FEBRUARY 13, 2013 REVISION 1

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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

3 October 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 #	1206040
SDG #	L0046
SAF #	I12-025
Date Received	06/15/2012
# Samples	2
Matrix	Water
Volatiles	X
Semivolatiles	
Pest/PCB	X
DRO/GRO/KRO	
PAH	X
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 44 pages.

10/23/12

Problem and Discrepancy Report
Lionville
SDG L0046

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1. The data package has the following issues:

a) 8260B, quality control, page 22, 1,2-Dibromo-3-chloropropane, 2-Butanone, and Acetone, MS/MSD RPD out of limits. Not discussed in narrative.
b) 8081A, quality control, page 34, Endrin MS/MSD RPD out of limits. Not discussed in narrative.

Resolution: *Provide appropriate correction.*

Lab Response: The narratives have been revised to include a discussion of RPD limits.

Please correct the issues and resubmit the hard copy data package.

1a

CHAIN OF CUSTODY

Lionville Laboratory Use Only

1206040

Custody Transfer Record/Lab Work Request

Page 1 of 1

Lionville Laboratory
A Division of Eberline Analytical Corporation

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

12-025 wk 10-15-12

A-C DE F-I

REVISION 1

FEBRUARY 13, 2013

Client CHPRC SAF# ~~I102-025~~

Est. Final Proj. Sampling Date

Project#

Project Contact/Phone#

Lionville Laboratory Project Manager O Johnson

QC SW Del Spec TAT 30 days

Date Rec'd 6/15/12 Date Due 7/14/12

Refrigerator #																	
#/Type Container	Liquid	3AG	2AG	4AG													
	Solid																
Volume	Liquid	40	L	L													
	Solid																
Preservatives		HCL	—	—													
ANALYSES REQUESTED		ORGANIC							INORG								
		VOA	~~BNA~~	Pest/ ~~PCB~~	Herb				Metal	CN							
		8260	8270	8081A													

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260	8270	8081A
01	B2KWL4			W	6-14-12	1006	X	X	X
02	~~B2KLR84~~ B2LR84			L	L	L	X		
	* OJ 6/19/12								

Special Instructions:

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

Relinquished by	Received by	Date	Time
[signature]	[signature]	6/15/12	1020

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time

000000003

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # I12-025-004 Page 1 of 1

Collector	L.D. Wall CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	376-4650
SAF No.	I12-025	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	100NR2, JUNE 2012	Logbook No.	HNF-N-506 50121	Ice Chest No.	GWS-104
Shipped To (Lab)	Lionville Laboratory Incorporated	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7985 1203 0281
Protocol	CERCLA	Priority:	45 Days	Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** Contains Radioactive Material at concentations that are not regulated for transportation per 49 CRF but are not releasable per DOE Order 5400 5 (1990/1993)

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

100 Area Generator Knowledge Information Form applies.
The CACN for all analytical work at WSCF is 401647.
FY11 and FY12 samples cannot be in the same SDG.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2KWL4	N	W	6.14.12	1000	4x1-L aG	8081_PEST_GC: List-1 (19)	14/40 Days	Cool~4C
B2KWL4	N	W	↓	↓	3x40-mL aGs*	8260_VOA_GCMS: List-2 (55)	14 Days	HCl or H2SO4 to pH <2/Cool~4C
B2KWL4	N	W	↓	↓	2x1-L aG	8310_SVOA_HPLC	14/40 Days	Cool~4C
B2KWL4	N	W	↓	↓	1x20-mL P	Activity Scan	6 Months	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
L.D. Wall CHPRC	L.D. Wall		1400 JUN 14 2012	FEDEX			JUN 14 2012
Relinquished By			Date/Time	Received By	Victor Hernandez		Date/Time
			6-15-12 1020		Victor Hernandez		6-15-12 1020
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S	= Soil	DS	= Drum Solids		
SE	= Sediment	DL	= Drum Liquids		
SO	= Solid	T	= Tissue		
SL	= Sludge	WI	= Wipe		
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

PRINTED ON 4/19/2012

A-6004-842 (REV 2)

FEBRUARY 13, 2013 REVISION 1

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # I12-025-026
		Page 1 of 1

Collector	L.D. Wall CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	376-4650
SAF No.	I12-025	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071ES20
Project Title	100NR2, JUNE 2012	Logbook No.	HNF-N-506 50121	Ice Chest No.	GWS 104
Shipped To (Lab)	Lionville Laboratory Incorporated	Method of Shipment	Commercial Carrier	Bill of Lading/Air Bill No.	7985 1203 0281
Protocol	CERCLA	Priority:	45 Days	Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

** ** Contains Radioactive Material at concentations that are not regulated for transportation per 49 CRF but are not releasable per DOE Order 5400 5 (1990/1993)

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

100 Area Generator Knowledge Information Form applies.
The CACN for all analytical work at WSCF is 401647.
FY11 and FY12 samples cannot be in the same SDG.

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B2LR84	N	W	6.14.12	1006	3x40-mL aGs*	8260_VOA_GCMS: List-2 (55)	14 Days	HCl or H2SO4 to pH <2/Cool~4C
B2LR84	N	W	↓	↓	1x20-mL P	Activity Scan	6 Months	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
L.D. Wall CHPRC	L.D. Wall		JUN 14 2012 1400	FEDEX			JUN 14 2012
Relinquished By			Date/Time	Received By	VICTOR HERNANDEZ		Date/Time
Fed Ex		6-15-12	1020			6-15-12	1020
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

S	= Soil	DS	= Drum Solids
SE	= Sediment	DL	= Drum Liquids
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wipe
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

PRINTED ON 6/14/2012

A-6004-842 (REV 2)

REVISION 1
FEBRUARY 13, 2013
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Lionville Laboratory

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: CH PRC
Project/SAF/SOW/Release #: I1 2-025 **Date:** 6/15/12

LvL Batch #: 1206 040 **Sample Custodian:**

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier Fed Ex		Airbill # 7985 1203 0281
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 2.4	°C	Cooler # GWS-104
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

FEBRUARY 13, 2013 REVISION 1

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

CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

Analytical Report for Volatile Organic Compounds by SW846 8260B

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B2KWL4	1206040-01	Water	06/14/2012 10:06	06/15/2012 10:20
B2LR84	1206040-02	Water	06/14/2012 10:06	06/15/2012 10:20

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LIONVILLE LABORATORY
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264 Welsh Pool Road
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Case Narrative

Client: CHPRC-Hanford I12-025 L0046
LVL #: 1206040

W.O. #: 60049-001-001-0001-00
Date Received: 06-15-2012

GC/MS VOLATILE

Two (2) water samples were collected on 06-14-2012.

