REPORT

Environmental Management System and Community Engagement Report For 2021.

Rain Carbon Canada Inc.

Submitted by Gord Gilmet

Rain Carbon Canada Inc.

725 Strathearne Avenue North
Hamilton, Ontario
L8H 5L3

Table of Contents

1.0 INTRODUCTION

Rain Carbon Canada Inc. (Rain Carbon) operates a coal tar and petroleum-based material processing facility located at 725 Strathearne Avenue N. in Hamilton, Ontario (the Facility). Coal tar from various sources are blended, distilled and fractionated into six fractions, which include light oil, tar acid oil, naphthalene oil, wash oil, heavy aromatic oil and coal tar pitch. These products, which are shipped from the Facility by tanker truck and rail car, are essential basic materials for the following downstream industries: aluminum, graphite products, refractory, chemicals, construction, wood preservation and automotive. These basic materials are processed further by other industries to make industrial products such as carbon electrodes, concrete superplasticizers, carbon black pigment and pavement sealer.

The primary processes utilized at the Facility include coal tar receiving, storage, distillation, product storage and shipping, fume gathering and incineration, fume scrubbing, natural gas combustion and wastewater collection and treatment. The Rain Carbon site spans 5 hectares.

1.1 Site-Specific Standards

Rain Carbon submitted Site-Specific Standard (SSS) Applications to the Ontario Ministry of the Environment, Conservation and Parks (MECP) for benzene and benzo(a)pyrene [B(a)P] to demonstrate compliance with Ontario Regulation (O. Reg.) 419/05 while continuing to reduce emissions as much as possible with technology-based solutions and best practices. The SSS for benzene and B(a)P were approved on November 21, 2017 (Reference Number 7856-9VDPSR) for a five year term as summarized in Table 1.

Table 1: Summary of Benzene and B(a)P Site-Specific Standards

Contaminant, CAS Number	Applicable Dates	Annual Site-Specific Standard [µg/m³]
B(a)P, 50-32-8	November 21, 2017 – December 31, 2017	0.062
	January 1, 2018 – June 30, 2018	0.0613
	July 1, 2018 – Nov 21, 2022	0.0008
Benzene, 71-43-2	November 21, 2017 – June 30, 2018	27.7
	July 1, 2018 – Nov 21, 2022	12.7

This report is required to be prepared by the Facility's Site Specific Standards Orders for BaP and Benzene.

The following sections associated with the Facility's SSS Orders require Rain Carbon to prepare an Environmental Management System and Community Engagement Report (the Report) for each calendar year:

- B(a)P: Item 3.2 in Order Number 202-17-order-rv0 issued November 21, 2017; and
- Benzene: Item 4.2 in Order Number 202-17-order-rv0 issued November 21, 2017.

This Report is intended to include the following information with respect to the preceding calendar year (2021):

i) Documentation of all complaints received by the Company relating to air emissions and the resolution of those complaints.

ii) A written summary of the actions taken each calendar year to implement the Action Plan for benzene and B(a)P, including a description of each action taken, the date of implementation of each action taken and dates for the implementation of actions yet to be taken; and

iii) The minutes of the Environmental Monitoring Team (EMT) meetings held during the calendar year and any related follow-up actions.

This Report will be made available for public inspection at the Facility during office hours and on the Rain Carbon website and will also be presented at the next EMT meeting after 2022.

2.0 ENVIRONMENTAL MANAGEMENT SYSTEM

Rain Carbon is committed to the responsible management of its operations and products to ensure there is no unacceptable risk to employees, the public and the environment. They are committed to comply with all applicable environmental, legal and other requirements, including voluntary measures and air emission and wastewater limits. Rain Carbon is dedicated to pollution prevention by minimizing the environmental impact of their operations and products through spill prevention measures and waste minimisation. They strive to continually improve environmental performance through maintaining an effective Environmental Management System (EMS). Rain Carbon is certified to ISO 14001:2015 Environmental Management System.

2.1 Complaint Response Procedure

As part of their EMS, Rain Carbon has implemented a complaints response procedure to record and resolve complaints received from the public. There were no complaints received in 2021.

2.2 Action Plans for B(a)P and Benzene

The Action Plans for B(a)P and benzene were submitted to the MECP as part of the SSS Application in February 2016. Following review and discussions with the MECP, the Action Plans for B(a)P and benzene were updated and resubmitted in September and November 2016, respectively. The SSS Approvals define the Action Plans as those “submitted by the Company as part of its Request, including but not limited to the items summarized in Appendix 1 of this Approval.” Appendix 1 of each SSS Approval includes further actions that were not included in the originally submitted Action Plans. The Action Plans detail the steps Rain Carbon will take to reduce emissions of B(a)P and benzene. See Appendix A – 2021 Written Summary of Implemented Process Improvement Actions for B(a)P and Benzene.

3.0 COMMUNITY ENGAGEMENT

Open and transparent communication with our community is very important to Rain Carbon. Rain Carbon is committed to an open exchange of information with stakeholders. As part of the SSS approval process, Rain Carbon held various meetings to inform the public and key stakeholders about the steps being taken to reduce emissions and to demonstrate compliance with O. Reg. 419/05. Table 2 summarizes the meetings that have been held in 2021. As required by the SSS Orders, a copy of the meeting minutes and follow-up actions from the EMT meetings is provided in Appendix B – Environmental Monitoring Team Minutes and Follow-up Actions.

Table 2: Summary of Community Engagement Meetings

Date	Meeting Description	Purpose
February 24, 2021	First EMT Meeting	■ Virtual meeting instructions ■ Approval of meeting minutes ■ Action items from previous EMT meeting ■ Air Quality Monitoring Program ■ LDAR Program ■ Regulatory Updates ■ ECA update ■ CAMM Plan status ■ MECP Order status ■ SSS renewal status ■ Next EMT meeting (schedule and location)
May 26, 2021	Second EMT Meeting	■ Virtual meeting instructions ■ Approval of meeting minutes ■ Action items from previous EMT meeting ■ Air Quality Monitoring Program ■ LDAR Program ■ Regulatory Updates ■ ECA update ■ CAMM Plan status ■ MECP Order status ■ SSS renewal status ■ Next EMT meeting (schedule and location)
September 15, 2021	Third EMT Meeting	■ Virtual meeting instructions ■ Approval of meeting minutes ■ Action items from previous EMT meeting ■ Air Quality Monitoring Program ■ LDAR Program ■ Regulatory Updates ■ Next EMT meeting (schedule and location)
December 15, 2021	Fourth EMT Meeting	■ Virtual meeting instructions ■ Approval of meeting minutes ■ Action items from previous EMT meeting ■ Air Quality Monitoring Program ■ LDAR Program ■ Regulatory Updates ■ Next EMT meeting (schedule and location)

4.0 CONCLUSION

This Report is intended to fulfill MECP reporting requirements for an EMS and Community Engagement Report as outlined in the SSS Orders.

APPENDIX A

2021 Written Summary of Implemented Process Improvement Actions for Benzo(a)Pyrene and Benzene As Required by Site Specific Standard Approvals for Rain Carbon Canada Inc.

1.1Contents

RAIN CARBON INC.

1 INTRODUCTION

Rain Carbon Canada Inc. (Rain Carbon) operates a coal tar and petroleum-based material processing facility located at 725 Strathearne Avenue N. in Hamilton, Ontario (the Facility). The Facility takes by-products from the steel manufacturing sector and produces high value products used in the aluminum, chemical, construction, pavement sealer and wood preservation industries.

The Rain Carbon air emissions control program controls all benzene and benzo(a)pyrene [B(a)P] sources at the Facility. This program was completed in 2013 and resulted in the reduction of benzene and B(a)P emissions by over 99% from historical levels. However, the introduction of the Ontario Ministry of the Environment, Conservation and Parks (MECP) annual standards for both benzene and B(a)P in 2016 required the Facility to submit Site-Specific Standard (SSS) applications to demonstrate compliance with O. Reg. 419/05. The SSS applications were submitted in February 2016. Updated documentation requested by the MECP was submitted subsequently as needed (e.g., updated Action Plans). The SSS for benzene and B(a)P were approved on November 21, 2017 (Reference Number 7856-9VDPSR; Approval Numbers 201-17rv0 and 202-17-rv0).

