



REPORT

Environmental Management System and Community Engagement Report 2023.

Rain Carbon Canada Inc.

Submitted by Gord Gilmet

Rain Carbon Canada Inc.

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Hamilton, Ontario
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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) as summarized in Table 1 and expired on November 21, 2022.

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

Contaminant, CAS Number	Applicable Dates	Annual Site-Specific Standard [$\mu\text{g}/\text{m}^3$]
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

Rain Carbon was issued Site-Specific Standard (SSS) approvals in 2017 for benzene and benzo(a)pyrene [B(a)P] (Reference Number 7856-9VDPSR; Approval Numbers 201-17-rv0 and 202-17-rv0). The SSS expired on November 21, 2022, after which the Facility was operating under a bridging order (the Order) 1-134982315 issued December 14, 2022. The Order required the use of a new dispersion model CALPUFF, refinement of the ESDM Report and submission of a SSS Renewal Application and ECA Application to reflect the modifications documented in the Action Plan. The first submission of the Technological Benchmarking Report (TBR) and Action Plans were provided to the Ontario Ministry of the Environment, Conservation and Parks (MECP) in March 2023 as part of the SSS Renewal Application in May 2023. Also the site submitted an Abatement Plan to the MECP on May 18, 2023 covering TRS, naphthalene and SO₂.

1.2 Environmental Compliance Approval Number 7313-8KEN49 Notice No.1 November 17, 2022

This report is required to be prepared by the Facility's ECA 7313-8KEN49 Notice No 1 Nov 17 2022 Section 7 – Environmental Monitoring Team Subsection 6.

This Report is intended to include the following information with respect to the preceding calendar year (2023):

- 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 2023.

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 was one External Complaint in 2023 related to the TK 6 incident of Sept 2023 which was discussed in detail at the EMT meetings.

2.2 Abatement Plans for B(a)P, Benzene; Total Reduced Sulphur, Naphthalene and Sulphur Dioxide

An Abatement Plan for B(a)P and benzene was submitted to the MECP on May 20, 2022 and an Abatement Plan covering TRS, naphthalene and SO₂ was submitted to the MECP on May 18, 2023. These Abatement Plans contain actions Rain Carbon will take to reduce emissions of these substances. Regular updates are provided to the MECP.

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 required by ECA 7313-8KEN49 Notice No 1 Nov 17 2022 , 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 2023. 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 22, 2023	First EMT Meeting	<ul style="list-style-type: none"> ■ 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)
May 17, 2023	Second EMT Meeting	<ul style="list-style-type: none"> ■ 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)
September 6, 2023	Third EMT Meeting	<ul style="list-style-type: none"> ■ 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 6, 2023	Fourth EMT Meeting	<ul style="list-style-type: none"> ■ Virtual meeting instructions ■ Approval of meeting minutes ■ Action items from previous EMT meeting (no actions) ■ 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 ECA 7313-8KEN49 Notice No 1 Nov 17 2022.

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 2023. 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.

Appendix A

2023 Summary of Implemented Process Improvement Actions for Benzo(a)Pyrene and Benzene As Required by Site Specific Standard Approvals for Rain Carbon Canada

In 2023, 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

Rain Carbon Activity	Source Type/Pollution Control	Rationale, if available
Storage Tank – Internal inspection	N/A	No emission reduction directly but improves robustness of system
Continuation and extensions of LDAR Program	Fugitive Sources	Reduced emission factors due to improved replacement and repair program
Flange Management program	Fugitive Sources	Reduction of fugitive emissions due to higher quality of flange seal
Substitution of Feedstock with lower Benzene and PAH content.	Petroleum based material like FCC decant oil and PFO	The reduction is based on the improved vapour composition (lower partial pressure of benzene and B(a)P) in the headspace of storage tanks and material handling areas (loading and unloading) as well as the fugitive emission from LDAR and non- LDAR sources.
Substitution of liquid coal tar pitch by granulated (solid) petroleum pitch in big bags	Fugitive Sources	By producing lower PAH solid Petro pitches the loading into railcars and trucks will be substituted by enclosed (emission free) big bag filling. 100% control of emissions.

Emission Reduction Actions 2023

- Continued to hold regular meetings with the MECP throughout 2023.
- Met all requirements of the bridging order (Order # 1-134982315) issued Dec. 14, 2022. Adopted a new dispersion model – CALPUFF, refinement of the ESDM, submission of a TBR, Action Plan, holding public meetings, SSS renewal application and ECA application to reflect the Action Plan.

The Abatement Plan covers the majority of emissions reduction actions.

- LDAR Program:
 - Coal tar and coal tar oil storage tank PVRVs added to LDAR component list.
 - Conducted an audit of the original LDAR Program and have implemented most of the recommendations such as a lower leak threshold and including components in service at greater than 0.5% benzene.
- Continue with daily tank PVRV VOC measurements by Operators.
- By mid 2023 replaced all tar/tar distillate tank PVRVs that were determined to be leakers.
- In the FGI system, created several groups of tanks such as the Light Oil and Tar Acid Oil tank group to provide separate emissions control.
- Continued with taking storage tanks out of service for cleaning, inspection and repairs as needed. TK 8 was done. Tk 21, Tk 3, Tk 69, and Tk 67 are planned.
- Constructed two new pitch storage tanks (Tks 22 and 23) and a new Tar Acid Oil tank (Tk 14).
- Installed new pitch pumps P-4N & S - centrifugal pumps with double mechanical seals for improved emissions control. To continue pitch pump replacements in 2024.
- Pilot project ongoing to trial a hermetic pump (sealless pump) in coal tar oil service. Installed a new coal tar pitch cooler - Hot oil cooling instead of steam for better control of coal tar pitch temperature to reduce fugitive emissions during vehicle loading

Rain Carbon completed three LDAR Leak Surveys in 2023. The results from these surveys are summarized below.

Summary of 2023 LDAR Leak Surveys

2023	Total Number of Components	Measured Components	Inaccessible/Unsafe Components	Leaked Points	Repaired Points	Delay of Repair	Comments
April 2023	921	650	271	10	7	3	<ul style="list-style-type: none"> ▪ April 17 - 21, 2023 ▪ 7 components on the Delay of Repair list to be completed in the October 2023 shutdown. ▪ LDAR component leakers are > 500 ppm VOC.
August 2023	1,274	1,003	271	48	41	7	<ul style="list-style-type: none"> ▪ August 14 - 18, 2023 ▪ 44 LDAR components had a successful repair during the October 2023 shutdown ▪ 4 LDAR components had an unsuccessful repair during the October 2023 shutdown ▪ LDAR component leakers are > 250 ppm VOC.
November 2023	2,312	1,570	742	21	0	N/A	<ul style="list-style-type: none"> • November 22 - 24, 2023 • 21 LDAR components measured leaking including 4 LDAR components from the August 2023 LDAR Survey leaking due to unsuccessful repairs conducted during the October 2023 shutdown • LDAR component leakers are > 250 ppm VOC.