The samples and associated QC samples were prepared and analyzed 06-20-2012 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 obtainable surrogate recoveries were within acceptance criteria
5. All matrix spike recoveries were within acceptance criteria.
6. The matrix spike analyses were outside the RPD control limit for 1,2-Dibromo-3-chloropropane, 2-Butanone, and Acetone.
7. All blank spike recoveries were within acceptance criteria.
8. The method blank was below the reporting limit for all target analytes.
9. All internal standard area and retention time criteria were met.
10. All initial calibrations associated with this data were within acceptance criteria.
11. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
12. 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").

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."

for Iain Daniels
LvL Laboratory Manager

2/13/13
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.

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Phone: 610-280-3000
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CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

B2KWL4
1206040-01 (Water)

Lionville Laboratory

Volatile Organic Compounds by SW846 8260B

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
1,1,1,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2,3-Trichloropropane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2-Dibromo-3-chloropropane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2-Dibromoethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,4-Dichlorobenzene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,4-Dioxane	200	U	200	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
2-Butanone	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
2-Chloro-1,3-butadiene	20.0	U	20.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
2-Hexanone	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
3-Chloropropene	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
4-Methyl-2-pentanone	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Acetone	**14.7**		10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Acetonitrile	30.0	U	30.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Acrolein	20.0	U	20.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Benzene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Bromodichloromethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Bromoform	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Bromomethane	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Carbon Disulfide	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Chlorobenzene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Chloroethane	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Chloroform	**1.22**	J	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Chloromethane	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Dibromochloromethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Dibromomethane	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Dichlorodifluoromethane	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Ethyl Methacrylate	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B

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CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

B2KWL4
1206040-01 (Water)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
Ethylbenzene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Iodomethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Isobutyl alcohol	100	U	100	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Methacrylonitrile	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Methyl Methacrylate	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Methylene Chloride	6.00	U	6.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Propionitrile	25.0	U	25.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Styrene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Tetrachloroethene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Toluene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
trans-1,4-Dichloro-2-butene	20.0	U	20.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Trichloroethene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Trichlorofluoromethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Vinyl acetate	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Vinyl chloride	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Xylenes, total	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2-Dichloroethene (total)	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
cis-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
n-Butyl Alcohol	250	U	250	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Tetrahydrofuran	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*107 %*		*60-140*			*L206162*	*06/20/2012*	*06/20/2012*	*8260B*
Surrogate: Toluene-d8	*91 %*		*65-120*			*L206162*	*06/20/2012*	*06/20/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*100 %*		*75-130*			*L206162*	*06/20/2012*	*06/20/2012*	*8260B*

FEBRUARY 13, 2013 REVISION 1

264 Welsh Pool Road
Exton, PA 19341
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CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

B2LR84
1206040-02 (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	L206162	06/20/2012	06/20/2012	8260B
1,1,1-Trichloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,1,2,2-Tetrachloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,1,2-Trichloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,1-Dichloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,1-Dichloroethene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2,3-Trichloropropane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2-Dibromo-3-chloropropane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2-Dibromoethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2-Dichloroethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2-Dichloropropane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,4-Dichlorobenzene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,4-Dioxane	200	U	200	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
2-Butanone	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
2-Chloro-1,3-butadiene	20.0	U	20.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
2-Hexanone	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
3-Chloropropene	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
4-Methyl-2-pentanone	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Acetone	**34.6**		10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Acetonitrile	30.0	U	30.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Acrolein	20.0	U	20.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Benzene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Bromodichloromethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Bromoform	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Bromomethane	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Carbon Disulfide	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Carbon Tetrachloride	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Chlorobenzene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Chloroethane	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Chloroform	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Chloromethane	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
cis-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Dibromochloromethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Dibromomethane	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Dichlorodifluoromethane	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Ethyl Methacrylate	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B

FEBRUARY 13, 2013 REVISION 1

264 Welsh Pool Road
Exton, PA 19341
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CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

B2LR84
1206040-02 (Water)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Volatile Organic Compounds by SW846 8260B									
Ethylbenzene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Iodomethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Isobutyl alcohol	100	U	100	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Methacrylonitrile	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Methyl Methacrylate	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Methylene Chloride	6.00	U	6.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Propionitrile	25.0	U	25.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Styrene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Tetrachloroethene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Toluene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
trans-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
trans-1,3-Dichloropropene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
trans-1,4-Dichloro-2-butene	20.0	U	20.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Trichloroethene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Trichlorofluoromethane	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Vinyl acetate	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Vinyl chloride	10.0	U	10.0	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Xylenes, total	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
1,2-Dichloroethene (total)	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
cis-1,2-Dichloroethene	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
n-Butyl Alcohol	250	U	250	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Tetrahydrofuran	5.00	U	5.00	ug/L	1	L206162	06/20/2012	06/20/2012	8260B
Surrogate: 1,2-Dichloroethane-d4	*116 %*		*60-140*			*L206162*	*06/20/2012*	*06/20/2012*	*8260B*
Surrogate: Toluene-d8	*89 %*		*65-120*			*L206162*	*06/20/2012*	*06/20/2012*	*8260B*
Surrogate: 4-Bromofluorobenzene	*94 %*		*75-130*			*L206162*	*06/20/2012*	*06/20/2012*	*8260B*

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

CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

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 L206162 - SW 5030B										
Blank (L206162-BLK1)			Prepared & Analyzed: 06/20/2012							
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						

FEBRUARY 13, 2013 REVISION 1

264 Welsh Pool Road
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CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

