

REPORT

September 2024 Ambient Air Monitoring Report

Rain Carbon Canada Inc.

Submitted by:

Rain Carbon Canada Inc.

725 Strathearne Avenue North
Hamilton, Ontario
L8H 5L3

October 2024

Distribution List

Electronic copy - Ontario Ministry of the Environment, Conservation and Parks

Electronic copy – Rain Carbon Canada Inc.

Electronic copy - WSP Golder

Table of Contents

1.0 INTRODUCTION	5
2.0 AMBIENT MONITORING STATIONS	6
3.0 SUMMARY OF MONITORING EQUIPMENT CONDITIONS	5
4.0 SUMMARY OF BENZENE MEASUREMENTS	7
5.0 SUMMARY OF B(A)P MEASUREMENTS	8
6.0 CONCLUSIONS	9

TABLES

Table 1: Rain Carbon Ambient Air Quality Monitoring Stations.....	6
Table 2: Summa Canister Pressures on Receipt	6
Table 3: PUF Filter Total Volumes	6
Table 4: Summary of September 2024 Benzene Measurements	7
Table 5: Summary of September 2024 B(a)P Measurements	9

FIGURES

Figure 1: Monitor and Source Locations.....	7
Figure 2: Monitor Location on the South Side of the Facility.....	7
Figure 3: Monitor Locations on the West Side of the Facility	8
Figure 4: Monitor Locations on the North Side and East Side of the Facility	8

APPENDICES

APPENDIX A

Monitoring Plan

APPENDIX B

Laboratory Analysis

APPENDIX C

Chain of Custody Forms

APPENDIX D

Certificates of Analysis

APPENDIX E

Field Notes

1.0 INTRODUCTION

Rain Carbon Canada Inc. (Rain Carbon) is required to prepare monthly written summary reports of benzo(a)pyrene [B(a)P] and benzene ambient monitoring measurements for the coal tar and petroleum material processing plant located at 725 Strathearne Avenue N., Hamilton, Ontario (the Facility). This is the seventy second monthly report submitted as part of the Rain Carbon ambient monitoring program and summarizes the measurements taken in September 2024.

The ambient air monitoring measurements for September 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 December 20, 2019. A copy of the Plan has been provided in Appendix A.

Rain Carbon operates the fence line monitors for benzene and B(a)P at the East, North, South, New West, and Old West environmental monitoring stations. Rain Carbon conducted monitoring for benzene and B(a)P monitoring off site at the HAMN station 29164 from April 2022 through September 2022 and resumed monitoring on December 7, 2022.

This report includes the following information for measurements taken in September 2024:

- Identification of each location at which a measurement was taken.
 - For each location, the concentration of each measurement taken.
 - The date and time each measurement was taken.
-

2.0 AMBIENT MONITORING STATIONS

The monitoring program consists of setting up two types of sampling systems at five locations at the Facility. The two sampling systems included the polyurethane foam (PUF) polyaromatic hydrocarbon (PAH) sampling system for B(a)P and the SUMMA volatile organic carbon (VOC) canister sampling system for benzene. Samples were collected over a 24-hour period. The monitoring stations are listed below, and their locations are shown in Figure 1.

Table 1: Rain Carbon Ambient Air Quality Monitoring Stations

Station Location	Height Above Grade (m)
North - Tank 91	4.1
East - South of Tank-36	3.4
South - Berm	3.2
New West – West Fence line at Railcar Track 2 Spot 10.	4.0
Old West - Tank-77 Platform	13.0
Hamilton Area Monitoring Network (HAMN) Station 29164	4.0

The South berm monitor is placed just over two metres above grade by the berm located on the south side of the Facility as shown in Figure 2. The Old West monitor at Tank 77 is placed on the upper platform located on the west side of the Facility as shown in Figure 3. The platform is approximately 13 metres above grade. As shown in Figure 4, the North monitor is located at the north fence line, north of Tank 91, and placed 4.1 metres above grade and at least 2 metres away from any structure. The East monitor is at the east fence line, south of Tank 36, with an inlet height of 3.4 metres above grade. The New West monitor is located at the west fence line on a new dedicated stand-alone platform at approximately 4 metres above grade.

Air quality data acquisition and instrument performance were conducted by Rain Carbon Canada Inc. personnel and the laboratory analysis was conducted by Bureau Veritas Laboratories, which is ISO1702 compliant and accredited. The following supporting documents are provided:

- Laboratory Analysis in Appendix B;
- Chain of custody forms in Appendix C;
- Laboratory Certificates of Analysis in Appendix D; and
- Field notes in Appendix E.