Appendix B

Date, Time, and Location:

February 22, 2023 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
Andreas Grunewald, Rain
Carbon
Denis Dallaire, Rain Carbon Katie Armstrong, WSP
Lisa Kalaschnick, WSP
Sheena Nixon, Ministry of
Environment Conservation
and Parks
Heather Arrell, Ministry of
Environment Conservation
and Parks, Hamilton
District Office
Stephen Burt, Ministry of
Environment Conservation and
Parks, Hamilton District Office
Hans-Peter Boergers,
Resident
Cathy McPherson,
Resident

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

- Denis Corr welcomed everyone to the meeting.
- Katie Armstrong provided the virtual meeting ground rules.
- Denis asked if there were any comments for the EMT meeting notes from the December 14, 2022 meeting that were circulated to the Rain Carbon EMT members on February 22, 2023, and uploaded to the SharePoint site.
- No further comments were provided, and the minutes were considered final.
- There was one action item for the December 2022 meeting regarding the number of failures with the VOC canister sampling units. Rain has been looking for quotes to potentially replace the units with more robust industrial grade canisters to reduce the number of failures.
- Rain has received new guidance from the ministry allowing for a larger range of summa canister pressures to be deemed acceptable (an increased range from -1.6 to -13.4 inches of mercury). This is expected to reduce the frequency of invalid samples that have historically been attributed to an inadequate or unacceptable vacuum pressure. The team will be updated on the impacts to collected samples going forward.
- There were no other specific action items from last meeting.

MEETING MINUTES

TO Rain Carbon Environmental Monitoring Team (EMT)

CC Gord Gilmet, Rain Carbon Canada Inc.

FROM Katie Armstrong **EMAIL** Rain_CarbonEMT@golder.com

SUBJECT: RAIN CARBON EMT MEETING (FEBRUARY 22, 2023) – MEETING NOTES

Air Quality Monitoring Program

Benzo(a)pyrene [B(a)P] Monitoring Results December 2022 to January 2023

Robin presented B(a)P monitoring results for December to January. There were two exceedances of the Upper Risk Threshold (URT) or Measured Level Threshold (MLT) for B(a)P in December. The first occurred on December 7, 2022, at the New West Monitor, with the recorded concentration of 0.00591 $\mu\text{g}/\text{m}^3$. This exceedance was determined to be the common cause variation event, based on the statistical analysis due to natural variation of the process.

The second exceedance was recorded on December 19, 2022, at the East Monitor, where a concentration of 0.0153 $\mu\text{g}/\text{m}^3$ was recorded. The cause of this exceedance was attributed to westerly winds blowing coal tar pitch dust and soil toward the monitor. Robin advised that a new procedure is being developed to cover the abatement of potential fugitive emissions associated with excavation activities.

December results were also presented for HAMN Station 29164. Measured concentrations have been consistently low.

Robin identified that January results were relatively low with the exception of an exceedance of the URT at the North Monitor on January 24th, which has been attributed to excavation activities. It was determined that a pile of contaminated soil with coal tar pitch dust was within the vicinity and caused the higher monitored concentration. All measured concentrations at other monitors were below the URT and MLT.

January results were also presented for HAMN Station 29164. Measured concentrations have been consistently low.

Effectiveness Study of the B(a)P Action Plan

Robin presented the results of the effectiveness study of the B(a)P action plan since 2018 up to 2023.

Robin noted that significant gains have been made since 2018 and measured concentrations are showing a steady decrease, even with a few exceedances. and the Action plan has so far shown success in getting the process sources under control and the next focus is on improving control of maintenance activities.

Overall results of B(a)P Monitoring Values

Robin presented the B(a)P 24-hour results which shows continuous improvements since 2018. Cumulative B(a)P results show a downward trend with reducing concentrations.

Similarly, the rolling averages since 2018 show a dip downward and Rain Carbon hopes to continue with this trend.

Benzene Monitoring Results December 2022 to February 2023

Robin proceeded to present the benzene monitoring results for December 2022. The South Monitor recorded a value of 182.0 $\mu\text{g}/\text{m}^3$ on December 7, 2022, above the URT of 100 $\mu\text{g}/\text{m}^3$. This was determined to be a special cause variation event. Considering the overall wind directions from a general west north westerly direction during the monitoring event, the likely sources that may have impacted the south monitor would have been one of the South Berm Area Tank PVRVs which are located at approximately 25 metres or greater in an WNW direction from the south monitor.

Robin indicated that three of these tank PVRVs (Tank 11, Tank 4 and Tank 8) have now been replaced with new Protectoseal “best in class” PVRVs since the December 7, 2022, monitoring event under the Fugitive Emissions Abatement Plan.

December results were also presented for HAMN Station 29164. Measured concentrations have been consistently low.

Robin presented the benzene monitoring concentrations for January and February 2023. There was one exceedance of the URT measured on January 12, 2023. The South Monitor recorded a value of 115.0 $\mu\text{g}/\text{m}^3$, which was determined statistically to be due to common cause variation event

There was also a sample failure on February 5, 2023, at the South monitoring station. The measured pressure after sampling was below the MECF guideline,

Robin presented the benzene graphs for the 24-hour, cumulative and rolling average monitoring results, which showed a stable trend for each monitor across this monitoring period. Robin confirmed that Rain has been completing work on the South Berm Tank Farm by replacing PVRVs which is likely to be the reason for the overall reduction in monitored concentrations.

LDAR Program 2023 - Summary

Robin indicated that the 2023 LDAR Program for the Facility has been identified, with a total of 3 LDAR surveys scheduled for this year (April, August, and November 2023). Exact dates are currently being finalized

Regulatory updates

SSS Renewal Application

- Bi-weekly meetings (since February 2022) with the Ministry are still ongoing and will continue in 2023 as well.
- WSP is working on ESDM Report V7.0 (Baseline) and the Technology Benchmarking Report (TBR) with inputs from Rain Carbon and refining emissions, refining dispersion modelling using CALPUFF.
- Rain Carbon is continuing to implement the Abatement plan at the Facility and regular updates are provided to the Ministry.

