SAF-RC-138
300 Area Sanitary Sewer Sampling – Biannual Constituents
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

No Distribution Required

COMMENTS:

SDG K3963 SAF-RC-138

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location/Waste Site: 300 Area Sanitary Sewer – Semi Annual

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

16 August 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 #	1208013
SDG #	K3963
SAF #	RC-138
Date Received	08/03/12
# Samples	4
Matrix	WATER
Volatiles	X
Semivolatiles	X
Pest/PCB	X
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	X
Inorganics	X

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 76 pages.

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

CHAIN OF CUSTODY

Lionville Laboratory Use Only
1208 013

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-138
Est. Final Proj. Sampling Date:
Project#:
Project Contact/Phone#:
Lionville Laboratory Project Manager: O. Johnson
QC: SW Del: SAd TAT: 21 Days

Date Rec'd: 8.3.12 Date Due: 8.24.12

		A-D	EFGH	IJ					K		LM		N			
Refrigerator #		VOA	1	1					1		1		1			
#/Type Container	Liquid	AG	4AG	2AG					1P		2P		1AG			
	Solid															
Volume	Liquid	40	500	1000					L		500		1000			
	Solid															
Preservatives		HCL	—	—					HNO3		HNO3		H2SO4			
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN	Hg		Phenols			
		Lionville Laboratory Use Only														
		624	625	608					2007		2451		Phenols			
Lab ID	Client ID/Description															
01	J1PWWO - A	✓	✓	W	8.1.12	0815	X	X	X		X		X		X		
02	- B						X				PH<2		PH<2		PH<2		
03	- C						X										
04	- D						X										

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

Special Instructions:
① Met = Sb, As, Be, Cd, Cr, Cu, Pb, Mo, Ni, Se, Ag, Tl, Zn

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

Relinquished by	Received by	Date	Time
[signature]	[signature]	8/3/12	1000

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-138-035	Page 1 of 1

Collector: Carl Phillips	Company Contact: Tom Edmundson	Telephone No.: 509.947.5192	Project Coordinator: KESSNER, JH
Price Code: 7L	Data Turnaround: 21 Days		
Project Designation: 300 Area Sanitary Sewer Sampling - Biannual Constituents	Sampling Location: 300 Area Sanitary Sewer Semi-Annual		SAF No.: RC-138
Ice Chest No.: RCC-08-027	Field Logbook No.: EL 1518-26	COA: RD4MXX2F00	Method of Shipment: FedEx
Shipped To: Lionville Laboratory Incorporated	Offsite Property No.: A110479		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

pH < 2

Special Handling and/or Storage

Temp < 4 degrees C

Preservation	HNO3 to pH <2	HNO3 to pH <2	HCl to pH <2 Cool 4C	Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C	Cool 4C		
Type of Container	P/G	P/G	Gs*	aG	aG	aG	P/G	P/G		
No. of Container(s)	1	2	12	4	1	2	1	1		
Volume	1L	500mL	40mL	500mL	1000mL	1000mL	500mL	1L		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Mercury - 245.1 (CV) (Mercury)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Phenolics Total Recoverable - 420.4 (Total Phenolics)	See item (4) in Special Instructions.	TSS - 2540D (Total suspended solids)	Biochemical Oxygen Demand (BOD) - 5210 (Biochemical Oxygen Demand)		

Sample No.	Matrix *	Sample Date	Sample Time										
J1PWW0	WATER	8-1-12	0815	✓	✓	✓	✓	✓	✓	✓	✓		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Carl Phillips Carl Phillips	8-1-12 0830	SM Sexton	08-30 8/1/12
SM Sexton	08/01/12 1420	A. Freier (1060#1)	8-1-12 1420
A. Freier (WCH)	8-2-12 0940 (1060#1)	Fed Ex	
Fed Ex	8/3/12 1000	Victor Hernandez	8-3-12 1000

REVIEWED BY STEB DATE 8-2-12

SPECIAL INSTRUCTIONS

(1) Metals & Trace Elements by ICP - 200.7 {Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Molybdenum, Nickel, Selenium, Silver, Thallium, Zinc}
(2) Purgeables - 624 {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1,2-Dichloropropane, 2-Chloroethyl vinyl ether, Acrolein, Acrylonitrile, Benzene, Bromodichloromethane, Bromoform, Bromomethane, Carbon tetrachloride, Chlorobenzene, Chloroethane, Chloroform, Chloromethane, cis-1,3-Dichloropropene, Dibromochloromethane, Ethylbenzene, Methylenechloride, Tetrachloroethene, Toluene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene, Trichloroethene, Vinyl chloride}
(3) Base/Neutrals and Acids - 625 {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,2-Diphenylhydrazine, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chloronaphthalene, 2-Chlorophenol, 2-Nitrophenol, 3,3'-Dichlorobenzidine, 4,6-Dinitro-2-methylphenol, 4-Bromophenylphenyl ether, 4-Chloro-3-methylphenol, 4-Chlorophenylphenyl ether, 4-Nitrophenol, Acenaphthene, Acenaphthylene, Anthracene, Benzidine, Benzo(a)anthracene, Benzo(a)pyrene,

Matrix *

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

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

WCH-EE-011

00000004

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WCHanford

Project/SAF/SOW/Release #: RC-138

Date: 8/3/12

LvL Batch #: 1208 013

Sample Custodian: [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7938 6063 2554
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 2	°C	Cooler # WCH-11-011
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvL) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☑ Yes	☐ No	☐ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

SR-002-B.doc

VOLATILES

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

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/15/2012 14:03

Analytical Report for Purgeable Organic Compounds by EPA 624

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00
J1PWW0-B	1208013-02	Water	08/01/2012 08:15	08/03/2012 10:00
J1PWW0-C	1208013-03	Water	08/01/2012 08:15	08/03/2012 10:00
J1PWW0-D	1208013-04	Water	08/01/2012 08:15	08/03/2012 10:00

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

Case Narrative

Client: WC-HANFORD RC-138 K3813
LVL #: 1208013

W.O. #: 60049-001-001-0001-00
Date Received: 08-03-2012

GC/MS VOLATILE

Four (4) water samples were collected on 08-01-2012.

The samples and associated QC samples were prepared and analyzed 08-03-2012 according to criteria set forth in Lionville Laboratory SOPs. The preparation and analysis procedures were based on EPA Method 624 for Client Specified Volatile target compounds.

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

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

2. Samples were analyzed within holding time.

3. Non-target compounds were not detected in these samples.

4. All obtainable surrogate recoveries were within QC acceptance criteria.

5. All obtainable matrix spike recoveries were within QC acceptance criteria.

6. All blank spike recoveries were within QC acceptance criteria.

7. The samples were preserved to a pH less than 2.0, which has an effect on the recovery of the target compound 2-CEVE.

8. The method blank was below the reporting limit for all target analytes.

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

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

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

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

Iain Daniels
LvL Laboratory Manager

8/16/12
Date

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-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/15/2012 14:03

J1PWW0-A
1208013-01 (Water)

Lionville Laboratory

Purgeable Organic Compounds by EPA 624

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
2-Chloroethyl Vinyl Ether	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Benzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromodichloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromoform	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromomethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chlorobenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroform	**4.00**	J	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloromethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Dibromochloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Ethylbenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Methylene Chloride	6.00	U	6.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Tetrachloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Toluene	**6.22**		5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Trichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Vinyl chloride	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrylonitrile	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrolein	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Surrogate: 1,2-Dichloroethane-d4	*103 %*		*60-140*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*
Surrogate: Toluene-d8	*96 %*		*65-120*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*
Surrogate: 4-Bromofluorobenzene	*93 %*		*75-130*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/15/2012 14:03

J1PWW0-B

1208013-02 (Water)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Purgeable Organic Compounds by EPA 624									
1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
2-Chloroethyl Vinyl Ether	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Benzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromodichloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromoform	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromomethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chlorobenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroform	**3.71**	J	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloromethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Dibromochloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Ethylbenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Methylene Chloride	6.00	U	6.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Tetrachloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Toluene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Trichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Vinyl chloride	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrylonitrile	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrolein	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Surrogate: 1,2-Dichloroethane-d4	*114 %*		*60-140*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*
Surrogate: Toluene-d8	*95 %*		*65-120*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*
Surrogate: 4-Bromofluorobenzene	*93 %*		*75-130*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*

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

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/15/2012 14:03

J1PWW0-C
1208013-03 (Water)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Purgeable Organic Compounds by EPA 624									
1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
2-Chloroethyl Vinyl Ether	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Benzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromodichloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromoform	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromomethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chlorobenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroform	**3.97**	**J**	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloromethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Dibromochloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Ethylbenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Methylene Chloride	6.00	U	6.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Tetrachloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Toluene	**5.39**		5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Trichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Vinyl chloride	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrylonitrile	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrolein	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Surrogate: 1,2-Dichloroethane-d4	*107 %*		*60-140*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*
Surrogate: Toluene-d8	*96 %*		*65-120*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*
Surrogate: 4-Bromofluorobenzene	*94 %*		*75-130*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*

264 Welsh Pool Road
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Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/15/2012 14:03

J1PWW0-D
1208013-04 (Water)

Lionville Laboratory

Purgeable Organic Compounds by EPA 624

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
2-Chloroethyl Vinyl Ether	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Benzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromodichloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromoform	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Bromomethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chlorobenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloroform	**4.29**	J	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Chloromethane	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Dibromochloromethane	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Ethylbenzene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Methylene Chloride	6.00	U	6.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Tetrachloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Toluene	**3.24**	J	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Trichloroethene	5.00	U	5.00	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Vinyl chloride	10.0	U	10.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrylonitrile	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Acrolein	20.0	U	20.0	ug/L	1	L208025	08/03/2012	08/03/2012	EPA 624
Surrogate: 1,2-Dichloroethane-d4	*117 %*		*60-140*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*
Surrogate: Toluene-d8	*103 %*		*65-120*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*
Surrogate: 4-Bromofluorobenzene	*100 %*		*75-130*			*L208025*	*08/03/2012*	*08/03/2012*	*EPA 624*

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Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/15/2012 14:03

