APRIL 09, 2012

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

5 April 2012

Mr. Scot Fitzgerald
CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop - B6-06
Richland, WA 99352

Subject: Contract No. 630 - Analytical Data Package

Dear Mr. Fitzgerald:

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

LvL Batch #	1203066
SDG #	L0042
SAF #	X10-081
Date Received	03/20/2012
# Samples	1
Matrix	Water
Volatiles	X
Semivolatiles	
Pest/PCB	
DRO/GRO/KRO	
PAH	
Acrylamide	
Metals	
Inorganics	

The electronic data deliverable (EDD) has been uploaded to EDDPro. 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 21 pages.

r:\group\pm\orlette\hanford\chprc\cover_letter.doc

APRIL 09, 2012

CHAIN OF CUSTODY

Lionville Laboratory Use Only

1203066

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 CHPRC: Hanford SAF# XID-081

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager Charlotte Johnson

QC SW Del Spec TAT 30 days

Date Rec'd 3.20.12 Date Due 4-19-12

Refrigerator #		ABC														
#/Type Container	Liquid	VOA														
	Solid	3oz														
Volume	Liquid	40														
	Solid															
Preservatives		HCL #2504														
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/ PCB	Herb				Metal	CN						
		Lionville Laboratory Use Only														
		8260														

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260														
01	B26W66	✓	✓	W	3.19.12	1129	X														

Special Instructions:

Special Instructions:

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

Relinquished by	Received by	Date	Time
FedEx	[signature]	3.20.12	10:15

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

APRIL 09, 2012

CHPRC

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # X10-081-395

Page 1 of 1

Collector: KE Hamilton CHPRC	Contact/Requester: Karen Waters-Husted	Telephone No.: 376-4650
SAF No.: X10-081	Sampling Origin: Hanford site	Purchase Order/Charge Code: 300118ES20
Project Title: IU2 IU6DURA JULY 2010	Logbook No: HNF-N-506 44148	Ice Chest No.: GWS-500
Shipped To (Lab): Lionville Laboratory Incorporated	Method of Shipment: Commercial Carrier	Bill of Lading/Air Bill No.: 7933 5417 9170
Protocol: CERCLA	Priority: 45 Days	Offsite Property No.: 3595

POSSIBLE SAMPLE HAZARDS/REMARKS
** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL INSTRUCTIONS Hold Time
Site Wide Area Generator Knowledge Information Form applies.
The CACN for all analytical work at WSCF is 401922.
Please report all TICs.

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B26W66	N	W	03-19-12	1129	3x40-mL aGs*	8260_VOA_GCMS: List-2 (55)	14 Days	HCl or H2SO4 to pH <2 Cool~4C
B26W66	N	W	03-19-12	1129	1x20-mL P	Activity Scan	6 Months	None

000000004

APRIL 09, 2012

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
KE Hamilton CHPRC	MAR 19 2012 / 1230	KC Patterson CHPRC	MAR 19 2012 / 1230
KC Patterson CHPRC	MAR 19 2012 / 1500	FEDEX	
FEDEX	3-20-12 / 10:15	D. Smith	3-20-12 / 10:15

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

A-6004-842 (05/10)

APRIL 09, 2012

Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: CHPRC-Hanford

Project/SAF/SOW/Release #: X10-081

Date: 3-20-12

LvL Batch #: 1203066

Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier FedEx		Airbill # 7933 5417 9170
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 2.1	°C	Cooler # GWS-500
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 _____

VOLATILES

APRIL 09, 2012

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

CHPRC Hanford	Project: X10-081	
PO Box 1600, Mail Stop - R3-60	Project Number: L0042	**Reported:**
Richland WA, 99352	Project Manager: Mike Neely	04/04/2012 14:06

Analytical Report for Volatile Organic Compounds by SW846 8260B

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B26W66	1203066-01	Water	03/19/2012 11:29	03/20/2012 10:15

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Case Narrative

Client: CHPRC-Hanford X10-081 L0042
LVL #: 1203066

W.O. #: 60049-001-001-0001-00
Date Received: 03-20-2012

GC/MS VOLATILE

One (1) water sample was collected on 03-19-2012.

The sample and associated QC samples were prepared and analyzed 03-23-2012 according to criteria set forth in Lionville Laboratory SOPs. The preparation procedure was based on SW846 Method 5030B and the analysis procedure was based on SW846 Method 8260B for client specified 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. All results 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 surrogate recoveries were within acceptance criteria
5. All matrix spike recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. The method blank was below the reporting limit for all target analytes.
8. All internal standard area and retention time criteria were met.
9. All initial calibrations associated with this data 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").