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 L206162 - SW 5030B										
Blank (L206162-BLK1)				Prepared & Analyzed: 06/20/2012						
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	*61.3*			*ug/L*	*50.000*		*123*	*60-140*		
Surrogate: Toluene-d8	*47.5*			*ug/L*	*50.000*		*95*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*48.7*			*ug/L*	*50.000*		*97*	*75-130*		
LCS (L206162-BS1)				Prepared & Analyzed: 06/20/2012						
1,1,1-Trichloroethane	55.3		5.00	ug/L	50.000		111	70-130		
1,1,2,2-Tetrachloroethane	49.6		5.00	ug/L	50.000		99	65-130		
1,1,2-Trichloroethane	47.8		5.00	ug/L	50.000		96	70-125		
1,1-Dichloroethane	51.8		5.00	ug/L	50.000		104	70-130		
1,1-Dichloroethene	46.5		5.00	ug/L	50.000		93	65-140		
1,2-Dibromo-3-chloropropane	48.1		5.00	ug/L	50.000		96	50-125		
1,2-Dibromoethane	49.4		5.00	ug/L	50.000		99	70-130		
1,2-Dichloroethane	58.8		5.00	ug/L	50.000		118	60-140		
1,2-Dichloropropane	52.2		5.00	ug/L	50.000		104	75-125		
1,4-Dichlorobenzene	48.1		5.00	ug/L	50.000		96	75-125		

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CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

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 L206162 - SW 5030B									
LCS (L206162-BS1)			Prepared & Analyzed: 06/20/2012						
2-Butanone	70.8	10.0	ug/L	50.000		142	20-200		
2-Hexanone	70.8	10.0	ug/L	50.000		142	20-200		
4-Methyl-2-pentanone	58.7	10.0	ug/L	50.000		117	45-150		
Acetone	96.7	10.0	ug/L	50.000		193	20-220		
Benzene	48.9	5.00	ug/L	50.000		98	75-125		
Bromodichloromethane	51.1	5.00	ug/L	50.000		102	65-130		
Bromoform	47.4	5.00	ug/L	50.000		95	70-120		
Bromomethane	44.9	10.0	ug/L	50.000		90	50-150		
Carbon Disulfide	45.7	5.00	ug/L	50.000		91	50-150		
Carbon Tetrachloride	55.0	5.00	ug/L	50.000		110	65-130		
Chlorobenzene	48.9	5.00	ug/L	50.000		98	75-125		
Chloroethane	45.3	10.0	ug/L	50.000		91	65-140		
Chloroform	52.5	5.00	ug/L	50.000		105	75-125		
Chloromethane	49.1	10.0	ug/L	50.000		98	50-135		
cis-1,3-Dichloropropene	46.8	5.00	ug/L	50.000		94	70-125		
Dibromochloromethane	49.2	5.00	ug/L	50.000		98	70-130		
Dichlorodifluoromethane	41.3	10.0	ug/L	50.000		83	20-140		
Ethylbenzene	49.3	5.00	ug/L	50.000		99	75-125		
Methylene Chloride	45.4	6.00	ug/L	50.000		91	55-150		
Styrene	49.0	5.00	ug/L	50.000		98	75-130		
Tetrachloroethene	44.9	5.00	ug/L	50.000		90	70-130		
Toluene	49.0	5.00	ug/L	50.000		98	70-130		
trans-1,2-Dichloroethene	46.7	5.00	ug/L	50.000		93	70-130		
trans-1,3-Dichloropropene	54.6	5.00	ug/L	50.000		109	70-130		
Trichloroethene	50.3	5.00	ug/L	50.000		101	75-125		
Trichlorofluoromethane	51.4	5.00	ug/L	50.000		103	50-135		
Vinyl chloride	41.7	10.0	ug/L	50.000		83	55-135		
Xylenes, total	151	5.00	ug/L	150.00		100	70-130		
1,2-Dichloroethene (total)	93.1	5.00	ug/L	100.00		93	70-130		
cis-1,2-Dichloroethene	46.3	5.00	ug/L	50.000		93	70-125		
Surrogate: 1,2-Dichloroethane-d4	*54.5*		*ug/L*	*50.000*		*109*	*60-140*		
Surrogate: Toluene-d8	*45.6*		*ug/L*	*50.000*		*91*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*50.4*		*ug/L*	*50.000*		*101*	*75-130*		

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CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

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 L206162 - SW 5030B									
Matrix Spike (L206162-MS1)		**Source: 1206040-02**	Prepared & Analyzed: 06/20/2012						
1,1,1-Trichloroethane	56.1	5.00	ug/L	50.000	5.00 U	112	70-130		
1,1,2,2-Tetrachloroethane	44.4	5.00	ug/L	50.000	5.00 U	89	65-130		
1,1,2-Trichloroethane	46.3	5.00	ug/L	50.000	5.00 U	93	70-125		
1,1-Dichloroethane	53.4	5.00	ug/L	50.000	5.00 U	107	70-130		
1,1-Dichloroethene	45.8	5.00	ug/L	50.000	5.00 U	92	65-140		
1,2-Dibromo-3-chloropropane	38.9	5.00	ug/L	50.000	5.00 U	78	50-125		
1,2-Dibromoethane	45.4	5.00	ug/L	50.000	5.00 U	91	70-130		
1,2-Dichloroethane	59.4	5.00	ug/L	50.000	5.00 U	119	60-140		
1,2-Dichloropropane	53.8	5.00	ug/L	50.000	5.00 U	108	75-125		
1,4-Dichlorobenzene	48.5	5.00	ug/L	50.000	5.00 U	97	75-125		
2-Butanone	49.1	10.0	ug/L	50.000	10.0 U	98	20-200		
2-Hexanone	44.6	10.0	ug/L	50.000	10.0 U	89	20-200		
4-Methyl-2-pentanone	45.9	10.0	ug/L	50.000	10.0 U	92	45-150		
Acetone	46.6	10.0	ug/L	50.000	34.6	24	20-220		
Benzene	50.6	5.00	ug/L	50.000	5.00 U	101	75-125		
Bromodichloromethane	54.4	5.00	ug/L	50.000	5.00 U	109	65-130		
Bromoform	43.8	5.00	ug/L	50.000	5.00 U	88	70-120		
Bromomethane	46.0	10.0	ug/L	50.000	10.0 U	92	50-150		
Carbon Disulfide	46.5	5.00	ug/L	50.000	5.00 U	93	50-150		
Carbon Tetrachloride	56.8	5.00	ug/L	50.000	5.00 U	114	65-130		
Chlorobenzene	49.1	5.00	ug/L	50.000	5.00 U	98	75-125		
Chloroethane	47.9	10.0	ug/L	50.000	10.0 U	96	65-140		
Chloroform	54.6	5.00	ug/L	50.000	5.00 U	109	75-125		
Chloromethane	50.5	10.0	ug/L	50.000	10.0 U	101	50-135		
cis-1,3-Dichloropropene	45.6	5.00	ug/L	50.000	5.00 U	91	70-125		
Dibromochloromethane	47.2	5.00	ug/L	50.000	5.00 U	94	70-130		
Dichlorodifluoromethane	46.4	10.0	ug/L	50.000	10.0 U	93	20-140		
Ethylbenzene	49.9	5.00	ug/L	50.000	5.00 U	100	75-125		
Methylene Chloride	46.0	6.00	ug/L	50.000	6.00 U	92	55-150		
Styrene	50.4	5.00	ug/L	50.000	5.00 U	101	75-130		
Tetrachloroethene	47.1	5.00	ug/L	50.000	5.00 U	94	70-130		
Toluene	49.0	5.00	ug/L	50.000	5.00 U	98	70-130		
trans-1,2-Dichloroethene	49.4	5.00	ug/L	50.000	5.00 U	99	70-130		
trans-1,3-Dichloropropene	51.4	5.00	ug/L	50.000	5.00 U	103	70-130		
Trichloroethene	51.1	5.00	ug/L	50.000	5.00 U	102	75-125		
Trichlorofluoromethane	53.7	5.00	ug/L	50.000	5.00 U	107	50-135		