Purgeable Organic Compounds by EPA 624 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208025 - EPA 624										
Blank (L208025-BLK1)				Prepared & Analyzed: 08/03/2012						
1,1,1-Trichloroethane	5.00	U	5.00	ug/L						
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L						
1,1,2-Trichloroethane	5.00	U	5.00	ug/L						
1,1-Dichloroethane	5.00	U	5.00	ug/L						
1,1-Dichloroethene	5.00	U	5.00	ug/L						
1,2-Dichloroethane	5.00	U	5.00	ug/L						
1,2-Dichloropropane	5.00	U	5.00	ug/L						
2-Chloroethyl Vinyl Ether	20.0	U	20.0	ug/L						
Benzene	5.00	U	5.00	ug/L						
Bromodichloromethane	5.00	U	5.00	ug/L						
Bromoform	5.00	U	5.00	ug/L						
Bromomethane	10.0	U	10.0	ug/L						
Carbon Tetrachloride	5.00	U	5.00	ug/L						
Chlorobenzene	5.00	U	5.00	ug/L						
Chloroethane	10.0	U	10.0	ug/L						
Chloroform	5.00	U	5.00	ug/L						
Chloromethane	10.0	U	10.0	ug/L						
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L						
Dibromochloromethane	5.00	U	5.00	ug/L						
Ethylbenzene	5.00	U	5.00	ug/L						
Methylene Chloride	6.00	U	6.00	ug/L						
Tetrachloroethene	5.00	U	5.00	ug/L						
Toluene	5.00	U	5.00	ug/L						
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L						
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L						
Trichloroethene	5.00	U	5.00	ug/L						
Vinyl chloride	10.0	U	10.0	ug/L						
Acrylonitrile	20.0	U	20.0	ug/L						
Acrolein	20.0	U	20.0	ug/L						
Surrogate: 1,2-Dichloroethane-d4	*30.1*			*ug/L*	*30.000*		*100*	*60-140*		
Surrogate: Toluene-d8	*27.1*			*ug/L*	*30.000*		*90*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*27.8*			*ug/L*	*30.000*		*93*	*75-130*		

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Fax: 610-280-3041

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/15/2012 14:03

Purgeable Organic Compounds by EPA 624 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208025 - EPA 624									
LCS (L208025-BS1)			Prepared & Analyzed: 08/03/2012						
1,1,1-Trichloroethane	20.4	5.00	ug/L	20.000		102	52-162		
1,1,2,2-Tetrachloroethane	19.3	5.00	ug/L	20.000		97	46-157		
1,1,2-Trichloroethane	18.5	5.00	ug/L	20.000		92	52-150		
1,1-Dichloroethane	19.5	5.00	ug/L	20.000		97	59-155		
1,1-Dichloroethene	17.6	5.00	ug/L	20.000		88	0-234		
1,2-Dichloroethane	20.2	5.00	ug/L	20.000		101	49-155		
1,2-Dichloropropane	18.9	5.00	ug/L	20.000		95	0-210		
Benzene	19.0	5.00	ug/L	20.000		95	37-151		
Bromodichloromethane	18.8	5.00	ug/L	20.000		94	35-155		
Bromoform	18.2	5.00	ug/L	20.000		91	45-169		
Bromomethane	20.6	10.0	ug/L	20.000		103	0-242		
Carbon Tetrachloride	20.1	5.00	ug/L	20.000		101	70-140		
Chlorobenzene	18.8	5.00	ug/L	20.000		94	37-160		
Chloroethane	22.2	10.0	ug/L	20.000		111	14-230		
Chloroform	19.8	5.00	ug/L	20.000		99	51-138		
Chloromethane	21.9	10.0	ug/L	20.000		110	0-273		
cis-1,3-Dichloropropene	17.4	5.00	ug/L	20.000		87	0-227		
Dibromochloromethane	18.1	5.00	ug/L	20.000		91	43-149		
Ethylbenzene	18.7	5.00	ug/L	20.000		93	37-162		
Methylene Chloride	18.3	6.00	ug/L	20.000		91	0-221		
Tetrachloroethene	18.7	5.00	ug/L	20.000		94	64-148		
Toluene	18.7	5.00	ug/L	20.000		93	47-150		
trans-1,2-Dichloroethene	18.2	5.00	ug/L	20.000		91	54-156		
trans-1,3-Dichloropropene	19.6	5.00	ug/L	20.000		98	17-183		
Trichloroethene	18.8	5.00	ug/L	20.000		94	71-157		
Vinyl chloride	21.5	10.0	ug/L	20.000		107	0-251		
Surrogate: 1,2-Dichloroethane-d4	*31.4*		*ug/L*	*30.000*		*105*	*60-140*		
Surrogate: Toluene-d8	*29.4*		*ug/L*	*30.000*		*98*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*30.1*		*ug/L*	*30.000*		*100*	*75-130*		

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/15/2012 14:03

Purgeable Organic Compounds by EPA 624 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208025 - EPA 624									
Matrix Spike (L208025-MS1)		**Source: 1208013-01**	Prepared & Analyzed: 08/03/2012						
1,1,1-Trichloroethane	22.0	5.00	ug/L	20.000	5.00 U	110	52-162		
1,1,2,2-Tetrachloroethane	20.2	5.00	ug/L	20.000	5.00 U	101	46-157		
1,1,2-Trichloroethane	19.5	5.00	ug/L	20.000	5.00 U	98	52-150		
1,1-Dichloroethane	20.5	5.00	ug/L	20.000	5.00 U	103	59-155		
1,1-Dichloroethene	18.5	5.00	ug/L	20.000	5.00 U	93	0-234		
1,2-Dichloroethane	21.1	5.00	ug/L	20.000	5.00 U	105	49-155		
1,2-Dichloropropane	20.4	5.00	ug/L	20.000	5.00 U	102	0-210		
Benzene	20.0	5.00	ug/L	20.000	5.00 U	100	37-151		
Bromodichloromethane	20.2	5.00	ug/L	20.000	5.00 U	101	35-155		
Bromoform	18.3	5.00	ug/L	20.000	5.00 U	92	45-169		
Bromomethane	19.4	10.0	ug/L	20.000	10.0 U	97	0-242		
Carbon Tetrachloride	20.8	5.00	ug/L	20.000	5.00 U	104	70-140		
Chlorobenzene	20.3	5.00	ug/L	20.000	5.00 U	101	37-160		
Chloroethane	20.2	10.0	ug/L	20.000	10.0 U	101	14-230		
Chloroform	25.6	5.00	ug/L	20.000	4.00	108	51-138		
Chloromethane	20.2	10.0	ug/L	20.000	10.0 U	101	0-273		
cis-1,3-Dichloropropene	16.8	5.00	ug/L	20.000	5.00 U	84	0-227		
Dibromochloromethane	19.4	5.00	ug/L	20.000	5.00 U	97	43-149		
Ethylbenzene	19.9	5.00	ug/L	20.000	5.00 U	99	37-162		
Methylene Chloride	19.2	6.00	ug/L	20.000	6.00 U	96	0-221		
Tetrachloroethene	20.1	5.00	ug/L	20.000	5.00 U	101	64-148		
Toluene	24.9	5.00	ug/L	20.000	6.22	93	47-150		
trans-1,2-Dichloroethene	19.6	5.00	ug/L	20.000	5.00 U	98	54-156		
trans-1,3-Dichloropropene	19.3	5.00	ug/L	20.000	5.00 U	97	17-183		
Trichloroethene	21.3	5.00	ug/L	20.000	5.00 U	106	71-157		
Vinyl chloride	18.6	10.0	ug/L	20.000	10.0 U	93	0-251		
Surrogate: 1,2-Dichloroethane-d4	*33.4*		*ug/L*	*30.000*		*111*	*60-140*		
Surrogate: Toluene-d8	*30.9*		*ug/L*	*30.000*		*103*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*32.6*		*ug/L*	*30.000*		*109*	*75-130*		

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/15/2012 14:03

Purgeable Organic Compounds by EPA 624 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208025 - EPA 624									
Matrix Spike Dup (L208025-MSD1)	**Source: 1208013-01**	Prepared & Analyzed: 08/03/2012							
1,1,1-Trichloroethane	21.2	5.00	ug/L	20.000	5.00 U	106	52-162	4	20
1,1,2,2-Tetrachloroethane	19.5	5.00	ug/L	20.000	5.00 U	97	46-157	4	20
1,1,2-Trichloroethane	19.3	5.00	ug/L	20.000	5.00 U	96	52-150	1	20
1,1-Dichloroethane	20.1	5.00	ug/L	20.000	5.00 U	100	59-155	2	20
1,1-Dichloroethene	18.3	5.00	ug/L	20.000	5.00 U	92	0-234	1	20
1,2-Dichloroethane	20.4	5.00	ug/L	20.000	5.00 U	102	49-155	3	20
1,2-Dichloropropane	19.5	5.00	ug/L	20.000	5.00 U	98	0-210	4	20
Benzene	19.2	5.00	ug/L	20.000	5.00 U	96	37-151	4	20
Bromodichloromethane	19.8	5.00	ug/L	20.000	5.00 U	99	35-155	2	20
Bromoform	17.2	5.00	ug/L	20.000	5.00 U	86	45-169	7	20
Bromomethane	19.2	10.0	ug/L	20.000	10.0 U	96	0-242	0.9	20
Carbon Tetrachloride	20.2	5.00	ug/L	20.000	5.00 U	101	70-140	3	20
Chlorobenzene	19.6	5.00	ug/L	20.000	5.00 U	98	37-160	3	20
Chloroethane	20.5	10.0	ug/L	20.000	10.0 U	103	14-230	2	20
Chloroform	25.3	5.00	ug/L	20.000	4.00	107	51-138	1	20
Chloromethane	19.9	10.0	ug/L	20.000	10.0 U	100	0-273	2	20
cis-1,3-Dichloropropene	16.3	5.00	ug/L	20.000	5.00 U	81	0-227	3	20
Dibromochloromethane	18.7	5.00	ug/L	20.000	5.00 U	93	43-149	3	20
Ethylbenzene	18.6	5.00	ug/L	20.000	5.00 U	93	37-162	6	20
Methylene Chloride	19.5	6.00	ug/L	20.000	6.00 U	97	0-221	1	20
Tetrachloroethene	19.0	5.00	ug/L	20.000	5.00 U	95	64-148	6	20
Toluene	23.6	5.00	ug/L	20.000	6.22	87	47-150	5	20
trans-1,2-Dichloroethene	19.0	5.00	ug/L	20.000	5.00 U	95	54-156	3	20
trans-1,3-Dichloropropene	18.4	5.00	ug/L	20.000	5.00 U	92	17-183	5	20
Trichloroethene	20.4	5.00	ug/L	20.000	5.00 U	102	71-157	4	20
Vinyl chloride	20.0	10.0	ug/L	20.000	10.0 U	100	0-251	7	20
Surrogate: 1,2-Dichloroethane-d4	*31.7*		*ug/L*	*30.000*		*106*	*60-140*		
Surrogate: Toluene-d8	*29.8*		*ug/L*	*30.000*		*99*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*32.2*		*ug/L*	*30.000*		*107*	*75-130*		

PREPARATION BENCH SHEET

L208025

Lionville Laboratory

Printed: 8/4/2012 9:04:01AM

00000021

Matrix: Water **Prepared using: VOAGCMS - EPA 624** **Surrogate used: 0902344**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1208013-01	624 VOC	08/03/2012 12:54	5	5				3	WC-Hanford, Inc.	
1208013-02	624 VOC	08/03/2012 13:28	5	5				3	WC-Hanford, Inc.	
1208013-03	624 VOC	08/03/2012 14:02	5	5				3	WC-Hanford, Inc.	
1208013-04	624 VOC	08/03/2012 14:36	5	5				3	WC-Hanford, Inc.	
L208025-BLK1	QC	08/03/2012 09:35	5	5				3		
L208025-BS1	QC	08/03/2012 08:26	5	5	1200762		2	3		
L208025-MS1	QC	08/03/2012 15:13	5	5	1200762	1208013-01	2	3		
L208025-MSD1	QC	08/03/2012 15:47	5	5	1200762	1208013-01	2	3		

R 8/8/12

Extracts Relinquished By Date

NA 8/8/12

Extracts Received By Date

SEMIVOLATILES

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-138 Project Number: K3963 Project Manager: Joan Kessner	**Reported:** 08/21/2012 08:31

Analytical Report for Semivolatile Organic Compounds by EPA 625

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00

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-138 K3963
LVL #: 1208013

W.O. #: 60049-001-001-0001-00
Date Received: 08-03-2012

SEMIVOLATILE

One (1) water sample was collected on 08-01-2012.