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

4/4/12
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 concetration 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 quan 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 quan modifications:

MP	-	Missed Peak: Manually added peak not found by automatic quan program.
PA	-	Peak Assignment: quan 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 signal., or other interference.
PI	-	Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

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Phone: 610-280-3000
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CHPRC Hanford	Project: X10-081	
PO Box 1600, Mail Stop - R3-60	Project Number: L0042	**Reported:**
Richland WA, 99352	Project Manager: Mike Neely	04/04/2012 14:06

B26W66
1203066-01 (Water)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
1,1,1,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,2,3-Trichloropropane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,2-Dibromo-3-chloropropane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,2-Dibromoethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,4-Dichlorobenzene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,4-Dioxane	200	U	200	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
2-Butanone	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
2-Chloro-1,3-butadiene	20.0	U	20.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
2-Hexanone	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
3-Chloropropene	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
4-Methyl-2-pentanone	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Acetone	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Acetonitrile	30.0	U	30.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Acrolein	20.0	U	20.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Benzene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Bromodichloromethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Bromoform	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Bromomethane	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Carbon Disulfide	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Chlorobenzene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Chloroethane	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Chloroform	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Chloromethane	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Dibromochloromethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Dibromomethane	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Dichlorodifluoromethane	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Ethyl Methacrylate	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B

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CHPRC Hanford	Project: X10-081	
PO Box 1600, Mail Stop - R3-60	Project Number: L0042	**Reported:**
Richland WA, 99352	Project Manager: Mike Neely	04/04/2012 14:06

B26W66
1203066-01 (Water)

Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Ethylbenzene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Iodomethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Isobutyl alcohol	100	U	100	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Methacrylonitrile	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Methyl Methacrylate	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Methylene Chloride	6.00	U	6.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Propionitrile	25.0	U	25.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Styrene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Tetrachloroethene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Toluene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
trans-1,4-Dichloro-2-butene	20.0	U	20.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Trichloroethene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Trichlorofluoromethane	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Vinyl acetate	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Vinyl chloride	10.0	U	10.0	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Xylenes, total	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
1,2-Dichloroethene (total)	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
cis-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
n-Butyl Alcohol	250	U	250	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Tetrahydrofuran	5.00	U	5.00	ug/L	1	L203221	03/23/2012	03/23/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*99 %*		*60-140*			*L203221*	*03/23/2012*	*03/23/2012*	*8260B*
Surrogate: Toluene-d8	*90 %*		*65-120*			*L203221*	*03/23/2012*	*03/23/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*105 %*		*75-130*			*L203221*	*03/23/2012*	*03/23/2012*	*8260B*

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CHPRC Hanford	Project: X10-081	
PO Box 1600, Mail Stop - R3-60	Project Number: L0042	**Reported:**
Richland WA, 99352	Project Manager: Mike Neely	04/04/2012 14:06

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L203221 - SW 5030B										
Blank (L203221-BLK1)				Prepared & Analyzed: 03/23/2012						
1,1,1,2-Tetrachloroethane	5.00	U	5.00	ug/L						
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						
1,2,3-Trichloropropane	5.00	U	5.00	ug/L						
1,2-Dibromo-3-chloropropane	5.00	U	5.00	ug/L						
1,2-Dibromoethane	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						
1,4-Dichlorobenzene	5.00	U	5.00	ug/L						
1,4-Dioxane	200	U	200	ug/L						
2-Butanone	10.0	U	10.0	ug/L						
2-Chloro-1,3-butadiene	20.0	U	20.0	ug/L						
2-Hexanone	10.0	U	10.0	ug/L						
3-Chloropropene	10.0	U	10.0	ug/L						
4-Methyl-2-pentanone	10.0	U	10.0	ug/L						
Acetone	10.0	U	10.0	ug/L						
Acetonitrile	30.0	U	30.0	ug/L						
Acrolein	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 Disulfide	5.00	U	5.00	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						
Dibromomethane	10.0	U	10.0	ug/L						
Dichlorodifluoromethane	10.0	U	10.0	ug/L						
Ethyl Methacrylate	5.00	U	5.00	ug/L						

