REPORT

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

Rain Carbon Canada Inc.

Submitted by:

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1.0 INTRODUCTION

The ambient air monitoring measurements for July 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 July 2024 (July 5, 17, and 29) and submitted a monthly summary report to the MECP entitled “July 2024 Ambient Air Monitoring Report” (the AAMR).

As presented in the July 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.

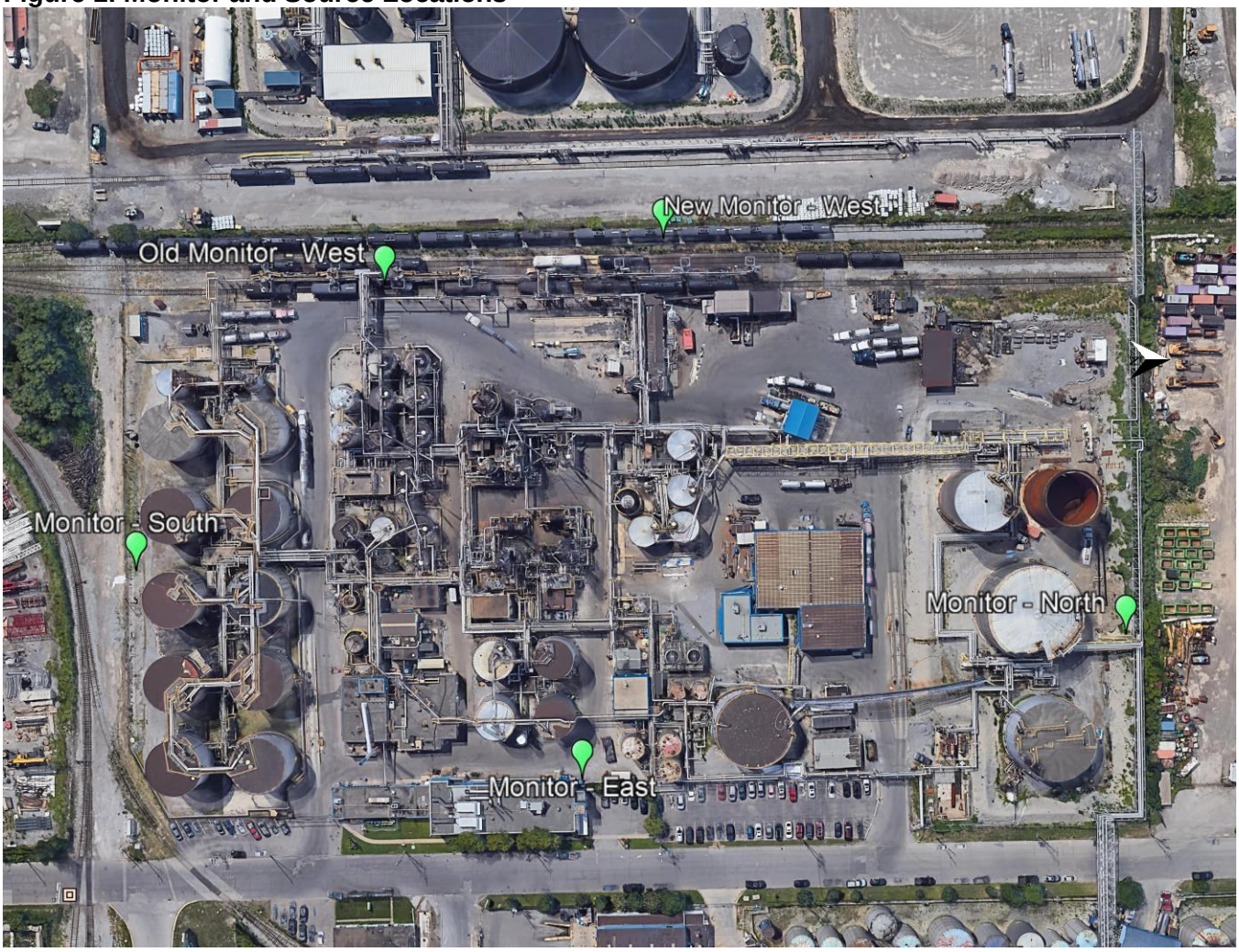
An analysis of what may have caused the B(a)P concentration to be above the Measured Level Threshold.

- 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 < 0.00031 µg/m³ to **0.0152 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 July 5, 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 July 2024 B(a)P Measurements.

Monitoring Event Date		Measured Concentration [µg/m³]				
	East	North	Old West	South	New West	HAMN STN 29164
July 5	0.00074	< 0.00034	**0.0152**	0.00051	0.00073	< 0.00031
July 17	0.00231	0.00139	0.00119	0.00103	0.00149	0.00139
July 29	0.00158	0.00093	0.00177	0.00093	0.00244	0.00056

Facility Conditions During Monitoring

The Facility was undergoing normal operations during the July 5, 2024, monitoring event. Table 2 summarizes the daily vehicle loading activity at the Facility during the July 5, 2024, monitoring event at the sources previously identified as the main contributors to B(a)P emissions.

Table 2: Summary of Facility Activities on July 5, 2024, Sampling Date

Monitoring Event	Area	Modelling Source ID	Daily Vehicle Loading [US gal]				
			Pitch	Creosote	Naphthalene Oil	LPSB	RT-12
July 5, 2024	Railcar Loading	LS3	34,701	18,803	0	0	0
	Truck Loading	LS2	0	88,578	0	0	0
	Truck Loading	LS4	0	0	0	0	5,575

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.