FEBRUARY 13, 2013 REVISION 1

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

CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

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 L206162 - SW 5030B									
Matrix Spike (L206162-MS1)	**Source: 1206040-02**		Prepared & Analyzed: 06/20/2012						
Vinyl chloride	43.8	10.0	ug/L	50.000	10.0 U	88	55-135		
Xylenes, total	152	5.00	ug/L	150.00	5.00 U	101	70-130		
1,2-Dichloroethene (total)	96.8	5.00	ug/L	100.00	5.00 U	97	70-130		
cis-1,2-Dichloroethene	47.3	5.00	ug/L	50.000	5.00 U	95	70-125		
Surrogate: 1,2-Dichloroethane-d4	*55.8*		*ug/L*	*50.000*		*112*	*60-140*		
Surrogate: Toluene-d8	*45.2*		*ug/L*	*50.000*		*90*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*49.9*		*ug/L*	*50.000*		*100*	*75-130*		
Matrix Spike Dup (L206162-MSD1)	**Source: 1206040-02**		Prepared & Analyzed: 06/20/2012						
1,1,1-Trichloroethane	58.5	5.00	ug/L	50.000	5.00 U	117	70-130	4	20
1,1,2,2-Tetrachloroethane	51.1	5.00	ug/L	50.000	5.00 U	102	65-130	14	20
1,1,2-Trichloroethane	50.7	5.00	ug/L	50.000	5.00 U	101	70-125	9	20
1,1-Dichloroethane	55.0	5.00	ug/L	50.000	5.00 U	110	70-130	3	20
1,1-Dichloroethene	47.6	5.00	ug/L	50.000	5.00 U	95	65-140	4	20
1,2-Dibromo-3-chloropropane	51.0	5.00	ug/L	50.000	5.00 U	102	50-125	27*	20
1,2-Dibromoethane	50.7	5.00	ug/L	50.000	5.00 U	101	70-130	11	20
1,2-Dichloroethane	62.1	5.00	ug/L	50.000	5.00 U	124	60-140	5	20
1,2-Dichloropropane	53.9	5.00	ug/L	50.000	5.00 U	108	75-125	0.2	20
1,4-Dichlorobenzene	51.5	5.00	ug/L	50.000	5.00 U	103	75-125	6	20
2-Butanone	52.8	10.0	ug/L	50.000	10.0 U	106	20-200	7	20
2-Hexanone	56.3	10.0	ug/L	50.000	10.0 U	113	20-200	23*	20
4-Methyl-2-pentanone	56.1	10.0	ug/L	50.000	10.0 U	112	45-150	20	20
Acetone	55.5	10.0	ug/L	50.000	34.6	42	20-220	54*	20
Benzene	50.9	5.00	ug/L	50.000	5.00 U	102	75-125	0.5	20
Bromodichloromethane	55.4	5.00	ug/L	50.000	5.00 U	111	65-130	2	20
Bromoform	48.7	5.00	ug/L	50.000	5.00 U	97	70-120	11	20
Bromomethane	48.6	10.0	ug/L	50.000	10.0 U	97	50-150	6	20
Carbon Disulfide	48.3	5.00	ug/L	50.000	5.00 U	97	50-150	4	20
Carbon Tetrachloride	59.5	5.00	ug/L	50.000	5.00 U	119	65-130	5	20
Chlorobenzene	51.7	5.00	ug/L	50.000	5.00 U	103	75-125	5	20
Chloroethane	50.2	10.0	ug/L	50.000	10.0 U	100	65-140	5	20
Chloroform	56.6	5.00	ug/L	50.000	5.00 U	113	75-125	4	20
Chloromethane	52.6	10.0	ug/L	50.000	10.0 U	105	50-135	4	20
cis-1,3-Dichloropropene	47.7	5.00	ug/L	50.000	5.00 U	95	70-125	4	20
Dibromochloromethane	51.1	5.00	ug/L	50.000	5.00 U	102	70-130	8	20
Dichlorodifluoromethane	47.1	10.0	ug/L	50.000	10.0 U	94	20-140	2	20
Ethylbenzene	52.0	5.00	ug/L	50.000	5.00 U	104	75-125	4	20

LIONVILLE LABORATORY
A division of Eberline Analytical Corporation

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Exton, PA 19341
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Fax: 610-280-3041

CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	07/02/2012 15:15

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 L206162 - SW 5030B									
Matrix Spike Dup (L206162-MSD1)	**Source: 1206040-02**	Prepared & Analyzed: 06/20/2012							
Methylene Chloride	47.8	6.00	ug/L	50.000	6.00 U	96	55-150	4	20
Styrene	52.0	5.00	ug/L	50.000	5.00 U	104	75-130	3	20
Tetrachloroethene	49.0	5.00	ug/L	50.000	5.00 U	98	70-130	4	20
Toluene	51.0	5.00	ug/L	50.000	5.00 U	102	70-130	4	20
trans-1,2-Dichloroethene	50.3	5.00	ug/L	50.000	5.00 U	101	70-130	2	20
trans-1,3-Dichloropropene	55.9	5.00	ug/L	50.000	5.00 U	112	70-130	9	20
Trichloroethene	51.1	5.00	ug/L	50.000	5.00 U	102	75-125	0.01	20
Trichlorofluoromethane	54.2	5.00	ug/L	50.000	5.00 U	108	50-135	0.9	20
Vinyl chloride	44.3	10.0	ug/L	50.000	10.0 U	89	55-135	1	20
Xylenes, total	159	5.00	ug/L	150.00	5.00 U	106	70-130	4	20
1,2-Dichloroethene (total)	99.0	5.00	ug/L	100.00	5.00 U	99	70-130	2	20
cis-1,2-Dichloroethene	48.7	5.00	ug/L	50.000	5.00 U	97	70-125	3	20
Surrogate: 1,2-Dichloroethane-d4	*57.5*		*ug/L*	*50.000*		*115*	*60-140*		
Surrogate: Toluene-d8	*47.1*		*ug/L*	*50.000*		*94*	*65-120*		
Surrogate: 4-Bromofluorobenzene	*52.4*		*ug/L*	*50.000*		*105*	*75-130*		