APRIL 09, 2012

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

CHPRC Hanford	Project: X10-081	
PO Box 1600, Mail Stop - R3-60	Project Number: L0042	**Reported:**
Richland WA, 99352	Project Manager: Mike Neely	04/04/2012 14:06

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L203221 - SW 5030B										
Blank (L203221-BLK1)				Prepared & Analyzed: 03/23/2012						
Ethylbenzene	5.00	U	5.00	ug/L						
Iodomethane	5.00	U	5.00	ug/L						
Isobutyl alcohol	100	U	100	ug/L						
Methacrylonitrile	10.0	U	10.0	ug/L						
Methyl Methacrylate	5.00	U	5.00	ug/L						
Methylene Chloride	6.00	U	6.00	ug/L						
Propionitrile	25.0	U	25.0	ug/L						
Styrene	5.00	U	5.00	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						
trans-1,4-Dichloro-2-butene	20.0	U	20.0	ug/L						
Trichloroethene	5.00	U	5.00	ug/L						
Trichlorofluoromethane	5.00	U	5.00	ug/L						
Vinyl acetate	10.0	U	10.0	ug/L						
Vinyl chloride	10.0	U	10.0	ug/L						
Xylenes, total	5.00	U	5.00	ug/L						
1,2-Dichloroethene (total)	5.00	U	5.00	ug/L						
cis-1,2-Dichloroethene	5.00	U	5.00	ug/L						
n-Butyl Alcohol	250	U	250	ug/L						
Tetrahydrofuran	5.00	U	5.00	ug/L						
Surrogate: 1,2-Dichloroethane-d4	*46.3*			*ug/L*	*50.000*		*93*	*60-140*		
Surrogate: Toluene-d8	*43.6*			*ug/L*	*50.000*		*87*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*50.8*			*ug/L*	*50.000*		*102*	*75-130*		
LCS (L203221-BS1)				Prepared & Analyzed: 03/23/2012						
1,1,1-Trichloroethane	42.2		5.00	ug/L	50.000		84	70-130		20
1,1,2,2-Tetrachloroethane	49.0		5.00	ug/L	50.000		98	65-130		20
1,1,2-Trichloroethane	44.0		5.00	ug/L	50.000		88	70-125		20
1,1-Dichloroethane	46.1		5.00	ug/L	50.000		92	70-130		20
1,1-Dichloroethene	43.6		5.00	ug/L	50.000		87	65-140		20
1,2-Dibromo-3-chloropropane	45.7		5.00	ug/L	50.000		91	50-125		20
1,2-Dibromoethane	45.0		5.00	ug/L	50.000		90	70-130		20
1,2-Dichloroethane	42.8		5.00	ug/L	50.000		86	60-140		20
1,2-Dichloropropane	47.4		5.00	ug/L	50.000		95	75-125		20
1,4-Dichlorobenzene	48.8		5.00	ug/L	50.000		98	75-125		20

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CHPRC Hanford	Project: X10-081	
PO Box 1600, Mail Stop - R3-60	Project Number: L0042	Reported:
Richland WA, 99352	Project Manager: Mike Neely	04/04/2012 14:06