The sample and associated QC samples were extracted on 08-08-2012 and analyzed on 08-14-2012 according to Lionville Laboratory SOPs based on EPA method 625 for client specified Semivolatile target compounds.

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

1. All results presented in this report are derived from samples that met LvL's sample acceptance policy.
2. Samples were extracted and analyzed within holding time.
3. Non-target compounds were detected in these samples.
4. Two (2) of thirty (30) obtainable surrogate recoveries were outside acceptance criteria. The surrogate recovery criteria were not met for samples J1PW0-A and L208047-MS1. The recovery of p-Terphenyl-d14 was slightly below QC acceptance criteria. The samples were non detect for target compounds. There is minimal impact on the data.
5. Four (4) of fifty-eight (58) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12MS152) has been enclosed.
6. Six (6) of one hundred and sixteen (116) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12MS152) has been enclosed.
7. The method blank was below the reporting limit for all target compounds.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. Internal standard area and retention time criteria were met.
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").

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.

12. 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.

13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this 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

8/21/12
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12MS152

Initiator: Sharon Saylor
Date: 8-20-12
Client: WCHanford

Batch: 120F013
Samples: L20F047-BS1, MS1, MSD1
Method: SW846/MCAWW/CLP/

Parameter: 625
Matrix: Aqueous
Prep Batch: L20F047

1. Reason for SDR

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

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

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

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

Several Spike recoveries outside QC acceptance limits in L20F047-BS1, L20F047-BS01, L20F047-MS1

2. Known or Probable Causes(s) ?

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

Other Description:
narrate

4. Project Manager Instructions...signature/date: [signature] 8/21/12
__ 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: [signature] 8/21/12
__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

Other Explanation:

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

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

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

QA-139-A-0208

GLOSSARY

DATA QUALIFIERS

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

GLOSSARY

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/21/2012 08:31

J1PWW0-A
1208013-01 (Water)

Lionville Laboratory

Semivolatile Organic Compounds by EPA 625

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,2,4-Trichlorobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
1,2-Dichlorobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
1,3-Dichlorobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
1,4-Dichlorobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,4,6-Trichlorophenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,4-Dichlorophenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,4-Dimethylphenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,4-Dinitrophenol	50.0	U	50.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,4-Dinitrotoluene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2,6-Dinitrotoluene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2-Chloronaphthalene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2-Chlorophenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
2-Nitrophenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
3,3'-Dichlorobenzidine	50.0	U	50.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
4,6-Dinitro-2-methylphenol	25.0	U	25.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
4-Bromophenyl Phenyl Ether	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
4-Chloro-3-methylphenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
4-Chlorophenyl Phenyl Ether	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
3- and/or 4-Methylphenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
4-Nitrophenol	25.0	U	25.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Acenaphthene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Acenaphthylene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Anthracene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benz[a]anthracene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benzidine	50.0	U	50.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benzo[a] pyrene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benzo[b] fluoranthene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benzo[g,h,i] perylene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Benzo[k] fluoranthene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Bis(2-chloroethoxy) methane	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Bis(2-chloroethyl) ether	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Bis(2-chloroisopropyl) ether	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Bis(2-ethylhexyl) phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Butyl Benzyl Phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Chrysene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Dibenz[a,h]anthracene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625

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

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/21/2012 08:31

J1PWW0-A
1208013-01 (Water)

Lionville Laboratory

Semivolatile Organic Compounds by EPA 625

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Diethyl Phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Dimethyl Phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Di-n-butyl Phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Di-n-octyl Phthalate	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Fluoranthene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Fluorene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Hexachlorobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Hexachlorobutadiene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Hexachlorocyclopentadiene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Hexachloroethane	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Indeno[1,2,3-cd]pyrene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Isophorone	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Naphthalene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Nitrobenzene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
N-Nitrosodimethylamine	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
N-Nitrosodi-n-propylamine	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
N-Nitrosodiphenylamine	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Pentachlorophenol	25.0	U	25.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Phenanthrene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Phenol	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Pyrene	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
1,2-Diphenylhydrazine	10.0	U	10.0	ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
TIC:Alkene 1	**14.3**	J		ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
TIC:Organic Acid 2	**47.8**	J		ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
TIC:Unknown 1	**12.9**	J		ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
TIC:Organic Acid 1	**17.1**	J		ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
TIC:Unknown 2	**25.3**	J		ug/L	1	L208047	08/08/2012	08/14/2012	EPA 625
Surrogate: 2-Fluorophenol	*59 %*		*21-100*			*L208047*	*08/08/2012*	*08/14/2012*	*EPA 625*
Surrogate: Phenol-d5	*66 %*		*10-94*			*L208047*	*08/08/2012*	*08/14/2012*	*EPA 625*
Surrogate: Nitrobenzene-d5	*63 %*		*35-114*			*L208047*	*08/08/2012*	*08/14/2012*	*EPA 625*
Surrogate: 2-Fluorobiphenyl	*58 %*		*43-116*			*L208047*	*08/08/2012*	*08/14/2012*	*EPA 625*
Surrogate: 2,4,6-Tribromophenol	*68 %*		*10-123*			*L208047*	*08/08/2012*	*08/14/2012*	*EPA 625*
Surrogate: p-Terphenyl-d14	*30 % **		*33-141*			*L208047*	*08/08/2012*	*08/14/2012*	*EPA 625*

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208047 - EPA 625 Cont.										
Blank (L208047-BLK1)				Prepared: 08/08/2012 Analyzed: 08/14/2012						
1,2,4-Trichlorobenzene	10.0	U	10.0	ug/L						
1,2-Dichlorobenzene	10.0	U	10.0	ug/L						
1,3-Dichlorobenzene	10.0	U	10.0	ug/L						
1,4-Dichlorobenzene	10.0	U	10.0	ug/L						
2,4,6-Trichlorophenol	10.0	U	10.0	ug/L						
2,4-Dichlorophenol	10.0	U	10.0	ug/L						
2,4-Dimethylphenol	10.0	U	10.0	ug/L						
2,4-Dinitrophenol	50.0	U	50.0	ug/L						
2,4-Dinitrotoluene	10.0	U	10.0	ug/L						
2,6-Dinitrotoluene	10.0	U	10.0	ug/L						
2-Chloronaphthalene	10.0	U	10.0	ug/L						
2-Chlorophenol	10.0	U	10.0	ug/L						
2-Nitrophenol	10.0	U	10.0	ug/L						
3,3'-Dichlorobenzidine	50.0	U	50.0	ug/L						
4,6-Dinitro-2-methylphenol	25.0	U	25.0	ug/L						
4-Bromophenyl Phenyl Ether	10.0	U	10.0	ug/L						
4-Chloro-3-methylphenol	10.0	U	10.0	ug/L						
4-Chlorophenyl Phenyl Ether	10.0	U	10.0	ug/L						
3- and/or 4-Methylphenol	10.0	U	10.0	ug/L						
4-Nitrophenol	25.0	U	25.0	ug/L						
Acenaphthene	10.0	U	10.0	ug/L						
Acenaphthylene	10.0	U	10.0	ug/L						
Anthracene	10.0	U	10.0	ug/L						
Benz[a]anthracene	10.0	U	10.0	ug/L						
Benzidine	50.0	U	50.0	ug/L						
Benzo[a] pyrene	10.0	U	10.0	ug/L						
Benzo[b] fluoranthene	10.0	U	10.0	ug/L						
Benzo[g,h,i] perylene	10.0	U	10.0	ug/L						
Benzo[k] fluoranthene	10.0	U	10.0	ug/L						
Bis(2-chloroethoxy) methane	10.0	U	10.0	ug/L						
Bis(2-chloroethyl) ether	10.0	U	10.0	ug/L						
Bis(2-chloroisopropyl) ether	10.0	U	10.0	ug/L						
Bis(2-ethylhexyl) phthalate	10.0	U	10.0	ug/L						
Butyl Benzyl Phthalate	10.0	U	10.0	ug/L						
Chrysene	10.0	U	10.0	ug/L						
Dibenz[a,h]anthracene	10.0	U	10.0	ug/L						

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208047 - EPA 625 Cont.										
Blank (L208047-BLK1)				Prepared: 08/08/2012 Analyzed: 08/14/2012						
Diethyl Phthalate	10.0	U	10.0	ug/L						
Dimethyl Phthalate	10.0	U	10.0	ug/L						
Di-n-butyl Phthalate	10.0	U	10.0	ug/L						
Di-n-octyl Phthalate	10.0	U	10.0	ug/L						
Fluoranthene	10.0	U	10.0	ug/L						
Fluorene	10.0	U	10.0	ug/L						
Hexachlorobenzene	10.0	U	10.0	ug/L						
Hexachlorobutadiene	10.0	U	10.0	ug/L						
Hexachlorocyclopentadiene	10.0	U	10.0	ug/L						
Hexachloroethane	10.0	U	10.0	ug/L						
Indeno[1,2,3-cd]pyrene	10.0	U	10.0	ug/L						
Isophorone	10.0	U	10.0	ug/L						
Naphthalene	10.0	U	10.0	ug/L						
Nitrobenzene	10.0	U	10.0	ug/L						
N-Nitrosodimethylamine	10.0	U	10.0	ug/L						
N-Nitrosodi-n-propylamine	10.0	U	10.0	ug/L						
N-Nitrosodiphenylamine	10.0	U	10.0	ug/L						
Pentachlorophenol	25.0	U	25.0	ug/L						
Phenanthrene	10.0	U	10.0	ug/L						
Phenol	10.0	U	10.0	ug/L						
Pyrene	10.0	U	10.0	ug/L						
1,2-Diphenylhydrazine	10.0	U	10.0	ug/L						
Surrogate: 2-Fluorophenol	*43.2*			*ug/L*	*75.000*		*58*	*21-100*		
Surrogate: Phenol-d5	*47.8*			*ug/L*	*75.000*		*64*	*10-94*		
Surrogate: Nitrobenzene-d5	*32.5*			*ug/L*	*50.000*		*65*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*29.6*			*ug/L*	*50.000*		*59*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*49.4*			*ug/L*	*75.000*		*66*	*10-123*		
Surrogate: p-Terphenyl-d14	*45.9*			*ug/L*	*50.000*		*92*	*33-141*		