PREPARATION BENCH SHEET

L206162

Lionville Laboratory

Printed: 7/2/2012 10:59:17AM

REVISION 1

FEBRUARY 13, 2013

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

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206040-01	8260B App IX VOC	06/20/2012 13:51	5	5				5	CHPRC Hanford	AppIX modified list + cis12dce
1206040-02	8260B App IX VOC	06/20/2012 14:24	5	5				5	CHPRC Hanford	AppIX modified list + cis12dce
L206162-BLK1	QC	06/20/2012 11:54	5	5				5		
L206162-BS1	QC	06/20/2012 12:28	5	5	1200748		5	5		
L206162-MS1	QC	06/20/2012 14:57	5	5	1200748	1206040-02	5	5		
L206162-MSD1	QC	06/20/2012 15:31	5	5	1200748	1206040-02	5	5		

R 7/2/12

MA 7/2/12

Extracts Relinquished By Date Extracts Received By Date

PESTICIDES

FEBRUARY 13, 2013 REVISION 1

LIONVILLE LABORATORY
A division of Baseline Analytical Corporation

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

CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	10/03/2012 11:19

Analytical Report for Organochlorine Pesticides by SW846 8081A

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B2KWL4	1206040-01	Water	06/14/2012 10:06	06/15/2012 10:20

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: CHPRC I12-025 L0046
LVL #: 1206040

W.O. #: 60049-001-001-0001-00
Date Received: 06-15-2012

CHLORINATED PESTICIDES

One (1) water sample was collected on 06-14-2012.

The sample and associated QC samples were extracted 06-21-2012 and analyzed 06-28-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3520C, and the analysis procedure was based on SW846 Method 8081A for client specified target compounds. All samples received Copper-Sulfur cleanup based on SW846 method 3660A.

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

1. The results presented in this report are derived from 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. One (1) of thirty-six (36) matrix spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR#12GC110) has been enclosed.

7. The matrix spike analyses were outside the RPD control limit for Endrin.

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

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

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

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

Iain Daniels
LvL Laboratory Manager

2/13/13
Date

FEBRUARY 13, 2013 REVISION 1

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12GC110

Initiator: Catherine Carey Batch: 1206040 Parameter: Pest
Date: 07.06.12 Samples: MS1 Matrix: water
Client: CHPRC Method: SW846/MCAWW/CLP/ Prep Batch: L206171

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)

Endrin recovery is low in MS1 (51.9%)
LCS and MSD all in

2. Known or Probable Causes(s) UKN

3. Discussion and Proposed Action Other Description: Narrative

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

4. Project Manager Instructions...signature/date: _____ 7.6-12

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

5. Final Action...signature/date: _____ 7/9/12 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.

FEBRUARY 13, 2013 REVISION 1

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Exton, PA 19341
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CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	10/03/2012 11:19

B2KWL4
1206040-01 (Water)

Lionville Laboratory

Organochlorine Pesticides by SW846 8081A

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
alpha-BHC	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
gamma-BHC	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
beta-BHC	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
delta-BHC	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Heptachlor	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Aldrin	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Heptachlor epoxide	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Endosulfan I	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
4,4'-DDE	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Dieldrin	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Endrin	0.0500	N, U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
4,4'-DDD	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Endosulfan II	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Endrin aldehyde	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Endosulfan sulfate	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Methoxychlor	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Endrin ketone	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Toxaphene	0.500	U	0.500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Chlordane	0.100	U	0.100	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
4,4'-DDT	0.0500	U	0.0500	ug/L	1	L206171	06/21/2012	06/28/2012	8081A
Surrogate: Tetrachloro-meta-xylene	*94.1 %*		*22-125*			*L206171*	*06/21/2012*	*06/28/2012*	*8081A*
Surrogate: Decachlorobiphenyl	*79.2 %*		*20-135*			*L206171*	*06/21/2012*	*06/28/2012*	*8081A*

FEBRUARY 13, 2013 REVISION 1

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CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	10/03/2012 11:19

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206171 - SW 3520C										
Blank (L206171-BLK1)				Prepared: 06/21/2012 Analyzed: 06/28/2012						
alpha-BHC	0.0500	U	0.0500	ug/L						
gamma-BHC	0.0500	U	0.0500	ug/L						
beta-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						
Endrin aldehyde	0.0500	U	0.0500	ug/L						
Endosulfan sulfate	0.0500	U	0.0500	ug/L						
Methoxychlor	0.0500	U	0.0500	ug/L						
Endrin ketone	0.0500	U	0.0500	ug/L						
Toxaphene	0.500	U	0.500	ug/L						
Chlordane	0.100	U	0.100	ug/L						
4,4'-DDT	0.0500	U	0.0500	ug/L						
Surrogate: Tetrachloro-meta-xylene	*0.812*			*ug/L*	*1.0001*		*81.2*	*22-125*		
Surrogate: Decachlorobiphenyl	*0.721*			*ug/L*	*1.0000*		*72.1*	*20-135*		
LCS (L206171-BS1)				Prepared: 06/21/2012 Analyzed: 06/28/2012						
alpha-BHC	1.20		0.0500	ug/L	1.0000		120	64-143		
gamma-BHC	1.17		0.0500	ug/L	1.0000		117	71-142		
beta-BHC	1.14		0.0500	ug/L	1.0000		114	73-133		
delta-BHC	1.18		0.0500	ug/L	1.0000		118	59-135		
Heptachlor	1.08		0.0500	ug/L	1.0000		108	70-131		
Aldrin	1.12		0.0500	ug/L	1.0000		112	54-139		
Heptachlor epoxide	1.03		0.0500	ug/L	1.0000		103	74-132		
Endosulfan I	1.00		0.0500	ug/L	1.0000		100	77-136		
4,4'-DDE	1.18		0.0500	ug/L	1.0000		118	80-139		
Dieldrin	1.02		0.0500	ug/L	1.0000		102	80-134		
Endrin	0.989		0.0500	ug/L	1.0000		98.9	68-147		
4,4'-DDD	1.09		0.0500	ug/L	1.0000		109	80-141		
Endosulfan II	0.997		0.0500	ug/L	1.0000		99.7	79-133		