ESDM Report version 7.0

- Katie provided an overview of the new dispersion model that has been used to prepare ESDM Version 7.0, under the direction of the Ministry.
- CALPUFF will be used to model the Facility with two scenarios considered.
 - o Scenario 1 uses 2022 emissions data for the site with the purpose of confirming the sources that contribute the highest to maximum concentrations off-site. These sources will be carried forward into the Technology Benchmark Report and the long-term Action Plan
 - o Scenario 2 will focus on the future worst-case scenario, from an emission perspective using maximum operational data. The results of Scenario 2 modelling will be used to develop the new Site-Specific Standard.
- New sources have been added to the model that weren't previously captured to represent fugitive emissions from tank components, pumps and trenches.

WSP is working with Rain to refine the emission rates for Scenario 1 and improve the correlation with the monitoring data.

Technology Benchmarking Report

The purpose of the TBR is to identify whether there are any other commercially available or technically feasible technologies. Identified feasible technologies will be included in the Action Plan

Action Plan

The purpose of the Action Plan is to show the step changes in the Point of Impingement concentration reduction as each step is implemented. It will include a detailed timing and progress plan and is linked to changes to the updated SSS over the approval period.

2023 EMT Meeting

- Next public meeting is tentatively booked for April 11 and April 12, 2023, from 6:00 pm to 9:00 pm at the Legion Hall.
 - Dennis confirmed that he will not be available to act as chair for those dates but suggested approaching Bruce Newbold, if required. Rain/MECP confirmed that the format will likely be more informal, open house style with opportunity for individuals to read poster boards and ask questions in a one-on-one format.
 - Date of next meeting – mid-May 2023 (tentatively May 17, 2023)
 - The format of the next meeting will be a virtual meeting.
 - Potential topics for discussion include the air quality monitoring, SSS Renewal Application, Ministry enhanced community AQ monitoring.
 - Cathy McPherson asked: "In terms of the next meeting, are we going to discussing some of the feedback people had at the open public meeting?"
 - Andreas responded that comments and questions will be recorded and documented. They will be added to the final report and can be a topic at the next EMT meeting.
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MEETING MINUTES Date, Time, and

May 17th, 2023, at 6:00 p.m. to 7:00 p.m.
Virtual Meeting – Microsoft Teams

Location:

Attendees:

Denis Corr, Chair

Robin Hart, Rain Carbon

Heather Arrell, Ministry of Environment
Conservation and Parks,
Hamilton District Office

Andreas Grunewald, Rain Carbon

Katie Armstrong, WSP

Pascale Marchand, Resident

Lisa Kalaschnick, WSP

Sheena Nixon, Ministry of Environment
Conservation and Parks

Stephen Burt, Ministry of Environment Conservation
and Parks, Hamilton District Office

Jeff Malley, Resident

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

- Denis Corr welcomed everyone to the meeting.
- Katie Armstrong provided the virtual meeting ground rules.
- Denis asked if there were any comments for the EMT meeting notes from the February 22, 2023, meeting that were circulated to the Rain Carbon EMT members on May 5, 2023, and uploaded to the SharePoint site.
- Denis requested that the meeting minutes from the February 22, 2023, be redistributed as many members did not receive the email.
- No further comments were provided, and the minutes were considered final.
- There were no other specific action items from last meeting.

Air Quality Monitoring Program

Benzo(a)pyrene [B(a)P] Monitoring Results December 2022 to January 2023

- Robin presented B(a)P 24-Hr monitoring results for February 2023. No exceedances were recorded for the month of February. There was one sample failure on February 17, 2023, at the New West monitoring station. This was due to an outside contractor who forgot to turn the power on after installation of the PUF canister.
- Robin presented the B(a)P 24-Hr monitoring results for March 2023. There was one exceedance on March 1, 2023, at the New West monitor. The recorded concentration result of 0.00684 µg/m³ was above the measured level threshold (MLT) of 0.0043 µg/m³. This exceedance was determined to be due to a common cause variation event (based on statistical analysis) and due to natural process variation.
- HAMN Station 29164 concentrations have been consistently low.
- April 2023 results were also presented for the HAMN Station 29164, South and New West monitor locations where the B(a)P measured concentrations have been consistently low. However, the slightly high result but in compliance on April 18, 2023, at the east monitor which recorded a concentration of 0.00316 µg/m³.
- Overall, the work being done through the monitoring day activities by detecting potential leaks and releases of B(a)P emissions and developing and implementing new maintenance procedures to minimize and control B(a)P emissions along with excavation activities are in correlation with the results at the monitoring stations.

Effectiveness Study of the B(a)P Action Plan

- Robin presented the results of the effectiveness study of the B(a)P action plan since August 2018 up to the end of April 2023.
 - Robin noted that significant gains have been made since 2018 and measured B(a)P concentrations are showing a steady decrease, even with a few exceedances and the Action Plan has so far shown success in getting the process sources under control and we are now continuing to improve on the control and execution of site maintenance activities such as excavations to reduce B(a)P dust and particulate emissions.
- Overall results of B(a)P Monitoring Values
- Robin presented the B(a)P 24-hour results which shows continuous improvements since 2018. The cumulative B(a)P results show a downward trend of reducing concentrations.
 - Similarly, the rolling averages since 2018 show a dip downward and Rain Carbon hopes to continue with this downward trend.
 - Robin presented the East Monitor B(a)P measurements from December 2019 to April 2023. This monitor has been impacted with higher levels of B(a)P in the past. A large spike back in December 2022 was presented on the graph. These higher values are caused by dusting issues due to excavation works that affected the monitor.
 - North monitor was also impacted by construction activities showing spikes on the graph back in January 2023 and February 2023. These issues have been addressed and are now decreasing and are within compliance levels.

The Old West monitor overall low apart from two spikes back in June and July for 2022. The reduction is attributed to the to work being done with improving maintenance activities and using fugitive emission abatement.

- New West monitor starting operation in August of 2020 with a few excursions in the most part due to common cause variation events.
 - South monitor results show overall the reported concentrations are within the compliance levels, with the exception of a peak reading back in 2022, maintenance activities being the cause of the spike.
- Special Cause Variation Event
- Robin gave a brief explanation to the meaning of “Special Cause Variation Event.” Based on statistics, a Special Cause Variation event is one where one specific assignable cause for the event most likely can be determined. “Common cause variations” most likely going back to standard operation activities and no special event can be assigned. Common cause variation events are typically addressed by the action plan of the SSS.