Figure 1: Monitor and Source Locations



Figure 2: Monitor Location on the South Side of the Facility

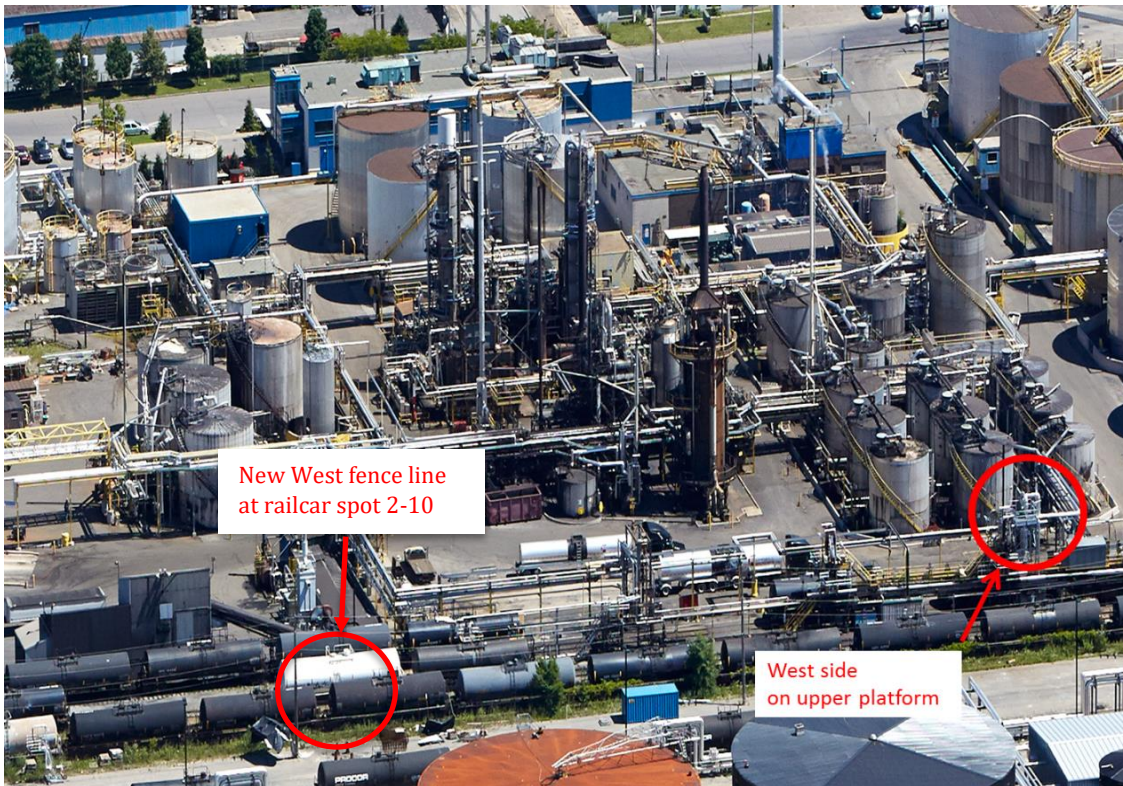


Figure 3: Monitor Locations on the West Side of the Facility



Figure 4: Monitor Locations on the North Side and East Side of the Facility

3.0 SUMMARY OF MONITORING EQUIPMENT CONDITIONS

The laboratory Certificate of Analysis for each monitoring event includes information on the volume of the sample collected for the PUF (B(a)P) monitoring system, and the residual vacuum pressures for the SUMMA canisters (benzene) monitoring equipment. For the PUF system, the MECP has flow requirements of 8 CFM +/- 10% which is equivalent to total volumes between 293.6 m³ and 358.8 m³ over 24 hours.

For the September 2024 B(a)P monitoring results, all the recorded PUF volumes were inside the MECP specified range of between 293.6 m³ and 358.8 m³ over 24 hours.

All the benzene SUMMA canister pressures on receipt at the laboratory for analysis were within the allowable MECP guidance pressures on receipt of between - 1.6 inches Hg and - 13.4 inches Hg **except for those at the old west VOC monitor** on the following four occasions:

- On the September 3, 2024, MECP monitoring event, the old west VOC monitor recorded a summa canister pressure on receipt of + 0.61 inches Hg and therefore the old west VOC monitor benzene measurement was invalidated.

The old west VOC monitor sampler timer was repaired and serviced by Rotek Inc. and as a result, the old west VOC monitor was operated again successfully on the on Saturday September 7, 2024, additional monitoring event where the old west VOC monitor summa canister pressure on receipt was - 6.72 inches Hg and inside the MECP recommended pressure on receipt range of - 5 to -10 inches Hg.