FEBRUARY 13, 2013 REVISION 1

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CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	10/03/2012 11:19

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206171 - SW 3520C									
LCS (L206171-BS1)			Prepared: 06/21/2012 Analyzed: 06/28/2012						
Endrin aldehyde	0.983	0.0500	ug/L	1.0000		98.3	74-131		
Endosulfan sulfate	0.956	0.0500	ug/L	1.0000		95.6	73-129		
Methoxychlor	1.01	0.0500	ug/L	1.0000		101	69-136		
Endrin ketone	0.949	0.0500	ug/L	1.0000		94.9	81-137		
4,4'-DDT	1.07	0.0500	ug/L	1.0000		107	68-145		
Surrogate: Tetrachloro-meta-xylene	*0.947*		*ug/L*	*1.0001*		*94.7*	*22-125*		
Surrogate: Decachlorobiphenyl	*0.864*		*ug/L*	*1.0000*		*86.4*	*20-135*		
Matrix Spike (L206171-MS1)		**Source: 1206040-01**	Prepared: 06/21/2012 Analyzed: 06/28/2012						
alpha-BHC	1.16	0.0500	ug/L	1.0000	0.0500 U	116	64-143		
gamma-BHC	1.14	0.0500	ug/L	1.0000	0.0500 U	114	71-142		
beta-BHC	1.08	0.0500	ug/L	1.0000	0.0500 U	108	73-133		
delta-BHC	1.05	0.0500	ug/L	1.0000	0.0500 U	105	59-135		
Heptachlor	1.02	0.0500	ug/L	1.0000	0.0500 U	102	70-131		
Aldrin	1.05	0.0500	ug/L	1.0000	0.0500 U	105	54-139		
Heptachlor epoxide	0.965	0.0500	ug/L	1.0000	0.0500 U	96.5	74-132		
Endosulfan I	0.922	0.0500	ug/L	1.0000	0.0500 U	92.2	77-136		
4,4'-DDE	1.09	0.0500	ug/L	1.0000	0.0500 U	109	80-139		
Dieldrin	0.968	0.0500	ug/L	1.0000	0.0500 U	96.8	80-134		
Endrin	0.519	0.0500	ug/L	1.0000	0.0500 U	51.9*	68-147		
4,4'-DDD	1.02	0.0500	ug/L	1.0000	0.0500 U	102	80-141		
Endosulfan II	0.905	0.0500	ug/L	1.0000	0.0500 U	90.5	79-133		
Endrin aldehyde	0.970	0.0500	ug/L	1.0000	0.0500 U	97.0	74-131		
Endosulfan sulfate	0.898	0.0500	ug/L	1.0000	0.0500 U	89.8	73-129		
Methoxychlor	0.928	0.0500	ug/L	1.0000	0.0500 U	92.8	69-136		
Endrin ketone	1.06	0.0500	ug/L	1.0000	0.0500 U	106	81-137		
4,4'-DDT	0.998	0.0500	ug/L	1.0000	0.0500 U	99.8	68-145		
Surrogate: Tetrachloro-meta-xylene	*0.881*		*ug/L*	*1.0001*		*88.1*	*22-125*		
Surrogate: Decachlorobiphenyl	*0.667*		*ug/L*	*1.0000*		*66.7*	*20-135*		

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: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	10/03/2012 11:19

Organochlorine Pesticides by SW846 8081A - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206171 - SW 3520C									
Matrix Spike Dup (L206171-MSD1)		**Source: 1206040-01**	Prepared: 06/21/2012 Analyzed: 06/28/2012						
alpha-BHC	1.12	0.0500	ug/L	1.0000	0.0500 U	112	64-143	2.90	20
gamma-BHC	1.11	0.0500	ug/L	1.0000	0.0500 U	111	71-142	2.32	20
beta-BHC	1.06	0.0500	ug/L	1.0000	0.0500 U	106	73-133	2.24	20
delta-BHC	1.10	0.0500	ug/L	1.0000	0.0500 U	110	59-135	4.57	20
Heptachlor	1.05	0.0500	ug/L	1.0000	0.0500 U	105	70-131	2.22	20
Aldrin	1.05	0.0500	ug/L	1.0000	0.0500 U	105	54-139	0.191	20
Heptachlor epoxide	0.980	0.0500	ug/L	1.0000	0.0500 U	98.0	74-132	1.54	20
Endosulfan I	0.947	0.0500	ug/L	1.0000	0.0500 U	94.7	77-136	2.68	20
4,4'-DDE	1.10	0.0500	ug/L	1.0000	0.0500 U	110	80-139	1.28	20
Dieldrin	0.986	0.0500	ug/L	1.0000	0.0500 U	98.6	80-134	1.84	20
Endrin	0.986	0.0500	ug/L	1.0000	0.0500 U	98.6	68-147	62.1*	20
4,4'-DDD	1.04	0.0500	ug/L	1.0000	0.0500 U	104	80-141	1.94	20
Endosulfan II	0.942	0.0500	ug/L	1.0000	0.0500 U	94.2	79-133	4.01	20
Endrin aldehyde	0.940	0.0500	ug/L	1.0000	0.0500 U	94.0	74-131	3.14	20
Endosulfan sulfate	0.922	0.0500	ug/L	1.0000	0.0500 U	92.2	73-129	2.64	20
Methoxychlor	0.975	0.0500	ug/L	1.0000	0.0500 U	97.5	69-136	4.94	20
Endrin ketone	0.930	0.0500	ug/L	1.0000	0.0500 U	93.0	81-137	13.4	20
4,4'-DDT	1.04	0.0500	ug/L	1.0000	0.0500 U	104	68-145	3.74	20
Surrogate: Tetrachloro-meta-xylene	*0.906*		*ug/L*	*1.0001*		*90.6*	*22-125*		
Surrogate: Decachlorobiphenyl	*0.816*		*ug/L*	*1.0000*		*81.6*	*20-135*		