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L203221 - SW 5030B									
LCS (L203221-BS1)			Prepared & Analyzed: 03/23/2012						
2-Butanone	45.9	10.0	ug/L	50.000		92	20-200		20
2-Hexanone	44.7	10.0	ug/L	50.000		89	20-200		20
4-Methyl-2-pentanone	40.7	10.0	ug/L	50.000		81	45-150		20
Acetone	37.5	10.0	ug/L	50.000		75	20-220		20
Benzene	46.3	5.00	ug/L	50.000		93	75-125		20
Bromodichloromethane	46.4	5.00	ug/L	50.000		93	65-130		20
Bromoform	43.0	5.00	ug/L	50.000		86	70-120		20
Bromomethane	32.4	10.0	ug/L	50.000		65	50-150		20
Carbon Disulfide	41.2	5.00	ug/L	50.000		82	50-150		20
Carbon Tetrachloride	43.1	5.00	ug/L	50.000		86	65-130		20
Chlorobenzene	46.2	5.00	ug/L	50.000		92	75-125		20
Chloroethane	40.3	10.0	ug/L	50.000		81	65-140		20
Chloroform	46.6	5.00	ug/L	50.000		93	75-125		20
Chloromethane	49.6	10.0	ug/L	50.000		99	50-135		20
cis-1,3-Dichloropropene	41.0	5.00	ug/L	50.000		82	70-125		20
Dibromochloromethane	42.9	5.00	ug/L	50.000		86	70-130		20
Dichlorodifluoromethane	39.1	10.0	ug/L	50.000		78	20-140		20
Ethylbenzene	45.6	5.00	ug/L	50.000		91	75-125		20
Methylene Chloride	44.5	6.00	ug/L	50.000		89	55-150		20
Styrene	48.9	5.00	ug/L	50.000		98	75-130		20
Tetrachloroethene	41.7	5.00	ug/L	50.000		83	70-130		20
Toluene	41.9	5.00	ug/L	50.000		84	70-130		20
trans-1,2-Dichloroethene	45.4	5.00	ug/L	50.000		91	70-130		20
trans-1,3-Dichloropropene	42.1	5.00	ug/L	50.000		84	70-130		20
Trichloroethene	46.5	5.00	ug/L	50.000		93	75-125		20
Trichlorofluoromethane	41.7	5.00	ug/L	50.000		83	50-135		20
Vinyl chloride	40.7	10.0	ug/L	50.000		81	55-135		20
Xylenes, total	138	5.00	ug/L	150.00		92	70-130		20
1,2-Dichloroethene (total)	91.1	5.00	ug/L	100.00		91	70-130		20
cis-1,2-Dichloroethene	45.6	5.00	ug/L	50.000		91	70-125		20
Surrogate: 1,2-Dichloroethane-d4	*43.7*		*ug/L*	*50.000*		*87*	*60-140*		
Surrogate: Toluene-d8	*42.1*		*ug/L*	*50.000*		*84*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*49.5*		*ug/L*	*50.000*		*99*	*75-130*		

APRIL 09, 2012

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CHPRC Hanford	Project: X10-081	
PO Box 1600, Mail Stop - R3-60	Project Number: L0042	Reported:
Richland WA, 99352	Project Manager: Mike Neely	04/04/2012 14:06

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L203221 - SW 5030B									
Matrix Spike (L203221-MS1)		**Source: 1203066-01**		Prepared & Analyzed: 03/23/2012					
1,1,1-Trichloroethane	43.0	5.00	ug/L	50.000	5.00 U	86	70-130		20
1,1,2,2-Tetrachloroethane	52.8	5.00	ug/L	50.000	5.00 U	106	65-130		20
1,1,2-Trichloroethane	46.2	5.00	ug/L	50.000	5.00 U	92	70-125		20
1,1-Dichloroethane	46.5	5.00	ug/L	50.000	5.00 U	93	70-130		20
1,1-Dichloroethene	43.8	5.00	ug/L	50.000	5.00 U	88	65-140		20
1,2-Dibromo-3-chloropropane	48.0	5.00	ug/L	50.000	5.00 U	96	50-125		20
1,2-Dibromoethane	47.2	5.00	ug/L	50.000	5.00 U	94	70-130		20
1,2-Dichloroethane	45.6	5.00	ug/L	50.000	5.00 U	91	60-140		20
1,2-Dichloropropane	49.6	5.00	ug/L	50.000	5.00 U	99	75-125		20
1,4-Dichlorobenzene	50.0	5.00	ug/L	50.000	5.00 U	100	75-125		20
2-Butanone	48.0	10.0	ug/L	50.000	10.0 U	96	20-200		20
2-Hexanone	48.2	10.0	ug/L	50.000	10.0 U	96	20-200		20
4-Methyl-2-pentanone	44.8	10.0	ug/L	50.000	10.0 U	90	45-150		20
Acetone	36.2	10.0	ug/L	50.000	10.0 U	72	20-220		20
Benzene	47.1	5.00	ug/L	50.000	5.00 U	94	75-125		20
Bromodichloromethane	47.5	5.00	ug/L	50.000	5.00 U	95	65-130		20
Bromoform	44.8	5.00	ug/L	50.000	5.00 U	90	70-120		20
Bromomethane	33.0	10.0	ug/L	50.000	10.0 U	66	50-150		20
Carbon Disulfide	41.3	5.00	ug/L	50.000	5.00 U	83	50-150		20
Carbon Tetrachloride	43.0	5.00	ug/L	50.000	5.00 U	86	65-130		20
Chlorobenzene	48.0	5.00	ug/L	50.000	5.00 U	96	75-125		20
Chloroethane	40.7	10.0	ug/L	50.000	10.0 U	81	65-140		20
Chloroform	47.9	5.00	ug/L	50.000	5.00 U	96	75-125		20
Chloromethane	49.5	10.0	ug/L	50.000	10.0 U	99	50-135		20
cis-1,3-Dichloropropene	41.7	5.00	ug/L	50.000	5.00 U	83	70-125		20
Dibromochloromethane	44.3	5.00	ug/L	50.000	5.00 U	89	70-130		20
Dichlorodifluoromethane	36.7	10.0	ug/L	50.000	10.0 U	73	20-140		20
Ethylbenzene	47.7	5.00	ug/L	50.000	5.00 U	95	75-125		20
Methylene Chloride	46.3	6.00	ug/L	50.000	6.00 U	93	55-150		20
Styrene	50.0	5.00	ug/L	50.000	5.00 U	100	75-130		20
Tetrachloroethene	43.7	5.00	ug/L	50.000	5.00 U	87	70-130		20
Toluene	43.5	5.00	ug/L	50.000	5.00 U	87	70-130		20
trans-1,2-Dichloroethene	46.5	5.00	ug/L	50.000	5.00 U	93	70-130		20
trans-1,3-Dichloropropene	43.6	5.00	ug/L	50.000	5.00 U	87	70-130		20
Trichloroethene	47.2	5.00	ug/L	50.000	5.00 U	94	75-125		20
Trichlorofluoromethane	42.5	5.00	ug/L	50.000	5.00 U	85	50-135		20