- However, on the September 15, 2024, MECP monitoring event the old west VOC monitor recorded a summa canister pressure on receipt of - 30 inches Hg as the VOC sampler timer internal valve did not open, and no sample was taken.
- The old west VOC monitor sampler timer was repaired and serviced by Rotek Inc. and as a result, the old west monitor VOC sampler was operated again unsuccessfully on the Tuesday September 17, 2024. additional monitoring event. The Tuesday September 17, 2024, VOC monitor summa canister off pressure was 0 inches Hg due to a VOC sampler timer leakage failure with no valid VOC sample being obtained.
- Therefore, the old west VOC monitor sampler timer was again repaired and serviced by Rotek Inc. for the second time and as a result, the old west monitor VOC sampler was operated again unsuccessfully on the Tuesday September 24 , 2024 additional monitoring event. The Tuesday September 24 , 2024 VOC monitor summa canister pressure on receipt was - 0.41 inches Hg and outside the MECP acceptable range of -1.6 to -13.4 inches Hg and therefore the benzene sample result was invalidated.

Therefore, the old west VOC monitor sampler timer was completely replaced by Rotek Inc., when being serviced by Rotek Inc. for the third time and the old west monitor VOC sampler was operated again successfully on the Friday September 27 , 2024 MECP monitoring event where the old west VOC monitor summa canister pressure on receipt was - 6.11 inches Hg and inside the MECP recommended pressure on receipt range of - 5 to -10 inches Hg.

The summa canister pressures on receipt and PUF filter total volumes are presented below in Tables 2 and 3.

Table 2: Summa Canister Pressures on Receipt (“Hg)

Monitoring Event Date	Benzene SUMMA Canister Pressure on Receipt (inches Hg)					HAMN STN 29164
	East	North	Old West	South	New West	
September 3	- 4.48 *	- 6.92	0.61 **	- 8.35	- 6.11	- 8.14
September 7 (additional monitoring event)	-	-	- 6.72	-	-	-
September 15	- 6.11	- 8.14	- 30.00 **	- 9.37	- 6.52	- 6.52
September 17 (additional monitoring event)	-	-	0.00 **	-	-	-
September 24 (additional monitoring event)	-	-	- 0.41 **	-	-	-
September 27	- 6.31	-5.90	-6.11	-8.35	- 6.11	- 6.52

*Sample is acceptable as within the MECP acceptable pressure of receipt of between -1.6 to -13.4 inches Hg but outside the MECP recommended pressure on receipt range of - 5 to -10 inches Hg.

** Sample is invalid as the Summa canister pressure on receipt was outside the MECP acceptable range of - 1.6 to -13.4 inches Hg.

Table 3: PUF Filter Total Volumes

Monitoring Event Date	+B(a)P PUF Total Volume [m ³]					HAMN STN 29164
	East	North	Old West	South	New West	
September 3	319.7	301.5	332.6	297.1	315.2	321.6
September 15	327.2	299.7	335.6	314.4	319.1	311.8
September 27	326.7	299.3	332.1	313.9	310.6	322.6

4.0 SUMMARY OF BENZENE MEASUREMENTS

Three sets of benzene measurements were taken in September 2024. The measurements range from 0.754 µg/m³ to **527 µg/m³**, with the highest value being detected at the **south monitor** during the **Friday September 27, 2024, MECP monitoring event**.

All the benzene concentrations measured during the three September 2024 MECP monitoring events were below the 24-hour Upper Risk Threshold (URT) of 100 µg/m³ benzene, except for on the **Tuesday September 3, 2024, MECP monitoring event** where the **east monitor measured 397 µg/m³ benzene**, on the **Sunday September 15, 2024, MECP monitoring event** where the **south monitor measured 287 µg/m³ benzene** and on the **Friday September 27, 2024, MECP monitoring event** where the **south monitor measured 527 µg/m³ benzene**.

Table 4: Summary of September 2024 Benzene Measurements

Monitoring Event Date	Measured Concentration [$\mu\text{g}/\text{m}^3$]					HAMN STN 29164
	East	North	Old West	South	New West	
September 3	397 *	17.7	Invalid sample **	91.7	27.9	3.95
September 7 (additional monitoring day)	-	-	2.26	-	-	-
September 15	29.6	1.17	No sample due to sampler failure.	287	7.28	4.03
September 17 (additional monitoring day)	-	-	Invalid sample **	-	-	-
September 24 (additional monitoring day)	-	-	Invalid sample **	-	-	-
September 27	10.6	0.754	23.5	527	3.17	1.17

*Sample is acceptable as within the MECP acceptable pressure of receipt of between -1.6 to -13.4 inches Hg but outside the MECP recommended pressure on receipt range of - 5 to -10 inches Hg.

