg	221.00		96	79.6-120.8		
Potassium	13800	300	mg/kg	14400		96	81.9-118.1		
Selenium	184	3.00	mg/kg	187.00		98	75.9-124.6		
Silver	80.7	3.00	mg/kg	83.500		97	82.7-117.1		
Sodium	8640	150	mg/kg	9730.0		89	82.5-117.2		
Thallium	83.8	3.00	mg/kg	86.800		96	77.3-122.1		
Vanadium	100	3.00	mg/kg	98.700		102	75.9-123.6		
Zinc	195	9.00	mg/kg	199.00		98	78.4-121.6		

Lionville Laboratory

Logbook #: 1128

SAMPLE DIGESTION RECORD

Digestion Batch #: L207102
Date/Time Initiated: 7/19/12 0910
Date/Time Completed: 7/19/12 1608
Analyst: MW
Matrix (circle): Soil Water Other wipe
Method (circle one): 3005A 3010A 3050 200.7 (1994)
pH/Turbidity: N/A for Solids.
NOTE: All temperatures are recorded as corrected temperatures

~~Digested~~ / Undigested (circle one)
Balance #: B14
Balance Cal Verification: Y NA
Temp: 95
BLOCK 1 2 (circle one)

Work Order #	Spike Vol (mL)	Initial Wt/Vol (g/mL)	Final Vol (mL)	pH <2	Type: To/Sol/ TC	Texture	Color / Appearance	Artifact	Turb
1207005-01		0.51	50		TO	oily	dark gray / cloudy		
L207102-DUP1		0.51	50			↓	↓		
MS1	0.5 *	0.53	50			↓	↓		
1207005-02		0.50	50			oily	dark amber/opaque		
1207018-01		0.51	50			oily	black / opaque		
L207102-DUP2		0.51	50			↓	↓		
MS2	0.5	0.52	50			↓	↓		
1207018-02		0.52	50			oily	dark reddish black/opaque		
L207102-BLK1		0.52	50		coarse	~~fine~~	white foaling chips		
SRM1	*	0.50	50		wipe MW 7/19/12	fine	pink granular		

MW 7/19/12

Spiking IDs / Expiration Date:
MS#: 1200457

LCS#: 1101357 *

Reagent IDs:
HNO_3 L08023
HCl L01031
H_2O_2 K09A03
1:1 HNO_3 637-066-02
1:1 HCl

File ID#:

Data Review By/Date:
Pee 7/23/12

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

* alm 0.25 ml 1200380 U-
1200386 U

Page #:

Lionville Laboratory

MERCURY PREPARATION

Analyst: [illegible]
Date 7/12/12-7/13/12
Start Time/Temp: 1310/94°
End Time/Temp: 1340/96°

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

Logbook # 1143
Prep Batch: L207069 W.E. [illegible] 7/12/12
Worksheet: H6071202
SOP No. ME-HgCVAA
BLOCK (1) 2 (circle one)

NOTE: All temperatures are recorded as corrected temperatures.

LvL Work Order#	pH < 2 (Liq)	Spike Vol (mL)	Spike Conc. (µg/L)	Initial Wt. or Vol (g or mL)	Final Sample Vol (mL)	Comments, % Solids, etc.
blank				10ml	50	
0.2µg/l		0.100		10ml	50	
1.0µg/l		0.500		10ml	50	
2.0µg/l		1.000		10ml	50	
5.0µg/l		2.500		10ml	50	
10.0µg/l		5.000		10ml	50	
IOV		0.125	2.5	10ml	50	
CCV		0.250	5.0	10ml	50	
ICB/CCB				10ml	50	
L207069-BLK1				0.31	50	
SRM1		(☆)	(☆)	0.31	50	
1207005-01				0.31	50	RAD
L207069-DUP1				0.31	50	
MS1		0.500	1.0	0.30	50	
1207005-02				0.32	50	
1207018-01				0.44	50	transferred from
L207069-DUP2				0.44	50	L207070 due to
MS2		0.500	1.0	0.44	50	matrix change
1207018-02				0.42	50	(wrote from NAL)
						See next page and
						opposite next page.
						pm 7/13/12

pm 7/12/12

Standard:	ID	Prep Date/Time
ICAL/MS	RI 1200588	7/13/12 1025
ICV/CCV/LCS	(I.V. 1200532)	N/A

Reviewed By/Date: [illegible] 7/23/12

se book # 1134-131 for std traceability information

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

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