

REPORT

November 2024 B(a)P Sampling Results Above Measured Level Report

Rain Carbon Canada Inc.

Submitted by:

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Table of Contents

1.0 INTRODUCTION	1
2.0 B(A)P MONITORING	2
2.1 Facility Conditions During Monitoring	4
3.0 MONITORING RESULTS AND ANALYSIS	5
4.0 CONCLUSIONS	8

1. TABLES

Table 1: Summary of November 2024 B(a)P Measurements	3
Table 2: Summary of Facility Activities on November 14, 2024, Sampling Date	4
Table 3: Summary of Wind Conditions, Facility Operations and Measured B(a)P Concentrations during November 14, 2024,	6
Table 4: Conclusions	9

FIGURES

Figure 1: Monitor and Source Locations	2
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1.0 INTRODUCTION

The ambient air monitoring measurements for November 2024 follow the November 12, 2019, Monitoring Plan for B(a)P and Benzene (the Plan) approved by the Ontario Ministry of the Environment, Conservation and Parks (MECP) on November 20, 2019.

As required by the Plan, Rain completed three monitoring events in the month of November 2024 (November 5, 17, and 29) and submitted a monthly summary report to the MECP entitled “November 2024 Ambient Air Monitoring Report” (the AAMR).

As presented in the November 2024 AAMR, there was one B(a)P concentration recorded above the 0.0043 µg/m³ Measured Level threshold which triggered the preparation of this report, as set out in the ECA #7313-8KEN49 Notice No.1 issued November 17, 2022.

This report includes information on the causes and prevention of future concentrations above the Measured Level threshold. Where possible, this report will include the following items as per the ECA #7313-8KEN49 Notice No.1 issued November 17, 2022.

An analysis of what may have caused the B(a)P concentration to be above the Measured Level Threshold.

- Production rate(s) at the time measuring B(a)P concentrations to be above the Measured Level Threshold.
- An assessment of additional equipment, technically feasible methods and operational measures that are available to further minimize the likelihood of measurements above the Measured Level Threshold; and
- A proposed schedule to implement any actions that would minimize the likelihood of measurements above the Measured Level Threshold.

2.0 B(A)P MONITORING

The monitoring program for B(a)P consists of setting up a polyurethane foam (PUF) polyaromatic hydrocarbon (PAH) sampling system at five locations at the Facility, as presented in Figure 1 and also at the exterior to the site HAMN Station 29164. Samples were collected over a 24-hour period. Air quality data acquisition and instrument performance were evaluated by Rain Carbon Canada Inc. personnel. The laboratory analysis was conducted by Bureau Veritas Laboratories, which is ISO17025 compliant and accredited.

Figure 1: Monitor and Source Locations



The B(a)P measurements ranged from < 0.00030 µg/m³ to **0.0175 µg/m³**.

The MECP included a Measured Level threshold as a trigger to evaluate progress on B(a)P emission reduction. This level set by the MECP is not directly related to the ESDM Report results. One of the B(a)P concentrations measured on November 14, 2024, was above the 0.00430 µg/m³ Measured Level threshold which triggered the preparation of this report, as set out in the ECA #7313-8KEN49 Notice No.1 issued November 17, 2022, and the measurement was also above the 0.00500 µg/m³ B(a)P Upper Risk Threshold (URT)

Table 1: Summary of November 2024 B(a)P Measurements.

Monitoring Event Date	Measured Concentration [µg/m ³]					HAMN STN 29164
	East	North	Old West	South	New West	
November 2	< 0.00030	< 0.00033	< 0.00030	< 0.00033	< 0.00032	< 0.00031
November 14	0.00048	< 0.00033	0.00066	0.00033	0.01750	< 0.00031
November 26	0.00044	Invalid sample*	< 0.00030	< 0.00032	< 0.00033	< 0.00031

Facility Conditions During Monitoring

The Facility was undergoing normal operations during the November 14, 2024, monitoring event. Table 2 summarizes the daily vehicle loading activity at the Facility during the November 14, 2024, monitoring event at the sources previously identified as the main contributors to B(a)P emissions.