Benzene Monitoring Results February 2023

- Robin proceeded to present the benzene monitoring results for February 2023. Showing compliance for the month of February below the Upper Risk Threshold (URT) of 100 µg/m³. There was an invalid sample at the South Monitor on February 5, 2023, the pressure on receipt was outside the MECAP acceptable range -1.6 to -13.4 inches Hg.
 - A common cause variation occurred on March 1, 2023, at the South monitor, which was above the URT limit of 100 µg/m³ recorded value of 117.0 µg/m³ benzene.
 - March 13, 2023, invalid sample as the pressure on the receipt was outside the MECAP acceptable range of -1.6 to -13.4 inches Hg.
 - April 2023 showed all sample were within compliance levels. The East Monitor benzene values were slightly higher in April due to the predominant south westerly wind direction.
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- Robin presented the benzene monitoring concentrations for March and April 2023. There is downward trend since December 2022 and January 2023. This has been attributed to the work being done on the South Berm Tank Farm by replacing PVRVs which is likely to be the reason for the overall reduction in monitored concentrations.
- Cumulative average has stabilized and are on a downward slope on the South.
- Rolling average sloping downward trends due to Pressure Vacuum Relief Valve (PVRV) maintenance.
- Last year on June 22, 2022, at the east monitor there was a spike caused by special variation even at mean +3 sigma from Tank 6 maintenance activity issue.
- South monitor variability since 2020 due to south berm tank farm PVRV emissions. Downward trend since January due to work being done on the tank PVRVs in the south tank farm.

LDAR Program 2023 - Summary

- Robin indicated that the first 2023 Leak Detection and Repair (LDAR) Program for the Facility was completed between April 17th and the 21st, with a total of ten leaked points that were uncovered during the survey. Three (3) have been repaired already. There are currently seven (7) left to repair. There is a delay in the repair as Rain will need to shutdown production to action the remaining items. The shut down is scheduled later this year and the repairs will take place during the shutdown.
- Pascal Marchand asked a question about PVRVs. Robin and Andres replied to this question by explaining the operation of the valves place on the top of the tanks, and the role they play for allowing the tanks to breath. These items are what Rain has been working on at the south berm tank farm.
- Denis asked a question to define the LDAR program. Robin explained that LDAR was an acronym that stood for Leak Detection and Repair. This program is to help find potential leakers throughout the network through LDAR surveys. Once a leak is found a contractor will determine which are above the limits. Once found an attempt to repair and or replace. If this can not be done right away, they are done later.
- There are two more surveys schedule for this year (August 2023 and November 2023)

Regulatory updates

SSS Renewal Application

- Bi-weekly meetings (since February 2022) with the Ministry are still ongoing and will continue in 2023 as well.
- WSP has been working on ESDM Report and the Technology Benchmarking Report (TBR) with inputs from Rain Carbon and refining emissions, refining dispersion modelling using CALPUFF.
- Rain Carbon is continuing to implement the Abatement plan at the Facility and regular updates are provided to the Ministry.

Regulatory Updates by Katie Armstrong

- In May Rain submitted the Site-Specific Standard renewal application and the Environmental Compliance Approval Amendment application.
 - Two public meetings were held on Friday, April 14, 2023, and Tuesday April 18, 2023, at the Legion.
 - Approximately 80 people sign the sign-in sheet, it is estimated that 120 people attended.
 - During the public meeting there were display boards presenting information about Rain Carbon operations and the SSS application along with copies of Executive Summaries of key reports with experts from Rain to answer questions.
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- Comment forms were also handed out where you could register your comments/concerns. Feedback was collected to see how the meeting went.
- 21 comment forms were submitted. Rain has been responding to each comment individual where contact details were provided.
- Katie presented an overview of the Site-Specific Standard application that was submitted May 1, 2023, which included several different components.

The ESDM focused on three scenarios, the first was based on 2022 operational data, scenario two was based on worst case potential operations before improvements are made. Scenario three looked at emission from the facility once the proposed Action Plans are implemented.

- Katie presented an overview of the Technology Benchmarking Report (TBR) which is a study identifying whether there are any commercially available or technically feasible technologies which could be implemented at the site to reduce emissions.
 - Modelling results indicated that material handling is the largest source of Benzo(a)pyrene activities, particularly when loading and unloading material in the rail car. Automation of that system is going to remove these emissions and is scheduled to be completed by June 2025.
 - Katie presented technology improvements that are proposed in the action plan to strengthen procedural controls for truck unloading, it's estimated to directly reduce emissions from this source by 50% and this is proposed to be implemented by October 2023.
 - Other action includes storage tank improvements and changes to the trenches. Currently the most significant proposed change is the use of a thermal oxidizer, which will remove 3 emission sources at the site and add additional destruction of emissions before they are released to the atmosphere, reducing emissions by as much as 99.5%.
 - Katie presented the modelling findings following the implementation of the Action Plan. There was always a significant reduction in benzo(a)pyrene emissions with predicted concentrations on a 24-hour basis below the upper risk threshold and below the B1 limits, which is the Ministry's air quality limit.
 - Katie presented the modeling for benzene following the implementation of the Action Plan. The biggest contributor to benzene emissions is identified as fugitive sources, however these are very difficult to quantify and there is potentially conservatism in how they were estimated. Rain is in the process of extending their leak detection and repair program to cover a larger number of tank and pump components which is expected to update these emission rates and better quantify those emissions.
 - Denis has a question about the timing for reduction of B(a)P. Andreas replied that stronger controls/measurement are being implemented already when it comes to contractor and truck drivers for loading and unloading.
2022 Community Engagement and EMT Meeting
 - Andreas presented that there were no environmental complaints from neighbours in 2022.
 - Sixteen of seventeen Director Orders have been completed. Remaining item to be completed is the implementation of the thermal oxidizer project. Rain continues to have bi-weekly meeting with the MECP and provides updates on the 2022 abatement plan for benzene and B(a)P.
 - Andreas presented an update on the progress of the abatement plan and the audits to help improve the program. Internal monitoring program installed.
-

Pascal asked a question “How would a resident know that there was an issue with benzene or benzo(a)pyrene happening?” Andreas replied that there is a report on the Rain Carbon website. The reports are done monthly. A notice will also be issued if there is an exceedance.