The following sections associated with the Facility's SSS Approvals or Orders require Rain Carbon to prepare a Written Summary of the actions taken each calendar year to implement the Action Plans for B(a)P and benzene:

- B(a)P: Condition 5 in Site-Specific Standard Approval Number 201-17-rv0 issued November 21, 2017
- Benzene: Item 4.19 in Order Number 202-17-order-rv0 issued November 21, 2017

This Written Summary of the benzene and B(a)P Action Plans implementation summarizes the the status during the 2021 calendar year. This Written Summary presents descriptions of each action taken, date of implementation of each action taken, and dates for the implementation of actions yet to be taken. This Written Summary was submitted electronically to the MECP District Manager as well as the MECP Standards Development Branch (SDB) Director.

2 B(A)P AND BENZENE ACTION PLANS AND IMPLEMENTATION

The Action Plans for B(a)P and benzene were submitted to the MECP as part of the SSS Application in February 2016. Following review and discussions with the MECP, the Action Plans for benzene and B(a)P were updated and resubmitted in September and November 2016, respectively. The SSS Approvals define the Action Plans as those "submitted by the Company as part of its Request, including but not limited to the items summarized in Appendix 1 of this Approval." Appendix 1 of each SSS Approval includes further actions that were not included in the originally submitted Action Plans.

Section 2.1 – 2021 Calendar Year Implemented Actions summarizes the status of actions taken based on both the originally submitted Action Plans (February 2016) and the actions listed in Appendix 1 of each SSS Approval (November 2017) as well as additional actions taken to further reduce emissions of benzene and B(a)P.

RAIN CARBON INC.

2.1 2021 Calendar Year Status of Implemented Actions

In 2021, Rain Carbon continued to implement Process Improvement Actions that were approved in the benzene and B(a)P Action Plans and included in the SSS Approvals. As of December 2021, Rain Carbon completed all the Process Improvement Actions proposed in the original Action plans (February 2016) and actions listed in Appendix 1 of each SSS Approval (November 2017).

Details of the implemented actions dates they were completed, actions that have not yet been implemented and their planned implementation dates are summarized in Table 1.

Table 1: Summary of Implemented Action Plan in 2018 for B(a)P and Benzene as per Site-Specific Standard Approvals

Action	Expected Date of Completion	Action Included in Action Plans	Action Implemented in 2018?	Notes
B(a)P				
Implement door closure practices on pitch flaking operation	Dec. 21, 2017	No	No - Unit was closed as of Aug. 10, 2017	—
Solid(flakes) Coal tar pitch production line closing	Oct. 1, 2017	Yes	No – Closed as of Aug. 10, 2017	—
Engineering Report of the FSS, including: - Engineering Calculations (mass, heat/energy balance) to clarify the system capacity and actual operating parameters, to determine whether or not the existing system has sufficient capacity to handle the volatile organic compounds (VOC) loading at the projected efficiency. - Engineering Calculations (mass, heat/energy balance) to clarify the system capacity to determine whether or not the existing system has sufficient capacity for additional VOCs loading. - To assess situations when the system is overwhelmed and excess vapours are not captured. - To determine additional methods that would be used to direct volatile organic compounds if the system capacity is not sufficient. - To assess further methods to address system efficiency and optimize operations.	Dec. 31, 2018	No	No – completed Sept. 10, 2019	Rain Carbon is working with an external engineering firm to undertake this engineering study and prepare the FSS Engineering Report. A Work Plan is underway to assess how current FSS operating conditions compare to the original design to assess adequacy and excess capacity and analyse how changes to operating parameters impact the discharge of each contaminant. The FSS Engineering Report was submitted on Sept. 10, 2019. During 2020 Rain Carbon implemented many of the recommendations of the FSS Engineering Report.as ordered by the MECP.
Benzene				
Fume Gathering and Incineration System (FGI): Install equipment, implement and maintain a program to continuously monitor and record the temperature, flow rate and residence time of the gaseous stream into the incineration system, as detailed in the steps below:	—	—	—	—
- Plan and arrange for necessary equipment	Dec. 21, 2017	No	Yes – completed in second half of 2018	- July 2018: measured flow rate and sampled boiler stack exit gases and found inadequate space for new equipment installation. - Rain Carbon worked with a third-party instrumentation company to develop an alternative which involved the installation of a flow meter on the after-combustion stack to estimate flow rate and temperature. - Although the above actions were completed by the end of 2018, it was determined that a flow meter is also required for the second boiler to provide proper measuring of the required parameters. The vendor is scheduled to install the other flow meter during the Fall 2019 planned shutdown. - Completed Nov. 2019
- Install the equipment	Jan. 21, 2018	No	No – completed Nov. 2019	
- Start to operate the installed equipment to continuously monitor and record the temperature, flow rate and residence time of the gaseous stream into the incineration system	Feb. 21, 2018	No	No – completed Nov. 2019	
Engineering Report of the FGI System, including: - Engineering Calculations (mass, heat/energy balance) to clarify the system capacity and actual operating parameters, to determine whether or not the existing system has sufficient capacity to handle the VOCs loading at the projected efficiency.	Dec. 31, 2018	No	No – completed Nov. 15, 2019	Rain Carbon is working with an external engineering firm to undertake this study and prepare the FGI System Engineering Report. A Work Plan is underway to assess how current FGI System operating conditions compare to the original design to assess adequacy and excess capacity and analyse how changes to operating parameters

Action	Expected Date of Completion	Action Included in Action Plans	Action Implemented in 2018?	Notes
- Engineering Calculations (mass, heat/energy balance) to clarify the system capacity to determine whether the existing system has sufficient capacity for additional VOCs loading. - To assess situations when the system is overwhelmed and excess vapours are not captured. - To determine additional methods that would be used to direct volatile organic compounds if the system capacity is not sufficient. - To assess further methods to address system efficiency and optimize operations.				impact VOC destruction. The FGI Engineering Report was submitted on Nov. 15, 2019 During 2020 Rain Carbon implemented many of the recommendations of the FGI Engineering Report as ordered by the MECP.
Engineering Report of the Wastewater Treatment Plant (WWTP): Assess Wastewater Plant operations and options to increase benzene removal efficiency and decrease benzene emissions to the atmosphere.	Dec. 31, 2018	No	No – completed on Sept. 11, 2019	Rain Carbon is working with an external consultant to undertake this engineering study and prepare the WWTP Engineering Report. Rain Carbon is currently evaluating and implementing improvements to the WWTP as it relates to benzene, which contribute to fulfilling the engineering assessment of the WWTP required by the Site-Specific Standard. - Rain Carbon commissioned a vacuum pump on the New Unit Distillation in April 2020 which is expected to eliminate up to 30% of the contaminated process water that currently goes to the WWTP, and in turn, the benzene loadings typically directed to the WWTP. - Installation of a vacuum pump on the Old Unit Distillation is in progress and the target completion is Q2 2021 - A vacuum pump is targeted for installation on the High Softening Point Pitch Unit in Q4 2021. - Rain Carbon assessed different methods of reducing the contaminant loading (e.g. phenols) being sent to the WWTP and has recently completed a technology benchmark analysis that resulted in a reduction in contaminants such as phenol and benzene. Rain Carbon submitted a Pilot Project Environmental Compliance Approval to the MECP in Dec 2020 to obtain approval to conduct a plant trial of this technology towards confirming its ability to remove phenol and benzene as well as other contaminants. - An offsite trial of a vendor's technology that focused specifically on removal of phenol from our process wastewater was completed in Jan. 2020. Phenol level was reduced significantly while there was some reduction in benzene. This option will not be pursued as it is addresses only phenol.
B(a)P and Benzene				