264 Welsh Pool Road
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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208047 - EPA 625 Cont.									
LCS (L208047-BS1)			Prepared: 08/08/2012 Analyzed: 08/14/2012						
1,2,4-Trichlorobenzene	22.5		ug/L	60.000		37*	44-142		
1,2-Dichlorobenzene	19.1		ug/L	60.000		32	32-129		
1,3-Dichlorobenzene	16.1		ug/L	60.000		27	1-172		
1,4-Dichlorobenzene	17.1		ug/L	60.000		29	20-124		
2,4,6-Trichlorophenol	39.0		ug/L	60.000		65	37-144		
2,4-Dichlorophenol	34.6		ug/L	60.000		58	39-135		
2,4-Dimethylphenol	22.6		ug/L	60.000		38	32-119		
2,4-Dinitrophenol	46.5		ug/L	60.000		77	1-191		
2,4-Dinitrotoluene	42.3		ug/L	60.000		71	39-139		
2,6-Dinitrotoluene	42.2		ug/L	60.000		70	50-158		
2-Chloronaphthalene	35.4		ug/L	60.000		59*	80-118		
2-Chlorophenol	34.6		ug/L	60.000		58	23-134		
2-Nitrophenol	33.0		ug/L	60.000		55	29-182		
3,3'-Dichlorobenzidine	41.2		ug/L	60.000		69	1-262		
4,6-Dinitro-2-methylphenol	48.7		ug/L	60.000		81	1-181		
4-Bromophenyl Phenyl Ether	41.8		ug/L	60.000		70	53-127		
4-Chloro-3-methylphenol	38.0		ug/L	60.000		63	22-147		
4-Chlorophenyl Phenyl Ether	40.4		ug/L	60.000		67	25-158		
3- and/or 4-Methylphenol	38.7		ug/L	60.000		65	40-110		
4-Nitrophenol	45.2		ug/L	60.000		75	1-132		
Acenaphthene	37.2		ug/L	60.000		62	47-145		
Acenaphthylene	38.2		ug/L	60.000		64	33-145		
Anthracene	40.4		ug/L	60.000		67	27-133		
Benz[a]anthracene	42.1		ug/L	60.000		70	33-143		
Benzidine	19.3		ug/L	60.000		32	1-180		
Benzo[a] pyrene	41.3		ug/L	60.000		69	50-140		
Benzo[b] fluoranthene	42.9		ug/L	60.000		72	50-140		
Benzo[g,h,i] perylene	43.6		ug/L	60.000		73	50-140		
Benzo[k] fluoranthene	44.9		ug/L	60.000		75	50-140		
Bis(2-chloroethoxy) methane	35.5		ug/L	60.000		59	33-184		
Bis(2-chloroethyl) ether	35.9		ug/L	60.000		60	12-158		
Bis(2-chloroisopropyl) ether	35.2		ug/L	60.000		59	36-166		
Bis(2-ethylhexyl) phthalate	52.5		ug/L	60.000		88	8-158		
Butyl Benzyl Phthalate	45.2		ug/L	60.000		75	1-152		
Chrysene	43.2		ug/L	60.000		72	17-168		
Dibenz[a,h]anthracene	44.0		ug/L	60.000		73	1-227		

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208047 - EPA 625 Cont.									
LCS (L208047-BS1)			Prepared: 08/08/2012 Analyzed: 08/14/2012						
Diethyl Phthalate	41.2		ug/L	60.000		69	1-114		
Dimethyl Phthalate	40.3		ug/L	60.000		67	50-140		
Di-n-butyl Phthalate	39.6		ug/L	60.000		66	40-150		
Di-n-octyl Phthalate	49.8		ug/L	60.000		83	50-150		
Fluoranthene	39.3		ug/L	60.000		65	26-137		
Fluorene	39.8		ug/L	60.000		66	59-121		
Hexachlorobenzene	41.7		ug/L	60.000		70	1-152		
Hexachlorobutadiene	19.5		ug/L	60.000		33	24-116		
Hexachlorocyclopentadiene	19.1		ug/L	60.000		32	1-180		
Hexachloroethane	13.7		ug/L	60.000		23*	40-113		
Indeno[1,2,3-cd]pyrene	43.5		ug/L	60.000		72	1-171		
Isophorone	35.5		ug/L	60.000		59	21-196		
Naphthalene	29.9		ug/L	60.000		50	21-133		
Nitrobenzene	32.5		ug/L	60.000		54	35-180		
N-Nitrosodimethylamine	33.6		ug/L	60.000		56	1-180		
N-Nitrosodi-n-propylamine	37.9		ug/L	60.000		63	40-120		
N-Nitrosodiphenylamine	38.2		ug/L	60.000		64	1-180		
Pentachlorophenol	52.4		ug/L	60.000		87	14-176		
Phenanthrene	41.3		ug/L	60.000		69	54-120		
Phenol	37.7		ug/L	60.000		63	5-112		
Pyrene	43.0		ug/L	60.000		72	52-115		
1,2-Diphenylhydrazine	41.7		ug/L	60.000		69	50-110		
Surrogate: 2-Fluorophenol	*46.0*		*ug/L*	*75.000*		*61*	*21-100*		
Surrogate: Phenol-d5	*51.3*		*ug/L*	*75.000*		*68*	*10-94*		
Surrogate: Nitrobenzene-d5	*31.6*		*ug/L*	*50.000*		*63*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*34.6*		*ug/L*	*50.000*		*69*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*57.4*		*ug/L*	*75.000*		*76*	*10-123*		
Surrogate: p-Terphenyl-d14	*40.4*		*ug/L*	*50.000*		*81*	*33-141*		

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Fax: 610-280-3041

WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-138 Project Number: K3963 Project Manager: Joan Kessner	**Reported:** 08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208047 - EPA 625 Cont.									
LCS Dup (L208047-BSD1)			Prepared: 08/08/2012 Analyzed: 08/14/2012						
1,2,4-Trichlorobenzene	25.6		ug/L	60.000		43*	44-142	13	20
1,2-Dichlorobenzene	21.1		ug/L	60.000		35	32-129	10	20
1,3-Dichlorobenzene	17.9		ug/L	60.000		30	1-172	11	20
1,4-Dichlorobenzene	19.0		ug/L	60.000		32	20-124	10	20
2,4,6-Trichlorophenol	44.3		ug/L	60.000		74	37-144	13	20
2,4-Dichlorophenol	37.3		ug/L	60.000		62	39-135	8	20
2,4-Dimethylphenol	25.6		ug/L	60.000		43	32-119	12	20
2,4-Dinitrophenol	47.8		ug/L	60.000		80	1-191	3	20
2,4-Dinitrotoluene	49.8		ug/L	60.000		83	39-139	16	20
2,6-Dinitrotoluene	48.0		ug/L	60.000		80	50-158	13	20
2-Chloronaphthalene	39.5		ug/L	60.000		66*	80-118	11	20
2-Chlorophenol	36.3		ug/L	60.000		61	23-134	5	20
2-Nitrophenol	36.0		ug/L	60.000		60	29-182	9	20
3,3'-Dichlorobenzidine	49.2		ug/L	60.000		82	1-262	18	20
4,6-Dinitro-2-methylphenol	57.6		ug/L	60.000		96	1-181	17	20
4-Bromophenyl Phenyl Ether	46.8		ug/L	60.000		78	53-127	11	20
4-Chloro-3-methylphenol	41.5		ug/L	60.000		69	22-147	9	20
4-Chlorophenyl Phenyl Ether	45.7		ug/L	60.000		76	25-158	12	20
3- and/or 4-Methylphenol	40.2		ug/L	60.000		67	40-110	4	20
4-Nitrophenol	57.0		ug/L	60.000		95	1-132	23*	20
Acenaphthene	41.1		ug/L	60.000		68	47-145	10	20
Acenaphthylene	42.5		ug/L	60.000		71	33-145	11	20
Anthracene	44.6		ug/L	60.000		74	27-133	10	20
Benz[a]anthracene	47.6		ug/L	60.000		79	33-143	12	20
Benzidine	27.1		ug/L	60.000		45	1-180	34*	20
Benzo[a] pyrene	47.1		ug/L	60.000		79	50-140	13	20
Benzo[b] fluoranthene	49.3		ug/L	60.000		82	50-140	14	20
Benzo[g,h,i] perylene	48.3		ug/L	60.000		80	50-140	10	20
Benzo[k] fluoranthene	47.3		ug/L	60.000		79	50-140	5	20
Bis(2-chloroethoxy) methane	37.6		ug/L	60.000		63	33-184	6	20
Bis(2-chloroethyl) ether	37.4		ug/L	60.000		62	12-158	4	20
Bis(2-chloroisopropyl) ether	36.4		ug/L	60.000		61	36-166	3	20
Bis(2-ethylhexyl) phthalate	50.3		ug/L	60.000		84	8-158	4	20
Butyl Benzyl Phthalate	48.9		ug/L	60.000		82	1-152	8	20
Chrysene	48.7		ug/L	60.000		81	17-168	12	20
Dibenz[a,h]anthracene	48.5		ug/L	60.000		81	1-227	10	20

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	Reported:
Richland WA, 99354	Project Manager: Joan Kessner	08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208047 - EPA 625 Cont.									
LCS Dup (L208047-BSD1)			Prepared: 08/08/2012 Analyzed: 08/14/2012						
Diethyl Phthalate	46.1		ug/L	60.000		77	1-114	11	20
Dimethyl Phthalate	44.6		ug/L	60.000		74	50-140	10	40
Di-n-butyl Phthalate	44.8		ug/L	60.000		75	40-150	12	40
Di-n-octyl Phthalate	51.1		ug/L	60.000		85	50-150	3	40
Fluoranthene	46.2		ug/L	60.000		77	26-137	16	20
Fluorene	44.5		ug/L	60.000		74	59-121	11	20
Hexachlorobenzene	46.7		ug/L	60.000		78	1-152	11	20
Hexachlorobutadiene	23.0		ug/L	60.000		38	24-116	16	20
Hexachlorocyclopentadiene	21.7		ug/L	60.000		36	1-180	13	20
Hexachloroethane	15.1		ug/L	60.000		25*	40-113	10	20
Indeno[1,2,3-cd]pyrene	48.2		ug/L	60.000		80	1-171	10	20
Isophorone	37.7		ug/L	60.000		63	21-196	6	20
Naphthalene	32.4		ug/L	60.000		54	21-133	8	20
Nitrobenzene	35.5		ug/L	60.000		59	35-180	9	20
N-Nitrosodimethylamine	36.6		ug/L	60.000		61	1-180	8	20
N-Nitrosodi-n-propylamine	40.4		ug/L	60.000		67	40-120	6	20
N-Nitrosodiphenylamine	41.4		ug/L	60.000		69	1-180	8	20
Pentachlorophenol	61.3		ug/L	60.000		102	14-176	16	20
Phenanthrene	45.9		ug/L	60.000		76	54-120	11	20
Phenol	39.2		ug/L	60.000		65	5-112	4	20
Pyrene	46.0		ug/L	60.000		77	52-115	7	20
1,2-Diphenylhydrazine	45.2		ug/L	60.000		75	50-110	8	20
Surrogate: 2-Fluorophenol	*47.7*		*ug/L*	*75.000*		*64*	*21-100*		
Surrogate: Phenol-d5	*51.8*		*ug/L*	*75.000*		*69*	*10-94*		
Surrogate: Nitrobenzene-d5	*34.2*		*ug/L*	*50.000*		*68*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*37.1*		*ug/L*	*50.000*		*74*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*63.5*		*ug/L*	*75.000*		*85*	*10-123*		
Surrogate: p-Terphenyl-d14	*41.5*		*ug/L*	*50.000*		*83*	*33-141*		