- Andreas presented additional items for the abatement plan by separating benzene from the other tanks in order to control emissions. Replacing PVRVs with newer and better models, upgrade pumps, instal new pitch cooler by October.

2023 EMT Meeting

- Date of next meeting – mid- September 2023 (tentatively September 6, 2023)
- The format of the next meeting will be a virtual meeting.
- Potential topic for next meeting: hybrid meeting to going forward.
- Redistribution of the February 20th meeting meetings □ Update: These meeting notes were redistributed on May 23, 2023

TITLE Rain Carbon EMT Meeting (September 6, 2023) – Meeting Notes

DATE/TIME September 6, 2023, at 6:00 pm to 8:00 pm

VENUE Virtual - Teams

1.0 WELCOME, VIRTUAL MEETING GROUND RULES AND APPROVAL OF PREVIOUS EMT MEETING MINUTES

- Denis Corr welcomed everyone to the meeting.
- Kate Liubansky provided the virtual meeting ground rules.
- Denis asked if there were any comments on the EMT meeting notes from the February 2023 meeting that were circulated to the Rain Carbon EMT members on May 23, 2023.
- Denis asked if there were any comments on the EMT meeting notes from the May 2023 meeting that were circulated to the Rain Carbon EMT members on August 29, 2023.
- No further comments were provided, and both meeting minutes were considered final.
- There were no other specific action items from last meeting.

2.0 AIR QUALITY MONITORING PROGRAM

- Kate started the meeting by reintroducing the topic of Air Quality Monitoring in Hamilton by presenting the HAMN Stations. There are approximately 15 stations that monitor for different contaminants including several that monitor benzene and B(a)P.
- There are also industrial facilities that monitor different contaminates in the area.
- Kate presented a map to show the HAMN stations near Rain Carbon.
- There are currently four stations plus an off-site unique station #29164 that Rain Carbon added in 2022 that are monitoring for benzene and B(a)P. An aerial image of the Rain Carbon monitors within or at the property boundary was shown.

Rain Carbon Benzo(a)pyrene [B(a)P] Monitoring Results May – July 2023

- Robin presented the Rain Carbon results for May 2023.
 - o On May 24, 2023, B(a)P measured 0.00950 µg/m³ at the Old West Monitor. This was above the Upper Risk Threshold (URT) of 0.005 µg/m³. This was determined to be a special cause variation event due to the coal tar pitch dust and particulate emissions from the demolition site of the former solid coal tar pitch processing unit located 50 meters from the old west monitor.
 - o The site equipment excavation procedure has been updated to included excavation and demolition fugitive emission abatement.
-

□ Robin presented the Rain Carbon results for June 2023.

o On June 29, 2023, at the Old West Monitor there was a monitored concentration of $0.00906 \mu\text{g}/\text{m}^3$ B(a)P above the URT of $0.005 \mu\text{g}/\text{m}^3$. This was determined to be a special cause variation event due to fugitive coal tar pitch dust and particulate emissions from excavation material being removed from the T22, 23, and 24 excavation site and placed in an area northeast of the old west monitor. The tarpaulin covering the pile of the excavated soil had been uncovered just before the monitoring period, and material was likely carried by an easterly wind on that day. The implementation of the new excavation procedure had not been finalized at the time of the monitoring period. With the implementation of the new excavation procedure, high monitoring values associated with this type of work should be avoided.

Overall, in the month of June, all the remaining results were below the URT. In general, the B(a)P results were slightly higher at all monitoring stations than normal as the Quebec and Northern Ontario wildfires were taking place during this time period and may have impacted the monitors. The HAMN station measured $0.00341 \mu\text{g}/\text{m}^3$ on June 5, 2023, just below the URT.

□ There were no high B(a)P monitored concentrations during the month of July.

□ Gord presented the results for the month of August.

o Each August result was reported as “less than” readings from the BVL lab report. According to BVL, each blank sample had an unusual high result. A blank sample is typically treated the same as a field sample but would not have that same material and is used as a reference point. Blank samples typically have concentrations below detection levels. In the August report, the blanks were reported to have higher levels of B(a)P than the field samples. For example, a blank sample was reading over 5 micrograms whereas the field result was recorded between 2 and 3 micrograms; therefore, the validity of the results is under questions.

o Gord asked Sheena (MECP) if this is something they have come across before and what would the protocol be for results like this.

o Results will still be put in the monthly reporting. Gord feels that the results should not be put in the data set due to the validity of the results as there are no actual results.

o Robin added that there was currently no plan to file a Section 30 Notification for the August B(a)P results as the results could have been anywhere from zero to $0.017 \mu\text{g}/\text{m}^3$ for the East Monitor.

o Denis added that when the detection limit is this low that it could be said that by convention 50% of the detection limit as the value. He finished by saying that the MECP will make the final decision, but it looks like it is invalid data.

o Gord and Robin both spoke with the BVL lab representatives and lab manager to see how they would represent the data. Rain was told by the MECP to present the data as is.

o BVL labs acknowledged that there was a testing problem, and the results were invalid but had to report the results as they were.

o Heather (MECP) mentioned that their technical support staff would review the report and provide comments and they would validate or invalidate the results. They would also see if the dataset could be viewed differently.

o Robin mentioned that the August results will be included in the report and sent to the MECP for review before September 20, 2023.

o Heather said that until the report is reviewed from the MECP's perspective, it is considered as unvalidated data.

o Denis asked if this blank sample was sent to Rain Carbon or if it stayed in the lab?

o Matthew also had a question as to why or what could have happened to the blank sample to give readings like this?

o Gord answered Matthew's question, that after speaking with BVL labs there was no clear explanation as to why this happened. Rain Carbon was informed that after further testing, the issues have been resolved at BVL labs.

o Robin answered Denis' question that the blank sample is not sent to Rain Carbon but is held in the BVL labs.

□ Robin presented the 24-hour B(a)P results for August 2018 to July 2023. As you move towards the right-hand side of the graph the trend is on the low side.

□ B(a)P cumulative results from August 2018 to July 2023 are also low.

□ There was an up swing back in March and May of 2023 but overall, for the B(a)P five event rolling average from

August 2018 to July 2023 shows a downward trend.