Action	Expected Date of Completion	Action Included in Action Plans	Action Implemented in 2018?	Notes
Update and implement Standard Operating Procedures (SOP) for the Coal tar pitch production line	Dec. 21, 2017	No	No – Unit was closed as of Aug. 10, 2017	—
Improve cleaning practices at the Facility to minimize emissions	Dec. 21, 2017	No	No – Unit was closed as of Aug. 10, 2017	—
Fume Scrubbing System (FSS): - Increase frequency of adding new scrubber oil - Increase temperature control - Use appropriate quality scrubbing oil	Dec. 21, 2017	Yes	No – Complete as of Q1-Q2 2016	—
Liquid (product) Coal tar pitch handling improvements:	—	—	—	—
- Improving seal on unloading stations	Dec. 21, 2017	Yes	No – Complete as of Dec 20, 2017 for tar unloading; Mar 28, 2018 for pitch unloading	—
- Automate and improve draw of fumes	Dec. 21, 2017	Yes	Yes – Complete as of Jan 20, 2018	—
- Add new control system to control pressure on tank TK-77	Dec. 21, 2017	Yes	Yes – Complete as of Jan 20, 2018	—
- Improving seal on rinsing stations	Dec. 21, 2017	Yes	Yes – Complete as of Jan 28, 2018	—
- Improve seal on loading equipment for tanker trucks	Jan. 1, 2018	Yes	Yes – Complete as of Mar. 16, 2018	—
- Replacing loading arms for rail cars	Mar. 31, 2018	Yes	Yes – Complete as of July 9, 2018	—
- Update SOPs for ventilation, pumps	Mar. 31, 2018	Yes	Yes – Complete as of Q3 2018	—
Coal tar truck unloading emission improvements:				
- Implemented use of a tool to allow for minimal opening of truck hatch that essentially eliminates emissions during unloading				

2.1 LDAR Program

As part of the Action Plan for benzene submitted in November 2016, Rain Carbon proposed to submit a LDAR plan to the MECP for approval during the second quarter of 2017 and begin its implementation following its approval. As per the benzene Order, the LDAR plan (referred to as the Component Leak Survey Plan) does not require MECP approval and its compliance date is April 1, 2018 (second quarter of 2018).

Rain Carbon completed the Component Identification component on January 21, 2018 and revised it on March 16, 2018. Although not a requirement of the benzene Order, Rain Carbon submitted the Component Identification to the MECP, so that any recommendations could be incorporated into the document.

Rain Carbon completed three LDAR Leak Surveys in 2021. The results from these surveys are summarize in Table 2.

LDAR Program 2021

BENZENE

2021	Detected Components	Leaked Points	Repaired Points	Delayed Repair	Leaker Status December 15, 2021
April	648	8	5	3	▪ 3 (delayed, April 2021)
August	638	3	2	1	▪ 1 (delayed August 2021) ▪ 3 (delayed from April 2021)
November	642	5	0	0	▪ 5 (leaker as of November 2021) ▪ 1 (delayed from August 2021) ▪ 3 (delayed from April 2021)

- The Tank 25 PVRV was replaced in October 2021.
- The Tank 13 PVRV was replaced in the November 2021 Shutdown.

19

2021 EMT Meeting Minutes

Date, Time, and Location:
February 24, 2021
6:00 p.m. to 7:15 p.m.
Virtual Meeting – Microsoft Teams
Attendees:
Gord Gilmet, Rain Carbon Denis Corr, Chair Sean Capstick, Golder
Jean-Marc Crew, Golder Robin Hart, Rain Carbon
Andreas Grunewald,
Rain Carbon
Trevor Imhoff, Senior Project
Manager at City of Hamilton,
Public Health Unit

Stephen Burt, Ministry
Charlene Anderson,
Ministry
Lynda Lukasik, Environment
Hamilton
Kat Bezner, Resident
Jochen Bezner,
Resident
Paul Weinberg, Resident Cathy McPherson, Resident
Hans-Peter Boergers,
Resident

Meeting

Welcome, Virtual Meeting Ground Rules and Approval of Previous EMT Meeting Minutes

 Jean-Marc Crew welcomed everyone to the meeting and provided the virtual meeting ground rules. He noted that the call would be recorded for the purposes of developing meeting minutes.

 Denis Corr presented the agenda. He proceeded with the approval of the agenda. He asked if there were any comments or suggested changes to the November 18, 2020 meeting minutes. No comments were provided, and the minutes could be considered final.

 Gord introduced Andreas Grunewald, Rain Carbon's new site manager. Andreas introduced himself and provided a brief background of his experience working for Rain Carbon.

 Denis confirmed that in future, minutes, reports, etc. be sent out as email attachments as well as Share Point since some members have had difficulty accessing this information.

Action Items from the Last Meeting (November 2020)

Upgrading of HAMN Stations

 Gord Gilmet stated that the HAMN group has not met since the last EMT meeting, but does expect to meet in Q1 2021. Gord committed to providing an update at the next EMT meeting.

 Denis Corr stated that in his experience, it will take months to order and install the new monitoring station, unless a vendor has spare stations that are ready for installation. Therefore, Rain Carbon should be proactive in advancing this initiative, eliminating the dependency on meeting with the larger HAMN committee. Denis provided two contacts to Gord that would be able to provide a list of vendors and costing.

 Lynda Lukasik agreed with Denis and supports any proactive measures Rain Carbon can take to progress this action.

 Jochen Bezner agreed, Rain Carbon should look to proactively advance these upgrades without waiting for the HAMN meeting to take place.

Environmental Compliance Approval (ECA) Application Update

 Gord noted that Rain Carbon has applied for two ECAs with the Ministry of Environment, Conservation and Parks (Ministry). The first was to provide Rain Carbon with limited operational flexibility; the second was to conduct a pilot project to improve the quality of the feed water that is sent to their water treatment plant for treatment.

 Gord indicated that Rain Carbon expects ECA application approval from the Ministry in mid 2021.

Overstrength Agreement

 Gord provided a brief summary of the overstrength agreement Rain Carbon has with the City of Hamilton,

noting that Rain Carbon has had an overstrength agreement with the city for a number of years. The overstrength agreement is related to water quality that is discharged into the City's municipal waste system and is specific to reporting on Total Kjeldahl Nitrogen (TKN) concentrations in the discharge water. Gord added that TKN concentrations in the discharge water are unrelated to benzene or benzo(a) pyrene (B(a)P) concentrations that are released to the air.

 Jochen asked if Rain Carbon has to make a payment to the City as part of this agreement.

 Gord confirmed that there is a payment to the City as part of the overstrength agreement.

CAMM Plan Status

 Gord stated that Rain Carbon has submitted their Combined Air Modelling and Monitoring (CAMM) plan to the Ministry. Once approved by Ministry, Rain Carbon can proceed with implementing the plan. The purpose of the CAMM is to examine any biases in modelled vs. monitored results and assess whether refinement is required in the emission inventory. The plan is to complete the work associated with the CAMM by the end of this year.

Air Quality Monitoring Program

Benzo(a)pyrene Results

 Robin Hart presented the B(a)P monitoring results from October 30, 2020 to February 3, 2021. Within this period, Rain Carbon observed four measurements (November 11-12, December 5-6, January 10-11-4-, February 3-4) above the measured level threshold (MLT), two of which were above the upper risk threshold (URT). Robin added that the two measurements are just above the MLT.

 Robin summarized the results of the investigations for determining the reasons for the measurements above the MLT.

- On November 11th, the above MLT measurement at the East Monitor is likely attributed to a process maintenance activity.
- On December 5th and February 3rd, no definitive reason has been identified for the above MLT measurement at the Old West Monitor based on the loading volumes and activities completed.

 Robin presented the wind direction and speeds for each of the above MLT measurements at each monitor.

- On November 11th, winds were calm/moderate and came from WNW.
- On December 5th, winds came from the north and no rail car loading activities took place. Rain Carbon could not identify a cause for the measured concentration above the MLT.
- On January 10th, the north monitor registered the measurement above the MLT. Coal tar pitch loading into trucks, which occurs near the north monitor, was higher than normal (approximately 70,000 gallons), and winds came from the southwest.
- The February 3rd measurement was just received, and Rain Carbon has not yet been able to evaluate the wind speed and loading rates to investigate the reason for this measurement above the MLT.