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WC-Hanford, Inc. 2620 Fermi Avenue Richland WA, 99354	Project: RC-138 Project Number: K3963 Project Manager: Joan Kessner	**Reported:** 08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208047 - EPA 625 Cont.										
Matrix Spike (L208047-MS1)		**Source: 1208013-01**		Prepared: 08/08/2012 Analyzed: 08/14/2012						
1,2,4-Trichlorobenzene	23.2			ug/L	60.000	10.0 U	39*	44-142		
1,2-Dichlorobenzene	22.7			ug/L	60.000	10.0 U	38	32-129		
1,3-Dichlorobenzene	19.7			ug/L	60.000	10.0 U	33	1-172		
1,4-Dichlorobenzene	21.0			ug/L	60.000	10.0 U	35	20-124		
2,4,6-Trichlorophenol	37.8			ug/L	60.000	10.0 U	63	37-144		
2,4-Dichlorophenol	31.1			ug/L	60.000	10.0 U	52	39-135		
2,4-Dimethylphenol	32.5			ug/L	60.000	10.0 U	54	32-119		
2,4-Dinitrophenol	46.7			ug/L	60.000	50.0 U	78	1-191		
2,4-Dinitrotoluene	41.3			ug/L	60.000	10.0 U	69	39-139		
2,6-Dinitrotoluene	40.1			ug/L	60.000	10.0 U	67	50-158		
2-Chloronaphthalene	34.8			ug/L	60.000	10.0 U	58*	60-118		
2-Chlorophenol	33.5			ug/L	60.000	10.0 U	56	23-134		
2-Nitrophenol	28.4			ug/L	60.000	10.0 U	47	29-182		
3,3'-Dichlorobenzidine	27.9			ug/L	60.000	50.0 U	46	1-262		
4,6-Dinitro-2-methylphenol	41.6			ug/L	60.000	25.0 U	69	1-181		
4-Bromophenyl Phenyl Ether	37.1			ug/L	60.000	10.0 U	62	53-127		
4-Chloro-3-methylphenol	34.1			ug/L	60.000	10.0 U	57	22-147		
4-Chlorophenyl Phenyl Ether	37.7			ug/L	60.000	10.0 U	63	25-158		
3- and/or 4-Methylphenol	41.5			ug/L	60.000	10.0 U	69	40-110		
4-Nitrophenol	47.8			ug/L	60.000	25.0 U	80	1-132		
Acenaphthene	36.2			ug/L	60.000	10.0 U	60	47-145		
Acenaphthylene	38.3			ug/L	60.000	10.0 U	64	33-145		
Anthracene	36.0			ug/L	60.000	10.0 U	60	27-133		
Benz[a]anthracene	37.1			ug/L	60.000	10.0 U	62	33-143		
Benzidine	0.00	U		ug/L	60.000	50.0 U	*	1-180		
Benzo[a] pyrene	35.8			ug/L	60.000	10.0 U	60	50-140		
Benzo[b] fluoranthene	36.9			ug/L	60.000	10.0 U	62	50-140		
Benzo[g,h,i] perylene	35.7			ug/L	60.000	10.0 U	60	50-140		
Benzo[k] fluoranthene	35.6			ug/L	60.000	10.0 U	59	50-140		
Bis(2-chloroethoxy) methane	29.2			ug/L	60.000	10.0 U	49	33-184		
Bis(2-chloroethyl) ether	33.5			ug/L	60.000	10.0 U	56	12-158		
Bis(2-chloroisopropyl) ether	33.9			ug/L	60.000	10.0 U	57	36-166		
Bis(2-ethylhexyl) phthalate	39.8			ug/L	60.000	10.0 U	66	8-158		
Butyl Benzyl Phthalate	37.8			ug/L	60.000	10.0 U	63	1-152		
Chrysene	38.1			ug/L	60.000	10.0 U	64	17-168		
Dibenz[a,h]anthracene	36.2			ug/L	60.000	10.0 U	60	1-227		

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/21/2012 08:31

Semivolatile Organic Compounds by EPA 625 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208047 - EPA 625 Cont.									
Matrix Spike (L208047-MS1)		**Source: 1208013-01**	Prepared: 08/08/2012 Analyzed: 08/14/2012						
Diethyl Phthalate	38.1		ug/L	60.000	10.0 U	63	1-114		
Dimethyl Phthalate	35.1		ug/L	60.000	10.0 U	58	50-140		
Di-n-butyl Phthalate	35.6		ug/L	60.000	10.0 U	59	40-150		
Di-n-octyl Phthalate	39.7		ug/L	60.000	10.0 U	66	50-150		
Fluoranthene	36.9		ug/L	60.000	10.0 U	62	26-137		
Fluorene	37.9		ug/L	60.000	10.0 U	63	59-121		
Hexachlorobenzene	36.8		ug/L	60.000	10.0 U	61	1-152		
Hexachlorobutadiene	22.1		ug/L	60.000	10.0 U	37	24-116		
Hexachlorocyclopentadiene	19.4		ug/L	60.000	10.0 U	32	1-180		
Hexachloroethane	17.7		ug/L	60.000	10.0 U	29*	40-113		
Indeno[1,2,3-cd]pyrene	36.4		ug/L	60.000	10.0 U	61	1-171		
Isophorone	29.7		ug/L	60.000	10.0 U	49	21-196		
Naphthalene	27.5		ug/L	60.000	10.0 U	46	21-133		
Nitrobenzene	28.0		ug/L	60.000	10.0 U	47	35-180		
N-Nitrosodimethylamine	31.1		ug/L	60.000	10.0 U	52	1-180		
N-Nitrosodi-n-propylamine	36.6		ug/L	60.000	10.0 U	61	40-120		
N-Nitrosodiphenylamine	36.6		ug/L	60.000	10.0 U	61	1-180		
Pentachlorophenol	53.7		ug/L	60.000	25.0 U	89	14-176		
Phenanthrene	37.0		ug/L	60.000	10.0 U	62	54-120		
Phenol	37.8		ug/L	60.000	10.0 U	63	5-112		
Pyrene	37.2		ug/L	60.000	10.0 U	62	52-115		
1,2-Diphenylhydrazine	36.7		ug/L	60.000	10.0 U	61	50-110		
Surrogate: 2-Fluorophenol	*40.9*		*ug/L*	*75.000*		*55*	*21-100*		
Surrogate: Phenol-d5	*46.2*		*ug/L*	*75.000*		*62*	*10-94*		
Surrogate: Nitrobenzene-d5	*25.3*		*ug/L*	*50.000*		*51*	*35-114*		
Surrogate: 2-Fluorobiphenyl	*28.8*		*ug/L*	*50.000*		*58*	*43-116*		
Surrogate: 2,4,6-Tribromophenol	*50.2*		*ug/L*	*75.000*		*67*	*10-123*		
Surrogate: p-Terphenyl-d14	*14.0*		*ug/L*	*50.000*		*28**	*33-141*		

PREPARATION BENCH SHEET

L208047

Lionville Laboratory

Printed: 8/21/2012 8:26:39AM

Matrix: Water **Prepared using: Extraction - EPA 625 Cont.** **Surrogate used: 1200845**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1208013-01	625 SVOC	08/08/2012 13:00	1000	1				500	WC-Hanford, Inc.	WCH 625
1208013-01	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	WC-Hanford, Inc.	Added for BatchQC in: L208047
1208025-03	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
1208025-08	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
1208025-14	625 SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	Added for BatchQC in: L208047
1208025-14	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
1208025-19	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
1208025-25	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
1208025-31	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	Table 3, REPORT @LOD
L208047-BLK1	QC	08/08/2012 13:00	1000	1				500		WCH 625
L208047-BLK2	QC	08/08/2012 13:00	1000	1				500		Table 3, REPORT @LOD
L208047-BS1	QC	08/08/2012 13:00	1000	1	1200843		600	500		WCH 625
L208047-BS2	QC	08/08/2012 13:00	1000	1	1200843		600	500		Table 3, REPORT @LOD
L208047-BSD1	QC	08/08/2012 13:00	1000	1	1200843		600	500		WCH 625
L208047-BSD2	QC	08/08/2012 13:00	1000	1	1200843		600	500		Table 3, REPORT @LOD
L208047-MS1	QC	08/08/2012 13:00	1000	1	1200843	1208013-01	600	500		WCH 625
L208047-MS2	QC	08/08/2012 13:00	500	1	1200843	1208025-14	600	500		Table 3, REPORT @LOD
L208047-MSD2	QC	08/08/2012 13:00	500	1	1200843	1208025-14	600	500		Table 3, REPORT @LOD

Added BLK2 BS2 BSD2 Adjusted prep method 8/21/12

Extracts Relinquished By Date Extracts Received By Date

PREPARATION BENCH SHEET

L208047

Lionville Laboratory

Printed: 8/11/2012 12:46:44PM

Matrix: Water

Prepared using: SVOCGCMS - SW 3520C

Surrogate used: 1200845

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1208013-01	625 SVOC	08/08/2012 13:00	1000	1				500	WC-Hanford, Inc.	
1208013-01	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	WC-Hanford, Inc.	Added for BatchQC in: L208047
1208025-03	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	REPORT @LOD
1208025-08	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	REPORT @LOD
1208025-14	625 SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	Added for BatchQC in: L208047
1208025-14	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	REPORT @LOD
1208025-19	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	REPORT @LOD
1208025-25	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	REPORT @LOD
1208025-31	8270C TCL SVOC	08/08/2012 13:00	1000	1				500	URS/CH2M Oak Ridge (UCOR)	REPORT @LOD
L208047-BLK1	QC	08/08/2012 13:00	1000	1				500		
L208047-BS1	QC	08/08/2012 13:00	1000	1	1200843		600	500		
L208047-BSD1	QC	08/08/2012 13:00	1000	1	1200843		600	500		
L208047-MS1	QC	08/08/2012 13:00	1000	1	1200843	1208013-01	600	500		
L208047-MS2	QC	08/08/2012 13:00	500	1	1200843	1208025-14	600	500		
L208047-MSD2	QC	08/08/2012 13:00	500	1	1200843	1208025-14	600	500		

Extracts Relinquished By: 8/11/12 1250 Date

Extracts Received By: 8/13/12 0800 Date

PESTICIDES

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-138 Project Number: K3963 Project Manager: Joan Kessner	**Reported:** 08/23/2012 13:24

Analytical Report for Organochlorine Pesticides by EPA 608

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00

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-138 K3963
LVL #: 1208013

W.O. #: 60049-001-001-0001-00
Date Received: 08-03-2012

CHLORINATED PESTICIDES

One (1) water sample was collected on 08-01-2012.

