



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5 CHICAGO REGIONAL LABORATORY
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605

Date: 3/28/2016
Subject: Review of Region 5 Data for L'Anse, Michigan Biomass Utility
To: Air Division, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60605
From: Troy Stroock, Chemist
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with EPA's *Guidance on Environmental Data Verification and Data Validation* (Document EPA QA/G-8), CRL verified and validated the data but does not perform data quality assessment based on project plans.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X _____

Please contact the analyst with any technical report issues, Robert Thompson at (312)-353-9078 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: L'Anse, Michigan Biomass Utility

Data Management Coordinator and Date Transmitted

Analyses included in this report:

SVOA Pentachlorophenol by SW-846 3545A/8270



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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Air Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60605

Project: L'Anse, Michigan Biomass Utility
Project Number: [none]
Project Manager: Molly Smith

Reported:
Mar-28-16 16:28

ANALYSIS CASE NARRATIVE

Analyst Phone number: 312.353.8362

General Information

5 surface wipe samples were received by the Chicago Regional Laboratory (CRL) on 2/4/2016 for preparation and analysis of pentachlorophenol by CRL Standard Operating Procedure (SOP) MS026 V1. The procedures are based on SW-846 methods 3545A (pressurized fluid extraction) and 8270D (Semivolatile Organic Compounds by GC/MS). Pen and Ink change 5670 documents modifications to the SOP to accommodate testing of surface wipes for polycyclic aromatic hydrocarbons, and data for those target analytes in the same field samples are provided in a separate report. A few additional minor deviations from the SOP were needed to accommodate analysis of pentachlorophenol, which are documented in the analyst note accompanying the supporting data. Pentachlorophenol is qualified as 'Research' in the field samples, because an initial demonstration of capability has not been completed at the time the samples were prepared and analyzed. All quality control types specified in Sec. 10 of MS026 V1 were prepared and analyzed along with the PAHs in preparation batch B16C023 except for matrix spikes.

Holding times were met for preparation and analysis of all field samples.

Sample Analysis and Results

Pentachlorophenol was measured in the instrument calibration range in laboratory sample IDs 1602022-01 and -02 and met the qualitative identification criteria in the SOP. Pentachlorophenol was not measured in the calibration range in the other field samples. Data quality objectives for pentachlorophenol analysis were not defined in the QAPP, because the CRL's initial demonstration of capability requirements for low level analysis of pentachlorophenol in wipe samples was not complete, so the QAPP (LWEC QAPP v1 2-1-16.docx) did not include a limit of quantitation.

Quality Controls

Please refer to the report for qualifiers added by analyte; the key at the end of the report contains descriptions of each data qualifier added and the expected impact on the data. All other quality controls not mentioned below met SOP criteria.

Standard additions of pentachlorophenol were performed at 20 ng/wipe (B16C023-MRL3), 100 ng/wipe (B16C023-MRL4), and 500 ng/wipe (B16C023-BS2 and -BSD2) in order to evaluate analyte recovery during sample preparation. The 2,4,6-tribromophenol surrogate was added at 250 ng/wipe. In order to prevent the pentachlorophenol and 2,4,6-tribromophenol peaks from smearing on the GC column, 1-mL sample extracts



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were diluted 10-fold with dichloromethane prior to analysis. The instrument calibration range for pentachlorophenol was 10-1000 ng/mL, so pentachlorophenol was diluted below the instrument calibration range in B16C023-MRL3. The measured concentration of pentachlorophenol in B16C023-MRL4 was interpolated in the calibration range, but pentachlorophenol was measured in the method blank at about 40% of that found in B16C023-MRL4, so pentachlorophenol is qualified 'B' in B16C023-MRL4 to indicate that it may be a high bias measurement. The measured concentrations in B16C023-BS2, -BSD2, and field samples 1602022-01 and -02 were $\geq 10x$ that in the highest method blank, so pentachlorophenol is reported without additional qualification in these samples.

Recovery of pentachlorophenol met the criteria for pressurized fluid extraction in Table 5 of the SOP in QC samples B16C023-MRL4, -BS2, and -BSD2. Recovery of the 2,4,6-tribromophenol surrogate met the criteria for pressurized fluid extraction in Table 5 of the SOP. The reporting limit (RL) provided for pentachlorophenol in this report is set to the lowest spike level that was qualitatively identifiable and recovered acceptably, which is equivalent to 100 ng/wipe, but at the time the field samples were prepared and analyzed an RL had not been established for this analysis as part of an approved initial demonstration of capability.