 Jochen noted that out of 45 measurements, 4 are above the threshold (near 10%), which he indicated is significant and warrants additional action. Suggested if it would be prudent for Rain Carbon to reduce the measurement intervals and measure on a 2–3-day cycle basis rather than the 12-day cycle basis currently undertaken. Jochen asked if the Ministry had any comment.

 Stephen Burt noted that the Ministry has submitted a fairly significant Order to Rain Carbon, and is hopeful that the implementing of the measures outlined in the Order will result in improvements to the measurements currently observed.

 Lynda asked Robin what controls do Rain Carbon use when loading coal tar pitch into a truck?

 Robin responded by noting the truck/trailer loading process is guided by operational controls including the correct operation of the FSS and also by conducting truck/trailer loading audits and that the volume of pitch loaded on that day was significant, and that there could be some variation between the HAMN air speed and direction numbers compared to what is observed at the site.

 Lynda asked if in the future when Rain Carbon does expect volumes at this level, if Rain Carbon will be implementing any new measures or changes to prevent future measurements above the MLT?

 Robin noted that Rain Carbon will undertake some statistical analysis to determine whether the January 10-11 AML result was simply due to common cause variation or if it was a special cause variation event. Rain Carbon will also adopt the same approach taken to reduce benzene fence line levels and will identify any pieces of equipment that are not functioning as intended.

Benzene Results

 Robin presented the results of the benzene measurements from November 11, 2020 to February 3, 2021. No measurements registered concentrations above the URT.

Benzo(a)pyrene figures

 Robin presented the B(a)P monitoring results in figures (24-hour individual results, 24-hour 4-event rolling average and 24-hour cumulative results). Overall, the measured concentrations have drastically decreased, although still experiencing some individual measurements that are above the URT. The rolling average and cumulative average results are both below the URT.

Benzene Figures

 Robin presented the benzene monitoring results in figures (24-hour individual results, 24-hour 4-event rolling average and 24-hour cumulative results). The high measured concentrations that were observed at the south monitor appear to be decreasing from previous highs.

 Jochen asked what the Ministry requirements are for presenting results; are there any data processing requirements?

 Robin noted that Rain Carbon presents the individual and cumulative results.

 Jochen clarified that he understands that the cumulative and rolling average results are optional/additional points of information, and appear to be used to support Rain Carbon's conclusions or potentially distort the results.

 Gord noted that the 24-hour individual results are all that is required and are those that need to be reported on and analyzed. The cumulative and rolling average results are meant to show trends.

 For future presentations, Jochen suggested clarifying what is required to present the results and what are optional figures, as he is concerned the optional figures are used to "smooth out" the results.

LDAR Program

 Robin presented the results of the LDAR program. In 2020, Rain Carbon completed three LDAR surveys. Through these surveys, Rain Carbon identified two leaking tank pressure vacuum relief valves (PVRVs) which will be replaced in May 2021.

 Gord added that it's taken some time to source down the supplier for the correct type of tank PVRV for the relevant service and that once implemented, we should see a difference in the performance of this equipment going forward.

 Lynda asked if the equipment was identified in August 2020 and will be replaced in May 2021? Robin concurred.

 Lynda asked about the magnitude of the leaking – how much is leaking, what is the magnitude?

 Robin noted that any release from a PVRV may vary significantly based on material in the tank and the pressure and temperature within the tank. At times, the tank PVRVs were leaking at a relatively low rate and at other times leaking at a relatively high rate.

Effectiveness Study of the B(a)P Action Plan

 Robin presented the railcar and trailer audit scoring results. Rain Carbon continues to see improvement in performance (railcar loading performance from 65% to 71% green since March 2019), however is still looking to improve on their results. Overall, Rain Carbon operators are better at meeting requirements for truck trailing loading than rail car loading.

Ministry Order Status

 Gord provided a summary of the progress Rain Carbon has made on the requirements of the Ministry Order, and timelines for meeting the remaining requirements. Gord noted that 13/18 action items from the Ministry Order are completed. Gord summarized the status of the outstanding action items:

 Action Item #4: Ensure Thermal Oxidizer operating per ECA and notify the Ministry.

- Rain Carbon submitted a report back to the Ministry, although additional information requirements from Rain Carbon still need to be provided. The status of this action item is unresolved.

 Action Item #8: Submit Engineering Study of Alternate FGI Vent Gas Disposal Route(s).

- Rain Carbon has submitted a report and compliance statement to the Ministry. The status of this action item is with the Ministry for review.

 Action Item #10: Submit Plan to Continuously Monitor the Vent Flow Rate in the TK-48, TK-49/TK-77 Systems

- Rain Carbon has submitted a report and compliance statement to the Ministry, and additional information has been requested to support their compliance statement. The status of this action item is for Rain Carbon to provide additional information.

 Action Item #17: Submit Engineering Study of Alternate Railcar and Truck Loading Emissions Control Systems.

- Rain Carbon has submitted a compliance statement to the Ministry. The status of this action item is with the Ministry for review.

 Action Item #17: Submit Monthly Progress Reports

- Administrative action which will be closed once all remaining actions are resolved.

 Denis noted that it's encouraging that Rain Carbon have implemented some changes through this Order, specifically the implementation of the improved scrubbing oil and increased replacement frequency.

Site Specific Standard (SSS) Renewal Application

 Sean Capstick noted that the previous SSS had a 5-year period, after which it has to be renewed, and the SSS is a continual improvement process. The process of renewal will be to look at reports submitted as part of the original SSS application and how these new improvements have been implemented, as well as any technological improvements that could potentially be implemented as part of the renewed SSS.

- Sean noted that in future EMT meetings we can discuss the reports and their findings.
- Sean added that Rain Carbon will look to seek feedback from the Ministry on the level of public consultation that will be required (for example, open houses, virtual meetings, etc.).
- Sean concluded by stating that the EMT should expect the Ministry to issue a new SSS in November 2022, which will last 5 or 10 years.

2021 EMT Meetings

- It was determined that May 26th, 2021 would be the next EMT meeting date and the meeting would be conducted virtually.
- Potential topics for discussion include the SSS renewal, air quality monitoring and Ministry Order compliance update.
- Denis also suggested that Rain Carbon follow up with HAMN to explore possibilities of upgrading the sampling locations outside of the planned calls.
- Stephen agreed, noting that it would be prudent for Rain Carbon to reach out to HAMN and potentially call for a meeting to discuss the possibility of additional sampling.

https://golderassociates.sharepoint.com/sites/139823/project files/6 deliverables/1 - sss requirements/1 - emt/1 - emt meeting 24feb2021/rain carbon emt_24feb2021_meeting minutes_draft.docx

Date, Time, and Location:
May 26, 2021
6:00 p.m. to 7:00 p.m.
Virtual Meeting – Microsoft Teams
Attendees:
Gord Gilmet, Rain Carbon Denis Corr, Chair Sean Capstick, Golder
Jean-Marc Crew, Golder Robin Hart, Rain Carbon
Andreas Grunewald,
Rain Carbon
Trevor Imhoff, Senior Project
Manager at City of Hamilton,
Public Health Unit
Stephen Burt, MECP
Charlene Anderson,
MECP
Jeff Burdon, MECP
Lynda Lukasik, Environment
Hamilton
Paul Weinberg,
Resident
Hans-Peter Boergers,
Resident

Meeting Notes

Welcome, Virtual Meeting Ground Rules and Approval of Previous EMT Meeting Minutes

- Jean-Marc Crew welcomed everyone to the meeting and provided the virtual meeting ground rules. He noted

that the call would be recorded for the purposes of developing meeting minutes.

 Sean Capstick presented the agenda. Sean asked if there were any comments or suggested changes to the February 24, 2021 meeting minutes. No comments were provided, and the minutes could be considered final.

Action Items from the Last Meeting (February 2021)

Upgrading of HAMN Stations

 Gord Gilmet noted he has had discussions with the HAMN administrator about including an additional polycyclic aromatic hydrocarbon (PAH) monitor downwind of the site. However, currently there is not sufficient power supply to run a monitor at the identified downwind location.