** Sample is invalid as the Summa canister pressure on receipt was outside the MECP acceptable range of -1.6 to -13.4 inches Hg.

5.0 SUMMARY OF B(a)P MEASUREMENTS.

Table 5: Summary of September 2024 B(a)P Measurements.

Monitoring Event Date	Measured Concentration [$\mu\text{g}/\text{m}^3$]					HAMN STN 29164
	East	North	Old West	South	New West	
September 3	0.00100	0.00033	0.00036	0.00054	0.00063	< 0.00031
September 15	< 0.00031	< 0.00033	< 0.00030	0.00146	0.00063	< 0.00032
September 27	0.00067	0.00033	0.00090	0.00159	0.00167	< 0.00062

Three sets of B(a)P measurements were taken in September 2024. The B(a)P measurements ranged from $<0.00030 \mu\text{g}/\text{m}^3$ to $0.00167 \mu\text{g}/\text{m}^3$ B(a)P, with the highest value being detected at the **new west monitor** during the **Friday September 27, 2024, monitoring event**.

All the B(a)P measurements are summarized in Table 5 above, and copies of the laboratory analysis reports are provided in Appendix B.

All the B(a)P concentrations measured during the three September 2024 monitoring events were below the $0.0043 \mu\text{g}/\text{m}^3$ Measured Level Threshold (MLT) and below the 24-hr Upper Risk Threshold (URT) of $0.0050 \mu\text{g}/\text{m}^3$ B(a)P.

6.0 CONCLUSIONS

All the B(a)P concentrations measured during the three September 2024 monitoring events were below the 0.0043 $\mu\text{g}/\text{m}^3$ Measured Level Threshold (MLT) and below the 24-hr Upper Risk Threshold (URT) of 0.0050 $\mu\text{g}/\text{m}^3$ B(a)P.

For the September 2024 B(a)P monitoring results, all the recorded PUF volumes were inside the MECP specified range of between 293.6 m^3 and 358.8 m^3 over 24 hours.

All the benzene concentrations measured during the three September 2024 MECP monitoring events were below the 24-hour Upper Risk Threshold (URT) of 100 $\mu\text{g}/\text{m}^3$ benzene, except for on the **Tuesday September 3, 2024, MECP monitoring event** where the **east monitor measured 397 $\mu\text{g}/\text{m}^3$ benzene**, on the **Sunday September 15, 2024, MECP monitoring event** where the **south monitor measured 287 $\mu\text{g}/\text{m}^3$ benzene** and on the **Friday September 27, 2024, MECP monitoring event** where the **south monitor measured 527 $\mu\text{g}/\text{m}^3$ benzene**.

All the benzene SUMMA canister pressures on receipt at the laboratory for analysis were within the allowable MECP guidance pressures on receipt of between - 1.6 inches Hg and - 13.4 inches Hg **except for those at the old west VOC monitor on the following four occasions:**

- On the September 3, 2024, MECP monitoring event, the old west VOC monitor recorded a summa canister pressure on receipt of + 0.61 inches Hg and therefore the old west VOC monitor benzene measurement was invalidated. (The September 3, 2024, MECP monitoring event VOC monitor summa canister off pressure was 0 inches Hg due to a VOC sampler timer leakage failure).
 - However, on the September 15, 2024, MECP monitoring event the old west VOC monitor recorded a summa canister pressure on receipt of - 30 inches Hg as the VOC sampler timer internal valve did not open, and no sample was taken.
 - The old west VOC monitor sampler timer was repaired and serviced by Rotek Inc. and as a result, the old west monitor VOC sampler was operated again unsuccessfully on the Tuesday September 17, 2024. additional monitoring event. The Tuesday September 17, 2024, VOC monitor summa canister off pressure was 0 inches Hg due to a VOC sampler timer leakage failure with no valid VOC sample being obtained.
 - Therefore, the old west VOC monitor sampler timer was again repaired and serviced by Rotek Inc. for the second time and as a result, the old west monitor VOC sampler was operated again unsuccessfully on the Tuesday September 24, 2024 additional monitoring event. The Tuesday September 24, 2024 VOC monitor summa canister pressure on receipt was - 0.41 inches Hg and outside the MECP acceptable range of -1.6 to -13.4 inches Hg and therefore the benzene sample result was invalidated.
-

Signature Page

Robin Hart

Robin S. Hart P.Eng.

Environmental Engineer

Rain Carbon Canada Inc.

APPENDIX A

Monitoring Plan

APPENDIX B

Laboratory Analysis

APPENDIX C

Chain of Custody Forms

APPENDIX D

Certificates of Analysis

APPENDIX E

Field Notes