REVISION 1

FEBRUARY 13, 2013

PREPARATION BENCH SHEET

L206171

Lionville Laboratory

Printed: 6/22/2012 1:40:50PM

Matrix: Water

Prepared using: GC - SW 3520C

Surrogate used: 120050

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206040-01	8081A TCL Pesticides	06/21/2012 14:41	1000	10				250	CHPRC Hanford	
1206040-01	8082 PCBs	06/21/2012 14:41	1000	10				250	CHPRC Hanford	Added for BatchQC in: L206171
1206056-09	8081A TCL Pesticides	06/21/2012 14:41	1000	10				250	URS/CH2M Oak Ridge (UCOR)	
1206056-09	8082 PCBs	06/21/2012 14:41	1000	10				250	URS/CH2M Oak Ridge (UCOR)	1016-1268
L206171-BLK1	QC	06/21/2012 14:41	1000	10				250		pest
L206171-BLK2	QC	06/21/2012 14:41	1000	10				250		pcb
L206171-BS1	QC	06/21/2012 14:41	1000	10	1200281		250	250		pest
L206171-BS2	QC	06/21/2012 14:41	1000	10	1200123		250	250		pcb
L206171-MS1	QC	06/21/2012 14:41	1000	10	1200281	1206040-01	250	250		pest
L206171-MSD1	QC	06/21/2012 14:41	1000	10	1200281	1206040-01	250	250		pest

S cleaned - 6-22-12 VK
Cu Lot #G6W031

6/22/12 1400
Extracts Relinquished By — Date

VK 6-22-12
Extracts Received By — Date

PAHs

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

CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	10/03/2012 11:29

Analytical Report for Polynuclear Aromatic Compounds by SW846 8310

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B2KWL4	1206040-01	Water	06/14/2012 10:06	06/15/2012 10:20

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

Case Narrative

Client: CHPRC Hanford I12-025 L0046
LVL #: 1206040

W.O. #: 60049-001-001-0001-00
Date Received: 06-15-2012

POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)

One (1) water sample was collected on 06-14-2012.

The sample and associated QC samples were extracted 06-21-2012 and analyzed 07-05-2012 according to criteria set forth in Lionville Laboratory SOPs. The extraction procedure was based on SW846 Method 3520C and the analysis procedure was based on SW846 Method 8310.

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

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

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

3. All obtainable surrogate recoveries were within acceptance criteria.

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

5. One (1) and sixteen (16) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12GC111) has been enclosed.

6. Two (2) and thirty-two (32) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR# 12GC111) has been enclosed.

7. The initial calibrations associated with this data set were within acceptance criteria.

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

9. 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

9/21/12
Date

r:\group\data\2012\pah 8310\chprc hanford\1206040oj.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.

FEBRUARY 13, 2013 REVISION 1

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 12GC111

Initiator: Catherine Corey
Date: 07/08/12
Client: CHPRC

Batch: 1206040
Samples: BS1, MS1, MSD1
Method: SW846/MCAWW/CLP/

Parameter: PAH
Matrix: Water
Prep Batch: L206172

1. Reason for SDR

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

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

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

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

Naphthalene recovery high in BS1, MS1, MSD1

2. Known or Probable Causes(s)

Suspect spike solution problem - contacted vendor

3. Discussion and Proposed Action

Other Description: Narrate. No naphthalene hits. 7/9/12

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

4. Project Manager Instructions...signature/date: 7/31/12
__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: 7/31/12

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

LIONVILLE LABORATORY INC.

GLOSSARY OF DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

FEBRUARY 13, 2013 REVISION 1

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

CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	10/03/2012 11:29

B2KWL4
1206040-01 (Water)

Analyte	Result and Qualifier		Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Lionville Laboratory									
Polynuclear Aromatic Compounds by SW846 8310									
Naphthalene	0.100	N, U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Acenaphthylene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Acenaphthene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Fluorene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Phenanthrene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Anthracene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Fluoranthene	**0.0360**	J	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Indeno[1,2,3-cd]pyrene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Pyrene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Benz[a]anthracene	**0.0305**	J	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Chrysene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Benzo[b] fluoranthene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Benzo[k] fluoranthene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Benzo[a] pyrene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Dibenz[a,h]anthracene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Benzo[g,h,i] perylene	0.100	U	0.100	ug/L	1	L206172	06/21/2012	07/05/2012	8310
Surrogate: Triphenylene	*85 %*		*68-129*			*L206172*	*06/21/2012*	*07/05/2012*	*8310*

FEBRUARY 13, 2013 REVISION 1

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

CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	10/03/2012 11:29

Polynuclear Aromatic Compounds by SW846 8310 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206172 - SW 3520C										
Blank (L206172-BLK1)				Prepared: 06/21/2012 Analyzed: 07/05/2012						
Naphthalene	0.100	U	0.100	ug/L						
Acenaphthylene	0.100	U	0.100	ug/L						
Acenaphthene	0.100	U	0.100	ug/L						
Fluorene	0.100	U	0.100	ug/L						
Phenanthrene	0.100	U	0.100	ug/L						
Anthracene	0.100	U	0.100	ug/L						
Fluoranthene	0.100	U	0.100	ug/L						
Indeno[1,2,3-cd]pyrene	0.100	U	0.100	ug/L						
Pyrene	0.100	U	0.100	ug/L						
Benz[a]anthracene	0.100	U	0.100	ug/L						
Chrysene	0.100	U	0.100	ug/L						
Benzo[b] fluoranthene	0.100	U	0.100	ug/L						
Benzo[k] fluoranthene	0.100	U	0.100	ug/L						
Benzo[a] pyrene	0.100	U	0.100	ug/L						
Dibenz[a,h]anthracene	0.100	U	0.100	ug/L						
Benzo[g,h,i] perylene	0.100	U	0.100	ug/L						
Surrogate: Triphenylene	*4.39*			*ug/L*	*5.0000*		*88*	*68-129*		
LCS (L206172-BS1)				Prepared: 06/21/2012 Analyzed: 07/05/2012						
Naphthalene	12.8		0.100	ug/L	5.0000		256*	0-127		
Acenaphthylene	4.13		0.100	ug/L	5.0000		83	50-140		
Acenaphthene	3.88		0.100	ug/L	5.0000		78	17-139		
Fluorene	4.27		0.100	ug/L	5.0000		85	28-145		
Phenanthrene	4.11		0.100	ug/L	5.0000		82	30-152		
Anthracene	2.47		0.100	ug/L	5.0000		49	19-171		
Fluoranthene	4.38		0.100	ug/L	5.0000		88	34-159		
Indeno[1,2,3-cd]pyrene	4.42		0.100	ug/L	5.0000		88	31-156		
Pyrene	4.02		0.100	ug/L	5.0000		80	33-152		
Benz[a]anthracene	4.24		0.100	ug/L	5.0000		85	32-157		
Chrysene	4.42		0.100	ug/L	5.0000		88	31-159		
Benzo[b] fluoranthene	4.35		0.100	ug/L	5.0000		87	33-164		
Benzo[k] fluoranthene	4.39		0.100	ug/L	5.0000		88	28-161		
Benzo[a] pyrene	3.74		0.100	ug/L	5.0000		75	29-149		
Dibenz[a,h]anthracene	3.93		0.100	ug/L	5.0000		79	27-153		
Benzo[g,h,i] perylene	3.92		0.100	ug/L	5.0000		78	32-157		
Surrogate: Triphenylene	*4.46*			*ug/L*	*5.0000*		*89*	*68-129*		