 Rain Carbon continues to have these discussions with the HAMN administrator as well as vendors, and will discuss the inclusion of this additional monitor with the other HAMN members.

 Rain Carbon is looking to run this monitor for 6 months or collect 20 samples to develop a sufficient sample size to interpret results.

Statistical Analysis to Investigate Cause of January 10-11 Above Measured Level (AML) Result

 Robin Hart noted that Rain Carbon reviewed the AML result at the north monitor on January 10-11, 2021 where the AML result of 0.00951 ug/m_3 was above the statistical Upper Control Limit (UCL).

 The statistical analysis showed that this AML result was likely due to a special cause variation event as the 0.00951 result is above the UCL of 0.00642 ug/m_3 (based on mean+3 sigma). Thus the 65,905 UG gal of coal tar pitch loaded into trucks at LS4 (Spot 7) combined with the calm to moderate winds from an overall south-westerly direction likely impacted the north monitor during this sampling event.

 Lynda Lukasik asked what the relevant upper risk threshold (URT) is when looking at this graph?

- Robin noted that the URT is 0.005.

 Lynda asked if Rain Carbon was facing any ramifications as a result of this significant spike above the URT?

- Robin reiterated that the statistical analysis suggests that this measurement was related to the truck loading completed on that specific date.
- Jeff Burdon noted that the URT is a measurement that is made for off-site application, and these measurements were made on-site. The Ministry of Environment, Conservation and Parks (Ministry) will continue discussions with the Company on further reductions to emissions on site.

CAMM Plan Update

 Gord noted that Rain Carbon has submitted their Combined Assessment of Modelled and Monitored (CAMM) Plan to the Ministry is still waiting for responses from the Ministry before proceeding.

ECA Application Update

 Gord noted that Rain Carbon has applied for two Environmental Compliance Approvals (ECAs). The first was to provide Rain Carbon with limited operational flexibility for site-wide equipment; the second was to conduct a pilot project to improve the quality of the feed water that is sent to the facility's water treatment plant for treatment.

 The limited operational flexibility ECA application has not received any requests from the Ministry for additional information, and the Ministry continues to review the application.

 Rain Carbon has received feedback from the Ministry on the MBR Pilot Plant ECA Application. Gord has reached out to a vendor to gather some additional information requested by the Ministry.

Air Quality Monitoring Program

Benzo(a)pyrene Results

 Robin presented the air quality monitoring program results. Since the last EMT meeting, the have been four measurements above the Measured Level Threshold (MLT) for benzo(a)pyrene (B(a)P). Three of these results are located at the old west monitor. The fourth result was located at the new west monitor.

 Robin noted that the old west monitor likely represents higher concentrations, as it is on-site and closer to B(a)P sources, compared to the new west monitor, which is located at the fence line.

 Robin summarized the conditions of the days during which monitoring events above the MLT and URT were observed. During the February 3 monitoring event at the old west monitor, considering the loading activity, the wind direction and wind speed and that there were no abnormal events recorded on the monitoring day, it was assessed that no assignable cause for the AML result.

 During the April 4 monitoring event, a combination of calm, moderate and strong winds from the eastsoutheast were observed. This, coupled with a truck loading volume (79,708 US gal) potentially impacted the new and old west monitors. There were no railcars loaded that day.

 During the April 28 monitoring event, a combination of calm and moderate winds from the northeast were observed. This, coupled with a truck loading volume of 107,892 US gal, potentially impacted the old west monitor. Railcar loading volume near the old west monitor was 97,076 US gal that day. However, based on statistical analysis, there was no assignable cause for the AML measurement.

Benzene Results

 Since the last EMT meeting, there were two measurements above the URT, both at the south monitor. The March 23 and April 28 south berm measurements were both likely caused by the impact of the general northeasterly
wind alignment and maintenance activities taking place on a coal tar storage tank located in the southeast corner of the site. The tank is now empty and clean.

 There was no benzene sample taken at the south berm monitor on April 4, 2021 due to a volatile organic compound (VOC) sampler timer failure. The root cause of the VOC sampler timer failure was due to a foreign piece of matter restricting the ambient air flow through the sampler internal tubing. The south berm sampler timer was serviced, re-calibrated and then placed back into service for the April 16, 2021 monitoring day.

Benzo(a)pyrene figures

 Robin presented the B(a)P monitoring graphs, noting that Rain Carbon continues to see reduction in emissions but continues to have individual samples that represent concentrations above the URT limit and AML.

Benzene Figures

 Robin presented the benzene monitoring graphs. Similar to B(a)P, he noted that Rain Carbon continues to see reduction in emissions but continues to have individual samples that represent concentrations above the URT limit and AML.Benzene Figures

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see reduction in emissions but continues to have individual samples that represent concentrations above the URT limit. Rain Carbon will continue to monitor these elevated concentrations to evaluate the root causes as they are measured.

LDAR Program

 Robin presented the results of the LDAR program. In 2021, Rain Carbon has completed one LDAR survey. Through this survey, Rain Carbon identified eight leaking points, five of which have been repaired, and three scheduled for delayed repair. Two leaking flanges from 2020 expect to be replaced by July 31, 2021.

 Gord added that it has taken some time to source the supplier for the correct type of tank pressure/vacuum relief valve (PVRV) for the relevant service and that once implemented, we should see a difference in the performance of this equipment going forward.

 Lynda asked if the equipment was identified in the August 2020 LDAR survey, and if any will be replaced in July 2021? Robin concurred.

 Lynda asked how much is leaking, what is the magnitude?

 Robin noted that any release from a PVRV may vary significantly based on the material in the tank and the pressure and temperature within the tank. At times, the tank PVRVs were leaking at a relatively low rate and at other times leaking at a relatively high rate.

Effectiveness Study of the B(a)P Action Plan

 Robin summarized the results of the effectiveness study to date. While overall vehicle loading performance is acceptable (green), Rain Carbon will continue to audit vehicle loading on monitoring days to emphasize good operation of the Fume Scrubber System and Operator adherence to vehicle loading procedures.

 The majority (72%) of coal tar product railcar loading had only trace fugitive emissions. The trace emissions only occur at the (a) initial filling of railcar with pitch; (b) steam out of the loading arm after loading; and (c) disconnection of the loading arm and closing up the railcar.

LDAR Program

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Effectiveness Study of the B(a)P Action Plan

 Robin summarized the results of the effectiveness study to date. While overall vehicle loading performance is acceptable (green), Rain Carbon will continue to audit vehicle loading on monitoring days to emphasize good operation of the Fume Scrubber System and Operator adherence to vehicle loading procedures.

 The majority (72%) of coal tar product railcar loading had only trace fugitive emissions. The trace emissions only occur at the (a) initial filling of railcar with pitch; (b) steam out of the loading arm after loading; and (c) disconnection of the loading arm and closing up the railcar.

Ministry Order Status

 Gord presented an update on the status of the Ministry Order, expanding on the items that are still unresolved.

 Item #4 – Ensure Thermal Oxidizer operating per ECA and notify MECP

- Gord noted that the status report was submitted to MECP and Rain Carbon continues to try and commission the thermal oxidizer. Rain Carbon has requested an extension to meeting this item from the Order.
- Rain Carbon has brought in some additional resources and are looking to develop a workplan to submit to the MECP for approval to continue to burn off-gases using the process heaters.

 Item #8 – Submit Engineering Study of Alternate FGI Vent Gas Disposal Route(s).

- This study is still with the Ministry for review.

 Item #10 – Submit Plan to Continuously Monitor the Vent Flow Rate in the TK-48, TK-49/TK-77 Systems

- Rain Carbon developed and submitted a compliance statement. This statement was reviewed by the Ministry and requested additional information. This information has since been submitted to the Ministry and is under review.

 Item #17 – Submit Engineering Study of Alternate Railcar and Truck Loading Emissions Control Systems.

- This study is with the Ministry for review.

 Item #18 – Submit monthly progress reports

- This is a recurring process, and Rain Carbon continues to meet the monthly progress reporting requirement.