Rain Carbon Benzene Results for May – July 2023

□ Robin presented the Benzene results for May 2023.

o There were two sample monitoring events in May and the results were all below the URT.

o There was an invalid sample on May 12, 2023, at the East Monitor where the summa canister pressure on receipt was outside the allowable MECP range of -1.6 to -13.4 inches Hg.

o On May 12, 2023, the HAMN 29164 station shows an acceptable sample, but pressure on receipt was outside the recommended MECP range of -5 to -10 inches Hg.

o Results will be reported based on input from the MECP.

□ Robin presented the Benzene results for June 2023.

o During the month of June there were two invalid samples and one VOC sampler failure at the East Monitor.

o These issues could not be addressed immediately and were only caught after results had been sent back as there is a significant up to 21-day delay between when the samples are taken and analyzed.

o The sample failure at the East Monitor on June 5, 2023, and North Monitor on June 29, 2023, were due to the VOC sample timer valves failing to open. This has since been corrected but demonstrates that the system in place to sample VOC relies on ensuring that the VOC sampler timers have regular preventative maintenance conducted to ensure reliable performance. To date, Rain Carbon has been able to resolve the VOC sampler issues.

On June 17, 2023, and June 29, 2023, the East Monitor pressure on receipt was outside the MECP allowable range of -1.6 to -13.4 inches Hg.

o On June 29, 2023, the South Monitor experienced a measurement above URT. This was caused by a special cause variation event at $185.0 \mu\text{g}/\text{m}^3$ and it is believed to be caused by fugitive emissions from pumphouse #1 due to fugitive VOC emissions from two leaking valves that were likely dispersed over a short distance of 5 to 10 meters. The leaking valves have been scheduled for repair.

□ Robin presented the Benzene results for July 2023.

o July 11, 2023, shows that Rain Carbon was still experiencing similar issues as in June with the pressure on receipts being outside the allowable range and the VOC sampler timers internal valves failing to open. On July 12, 2023, the East, North and Old West Monitor were repaired, serviced, and calibrated.

o After the monitors were serviced, readings came back to normal on July 23, 2023, except at the 29164 HAMN station which showed similar problems.

o On July 23, 2023, the South Monitor reading was above the URT limit of $100 \mu\text{g}/\text{m}^3$ benzene and recorded a value of $171.0 \mu\text{g}/\text{m}^3$ benzene, due to a special cause variation event caused by two pump house #1 leaking valves located approximately 15 meters from the monitor. These valves were found to be leaking at over 100 ppm VOC as measured with the Mini Rae 3000 the following day on July 24, 2023. However, the Mini Rae 3000 does not provide a definitive VOC result and we would typically use a TVA-2020.

□ Robin shared the August 2023 benzene results with EMT members which have not yet been submitted to the MECP.

o There were two exceedances in August 2023. On August 16, 2023, the East Monitor was above the URT with a result of $184.0 \mu\text{g}/\text{m}^3$ benzene, and the South Monitor was above the URT with a result of $221.0 \mu\text{g}/\text{m}^3$ benzene. Both high results are due to special cause process variation events with a likely assignable cause and these excursions are both under investigation.

o August 16, 2023, was an LDAR survey day so there will be an increased amount of data to evaluate from the potential emission sources.

o The August 2023 benzene results will be submitted in the August 2023 AAMR report on or before September 20, 2023, and the benzene exceedances above the URT have been submitted to the MECP as Section 30 Notifications.

o Gord mentioned that Rain Carbon is still waiting for the August 2023 wind roses for the HAMN station to help with the investigation.

o Andreas added that the Old West Monitor also exceeded benzene levels of what is normally seen at that monitor. Again, waiting on the August 2023 wind roses as this is not a typical result for that monitor.

o Kate added that this was something we should refer back to at the next meeting and provide some reasoning to

the August results.

□ Robin presented the benzene 24 hr results graph for March 2020 to August 2023. The higher results on the righthand side of the graph may be the result of some offsite benzene sources.

□ Andreas added that this was being investigated.

□ The benzene 24-hour cumulative average graph shows a slight increase in benzene levels at the East and South Monitors while all other monitors are staying relatively flat.

□ The benzene rolling average graph shows a slight increase in benzene levels on the righthand side.

HAMN B(a)P Results of 24-hr Measured Concentration

□ Kate presented a table with the B(a)P results for the four HAMN Stations.

□ Kate highlighted values that were close or over the URT, but overall, most values were below the URT.

□ The table also presented the results from the Rain Carbon monitors (at or near the property boundary).

□ Kate noted that the data represents the first two quarters of 2023. Data is summarized for every quarter and the next EMT meeting will present data for the third quarter of 2023, which will show July to September.

□ Kate presented several aerial images that showed B(a)P results recorded at the HAMN Stations as well as the highest result(s) recorded at Rain Carbon. In addition, wind roses for the HAMN Stations from the monitoring days were presented and the wind conditions were described. Appendix A has the summary tables and aerial images of the HAMN and Rain Carbon monitoring results (for Rain Carbon, results are presented for monitors with maximum recorded results).

HAMN Benzene Results of 24-hr Measured Concentration

□ Similarly, to B(a)P, Kate presents a table with the benzene results for the HAMN Stations. These results were below the URT of 100 $\mu\text{g}/\text{m}^3$.

□ Kate presented several aerial images that showed benzene results recorded at the HAMN Stations as well as the highest result(s) recorded at Rain Carbon. In addition, wind roses for the HAMN Stations from the monitoring days were presented and the wind conditions were described. Appendix A has the summary tables and aerial images of the HAMN and Rain Carbon monitoring results (for Rain Carbon, results are presented for monitors with maximum recorded results).

3.0 LDAR PROGRAM 2023 – SUMMARY

□ Robin presented the LDAR program and the survey that took place in April 2023.

□ In April 2023, the first 2023 survey was conducted, and approximately 650 LDAR components were measured by SNC Lavalin. Out of the 650 components measured, 10 were detected to be leakers. Three of the 10 leakers have been repaired. The seven left will be repaired during the October 2023 shutdown.

□ LDAR components leakers with recorded concentrations of greater than 500 ppm VOC need to be repaired.

□ During the August 2023 survey, there were over 1000 LDAR components, of which 271 that were inaccessible or unsafe to access.

□ 48 were detected to be leaking components. Currently only one component has been successfully repaired. Rain Carbon has until September 16, 2023, to repair 21 of the LDAR components and the other 26 components by October 16, 2023, before any unrepaired or unsuccessfully repaired components are placed on the Delay of Repair List.