Table 2: Summary of Facility Activities on November 14, 2024, Sampling Date

Monitoring Event	Area	Modelling Source ID	Daily Vehicle Loading [US gal]				
			Pitch	Creosote	Naphthalene	LPSB	RT-12
November 14, 2024	Railcar Loading	LS3	14,233	73,473	18,666	0	0
	Truck Loading	LS2	0	5,353	0	0	0
	Truck Loading	LS4	101,711	0	0	0	10,261

The daily vehicle loading data is based on information derived from the Systems, Application and Products (SAP) Enterprise Resource Planning software system which tracks the amount of material loaded into trailers and rail cars in kilograms. This data was converted to US gallons, representing the amount of material loaded during the monitoring event (i.e., daily amount loaded). This daily loading data allows for a better representation of Facility conditions during the 24-hour monitoring events.

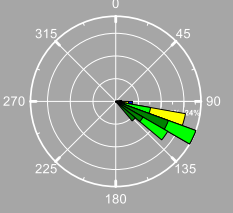
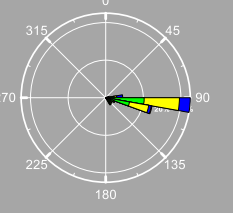
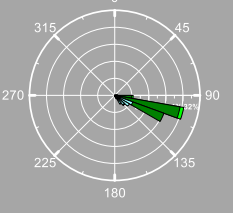
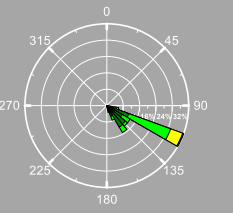
The monitoring and control of loading volumes is part of Standard Operation Procedures (SOPS) for material loading.

3.0 MONITORING RESULTS AND ANALYSIS

At this time, a general correlation between Facility operations and measured concentrations cannot be identified. Although the monitors are located within the Facility's property, their measurements are likely impacted by emissions from other industrial facilities and transportation sources in the vicinity.

Table 3 summarizes the November 14, 2024, monitoring results and wind conditions and facility loading operations. The analysis of the results is presented below Table 3.

Table 3: Summary of Wind Conditions, Facility Operations and Measured B(a)P Concentrations during November 14, 2024

	HAMN Station	Wind Direction & Strength	Overall				
	29102	E (Moderate, Strong)	 29171		 29102		
	29171	ESE, SE (Moderate, Strong)					
	29180	ESE, SE (Moderate, Strong)					
	29565	ESE (Moderate, Strong)	 29180	 29565			
Facility Operations	Facility Area	Modelling Source ID	Daily Total Amount Loaded [US gal]				
			Pitch	Creosote	Naphthalene	LPSB	RT-12
	Railcar Loading	LS3 (close to Old West and New West Monitors)	14,233	73,473	18,666	0	0
	Truck Loading	LS2 (close to Old West Monitor)	0	5,353	0	0	0
Truck Loading	LS4 (close to New West Monitor)	101,711	0	0	0	10,261	
Measured Concentrations [µg/m³]		East Monitor	North Monitor	Old West Monitor / New West Monitor		South Monitor/STN29164	
		0.00048	< 0.00033	0.00066 / 0.0175		< 0.00032 / < 0.00031	

November 14, 2024, monitoring event:

Wind conditions during the November 14, 2024, monitoring event were blowing from a general south easterly direction with moderate to strong winds. This information is summarized in the table below.

Monitoring Event	November 14, 2024
Wind Strength	Moderate Strong
Main Wind Direction	ESE, SE

The loading activities during the November 14, 2024, monitoring event are summarized in the table below.

Monitoring Event	November 14, 2024
Total Volume Loaded from Rail Car Loading LS3 [US gal]	106,373
Total Volume Loaded from Truck Loading LS2 Spot 1 [US gal]	5,353
Total Volume Loaded from Truck Loading LS4 Spot 7 [US gal]	111,973

During the November 14, 2024, monitoring event the railcar loading activity was for 14,233 US gal of coal tar pitch, 73,473 US gal of creosote and 18,666 US gal of naphthalene.