APRIL 09, 2012

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CHPRC Hanford	Project: X10-081	
PO Box 1600, Mail Stop - R3-60	Project Number: L0042	**Reported:**
Richland WA, 99352	Project Manager: Mike Neely	04/04/2012 14:06

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L203221 - SW 5030B									
Matrix Spike (L203221-MS1)		**Source: 1203066-01**	Prepared & Analyzed: 03/23/2012						
Vinyl chloride	40.6	10.0	ug/L	50.000	10.0 U	81	55-135		20
Xylenes, total	144	5.00	ug/L	150.00	5.00 U	96	70-130		20
1,2-Dichloroethene (total)	93.6	5.00	ug/L	100.00	5.00 U	94	70-130		20
cis-1,2-Dichloroethene	47.1	5.00	ug/L	50.000	5.00 U	94	70-125		20
Surrogate: 1,2-Dichloroethane-d4	*44.9*		*ug/L*	*50.000*		*90*	*60-140*		
Surrogate: Toluene-d8	*43.1*		*ug/L*	*50.000*		*86*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*51.1*		*ug/L*	*50.000*		*102*	*75-130*		
Matrix Spike Dup (L203221-MSD1)		**Source: 1203066-01**	Prepared & Analyzed: 03/23/2012						
1,1,1-Trichloroethane	40.7	5.00	ug/L	50.000	5.00 U	81	70-130	6	20
1,1,2,2-Tetrachloroethane	49.9	5.00	ug/L	50.000	5.00 U	100	65-130	6	20
1,1,2-Trichloroethane	45.7	5.00	ug/L	50.000	5.00 U	91	70-125	1	20
1,1-Dichloroethane	45.8	5.00	ug/L	50.000	5.00 U	92	70-130	1	20
1,1-Dichloroethene	42.2	5.00	ug/L	50.000	5.00 U	84	65-140	4	20
1,2-Dibromo-3-chloropropane	50.3	5.00	ug/L	50.000	5.00 U	101	50-125	5	20
1,2-Dibromoethane	46.7	5.00	ug/L	50.000	5.00 U	93	70-130	1	20
1,2-Dichloroethane	44.0	5.00	ug/L	50.000	5.00 U	88	60-140	4	20
1,2-Dichloropropane	47.6	5.00	ug/L	50.000	5.00 U	95	75-125	4	20
1,4-Dichlorobenzene	47.0	5.00	ug/L	50.000	5.00 U	94	75-125	6	20
2-Butanone	48.5	10.0	ug/L	50.000	10.0 U	97	20-200	1	20
2-Hexanone	49.0	10.0	ug/L	50.000	10.0 U	98	20-200	2	20
4-Methyl-2-pentanone	45.2	10.0	ug/L	50.000	10.0 U	90	45-150	0.9	20
Acetone	37.1	10.0	ug/L	50.000	10.0 U	74	20-220	3	20
Benzene	45.3	5.00	ug/L	50.000	5.00 U	91	75-125	4	20
Bromodichloromethane	45.2	5.00	ug/L	50.000	5.00 U	90	65-130	5	20
Bromoform	43.3	5.00	ug/L	50.000	5.00 U	87	70-120	3	20
Bromomethane	32.3	10.0	ug/L	50.000	10.0 U	65	50-150	2	20
Carbon Disulfide	39.5	5.00	ug/L	50.000	5.00 U	79	50-150	5	20
Carbon Tetrachloride	41.2	5.00	ug/L	50.000	5.00 U	82	65-130	4	20
Chlorobenzene	46.6	5.00	ug/L	50.000	5.00 U	93	75-125	3	20
Chloroethane	39.1	10.0	ug/L	50.000	10.0 U	78	65-140	4	20
Chloroform	45.6	5.00	ug/L	50.000	5.00 U	91	75-125	5	20
Chloromethane	47.8	10.0	ug/L	50.000	10.0 U	96	50-135	3	20
cis-1,3-Dichloropropene	40.8	5.00	ug/L	50.000	5.00 U	82	70-125	2	20
Dibromochloromethane	44.4	5.00	ug/L	50.000	5.00 U	89	70-130	0.2	20
Dichlorodifluoromethane	36.8	10.0	ug/L	50.000	10.0 U	74	20-140	0.2	20
Ethylbenzene	46.0	5.00	ug/L	50.000	5.00 U	92	75-125	4	20