Site-Specific Standard (SSS) Renewal Application

 Sean Capstick noted that the previous SSS for benzene and B(a)P had a 5-year period, after which it has to be renewed. Sean reiterated that the SSS is a continual improvement process. The process of renewal will be to look at reports submitted as part of the original SSS application, evaluate how these new improvements have been implemented, and identify any technological improvements that could potentially be implemented as part of the renewed SSS.

 Sean presented the renewal application process flow diagram, and walked through each of the applicable headings (dark green).

 The technology benchmarking report (TBR) looks at all the technically feasible and commercially available technologies that could be applied to the site, and what are the predicted lowest possible point of impingement concentrations. This becomes the basis for assessing the SSS that gets put in place for the next 10 years. If there are additional actions that need to be implemented, these are added to the action plan (AP).

 The economic feasibility assessment (EFA) is not required but can be completed to support the Company and Ministry in assessing the economic feasibility of any technically feasible or commercially available technologies identified in the TBR.

2021 EMT Meetings

- It was agreed that September 15th, 2021 would be the next EMT meeting date and the meeting would be conducted virtually.
  - Lynda asked if the company could provide an update if there were any events or updates or events of note.
  - Gord noted that he does not have concern with this, and if there is something of significance that arises, the company would provide an update.
  - Denis noted that if they were able to get the new monitor installed, this would be worthy of an update.
- Potential topics for discussion include the SSS renewal, air quality monitoring and Ministry Order compliance update.

Action Items

- Rain Carbon to continue discussions with HAMN administrator and vendors on viability of an additional PAH monitor downwind of the site.
- Rain Carbon to discuss the inclusion of an additional monitor with the other HAMN members.
- Rain Carbon to share an update on the Project some time prior to September 15th, especially if progress is made on the installation of a new monitor.

https://golderassociates.sharepoint.com/sites/139823/project files/6 deliverables/1 - sss requirements/1 - emt/2 - emt meeting 26may2021/rain carbon emt_26may2021_meeting minutes_final.docx

Date, Time, and Location:		September 15, 2021 6:00 p.m. to 7:00 p.m. Virtual Meeting – Microsoft Teams	
Attendees:	Denis Corr, Chair	Gord Gilmet, Rain Carbon	Robin Hart, Rain Carbon
Sean Capstick, Golder	Kate Liubansky, Golder	Jean-Marc Crew, Golder	
Stephen Burt, MECP	Charlene Anderson, MECP	Lynda Lukasik, Environment Hamilton	
Jochen Bezner, Resident	Cathy McPherson, Resident	Paul Weinberg, Resident	
Hans-Peter Boergers, Resident			

Meeting Notes

Welcome, Virtual Meeting Ground Rules and Approval of Previous EMT Meeting Minutes

- Jean-Marc Crew welcomed everyone to the meeting and provided the virtual meeting ground rules. He noted that the call would be recorded for the purposes of developing meeting minutes.
- Denis Corr asked if there were any comments or suggested changes to the May 26, 2021, meeting minutes, which were provided via email and through a direct link to the SharePoint site. No comments were provided, and the minutes were considered final.

Action Items from the Last Meeting (May 2021)

Upgrading of HAMN Stations

- Gord Gilmet pointed out the HAMN polycyclic aromatic hydrocarbons (PAH) air quality monitoring station 29164located on South Service Road. This station is located downwind of the Rain Carbon site. Gord noted that he has received a quote from the vendor (Rotek), to set up two monitors for PAH and benzene, but he

requires input from the HAMN members before proceeding. Gord added that there has not been any recent activity or convening of the HAMN members.

SSS Renewal Application

- Kate Liubansky presented a series of slides that provided an update on the Site-Specific Standard (SSS) Renewal Application process. The SSS renewal application is currently being prepared and Rain Carbon and the Ministry are working together to schedule meetings in the Fall to discuss the details and expectations of the application. The action plan is the final step for the application.

- The Combined Analysis of Modelling and Monitoring (CAMM) study is intended to correlate the results that have been modelled for the facility against what is being monitored at the fence line. The plan to complete a CAMM study was submitted to the Ministry at the beginning of 2021 and is currently under review. As the plan is currently under review, Golder and Rain Carbon have not started the CAMM study.

- The Emissions and Dispersion Modelling (ESDM) Report is currently being updated to reflect the most current operations and emission sources from the facility. Once the modelling is complete, Golder will use the results to represent the baseline emissions for the application process and use these data to develop different scenarios in the Technology Benchmarking Report (TBR).

- The TBR will be used to develop emission estimates for different technologies, and then model the effectiveness of these technologies and compare them to the baseline emissions developed through the ESDM Report. There are two additional aspects to the TBR process, Regulatory Review and Technology Benchmarking Assessment. These components were highlighted in terms of what has been completed to date.

- Kate presented the benzene and benzo(a)pyrene [B(a)P] regulatory review results. The regulatory review component consists of reviewing different regulatory jurisdictions for limits for these contaminants. Of the reviewed jurisdictions, the Ontario 24-hour and annual values for benzene and B(a)P are lower than most jurisdictions, besides Washington, which is only applicable to new sources under a specific calculation methodology.

- Before discussing the initial findings of the Technology Benchmarking Assessment, Kate summarized the three main activities at the Rain Carbon facility, including distillation, storage, and handling, with supporting processes such as combustion equipment and wastewater treatment and collection. There are emissions associated with these facility activities.

- **Distillation:** At the Rain Carbon facility, off-gases from Primary Distillation Units and Secondary Distillation Units are directed to two natural gas-fired process heaters for thermal treatment, where the contaminants are destructed. Fumes from the Secondary Distillation Unit are directed to the Fume Scrubbing System (FSS), which condenses the vapours to the tanks before releasing any remaining vapours to the atmosphere. Kate compared Rain Carbon's distillation emission controls to other Rain Carbon facilities or the Koppers facility in Illinois, USA, which have similar control strategies. In the three Rain Carbon facilities, vapours from distillation activities are directed to the scrubbers where vapours are condensed and returned to the tanks. In Belgium, remaining vapours following scrubbing are directed for thermal treatment (incinerator) except for vapours from pitch which are emitted directly to atmosphere from the scrubbers. In Germany, remaining vapours from scrubbing are also directed for thermal treatment (central waste gas incineration system). In Russia, these vapours are directed to process heaters, which is similar to the Hamilton facility. Koppers has a scrubber/thermal oxidizer system that is used to control emissions from the refining process, but further assessment is required for benchmarking.

- **Storage:** All of the tanks at the Hamilton facility are controlled by the FSS or the Fume Gathering and Incineration (FGI) System. In the FGI system, almost all condensable vapors are returned to originating tanks and remaining vapors are directed to the boiler for thermal treatment. When compared to other facilities, all three of the Belgium, Germany, and Russia facilities have similar control strategies in terms of scrubbing. In Germany, remaining vapours from scrubbing are also directed for thermal treatment. Koppers uses the scrubber/thermal oxidizer system to control emissions from storage, but further assessment is required for benchmarking.

- **Handling:** At the Hamilton Facility, there is rail car and tanker truck loading as well as marine vessels. For the rail and tanker truck loading, Rain Carbon uses the splash loading method. This is not a fully closed system, but Rain Carbon has made significant improvements over the last few years to minimize fugitive emissions, primarily through improving the seals and loading equipment. Any fumes associated with loading are directed to the FSS. Loading into marine vessels takes place in a fully closed system. This is a closed system of overhead and underground pipelines for material transfer and vapor-return lines into on-site storage tanks. Any remaining fumes are directed to the FGI system. When comparing to other facilities, the emission control processes differ depending on the handling processes that are taking place. In Belgium, the truck loading, pitch loading and marine vessels are all fully closed systems. In Germany, the truck loading is fully closed, the pitch loading is not a fully closed system with fumes directed to the scrubbers and then thermal treatment and marine vessels are a fully closed system. In Russia, the pitch car loading is a fully closed system, the rail car loading is not a fully closed system, with waste gas streams from loading activities being connected to the scrubbers. Koppers uses the thermal oxidizer to control emissions from loading activities, except for pitch loading which is only controlled by scrubbers. Further assessment is required for benchmarking.