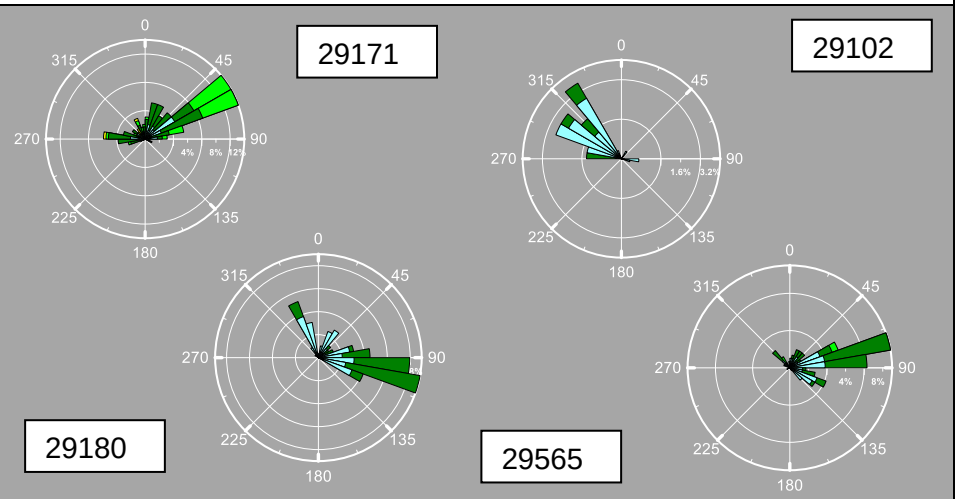
The monitoring and control of loading volumes is part of Standard Operation Procedures (SOPS) for material loading.

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 July 5, 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 July 5, 2024

	HAMN Station	Wind Direction & Strength	Overall
	29102	NW, NNW (Moderate, Strong)	
	29171	NE, ENE (Moderate, Strong)	
	29180	E, ESE (Moderate, Strong)	
	29565	E, ENE (Moderate, Strong)	

	Facility Area	Modelling Source ID	Daily Total Amount Loaded [US gal]				
			Pitch	Creosote	Naphthalene Oil	LPSB	RT-12
Facility Operations	Railcar Loading	LS3 (close to Old West and New West Monitors)	34,701	18,803	0	0	0
	Truck Loading	LS2 (close to Old West Monitor)	0	8,858	0	0	0
	Truck Loading	LS4 (close to New West Monitor)	0	0	0	0	5,575

Measured Concentrations [µg/m³]	East Monitor	North Monitor	Old West Monitor / New West Monitor	South Monitor/STN29164
	0.00074	< 0.00034	**0.0152** / 0.00073	0.00051 / < 0.00031

July 5, 2024, monitoring event:

Wind conditions during the July 5, 2024, monitoring event were blowing from a general northeasterly and easterly direction with moderate to strong winds. This information is summarized in the table below.

Monitoring Event	July 5, 2024
Wind Strength	**Moderate**
Main Wind Direction	**NE, E**

The loading activities during the July 5, 2024, monitoring event are summarized in the table below.

Monitoring Event	July 5, 2024
Total Volume Loaded from Rail Car Loading LS3 [US gal]	53,505
Total Volume Loaded from Truck Loading LS2 Spot 1 [US gal]	8,858
Total Volume Loaded from Truck Loading LS4 Spot 7 [US gal]	5,575

During the July 5, 2024, monitoring event the railcar loading activity was for 18,803 US gal of creosote and 34,701 US gal of impregnated coal tar pitch.

The truck loading LS4 (Spot 7) activity was for 5,575 US gal of RT-12. The truck loading LS2 (Spot 1) activity was for 8,858 US gal of creosote.

Old West Monitor Measurement on July 5, 2024

The **0.0152 µg/m³ B(a)P measurement at the old west monitor on the Friday July 5, 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.

The likely source of the B(a)P measurement at the old west monitor on the Friday July 5, 2024, monitoring event was fugitive coal tar pitch dust and particulate emissions being carried a short distance of under 50 metres by the predominantly north easterly wind from an uncovered large pile (2,000 tonnes) of south berm secondary containment excavation soil.

The soil pile was completely covered with a tarpaulin prior to the July 5, 2024, MECP monitoring event however the soil pile on Friday July 5, 2024, was still an “active excavated soil staging area” and additional south berm excavated soil was continuing to be added to the soil pile daily. Also normal truck traffic in the general vicinity of the soil pile was likely a contributing factor.

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
Analysis of what may have caused the B(a)P concentration to be above the Measured Level Threshold.	The **0.0152 µg/m³ B(a)P measurement at the old west monitor on the Friday July 5, 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. The likely source of the B(a)P measurement at the old west monitor on the Friday July 5, 2024, monitoring event was fugitive coal tar pitch dust and particulate emissions being carried a short distance of under 50 metres by the predominantly north easterly wind from an uncovered large pile (2,000 tonnes) of south berm secondary containment excavation soil. The contaminated soil pile was completely covered with a tarpaulin prior to the July 5, 2024, MECP monitoring event however the soil pile on Friday July 5, 2024, was still an “active excavated soil staging area” and additional south berm excavated soil was continuing to be added to the soil pile daily. Also normal truck traffic in the general vicinity of the soil pile was likely a contributing factor. A “green” creosote railcar loading audit and a “yellow” RT-12 truck/trailer loading audit were conducted on the Tuesday July 5, 2024, monitoring event.
Loading volumes(s) in US gal at the time measuring B(a)P concentrations to be above the Measured Level threshold.	Details on loading volumes (US gal) are presented in Section 2.0 of this report.
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.	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. 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.

Signature Page

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