The sample and associated QC samples were extracted 08-07-2012 and analyzed 08-13-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction and analysis procedures were based on EPA Method 608. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on methods 3660A and 3665A.

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

1. The results presented in this report are derived from a sample that met LvL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. All obtainable surrogate recoveries were within acceptance criteria.
4. The method blank was below the reporting limit for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. Matrix QC was not performed due to insufficient sample volume.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. 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

8/24/12
Date

r:\group\data\2012\pesticides\wc hanford\1208013oj.doc

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12EX005

Initiator: [signature]
Date: 8/9/12
Client: TNV

Batch: 1208013
Samples: 001-S (matrix spike)
Method: SW846/MCAWW/CLP/

Parameter: 608
Matrix: H2O
Prep Batch: L1208044

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)

Concentrator Tube Broke Lost 1208013-01-S (matrix spike) for 608 Test

Insufficient sample to Re extract.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

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

Other Description: narrate

4. Project Manager Instructions...signature/date: [signature] 8/9/12

__ 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: [signature] 8/9/12

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-138 Project Number: K3963 Project Manager: Joan Kessner	**Reported:** 08/23/2012 13:24

J1PWW0-A
1208013-01 (Water)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Organochlorine Pesticides by EPA 608									
alpha-BHC	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
gamma-BHC	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
delta-BHC	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Heptachlor	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Aldrin	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Heptachlor epoxide	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Endosulfan I	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
4,4'-DDE	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Dieldrin	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Endrin	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
4,4'-DDD	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Endosulfan II	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
4,4'-DDT	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Endrin aldehyde	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Endosulfan sulfate	0.0500	U	0.0500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Toxaphene	0.500	U	0.500	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Chlordane	0.100	U	0.100	ug/L	1	L208044	08/07/2012	08/13/2012	EPA 608
Surrogate: Tetrachloro-meta-xylene	*104 %*		*40-134*			*L208044*	*08/07/2012*	*08/13/2012*	*EPA 608*
Surrogate: Decachlorobiphenyl	*102 %*		*21-129*			*L208044*	*08/07/2012*	*08/13/2012*	*EPA 608*

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-138 Project Number: K3963 Project Manager: Joan Kessner	**Reported:** 08/23/2012 13:24

Organochlorine Pesticides by EPA 608 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208044 - EPA 608										
Blank (L208044-BLK1)				Prepared: 08/07/2012 Analyzed: 08/13/2012						
alpha-BHC	0.0500	U	0.0500	ug/L						
gamma-BHC	0.0500	U	0.0500	ug/L						
delta-BHC	0.0500	U	0.0500	ug/L						
Heptachlor	0.0500	U	0.0500	ug/L						
Aldrin	0.0500	U	0.0500	ug/L						
Heptachlor epoxide	0.0500	U	0.0500	ug/L						
Endosulfan I	0.0500	U	0.0500	ug/L						
4,4'-DDE	0.0500	U	0.0500	ug/L						
Dieldrin	0.0500	U	0.0500	ug/L						
Endrin	0.0500	U	0.0500	ug/L						
4,4'-DDD	0.0500	U	0.0500	ug/L						
Endosulfan II	0.0500	U	0.0500	ug/L						
4,4'-DDT	0.0500	U	0.0500	ug/L						
Endrin aldehyde	0.0500	U	0.0500	ug/L						
Endosulfan sulfate	0.0500	U	0.0500	ug/L						
Toxaphene	0.500	U	0.500	ug/L						
Chlordane	0.100	U	0.100	ug/L						
Surrogate: Tetrachloro-meta-xylene	*0.962*			*ug/L*	*1.0001*		*96.2*	*40-134*		
Surrogate: Decachlorobiphenyl	*1.01*			*ug/L*	*1.0000*		*101*	*21-129*		
LCS (L208044-BS1)				Prepared: 08/07/2012 Analyzed: 08/13/2012						
alpha-BHC	0.947		0.0500	ug/L	1.0000		94.7	37-134		
gamma-BHC	0.889		0.0500	ug/L	1.0000		88.9	32-127		
delta-BHC	0.920		0.0500	ug/L	1.0000		92.0	19-140		
Heptachlor	1.03		0.0500	ug/L	1.0000		103	34-111		
Aldrin	0.875		0.0500	ug/L	1.0000		87.5	42-122		
Heptachlor epoxide	0.972		0.0500	ug/L	1.0000		97.2	37-142		
Endosulfan I	0.982		0.0500	ug/L	1.0000		98.2	45-153		
4,4'-DDE	0.946		0.0500	ug/L	1.0000		94.6	30-145		
Dieldrin	0.905		0.0500	ug/L	1.0000		90.5	36-146		
Endrin	1.01		0.0500	ug/L	1.0000		101	30-147		
4,4'-DDD	0.950		0.0500	ug/L	1.0000		95.0	31-141		
Endosulfan II	1.03		0.0500	ug/L	1.0000		103	0-202		
4,4'-DDT	0.893		0.0500	ug/L	1.0000		89.3	25-160		
Endrin aldehyde	1.01		0.0500	ug/L	1.0000		101	74-131		
Endosulfan sulfate	0.985		0.0500	ug/L	1.0000		98.5	26-144		
Surrogate: Tetrachloro-meta-xylene	*0.945*			*ug/L*	*1.0001*		*94.5*	*40-134*		

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

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/23/2012 13:24

Organochlorine Pesticides by EPA 608 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208044 - EPA 608									
LCS (L208044-BS1)			Prepared: 08/07/2012 Analyzed: 08/13/2012						
Surrogate: Decachlorobiphenyl	*0.952*		*ug/L*	*1.0000*		*95.2*	*21-129*		

Revision (for PCB BLK)
S208.13.12

PREPARATION BENCH SHEET

L208044

Lionville Laboratory

Printed: 8/13/2012 12:03:38PM

Matrix: Water

Prepared using: GC - EPA 608

Surrogate used: 1200502

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1208013-01	608 Chlorinated Pesticides	08/07/2012 12:55	1000	10				250	WC-Hanford, Inc.	
1208013-01	608 PCBs	08/07/2012 12:55	1000	10				250	WC-Hanford, Inc.	
L208044-BLK1	QC	08/07/2012 12:55	1000	10				250		PEST
L208044-BLK2	QC	08/07/2012 12:55	1000	10				250		PCB
L208044-BS1	QC	08/07/2012 12:55	1000	10	1200903		250	250		PEST
L208044-BS2	QC	08/07/2012 12:55	1000	10	1200902		250	250		PCB
L208044-MS2	QC	08/07/2012 12:55	500	10	1200902	1208013-01	250	250		PCB

Extracts Relinquished By Date

Extracts Received By Date

PREPARATION BENCH SHEET

L208044

Lionville Laboratory

Printed: 8/9/2012 2:00:08PM

000000051

Matrix: Water

Prepared using: GC - EPA 608

Surrogate used: 1200502

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1208013-01	608 Chlorinated Pesticides	08/07/2012 12:55	1000	10				250	WC-Hanford, Inc.	
1208013-01	608 PCBs	08/07/2012 12:55	1000	10				250	WC-Hanford, Inc.	
L208044-BLK1	QC	08/07/2012 12:55	1000	10				250		
L208044-BS1	QC	08/07/2012 12:55	1000	10	1200903		250	250		
L208044-BS2	QC	08/07/2012 12:55	1000	10	1200902		250	250		
L208044-MS2	QC	08/07/2012 12:55	500	10	1200902	1208013-01	250	250		

*NO MS - 1208013-1-S 608
Lost see SDR.

S cleared 08.13.12. 7:05
Cu lot # 616W031

[signature] 8/9/12 1425
Extracts Relinquished By Date

S Lah 08.13.12 7:05
Extracts Received By Date

PCBS

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

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/16/2012 20:10

Analytical Report for PCBs by EPA 608

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00

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-138 K3963
LVL #: 1208013

W.O. #: 60049-001-001-0001-00
Received: 08-03-2012

PCBs

One (1) water sample was collected on 08-01-2012.

The sample and associated QC samples were extracted 08-07-2012 and analyzed 08-15-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction and analysis procedures were based on EPA Method 608. All samples received Copper-Sulfur and Sulfuric Acid cleanups based on methods 3660A and 3665A.

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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 for all target compounds.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria. A matrix spike duplicate was not analyzed due to insufficient sample volume.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. 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

8/24/12
Date

r:\group\data\2012\pcb\wc hanford\1208013oj.doc

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

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

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

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/16/2012 20:10

J1PWW0-A
1208013-01 (Water)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
PCBs by EPA 608									
Aroclor 1016	0.400	U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012	EPA 608
Aroclor 1221	0.400	U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012	EPA 608
Aroclor 1232	0.400	U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012	EPA 608
Aroclor 1242	0.400	U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012	EPA 608
Aroclor 1248	0.400	U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012	EPA 608
Aroclor 1254	0.400	U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012	EPA 608
Aroclor 1260	0.400	U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012	EPA 608
Aroclor 1262	0.400	U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012	EPA 608
Aroclor 1268	0.400	U	0.400	ug/L	1	L208044	08/07/2012	08/15/2012	EPA 608
Surrogate: Tetrachloro-meta-xylene	*93 %*		*45-117*			*L208044*	*08/07/2012*	*08/15/2012*	*EPA 608*
Surrogate: Decachlorobiphenyl	*92 %*		*22-131*			*L208044*	*08/07/2012*	*08/15/2012*	*EPA 608*

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/16/2012 20:10

PCBs by EPA 608 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208044 - EPA 608										
Blank (L208044-BLK2)				Prepared: 08/07/2012 Analyzed: 08/15/2012						
Aroclor 1016	0.400	U	0.400	ug/L						
Aroclor 1221	0.400	U	0.400	ug/L						
Aroclor 1232	0.400	U	0.400	ug/L						
Aroclor 1242	0.400	U	0.400	ug/L						
Aroclor 1248	0.400	U	0.400	ug/L						
Aroclor 1254	0.400	U	0.400	ug/L						
Aroclor 1260	0.400	U	0.400	ug/L						
Aroclor 1262	0.400	U	0.400	ug/L						
Aroclor 1268	0.400	U	0.400	ug/L						
Surrogate: Tetrachloro-meta-xylene	*0.945*			*ug/L*	*1.0001*		*94*	*45-117*		
Surrogate: Decachlorobiphenyl	*0.835*			*ug/L*	*1.0000*		*84*	*22-131*		
LCS (L208044-BS2)				Prepared: 08/07/2012 Analyzed: 08/15/2012						
Aroclor 1016	4.00		0.400	ug/L	5.0000		80	50-114		
Aroclor 1260	4.50		0.400	ug/L	5.0000		90	8-127		
Surrogate: Tetrachloro-meta-xylene	*0.983*			*ug/L*	*1.0001*		*98*	*45-117*		
Surrogate: Decachlorobiphenyl	*0.933*			*ug/L*	*1.0000*		*93*	*22-131*		
Matrix Spike (L208044-MS2)		**Source: 1208013-01**		Prepared: 08/07/2012 Analyzed: 08/15/2012						
Aroclor 1016	8.20		0.800	ug/L	10.000	0.400 U	82	50-114		
Aroclor 1260	8.83		0.800	ug/L	10.000	0.400 U	88	8-127		
Surrogate: Tetrachloro-meta-xylene	*1.88*			*ug/L*	*2.0002*		*94*	*45-117*		
Surrogate: Decachlorobiphenyl	*1.81*			*ug/L*	*2.0000*		*90*	*22-131*		