- The TBR will continue to be a topic of discussion for future meetings.

Ambient Air Quality Monitoring Program Update

- Gord noted that Rain Carbon is awaiting approval to discontinue monitoring at the old west monitoring station, and Rain Carbon is awaiting approval from the Ministry.

CAMM Plan Status

- Gord reiterated that Rain Carbon is awaiting comments from the Ministry on the CAMM Plan.

ECA Application Update

- Rain Carbon submitted two ECA applications in 2020 to the Ministry - one for the Membrane Biological Reactor (MBR) Pilot Project and one for site-wide limited operational flexibility.

- The MBR Pilot Project ECA Application was approved in August 2021. Next steps involve finalizing the Carbon Management Plan. The Carbon Management Plan will be submitted to the MECP for approval prior to st

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arting the trial. Estimated trial start time is expected to be March 2022.

Air Quality Monitoring Program

Benzo(a)pyrene Results

- Robin Hart presented the results of the air quality monitoring program for B(a)P. There were some measurements on June 3rd, June 15th, August 14th, and August 26th that were above the measured level

threshold. Robin noted that the CAMM study will use all monitored results to date, including all wind conditions, to assess the correlation between modelled and monitored results.

- On June 3rd, Robin noted that the result statistically cannot be assigned to any special cause or specific event variation. On June 15th, Rain Carbon received the first measurement from the South monitor above the measured level threshold. On that day, a railcar was being cleaned of creosote product. The railcar was opened during the cleaning and the recovered solid creosote was placed in an open roll off bin. It is possible that the cleaning activity may have contributed to the measured concentration.

- On August 14th and August 26th, Robin noted that the results may be due to emissions associated with cleaning activities.

- Robin presented graphs for the 24-hour, cumulative and rolling average monitoring results for B(a)P. Overall, these graphs show that the facility has been able to maintain the improvements that had been made.

Benzene Results

- Robin presented the benzene air quality monitoring results. All monitors recorded benzene levels under the upper risk threshold. The new west VOC sampler timer failed on the July 21, 2021, monitoring event (end of life) and has since been replaced. The east VOC sampler timer did not operate on the July 21, 2021, monitoring event due to the VOC sampler timer internal clock being out of sequence by 48 hours which has since been corrected.

- Jochen asked “Which way of presenting the measurement results does the MECP prescribe? Robin noted that the prescribed measurement results required by the Ministry are the 24-hour results.

- Robin presented graphs for the 24-hour, cumulative and rolling average monitoring results for benzene. Overall, these graphs show that the facility has been able to maintain the recent improvements.

LDAR Program

- Robin presented the leak detection and repair (LDAR) program results for 2021 to date. Currently, there are two leaking components from 2020 slated for replacement by end of 2021, three from April 2021 that are on the delayed repair list and three from August 2021.

Effectiveness Study of the B(a)P Action Plan

- Robin summarized the results of the effectiveness study to date. While overall vehicle loading performance is acceptable (green), Rain Carbon will continue to audit vehicle loading on monitoring days to emphasize good operation of the Fume Scrubber System and Operator adherence to vehicle loading procedures.

- The majority (70%) of coal tar product railcar loading and trailer loading (82%) had only trace fugitive emissions.

Ministry Order Status

- Gord summarized the outstanding items from the MECP Order.

- **Item No. 4:** Rain Carbon submitted a status report on the operational of the Thermal Oxidizer and requested an extension. A workplan was also submitted to MECP for approval to continue to use the Process Heaters to burn off gases. Emissions testing of Process Heaters was completed week of Aug 9, and results were received and are being reviewed by Rain Carbon. These results will be reviewed with the Ministry.

- **Item No. 8:** Rain Carbon has submitted their compliance statement. The compliance statement is with the Ministry for review.

- **Item No. 10:** Rain Carbon has submitted their compliance statement, as well as additional information requested by the Ministry. The compliance statement and additional information is with the Ministry for review.

- **Item No. 17:** Rain Carbon has submitted their compliance statement. The compliance statement is with the Ministry for review.

2021 EMT Meetings

- A fourth meeting is not a requirement of the terms of reference. A vote took place on the call to determine if a fourth meeting should occur. It was confirmed that a fourth meeting should be planned for December 2021. It was agreed that December 8th would be the next EMT meeting date and the meeting would be conducted virtually.

- Potential topics for discussion include the SSS renewal, air quality monitoring and Ministry Order compliance update.

Action Items

- Rain Carbon to continue discussions with HAMN administrator and vendors on viability of an additional PAH monitor downwind of the site.

- Rain Carbon to discuss the inclusion of an additional monitor with the other HAMN members.

- Rain Carbon to continue to provide updates on the status of the SSS renewal application.

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Date, Time, and Location:		December 15, 2021 6:00 p.m. to 7:00 p.m. Virtual Meeting – Microsoft Teams	
Attendees:	Denis Corr, Chair	Gord Gilmet, Rain Carbon	Robin Hart, Rain Carbon
Sean Capstick, Golder	Kate Liubansky, Golder	Sita Chinnadurai, Golder	
Stephen Burt, MECP	Charlene Anderson, MECP	Lynda Lukasik, Environment Hamilton	
Jochen and Kat Bezner, Resident	Hans-Peter Boergers, Resident	Andreas Grunelwald, Rain Carbon	

Meeting Notes

Welcome, Virtual Meeting Ground Rules and Approval of Previous EMT Meeting Minutes

- Sean Capstick welcomed everyone to the meeting.

- Kate Liubansky provided the virtual meeting ground rules. She noted that the call would be recorded for the purposes of developing meeting minutes.

- Denis Corr asked if there were any comments or suggested changes to the September 15, 2021, meeting minutes, which were provided via email and through a direct link to the SharePoint site on October 28, 2021. No comments were provided, and the minutes were considered final.

Action Items from the Last Meeting (September 2021)

Upgrading of HAMN Stations

- Gord pointed out that Rain Carbon based on continued discussions with HAMN administrator and vendors, Rain Carbon will proceed with installing monitors for benzene and B(a)P at STN 29164 located on the South Service Road to the ESE Rain Carbon. Plan is to do this for at least 6 months.

- Ministry also had a meeting with the technical committee of HAMN Group and discussed it with the committee. No issues were identified with this location.

- Rain Carbon is working with Rotech to install the monitors in 2022. The monitoring results from this new site will be compared to the fence line monitoring results conducted by Rain Carbon on its property.

- Gord Gilmet responded that the topic of additional monitoring was discussed with the HAMN Administrator to select from the existing HAMN stations to install the additional benzene and B(a)P monitors. This location was selected as the most appropriate one as it is located within the prevailing wind direction from the Rain Carbon facility, and it is relatively close to the beach boulevard area.

- Stephen Burt responded that it is.

- Stephen Burt responded that he cannot provide a response to that immediately, will have to discuss with the regional air quality team and must check the data to respond to this. The new station will help to capture prevailing winds and also the ambient air quality levels on the other side of Rain Carbon facility. More additional monitoring options will be discussed at the community level and will be implemented in the future.

- Lynda Lukasik commented that she appreciates that the Ministry is going to research on additional monitoring in the Hamilton region. It is concerning to see an upward trend in ambient air levels of B(a)P in the area especially when we have got work happening at the coke ovens and at Rain Carbon to address this contaminant.

- Denis Corr responded that more data will be presented later in this presentation on B(a)P monitoring results. Denis added a general comment that it is hard to select the best monitoring station location. Ideally there should be an upwind and a downwind station location. The Queen Elizabeth Way is likely a very significant source of several contaminants because of the very heavy traffic, including diesel trucks.

- Jochen Bezner asked “How was this monitoring site selected? The community wanted to have additional monitoring stations as close as possible to the community nearby.”

- Lynda Lukasik asked, “Is that the station that is at the Windermere Basin Park?”

- Lynda Lukasik noted that most recent HAMN data shows an increase in B(a)P concentrations in general in the ambient air this year compared to last year, concerned that there is an uptick in ambient air levels of B(a)P. It is a good step to add more stations for B(a)P monitoring not just in locations that will capture prevailing winds from the Rain Carbon facility but also at other locations closer to the community to assess the ambient levels of B(a)P in general.