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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
L-1P	1602022-01	Wipe	Feb-01-16 14:00	Feb-04-16 09:45
L-2P	1602022-02	Wipe	Feb-01-16 14:15	Feb-04-16 09:45
L-3P	1602022-03	Wipe	Feb-01-16 15:35	Feb-04-16 09:45
L-4P	1602022-04	Wipe	Feb-01-16 15:55	Feb-04-16 09:45
L-5P	1602022-05	Wipe	Feb-01-16 16:20	Feb-04-16 09:45



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Semivolatiles by GC/MS, EPA 8270D (modified) US EPA Region 5 Chicago Regional Laboratory

L-1P (1602022-01) Wipe Sampled: Feb-01-16 14:00 Received: Feb-04-16 09:45

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Pentachlorophenol	554	Research		100	ng/Wipe	10	B16C023	Feb-12-16	Mar-18-16
Surogate	Result			%REC		%REC Limits	Batch	Prepared	Analyzed
<i>Surrogate: 2,4,6-Tribromophenol</i>	192			76.8%		26.1-119	"	"	"

L-2P (1602022-02) Wipe Sampled: Feb-01-16 14:15 Received: Feb-04-16 09:45

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Pentachlorophenol	1090	Research		100	ng/Wipe	10	B16C023	Feb-12-16	Mar-18-16
Surogate	Result			%REC		%REC Limits	Batch	Prepared	Analyzed
<i>Surrogate: 2,4,6-Tribromophenol</i>	200			80.2%		26.1-119	"	"	"

L-3P (1602022-03) Wipe Sampled: Feb-01-16 15:35 Received: Feb-04-16 09:45

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Pentachlorophenol	U	Research		100	ng/Wipe	10	B16C023	Feb-12-16	Mar-18-16
Surogate	Result			%REC		%REC Limits	Batch	Prepared	Analyzed
<i>Surrogate: 2,4,6-Tribromophenol</i>	195			78.0%		26.1-119	"	"	"

L-4P (1602022-04) Wipe Sampled: Feb-01-16 15:55 Received: Feb-04-16 09:45

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Pentachlorophenol	U	Research		100	ng/Wipe	10	B16C023	Feb-12-16	Mar-18-16
Surogate	Result			%REC		%REC Limits	Batch	Prepared	Analyzed
<i>Surrogate: 2,4,6-Tribromophenol</i>	198			79.3%		26.1-119	"	"	"

L-5P (1602022-05) Wipe Sampled: Feb-01-16 16:20 Received: Feb-04-16 09:45

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Pentachlorophenol	U	Research		100	ng/Wipe	10	B16C023	Feb-12-16	Mar-18-16
Surogate	Result			%REC		%REC Limits	Batch	Prepared	Analyzed
<i>Surrogate: 2,4,6-Tribromophenol</i>	198			79.3%		26.1-119	"	"	"



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Semivolatiles by GC/MS, EPA 8270D (modified)
US EPA Region 5 Chicago Regional Laboratory

L-5P (1602022-05) Wipe **Sampled: Feb-01-16 16:20** **Received: Feb-04-16 09:45**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Pentachlorophenol	U	Research		100	ng/Wipe	10	B16C023	Feb-12-16	Mar-18-16
Surogate	Result			%REC		%REC Limits	Batch	Prepared	Analyzed
<i>Surrogate: 2,4,6-Tribromophenol</i>	208			83.0%		26.1-119	"	"	"



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Semivolatiles by GC/MS, EPA 8270D (modified) - Quality Control US EPA Region 5 Chicago Regional Laboratory

Batch B16C023 - Solvent Extraction

Blank (B16C023-BLK1)

Prepared: Feb-12-16 Analyzed: Mar-18-16

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Pentachlorophenol	U			100	ng/Wipe						
<i>Surrogate: 2,4,6-Tribromophenol</i>	185				"	250.0		74.0%	26.1-119		

Blank (B16C023-BLK2)

Prepared: Feb-12-16 Analyzed: Mar-18-16

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Pentachlorophenol	U			100	ng/Wipe						
<i>Surrogate: 2,4,6-Tribromophenol</i>	185				"	250.0		74.1%	26.1-119		

LCS (B16C023-BS2)

Prepared: Feb-12-16 Analyzed: Mar-18-16

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Pentachlorophenol	423			100	ng/Wipe	500.0		84.6%	28.4-151		
<i>Surrogate: 2,4,6-Tribromophenol</i>	180				"	250.0		71.9%	26.1-119		

LCS Dup (B16C023-BSD2)

Prepared: Feb-12-16 Analyzed: Mar-18-16

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Pentachlorophenol	468			100	ng/Wipe	500.0		93.7%	28.4-151	10.2	30
<i>Surrogate: 2,4,6-Tribromophenol</i>	195				"	250.0		77.9%	26.1-119		

MRL Check (B16C023-MRL3)

Prepared: Feb-12-16 Analyzed: Mar-18-16

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Pentachlorophenol	U			100	ng/Wipe	20.00		%	28.4-151		
<i>Surrogate: 2,4,6-Tribromophenol</i>	203				"	250.0		81.1%	26.1-119		

MRL Check (B16C023-MRL4)

Prepared: Feb-12-16 Analyzed: Mar-18-16

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit



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Semivolatiles by GC/MS, EPA 8270D (modified) - Quality Control
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Batch B16C023 - Solvent Extraction

MRL Check (B16C023-MRL4)

Prepared: Feb-12-16 Analyzed: Mar-18-16

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	Limit	RPD	RPD Limit
Pentachlorophenol	107	B		100	ng/Wipe	100.0		107%	28.4-151		
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>187</i>				"	<i>250.0</i>		<i>74.7%</i>	<i>26.1-119</i>		



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Notes and Definitions

- Research Samples analyzed while the method is under development and contain results of unknown quality. No SOP in place at time of data release. Client was notified and accepted the terms as stated.
- B Analyte concentration is < 5x that in the associated method blank(s); this concentration may be a high-bias estimate.
- U Not Detected
- NR Not Reported