The truck loading LS4 (Spot 7) activity was for 101,711 US gal of coal tar pitch and 10,261 US gal of RT-12. The truck loading LS2 (Spot 1) activity was for 5,353 US gal of creosote.

New West Monitor Measurement on November 14, 2024

The **0.0175 µg/m³ B(a)P measurement at the new west monitor on the November 14, 2024, monitoring event** was above the 0.00430 µg/m³ Measured Level threshold and above the 24-hour upper risk threshold (URT) of 0.005 µg/m³ B(a)P. This was determined, statistically, to be a special cause variation event with one specific likely assignable cause.

We determined that the **0.0175 µg/m³ B(a)P measurement at the new west monitor on the November 14, 2024, MECP monitoring event** was likely due to fugitive coal tar pitch emissions being released from a coal tar pitch tank PVRV.

The fugitive coal tar pitch emissions being released from the tank PVRV which were noted by Operations during the November 14, 2024, MECP monitoring event coal tar pitch tank PVRV audit process.

The tank PVRV is located about 75 metres in a south easterly direction from the new west monitor and therefore would likely have directly impacted the new west monitor due to the predominantly south easterly wind direction during the November 14, 2024, MECP monitoring event. The tank PVRV is now scheduled to be replaced in Q1 2025.

4. CONCLUSION

This report was prepared to fulfill the requirements of the ECA #7313-8KEN49 Notice No.1 issued November 17, 2022.

Table 6: Conclusions

	Conclusions
<p>Analysis of what may have caused the B(a)P concentration to be above the Measured Level Threshold.</p>	<p>The 0.0175 µg/m³ B(a)P measurement at the new west monitor on the November 14, 2024, monitoring event was above the 0.00430 µg/m³ Measured Level threshold and above the 24-hour upper risk threshold (URT) of 0.005 µg/m³ B(a)P. This was determined, statistically, to be a special cause variation event with one specific likely assignable cause.</p> <p>The 0.0175 µg/m³ B(a)P measurement at the new west monitor on the November 14, 2024, monitoring event was above the 0.00430 µg/m³ Measured Level threshold and above the 24-hour upper risk threshold (URT) of 0.005 µg/m³ B(a)P.</p> <p>We determined that the 0.0175 µg/m³ B(a)P measurement at the new west monitor on the November 14, 2024, MECP monitoring event was likely due to fugitive coal tar pitch emissions being released from a coal tar pitch tank PVRV.</p> <p>The fugitive coal tar pitch emissions being released from the tank PVRV which were noted by Operations during the November 14, 2024, MECP monitoring event coal tar pitch tank PVRV audit process.</p> <p>The tank PVRV is located about 75 metres in a south easterly direction from the new west monitor and therefore would likely have directly impacted the new west monitor due to the predominantly south easterly wind direction during the November 14, 2024, MECP monitoring event. The tank PVRV is now scheduled to be replaced in Q1 2025.</p> <p>A “green” naphthalene railcar loading audit and a “yellow” coal tar pitch truck/trailer loading audit were conducted on the Thursday November 14, 2024, monitoring event.</p>
<p>Loading volumes(s) in US gal at the time measuring B(a)P concentrations to be above the Measured Level threshold.</p>	<p>Details on loading volumes (US gal) are presented in Section 2.0 of this report.</p>

<p>Assessment of additional equipment, technically feasible methods and operational measures that are available to further minimize the likelihood of measurements above the Measured Level threshold and the proposed schedule to implement any actions that would minimize the likelihood of measurements above the Measured Level threshold-</p>	<p>Rain will continue conducting vehicle loading audits on each monitoring day to continue assessing the operations of loading equipment and operators' implementation of Standard Operating Procedures.</p> <p>Further audits are required prior to evaluating additional equipment, technically feasible methods and operational measures that are available to further minimize the likelihood of measurements above the Measured Level Threshold.</p>
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