PREPARATION BENCH SHEET

L208044

Lionville Laboratory

Revision (for PCB Blank)
SZ 08.13.12

Printed: 8/13/2012 12:03:27PM

Matrix: Water **Prepared using: GC - EPA 608** **Surrogate used: 1200502**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1208013-01	608 Chlorinated Pesticides	08/07/2012 12:55	1000	10				250	WC-Hanford, Inc.	
1208013-01	608 PCBs	08/07/2012 12:55	1000	10				250	WC-Hanford, Inc.	
L208044-BLK1	QC	08/07/2012 12:55	1000	10				250		
L208044-BLK2	QC	08/07/2012 12:55	1000	10				250		
L208044-BS1	QC	08/07/2012 12:55	1000	10	1200903		250	250		
L208044-BS2	QC	08/07/2012 12:55	1000	10	1200902		250	250		
L208044-MS2	QC	08/07/2012 12:55	500	10	1200902	1208013-01	250	250		

Extracts Relinquished By Date

Extracts Received By Date

PREPARATION BENCH SHEET

L208044

Lionville Laboratory

Printed: 8/9/2012 2:00:08PM

Matrix: Water

Prepared using: GC - EPA 608

Surrogate used: 1200502

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1208013-01	608 Chlorinated Pesticides	08/07/2012 12:55	1000	10				250	WC-Hanford, Inc.	
1208013-01	608 PCBs	08/07/2012 12:55	1000	10				250	WC-Hanford, Inc.	
L208044-BLK1	QC	08/07/2012 12:55	1000	10				250		
L208044-BS1	QC	08/07/2012 12:55	1000	10	1200903		250	250		
L208044-BS2	QC	08/07/2012 12:55	1000	10	1200902		250	250		
L208044-MS2	QC	08/07/2012 12:55	500	10	1200902	1208013-01	250	250		

000000059

#NO MS - 1208013-1-S 608
Lost see SDR.

S cleared 08.13.12. 7:05
Cu lot # 616W031

Extracts Relinquished By 8/9/12 1425 Date

Extracts Received By S Shah 08.13.12 7:05 Date

METALS

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

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/23/2012 12:56

Analytical Report for Metals by EPA 200 series

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00

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-138
LVL#: 1208013
SDG/SAF#: K3963/RC-138

W.O.#: 60049-001-001-0001-00
Date Received: 08-03-12

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.

1. This narrative covers the analysis of 1 water sample.

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

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

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

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within control limits.

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

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

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

9. All laboratory control samples (LCS) were within the 85-115% control limits.

10. All matrix spike (MS) recoveries were within the 70-130% control limits.

11. All duplicate analysis 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 results for Arsenic, Lead, and Molybdenum were less than ten times the MDL.

12. For the purposes of this report, the data has been reported to the Limit of Detection (LOD). Values between the LOD and the Limit of Quantitation (LOQ) are acquired in a region of

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.

less-certain quantification.

13. 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.

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
Laboratory Manager
Lionville Laboratory

8/23/12
Date

alm/m08-013

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

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/23/2012 12:56

Notes and Definitions

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

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/23/2012 12:56

J1PWW0-A
1208013-01 (Water)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Metals by EPA 200 series									
Antimony	5.00	U	5.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Arsenic	**2.12**	B	5.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Beryllium	0.500	U	0.500	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Cadmium	0.500	U	0.500	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Chromium	**0.480**	B	2.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Copper	**500**		5.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Lead	**1.28**	B	5.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Molybdenum	**1.01**	B	2.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Nickel	**2.55**		2.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Selenium	10.0	U	10.0	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Silver	2.00	U	2.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Thallium	5.00	U	5.00	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Zinc	**64.6**		20.0	ug/L	1	L208177	08/20/2012	08/22/2012	EPA200.7
Mercury	0.200	U	0.200	ug/L	1	L208172	08/20/2012	08/22/2012	EPA 245.1

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/23/2012 12:56

Metals by EPA 200 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208172 - EPA 245.1										
Blank (L208172-BLK1)				Prepared: 08/20/2012 Analyzed: 08/22/2012						
Mercury	0.200	U	0.200	ug/L						
LCS (L208172-BS1)				Prepared: 08/20/2012 Analyzed: 08/22/2012						
Mercury	3.66		0.200	ug/L	4.0000		92	85-115		
Duplicate (L208172-DUP1)		**Source: 1208013-01**		Prepared: 08/20/2012 Analyzed: 08/22/2012						
Mercury	0.200	U	0.200	ug/L		0.200 U				20
Matrix Spike (L208172-MS1)		**Source: 1208013-01**		Prepared: 08/20/2012 Analyzed: 08/22/2012						
Mercury	3.59		0.200	ug/L	4.0000	0.200 U	90	70-130		
Batch L208177 - EPA 200.7										
Blank (L208177-BLK1)				Prepared: 08/20/2012 Analyzed: 08/22/2012						
Antimony	5.00	U	5.00	ug/L						
Arsenic	5.00	U	5.00	ug/L						
Beryllium	0.500	U	0.500	ug/L						
Cadmium	0.500	U	0.500	ug/L						
Chromium	0.434	B	2.00	ug/L						
Copper	5.00	U	5.00	ug/L						
Lead	5.00	U	5.00	ug/L						
Molybdenum	2.00	U	2.00	ug/L						
Nickel	2.00	U	2.00	ug/L						
Selenium	10.0	U	10.0	ug/L						
Silver	2.00	U	2.00	ug/L						
Thallium	5.00	U	5.00	ug/L						
Zinc	20.0	U	20.0	ug/L						

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/23/2012 12:56

Metals by EPA 200 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208177 - EPA 200.7										
LCS (L208177-BS1)				Prepared: 08/20/2012 Analyzed: 08/22/2012						
Antimony	264		5.00	ug/L	250.00		105	85-115		
Arsenic	1030		5.00	ug/L	1000.0		103	85-115		
Beryllium	25.0		0.500	ug/L	25.000		100	85-115		
Cadmium	25.5		0.500	ug/L	25.000		102	85-115		
Chromium	101		2.00	ug/L	100.00		101	85-115		
Copper	133		5.00	ug/L	125.00		107	85-115		
Lead	253		5.00	ug/L	250.00		101	85-115		
Molybdenum	510		2.00	ug/L	500.00		102	85-115		
Nickel	256		2.00	ug/L	250.00		102	85-115		
Selenium	1020		10.0	ug/L	1000.0		102	85-115		
Silver	26.0		2.00	ug/L	25.000		104	85-115		
Thallium	1010		5.00	ug/L	1000.0		101	85-115		
Zinc	264		20.0	ug/L	250.00		106	85-115		
Duplicate (L208177-DUP1)		**Source: 1208013-01**		Prepared: 08/20/2012 Analyzed: 08/22/2012						
Antimony	1.09	B	5.00	ug/L		5.00 U				20
Arsenic	1.71	B	5.00	ug/L		2.12			22*	20
Beryllium	0.500	U	0.500	ug/L		0.500 U				20
Cadmium	0.114	B	0.500	ug/L		0.500 U				20
Chromium	0.409	B	2.00	ug/L		0.480			16	20
Copper	476		5.00	ug/L		500			5	20
Lead	1.59	B	5.00	ug/L		1.28			22*	20
Molybdenum	0.758	B	2.00	ug/L		1.01			28*	20
Nickel	2.44		2.00	ug/L		2.55			4	20
Selenium	10.0	U	10.0	ug/L		10.0 U				20
Silver	2.00	U	2.00	ug/L		2.00 U				20
Thallium	5.00	U	5.00	ug/L		5.00 U				20
Zinc	71.4		20.0	ug/L		64.6			10	20

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/23/2012 12:56

Metals by EPA 200 series - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208177 - EPA 200.7									
Matrix Spike (L208177-MS1)		**Source: 1208013-01**	Prepared: 08/20/2012 Analyzed: 08/22/2012						
Antimony	266	5.00	ug/L	250.00	5.00 U	106	70-130		
Arsenic	1050	5.00	ug/L	1000.0	2.12	104	70-130		
Beryllium	25.1	0.500	ug/L	25.000	0.500 U	101	70-130		
Cadmium	25.2	0.500	ug/L	25.000	0.500 U	101	70-130		
Chromium	100	2.00	ug/L	100.00	0.480	100	70-130		
Copper	614	5.00	ug/L	125.00	500	91	70-130		
Lead	249	5.00	ug/L	250.00	1.28	99	70-130		
Molybdenum	508	2.00	ug/L	500.00	1.01	101	70-130		
Nickel	254	2.00	ug/L	250.00	2.55	101	70-130		
Selenium	1010	10.0	ug/L	1000.0	10.0 U	101	70-130		
Silver	26.0	2.00	ug/L	25.000	2.00 U	104	70-130		
Thallium	974	5.00	ug/L	1000.0	5.00 U	97	70-130		
Zinc	328	20.0	ug/L	250.00	64.6	105	70-130		

Lionville Laboratory **Logbook #: 1128**

SAMPLE DIGESTION RECORD

Digestion Batch #: L208177
Date/Time Initiated: 8/20/12 1915
Date/Time Completed: 8/21/12 0130
Analyst: JLM
Matrix (circle): Soil (Water) Other
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 #:
Balance Cal Verification: Y (NA)
Temp: 97°
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
1208013-01		100	50	<	TOT	NA	Gray Cloudy	NA	NA
L208177-DUP1 01R		50	25	<			Gray Cloudy		
L208177-MS1 01S	0.25	50	25	<			Gray Cloudy		
1208058-01		100	50	<			Green Clear		
L208177-DUP2 01R		50	25	<			Green Clear		
L208177-MS2 01S	0.25	50	25	<			Green Clear		
02		50	25	<			Green Clear		
L208177-BLK		50	25				Clear Colorless		
* BS	0.25	50	25				Clear Colorless		

JLM 8/21/12

Spiking IDs / Expiration Date:
MS# : 1200457

LCS#: 1200457

Reagent IDs:
HNO_3
HCl
H_2O_2
1:1 HNO_3 637-066-02
1:1 HCl 637-069-01

File ID#:

Data Review By/Date:
JLM 8/22/12

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

* ALSO SPIKED 0.25 mL IL-1200380

Page #:

Lionville Laboratory

MERCURY PREPARATION

Analyst: [illegible]
Date 8/20/12
Start Time/Temp: 1900/95°
End Time/Temp: 2100/95°

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

Logbook # 1143
Prep Batch: L208172
Worksheet: HG082201
SOP No. ME-HgCVAA
BLOCK 1 2 (circle one) (3)