□ Rain Carbon must attempt to repair LDAR leakers with recorded concentrations of > 1,000 ppm VOC within 30 days; LDAR leakers with recorded concentrations of < 1,000 ppm VOC must be attempted to be repaired within 60 days.

□ The LDAR audit completed in April 2023 by SNC Lavalin (SNC) revised the LDAR leak threshold from 500 ppm VOC to 250 ppm VOC.

□ Robin mentioned that due to the Optical Gas Imaging (OGI), Rain Carbon has been able to implement some of the recommendations from the LDAR audit such as surveying previously inaccessible components.

□ Robin presented the LDAR components that were added to the August 2023 LDAR Survey. As Rain Carbon continues to go through adding components to the LDAR components inventory, additional components will be considered and may be added as part of future LDAR surveys.

□ Stephen (MECP) member had a question about the power point slide showing the “Delay of Repair List” from the April 2023 survey which showed 7 components on the Delay of Repair list, which would be dealt with in the October 2023 shut down. While for August 2023, the table showed zero Delay of Repair for those 7.

o Robin answered that if LDAR components are currently under repair within the 30-day or 60-day window, then they no longer need to go on the Delay of Repair list and that is why under August there are now zero components on the Delay of Repair list. They would then be added to the Delay of Repair list for repair by September 16, 2023.

□ Stephen then asked about the 271 unsafe components and what that meant?

o Robin answered that this has been discussed with Sheena (MECP) and that these components are simply too difficult to reach and would require scaffolding, or special equipment to reach and are therefore currently inaccessible.

□ Regarding these 271 components, Stephen asked when they would be considered significant leakers with higher readings?

o Andreas answered that they are typically flange connections and are not anticipated to be a potential emission source, but that Rain Carbon is working with SNC to develop a method to get future results for these components.

o Kate also added that historical data has shown that there can be two LDAR surveys done in a year for inaccessible components, and once an attempt is made, they may get results.

□ Robin noted that with the components Rain Carbon has added, they expect that number of LDAR leakers may be double for the November 2023 LDAR survey. The November 2023 LDAR survey may uncover a larger number of leakers in areas that have not yet been covered.

□ Robin went through the recommendations SNC presented in the LDAR Audit Report, including items such as lowering the LDAR leak definition from 500 ppm VOC to 250 ppm VOC.

4.0 REGULATORY UPDATES

□ Kate presented the regulatory updates since the last meeting in May.

□ Rain Carbon has been meeting monthly with the Ministry.

□ Two applications have been submitted: the SSS Application and the ECA Amendment Application.

□ First set of comments from the Ministry was received on September 1, 2023, and Rain Carbon is working on those reposes and is continuing to implement the abatement plan that has already been discussed at previous meetings.

5.0 ABATEMENT PLAN UPDATE

□ Gord presented an update on the abatement plan.

□ The LDAR Program which is part of the abatement plan included additions to the LDAR Program as a result of the recommendations from the LDAR Audit.

□ Rain Carbon is continuing daily tank PVRV and VOC measurements by operators to cover the South Tank Farm for coal tar and coal tar oil storage as well as tank PVRV VOC measurements on monitoring days.

Rain Carbon completed the insulation of the coal tar light oil Tank 13. Light oil which is very volatile product that contains benzene, toluene, and xylene. The tank was insulated to reduce the temperature and the vapor pressure of the tank contents.

□ Gord commented that one of Rain Carbon’s initiatives is to isolate the light oil and tar acid oil tanks from the FGI System and provide those tanks with their own emission controls equipment making a significant improvement in the remaining FGI System which, in turn, will result in better vapor quality for those tanks. Equipment tie-ins to be installed during the October 2023 shutdown.

□ For the installation of new coal tar/tar oil tanks PVRVs, Rain Carbon has replaced all of the PVRVs on the large tar oil

storage tanks and the South Tank Farm. Rain Carbon will continue to pursue the best-in-class PVRV installation.

The upgrading of existing coal tar pitch pumps to reduce B(a)P fugitive emissions involves replacing these pumps with new style pumps, which will be centrifugal pumps with double mechanical seals, which have better emission control. Rain Carbon has already completed P-104 N/S and P-13 E. P-4 N/S, P-42 N, P-202 N/S, and P-201 N/S are to be completed. There are 7 pumps collectively and three have already been done.

The pilot project to install hermetic pump (seal less pump) for P-105 E/W in coal tar oil service will be done on the P105 E/W pumps - both pumps are in the coal tar oil service.

The new coal tar pitch cooler will be different than the traditional steam-based cooler that Rain Carbon currently uses. Rain Carbon will use the hot oil cooling approach instead of steam for better control of coal tar pitch temperature to reduce fugitive emissions during vehicle loading. The equipment has been installed and will be commissioned in the October 2023 shutdown.

6.0 FUTURE TOPICS

Kate opened the floor to the EMT members asking if there are any topics of interest. Kate noted that EMT members can ask during the meeting or can email WSP with topics that they would like added to the December EMT meeting.

Kate mentioned that with the new SSS there will be a section presenting the EMT requirements.

Matthew (resident) would like to see more of the HAMN results review that Kate presented.

7.0 2023 EMT MEETINGS

Date of the next meeting – early December 2023 (tentatively December 6, 2023).

The format of the next meeting will be virtual.

Potential topics for next meeting: Update on the results for July and August, HAMN station results compared to Rain Carbon monitoring results, topics that are emailed to WSP to add to the agenda, and hybrid meetings in the new year.

TITLE Rain Carbon EMT Meeting (December 6, 2023) – Meeting Notes

DATE/TIME December 6, 2023, at 6:00 pm to 8:00 pm

VENUE Virtual - Teams

1.0 WELCOME, VIRTUAL MEETING GROUND RULES AND APPROVAL OF PREVIOUS EMT MEETING MINUTES

Kate Liubansky welcomed everyone to the meeting.

Kate provided the virtual meeting ground rules.

Denis Corr asked if there were any comments on the EMT meeting notes from the September 2023 meeting that were circulated to the Rain Carbon EMT members on November 23, 2023, via email.

No further comments were provided, and meeting minutes were considered final.

There were no other specific action items from last meeting.

2.0 AIR QUALITY MONITORING PROGRAM

Kate started the meeting by reintroducing the Hamilton Air Monitoring Network (HAMN) Stations. There are approximately 15 stations that monitor for different contaminants including several that monitor benzene and B(a)P.

It was noted that a detailed review of recent Rain Carbon air quality monitoring results will be provided, as well as a high-level comparison of Rain Carbon results to other HAMN stations from the third quarter (Q3) of 2023.