FEBRUARY 13, 2013 REVISION 1

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

CHPRC Hanford	Project: II2-025	
PO Box 1600, Mail Stop - R3-60	Project Number: L0046	**Reported:**
Richland WA, 99352	Project Manager: Scot Fitzgerald	10/03/2012 11:29

Polynuclear Aromatic Compounds by SW846 8310 - Quality Control

Lionville Laboratory

Analyte	Result and Qualifiers	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch L206172 - SW 3520C									
Matrix Spike (L206172-MS1)	**Source: 1206040-01**		Prepared: 06/21/2012 Analyzed: 07/05/2012						
Naphthalene	12.6	0.100	ug/L	5.0000	0.100 U	252*	0-127		
Acenaphthylene	3.82	0.100	ug/L	5.0000	0.100 U	76	50-140		
Acenaphthene	3.65	0.100	ug/L	5.0000	0.100 U	73	17-139		
Fluorene	4.02	0.100	ug/L	5.0000	0.100 U	80	28-145		
Phenanthrene	3.92	0.100	ug/L	5.0000	0.100 U	78	30-152		
Anthracene	2.35	0.100	ug/L	5.0000	0.100 U	47	19-171		
Fluoranthene	4.02	0.100	ug/L	5.0000	0.0360	80	34-159		
Indeno[1,2,3-cd]pyrene	4.12	0.100	ug/L	5.0000	0.100 U	82	31-156		
Pyrene	3.81	0.100	ug/L	5.0000	0.100 U	76	33-152		
Benz[a]anthracene	3.90	0.100	ug/L	5.0000	0.0305	77	32-157		
Chrysene	4.07	0.100	ug/L	5.0000	0.100 U	81	31-159		
Benzo[b] fluoranthene	3.98	0.100	ug/L	5.0000	0.100 U	80	33-164		
Benzo[k] fluoranthene	4.06	0.100	ug/L	5.0000	0.100 U	81	28-161		
Benzo[a] pyrene	3.50	0.100	ug/L	5.0000	0.100 U	70	29-149		
Dibenz[a,h]anthracene	3.62	0.100	ug/L	5.0000	0.100 U	72	27-153		
Benzo[g,h,i] perylene	3.65	0.100	ug/L	5.0000	0.100 U	73	32-157		
Surrogate: Triphenylene	*4.05*		*ug/L*	*5.0000*		*81*	*68-129*		
Matrix Spike Dup (L206172-MSD1)	**Source: 1206040-01**		Prepared: 06/21/2012 Analyzed: 07/05/2012						
Naphthalene	11.8	0.100	ug/L	5.0000	0.100 U	237*	0-127	6	30
Acenaphthylene	3.83	0.100	ug/L	5.0000	0.100 U	77	50-140	0.2	30
Acenaphthene	3.82	0.100	ug/L	5.0000	0.100 U	76	17-139	4	30
Fluorene	4.06	0.100	ug/L	5.0000	0.100 U	81	28-145	0.8	30
Phenanthrene	4.04	0.100	ug/L	5.0000	0.100 U	81	30-152	3	30
Anthracene	2.38	0.100	ug/L	5.0000	0.100 U	48	19-171	1	30
Fluoranthene	4.28	0.100	ug/L	5.0000	0.0360	85	34-159	6	30
Indeno[1,2,3-cd]pyrene	4.28	0.100	ug/L	5.0000	0.100 U	86	31-156	4	30
Pyrene	3.90	0.100	ug/L	5.0000	0.100 U	78	33-152	2	30
Benz[a]anthracene	4.10	0.100	ug/L	5.0000	0.0305	81	32-157	5	30
Chrysene	4.23	0.100	ug/L	5.0000	0.100 U	85	31-159	4	30
Benzo[b] fluoranthene	4.15	0.100	ug/L	5.0000	0.100 U	83	33-164	4	30
Benzo[k] fluoranthene	4.24	0.100	ug/L	5.0000	0.100 U	85	28-161	4	30
Benzo[a] pyrene	3.65	0.100	ug/L	5.0000	0.100 U	73	29-149	4	30
Dibenz[a,h]anthracene	3.83	0.100	ug/L	5.0000	0.100 U	77	27-153	6	30
Benzo[g,h,i] perylene	3.84	0.100	ug/L	5.0000	0.100 U	77	32-157	5	30
Surrogate: Triphenylene	*4.35*		*ug/L*	*5.0000*		*87*	*68-129*		

REVISION 1

FEBRUARY 13, 2013

PREPARATION BENCH SHEET

L206172

Lionville Laboratory

Printed: 6/22/2012 1:42:08PM

Matrix: Water **Prepared using: HPLC - SW 3520C** **Surrogate used: 1200612**

Lab Number	Analysis	Prepared	Initial (mL)	Final (mL)	Spike ID	Source ID	ul Spike	ul Surrogate	Client	Extraction Comments
1206040-01	8310 PAH	06/21/2012 14:50	1000	5				50	CHPRC Hanford	
L206172-BLK1	QC	06/21/2012 14:50	1000	5				50		
L206172-BS1	QC	06/21/2012 14:50	1000	5	1200436		50	50		
L206172-MS1	QC	06/21/2012 14:50	1000	5	1200436	1206040-01	50	50		
L206172-MSD1	QC	06/21/2012 14:50	1000	5	1200436	1206040-01	50	50		

6/22/12 1400
Extracts Relinquished By Date

UC 6-22-12
Extracts Received By Date