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				35	35	
0.2 µg/l		0.070		35	35	
1.0 µg/l		0.350		35	35	
2.0 µg/l		0.700		35	35	
5.0 µg/l		1.750		35	35	
10.0 µg/l		3.500		35	35	
ICV		0.0875	2.5	35	35	
CCV		0.175	5.0	35	35	
ICB/CCB				35	35	
L208172-BL44		1.400	4.0	35	35	
BS1		~~0.175~~	~~5.0~~ *	35	35	
1208013-01	<		w.e. MW	35	35	
L208172-DUP1	<			35	35	
MS1	<	1.400	4.0	35	35	
1208058-01	<			35	35	
L208172-DUP2	<			35	35	
MS2	<	1.400	4.0	35	35	
1208058-02	<			35	35	

MW 8/20/12

Standard:	ID	Prep Date/Time
ICAL/MS	RI 1208588	8/20/12 1400
ICV/CCV/LCS	(IV. 1208532)	N/A

Reviewed By/Date: [illegible] 8/23/12

se book # 1143/p1 for std traceability information

Soil LCS True Value = N/A mg/Kg
Standard # N/A

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

* BS spiked with MS

ME-HgCVAA-Prep0910

Page #:

000000070

INORGANICS

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

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/27/2012 15:03

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0-A	1208013-01	Water	08/01/2012 08:15	08/03/2012 10:00

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-138 K3963
LVL#: 1208013 **Date Received:** 08-03-12

INORGANIC NARRATIVE

1. This narrative covers the analysis of 1 water sample.

2. The sample was prepared and analyzed in accordance with the method indicated on the data summary report.

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

3. Sample holding time as required by the method and/or contract was met.

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

5. The method blank was within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits.

7. The matrix spike recovery was within the 75-125% control limits.

8. The replicate analysis was within the 20% Relative Percent Difference (RPD) control limit.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

8/27/12
Date

jes\i08-013

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/27/2012 15:03

Notes and Definitions

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

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/27/2012 15:03

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PWW0-A (1208013-01) Water									
Total Phenols	10.0 U	10.0	50.0	ug/L	1	L208229	08/24/2012	08/24/2012	EPA 420.4

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-138 Project Number: K3963 Project Manager: Joan Kessner	**Reported:** 08/27/2012 15:03

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208229 - Default Prep GenChem										
Blank (L208229-BLK1)				Prepared & Analyzed: 08/24/2012						
Total Phenols	10.0 U	10.0	50.0	ug/L						
LCS (L208229-BS1)				Prepared & Analyzed: 08/24/2012						
Total Phenols	80.0	10.0	50.0	ug/L	80.000		100	90-110		
LCS (L208229-BS2)				Prepared & Analyzed: 08/24/2012						
Total Phenols	77.1	10.0	50.0	ug/L	80.000		96.4	90-110		
Duplicate (L208229-DUP1)	**Source: 1208013-01**			Prepared & Analyzed: 08/24/2012						
Total Phenols	10.0 U	10.0	50.0	ug/L		10.0 U				20
Matrix Spike (L208229-MS1)	**Source: 1208013-01**			Prepared & Analyzed: 08/24/2012						
Total Phenols	78.8	10.0	50.0	ug/L	80.000	10.0 U	98.5	90-110		

LIONVILLE LABORATORY
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264 Welsh Pool Road
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Fax (610) 280-3041

14 August 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 #	1208003
SDG #	K3963
SAF #	RC-138
Date Received	08/02/12
# Samples	1
Matrix	WATER
Volatiles	
Semivolatiles	
Pest/PCB	
Glycols	
DRO/KRO/GRO	
PAHs	
Herbicides	
Metals	
Inorganics	X

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

Sincerely,

Lionville Laboratory
A Division of Eberline Analytical Corporation

Orlette S. Johnson
Project Manager

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

CHAIN OF CUSTODY

Lionville Laboratory Use Only
1208 003

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-138
Est. Final Proj. Sampling Date
Project#
Project Contact/Phone#
Lionville Laboratory Project Manager O. Johnson
QC SW Del Std TAT 21 Day

Date Rec'd 8.2.12 Date Due 8.23.12

Refrigerator #																	A		B		
#/Type Container	Liquid																2		2		
	Solid																1P		1P		
Volume	Liquid																L		500		
	Solid																				
Preservatives																					
ANALYSES REQUESTED →		ORGANIC							INORG												
		VOA	BNA	Pest/PCB	Herb				Metal	CN							BOD		TSS		
		Lionville Laboratory Use Only																			
																	BOD		TSS		
																	X		X		

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
01	J1PWWO	✓	✓	W	8/1/12	0815

Special Instructions:

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

Relinquished by	Received by	Date	Time
FedEx	V. Hernandez	8/2/12	0945

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-138-035	Page 1 of 1
Collector: Carl Phillips	Company Contact: Tom Edmundson	Telephone No.: 509.947.5192	Project Coordinator: KESSNER, JH	Price Code: 7L
Project Designation: 300 Area Sanitary Sewer Sampling - Biannual Constituents	Sampling Location: 300 Area Sanitary Sewer Semi-Annual		SAF No.: RC-138	Data Turnaround: 21 Days
Ice Chest No.: WCH-11-020	Field Logbook No.: EL 1518-26	COA: RD4MXX2F00	Method of Shipment: FedEx	
Shipped To: Lionville Laboratory Incorporated	Offsite Property No.: A110475		Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

pH < 2

Special Handling and/or Storage

Temp < 4 degrees C

Preservation	HNO3 to pH <2	HNO3 to pH <2	HCl to pH <2 Cool 4C	Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	Cool 4C	Cool 4C		
Type of Container	P/G	P/G	Gs*	aG	aG	aG	P/G	P/G		
No. of Container(s)	1	2	12	1	1	2	1	1		
Volume	1L	500mL	40mL	500mL	1000mL	1000mL	500mL	1L		
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Mercury - 245.1 (CV) {Mercury}	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Phenolics Total Recoverable - 420.4 {Total Phenolics}	See item (4) in Special Instructions.	TSS - 2540D {Total suspended solids}	Biochemical Oxygen Demand (BOD) - 5210 {Biochemical Oxygen Demand}		

REVIEWED BY: [signature] DATE: 8/1/12

AF 8-1-12

Sample No.	Matrix *	Sample Date	Sample Time										
J1PWW0	WATER	8/01/2012	0815	✓	✓	AF 8-1-12 ✓	✓	✓	✓	✓	✓		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Carl Phillips Carl Phillips	8-1-12 0830	SM Sexton [signature]	0830 8/1/12
SM Sexton [signature]	0840 8/1/12	A. Freier A. Freier	0840 8-1-12
A. Freier A. Freier	WCH 1310 8-1-12	Fed Ex	
[signature]	8/2/12 0945	Victor Hernandez [signature]	8/2/12 0945

SPECIAL INSTRUCTIONS

(1) Metals & Trace Elements by ICP - 200.7 {Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Molybdenum, Nickel, Selenium, Silver, Thallium, Zinc}
(2) Purgeables - 624 {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1,2-Dichloropropane, 2-Chloroethyl vinyl ether, Acrolein, Acrylonitrile, Benzene, Bromodichloromethane, Bromoform, Bromomethane, Carbon tetrachloride, Chlorobenzene, Chloroethane, Chloroform, Chloromethane, cis-1,3-Dichloropropene, Dibromochloromethane, Ethylbenzene, Methylenechloride, Tetrachloroethene, Toluene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene, Trichloroethene, Vinyl chloride}
(3) Base/Neutrals and Acids - 625 {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,2-Diphenylhydrazine, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4,6-Trichlorophenol, 2,4-Dichlorophenol, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2-Chloronaphthalene, 2-Chlorophenol, 2-Nitrophenol, 3,3'-Dichlorobenzidine, 4,6-Dinitro-2-methylphenol, 4-Bromophenylphenyl ether, 4-Chloro-3-methylphenol, 4-Chlorophenylphenyl ether, 4-Nitrophenol, Acenaphthene, Acenaphthylene, Anthracene, Benzidine, Benzo(a)anthracene, Benzo(a)pyrene,

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

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

WCH-EE-011

00000004

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: WC Hanford **Date:** 8/2/12

Project/SAF/SOW/Release #: RC-138

LvL Batch #: 1208003 **Sample Custodian:** Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7986 8792 8070
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	**Temp** 3.1°	°C	Cooler # WCH-15-020
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvL) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☐ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☑ Yes	☐ No	☐ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvL Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted_____ Date _____

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

WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/09/2012 14:53

Analytical Report for Wet Chemistry

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
J1PWW0	1208003-01	Water	08/01/2012 08:15	08/02/2012 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-138 K3963
LVL#: 1208003 **Date Received:** 08-02-12

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.

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

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

3. Sample holding times as required by the method and/or contract were met.

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

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits.

7. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

8/14/12
Date

njp\i08-003

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/09/2012 14:53

Notes and Definitions

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

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/09/2012 14:53

Wet Chemistry
Lionville Laboratory

Analyte	Result and Qualifier	LOD	LOQ	Units	Dilution	Batch	Prepared	Analyzed	Method
J1PWW0 (1208003-01) Water									
Total Suspended Solids	**58000**	5000	10000	ug/L	1	L208040	08/06/2012	08/06/2012	SM 2540D
Biochemical Oxygen Demand	**34000**	1000	2000	ug/L	1	L208017	08/02/2012	08/08/2012	SM 5210B

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WC-Hanford, Inc.	Project: RC-138	
2620 Fermi Avenue	Project Number: K3963	**Reported:**
Richland WA, 99354	Project Manager: Joan Kessner	08/09/2012 14:53

Wet Chemistry - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	LOD	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L208017 - Default Prep GenChem										
Blank (L208017-BLK1)				Prepared: 08/02/2012 Analyzed: 08/07/2012						
Biochemical Oxygen Demand	1000 U	1000	2000	ug/L						
LCS (L208017-BS1)				Prepared: 08/02/2012 Analyzed: 08/07/2012						
Biochemical Oxygen Demand	180000	1000	2000	ug/L	198000		90.8	54-119		
Duplicate (L208017-DUP2)	**Source: 1208003-01**			Prepared: 08/02/2012 Analyzed: 08/08/2012						
Biochemical Oxygen Demand	35000	1000	2000	ug/L		34000			3.42	20
Batch L208040 - Default Prep GenChem										
Blank (L208040-BLK1)				Prepared & Analyzed: 08/06/2012						
Total Suspended Solids	5000 U	5000	10000	ug/L						
LCS (L208040-BS1)				Prepared & Analyzed: 08/06/2012						
Total Suspended Solids	86000	5000	10000	ug/L	100000		86.0	80-120		
LCS (L208040-BS2)				Prepared & Analyzed: 08/06/2012						
Total Suspended Solids	95000	5000	10000	ug/L	100000		95.0	80-120		
Duplicate (L208040-DUP1)	**Source: 1208003-01**			Prepared & Analyzed: 08/06/2012						
Total Suspended Solids	58000	5000	10000	ug/L		58000			0.00	20