Ambient Air Quality Monitoring Program Update

 Gord confirmed that based on discussions with the MECP, it was decided that Rain Carbon will continue to operate the Old West monitoring station at least until the CAMM Plan is approved.

Air Quality Monitoring Program – Presented by Robin

Benzo(a)pyrene Results

 Robin Hart presented the results of the air quality monitoring program for B(a)P from September 7th to November 30th, 2021. There was one observation on October 1st above the MECP URT limit which was statistically determined to be a system common cause variation event.

 No specific causes were identified for the October 2021 monitoring event, Rain Carbon had normal loading procedures during the day of this event.

 Starting September 2021, Rain Carbon adopted some novel proactive coal tar pitch dust control measures during maintenance activities at the site. These measures should continue to improve the B(a)P monitored levels. Cumulative B(a)P results show an overall good outlook with reducing concentrations. Similarly, the rolling averages since 2018 show a dip downward and Rain Carbon hopes to continue with this trend.

Benzene Results

 Robin presented the benzene results next; all monitors recorded benzene levels under the upper risk threshold. There was an event on September 19th at the South location with a significantly higher monitored level. Following this event, new state-of-the-art PVRVs have been installed at some of the tanks as part of the ongoing improvement process at the facility.

 There was one event on October 13th with sampler malfunction due to charging issues. Due to heavy rainfall on October 25th, the old west and new west VOC sampler timers failed as the rainwater entered their sampling tubes. In the future, these samplers will be put in enclosures to prevent failure due to rainfall.

 Robin pointed out that the concentrations at the South berm station are dropping but continue to be significantly higher than all other stations.

 Robin presented graphs for the 24-hour, cumulative and rolling average monitoring results for benzene. Overall, these graphs show that the facility has been able to maintain the recent improvements.

LDAR Program

- Robin summarized that over the course of 2021, three leak detection and repair (LDAR) surveys were done at the facility as part of LDAR Program. Leaks were detected in each survey; eight leaks in April, three leaks in August and five leaks were detected in November, following which appropriate repairs were made. Currently, there are three leaks from April 2021, one leak from August 2021 that are on the delayed repair list and five from August 2021. Overall, the LDAR Program is showing good results, working towards zero leak detection.

- The 2 PVRVs that were on list to be replaced have already been replaced with new state-of-the-art PVRVs.

Effectiveness Study of the B(a)P Action Plan

- Robin summarized the results of the effectiveness study to date. While overall vehicle loading performance is acceptable (green), Rain Carbon will continue to audit vehicle loading on monitoring days to emphasize good operation of the Fume Scrubber System and Operator adherence to vehicle loading procedures.

- The majority (70%) of coal tar product railcar loading and trailer loading (85%) had only trace fugitive emissions.

CAMM Plan Status

- Gord reiterated that Rain Carbon is awaiting comments from the Ministry on the CAMM Plan. Currently under review by the Ministry.

ECA Application Update

- Rain Carbon submitted two ECA applications in 2020 to the Ministry - one for the Membrane Biological Reactor (MBR) Pilot Project and one for site-wide limited operational flexibility.

■ The MBR Pilot Project ECA Application was approved in August 2021; next steps involve finalizing the Carbon Management Plan. The Carbon Management Plan will be submitted to the Ministry for approval prior to starting the trial. Estimated trial start time is expected to be March 2022. Pilot trial is on hold as Rain carbon has achieved significant improvements in the process wastewater treatment system over the past year.

 Both Primary Distillation Units have vacuum pumps running routinely and no longer use stripping steam to remove water. This has eliminated the generation of a significant quantity of process wastewater.

 Relocated the peroxide injection point further upstream in the MBR process – used to be at the end of the process but now it is further upstream before the biological tanks. This helps to control phenol and cyanide levels which can be toxic to the biological portion of the process.

 Rain Carbon increased MBR throughput from 5 gallons per minute to 12 gallons per minute. Rain Carbon is able to treat all the wastewater that is being generated on-site.

Ministry Order Status

 Gord summarized the status of Ministry order, stating that to date 13 of 17 items have been completed.

 Compliance Statements that were submitted for 3 Items are currently under MECP review.

 Thermal Oxidizer status is being reviewed by the Ministry's enforcement branch since the facility was not able to complete it by the deadline. Rain carbon could not operate the Thermal Oxidizer on-site and instead plans to install a new thermal incinerator on site. More to come in the next meetings.

 Gord summarized the outstanding items from the MECP Order.

Site Specific Standard (SSS) Renewal Application Status

 Gord provided a brief update on the SSS Renewal Application status. As part of this application, the ESDM Report will be refined:

• Site-wide source testing is planned for January 2022. A Pre-Test Plan is being prepared for submission to the MECP for approval.

• Rain Carbon has already completed a new 2021 product analysis, and this new product profile will be included in the refined ESDM Report.

• And lastly, any findings from the CAMM Study will be incorporated into the refined ESDM Report.

Final Questions

 Denis asked the participants from the community if they had any questions.

• Kat Bezner asked, "What was the purpose of additional monitoring outside the Rain Carbon facility, in relation to the new monitoring station for B(a)P and Benzene?" ○ Gord Gilmet responded that a while ago, Rain Carbon was asked if they could do additional monitoring within HAMN at an appropriate location. The currently selected new station is downwind of the facility and close to the QEW as well. The results from this monitoring station can be compared with the facility's fence-line monitoring.
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• Kat Bezner asked, "Where are the other stations located and what is the prevailing wind direction in this area?" ○ Gord Gilmet pointed out to Slide 6 showing the locations of all the monitoring station locations.
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• Kat Bezner asked, "Has Rain Carbon noticed if the prevailing wind direction has changed in the area since the SSS application?" ○ Gord Gilmet responded that Rain Carbon was advised by the HAMN administration that the predominant prevailing wind direction at the location is from southwest. Rain Carbon has not conducted any research on changes in the prevailing winds. We can certainly check to see if there has been any shift in the prevailing wind directions.
•

 Kat Bezner asked, “Is the new additional monitoring station on the Windermere Park?” ○ Dennis Corr responded that yes, it is located on the berm at the Windermere Park.

○ Kat Bezner noted that monitoring would have been more beneficial if located close to the community where people live rather than on the other side of the Rain Carbon facility.

○ Dennis Corr responded that it is a compromise when it comes to selecting an ideal monitoring location. The monitoring stations should be located where there is maximum impact and then those results can be extrapolated to other areas.

○ Kat Bezner noted that it is positive to see that the mobile monitoring stations have been moved closer to the communities.

○ Stephen Burt (Ministry) responded that community monitoring is a key priority for the Ministry. New passive tube type monitoring has been shown to be more cost effective and the Ministry is looking into various options.

•2022 Meetings

•■ Date of next virtual meeting – February 16, 2022

•■ Potential topics for discussion include the SSS renewal, air quality monitoring and Ministry Order compliance update.

•■ Additional topic: Enhanced air quality monitoring in the City of Hamilton, including additional monitoring stations, expansion of community monitoring – to be presented by the Ministry (Stephen Burt).

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•Action Items

•■ At the next EMT meeting, present previous annual wind roses at the HAMN monitoring stations.

•■ Rain Carbon to seek a new thermal incinerator to be installed on site. Rain Carbon will officially assess the option of a new thermal incinerator through the SSS process (Technology Benchmarking Report, Economic Feasibility Assessment) before including it in the Action Plan.

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•■ Rain Carbon to continue to provide updates on the status of the SSS Renewal Application.

M ESDM TBR & EFA

3 CONCLUSION

This Written Summary was prepared for the exclusive use of Rain Carbon and is intended to fulfil MECP reporting requirements for a Written Summary as outlined in the B(a)P SSS Approval and benzene Order. The contents of the Written Summary are based on Facility changes throughout 2021. Any changes in Facility conditions and operational practices completed subsequent to this period are not accounted for. Persons other than Rain Carbon and the previously mentioned Ontario regulatory authorities using this document or the observations, conclusions or recommendations stated within, will do so at their own risk.

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