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CHPRC Hanford	Project: X10-081	
PO Box 1600, Mail Stop - R3-60	Project Number: L0042	**Reported:**
Richland WA, 99352	Project Manager: Mike Neely	04/04/2012 14:06

Volatile Organic Compounds by SW846 8260B - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L203221 - SW 5030B									
Matrix Spike Dup (L203221-MSD1)	**Source: 1203066-01**		Prepared & Analyzed: 03/23/2012						
Methylene Chloride	45.3	6.00	ug/L	50.000	6.00 U	91	55-150	2	20
Styrene	48.3	5.00	ug/L	50.000	5.00 U	97	75-130	4	20
Tetrachloroethene	41.4	5.00	ug/L	50.000	5.00 U	83	70-130	5	20
Toluene	41.6	5.00	ug/L	50.000	5.00 U	83	70-130	4	20
trans-1,2-Dichloroethene	44.2	5.00	ug/L	50.000	5.00 U	88	70-130	5	20
trans-1,3-Dichloropropene	42.7	5.00	ug/L	50.000	5.00 U	85	70-130	2	20
Trichloroethene	45.4	5.00	ug/L	50.000	5.00 U	91	75-125	4	20
Trichlorofluoromethane	41.2	5.00	ug/L	50.000	5.00 U	82	50-135	3	20
Vinyl chloride	38.9	10.0	ug/L	50.000	10.0 U	78	55-135	4	20
Xylenes, total	137	5.00	ug/L	150.00	5.00 U	92	70-130	4	20
1,2-Dichloroethene (total)	89.1	5.00	ug/L	100.00	5.00 U	89	70-130	5	20
cis-1,2-Dichloroethene	44.9	5.00	ug/L	50.000	5.00 U	90	70-125	5	20
Surrogate: 1,2-Dichloroethane-d4	*45.1*		*ug/L*	*50.000*		*90*	*60-140*		
Surrogate: Toluene-d8	*40.9*		*ug/L*	*50.000*		*82*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*48.1*		*ug/L*	*50.000*		*96*	*75-130*		

PREPARATION BENCH SHEET

L203221

Lionville Laboratory

Printed: 3/27/2012 1:34:20PM

00000021

Matrix: Water **Prepared using: VOAGCMS - SW 5030B** **Surrogate used: 0900049**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1203066-01	8260B App IX VOC	03/23/2012 14:05	5	5				5	CHPRC Hanford	AppIX modified list + cis12dce
L203221-BLK1	QC	03/23/2012 13:17	5	5				5		
L203221-BS1	QC	03/23/2012 12:44	5	5	1200136		5	5		
L203221-MS1	QC	03/23/2012 14:38	5	5	1200136	1203066-01	5	5		
L203221-MSD1	QC	03/23/2012 15:12	5	5	1200136	1203066-01	5	5		

R 4/4/12

APRIL 09, 2012

Extracts Relinquished By Date

NA Rec 4/4/12

Extracts Received By Date