Kate presented a map to show the HAMN stations near Rain Carbon.

There are currently four stations plus an off-site unique station #29164 that Rain Carbon added in 2022 that are monitoring for benzene and B(a)P. An aerial image of the Rain Carbon monitors within or at the property boundary was shown.

Rain Carbon Benzo(a)pyrene [B(a)P] Monitoring Results September – November 2023

□ Robin Hart mentioned that August results cannot be presented due to laboratory issues. Samples will be re-analyzed and presented at the next meeting in February 2024.

□ Robin presented the Rain Carbon results for September 2023.

o On September 21, 2023, B(a)P was measured $0.0146 \mu\text{g}/\text{m}^3$ at the New West Monitor. This was above the Upper Risk Threshold (URT) of $0.005 \mu\text{g}/\text{m}^3$. This was likely due to the fugitive coal tar pitch dust and particulate emissions being carried a short distance of about 50 metres by the predominantly easterly wind from a partially covered large pile of tank foundation excavation soil contaminated with solid coal tar pitch dust and particulate towards the New West Monitor. The soil pile had been properly covered with a tarpaulin, but it became partially exposed prior to the September 21, 2023, MECP monitoring day. This material has now been completely covered with a tarpaulin and is in the process of being removed from site.

□ Robin presented the Rain Carbon results for October 2023.

o For the month of October, there were no measurements above the URT of $0.005 \mu\text{g}/\text{m}^3$.

□ Robin presented the 24-hour B(a)P results for August 2018 to October 2023. As you move towards the right-hand side of the graph, the trend is on the low side. A gap in the graph can be observed for the month of August due to the results being unavailable. The graph will be updated once the August data is received.

Rain Carbon Benzene Results for September – November 2023

□ Robin presented the Rain Carbon results for August 2023.

o There were four measurements above the URT for the month of August.

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o On August 4, 2023, the East Monitor was above the URT with a result of $125.0 \mu\text{g}/\text{m}^3$ benzene, and the South Monitor was above the URT with a result of $133.0 \mu\text{g}/\text{m}^3$ benzene. After investigating the activities on August 4, no assignable cause was found.

o On August 16, 2023, the East Monitor was above the URT with a result of $184.0 \mu\text{g}/\text{m}^3$ benzene, and the South Monitor was above the URT with a result of $221.0 \mu\text{g}/\text{m}^3$ benzene. Both high results are likely due to Tank 3 PVRV, Tank 7 PVRV and Tank 8 PVRV leaks while cleaning.

□ Robin presented the benzene results for September 2023.

o Overall, there were no high measurements in the month of September, but multiple sampler failures.

o On September 21, 2023, there were three missing benzene measurements at the East, North, and Old West Monitors due to VOC sampler timer failures (line blockage) resulting in the inability to collect samples at each of these monitor locations.

o Resampling was done on September 26, 2023, where the East and North VOC monitors operated successfully. However, there was still a missing measurement at the Old West Monitor due to VOC sampler timer failures (line blockage) resulting in the inability to collect samples at this monitor. This sampler timer reached end of life and was replaced.

o Denis asked if there was an event that could have caused the three sampler failures.

□ Robin responded that the North Monitor failed due to an operator issue, the East Monitor failed due to blockages, and the Old West Monitor did not work even after a service and repair. It was concluded that there was no specific cause for all the failures, and they are all therefore independent incidents.

□ Robin presented the benzene results for October 2023.

o There were no above URT measurements in the month of October.

o On October 15, 2023, the East Monitor sample was invalid since the summa canister pressure on receipt was outside the MECP acceptable range.

o Denis asked if the MECP widened the range of sampler canister pressures.

□ Robin responded that the range was widened about a year ago.

o It was noted that the values at the South Monitor have decreased from the previous months.

□ Robin presented the benzene 24-hour results graph for March 2020 to October 2023. Robin stated trend is downward when focusing on September and October results. The values can be seen decreasing from left to right below the URT line, especially seen for the South Monitor. The higher values presented on the graph are likely due to tank

maintenance operations.

□ Robin states that as mentioned earlier, a new type of graph will be presented showing the annual rolling average of results for each monitor compared to the actual annual standard that is in place. A graph with a trendline will be provided at the next meeting.

HAMN B(a)P Results of 24-hr Measured Concentration

□ Kate presented several aerial images that showed B(a)P results recorded at four nearby HAMN Stations as well as the highest (or available) result(s) recorded at Rain Carbon. In addition, wind roses for the HAMN Stations from the monitoring days were presented and the wind conditions were described. The wind roses demonstrate the direction from which the wind is coming from and the frequency of the winds.

□ The information for July 23 and September 21, 2023 were discussed. August results will be shared at the next meeting once the data is obtained.

□ Appendix A presents the summary tables and aerial images of the HAMN and Rain Carbon monitoring results.

HAMN Benzene Results of 24-hr Measured Concentration

□ Similarly to B(a)P, Kate presented several aerial images that showed benzene results recorded at the HAMN Stations as well as the highest (or available) result(s) recorded at Rain Carbon. In addition, wind roses for the HAMN Stations from the monitoring days were presented and the wind conditions were described. The information for July 11, July 23, August 4, and August 16, were discussed.

□ Appendix A presents the summary tables and aerial images of the HAMN and Rain Carbon monitoring results.

□ Pascale asked where the data for benzene and B(a)P was obtained since the HAMN website does not mention benzene or B(a)P monitoring.

o Kate responded that the data is sent to her directly from HAMN. As well, on the HAMN website, benzene is included in VOC results while B(a)P is included in PAH results, however the results can only be found in the reports (<http://www.hamnair.ca/reporting/HAMN-Annual-Reports.aspx>).

3.0 LDAR PROGRAM 2023 – SUMMARY

□ Robin presented an update on the LDAR Program and the surveys that took place in 2023.

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o Please note, the number of components discussed above were based on the continuous work to refine and expand the LDAR Program; therefore, some of the component numbers have been updated at the time of the preparation of the meeting notes. Rain Carbon will provide an update on this at the next EMT meeting.

□ In general, the number of LDAR components can be seen as increasing as the LDAR Program expanded throughout 2023. There was a total of 651 accessible components in April, 1,003 in August, and 1,570 in November.

□ In April 2023, the first 2023 survey was conducted, and approximately 650 LDAR components were measured by SNC Lavalin. Out of the 650 components measured, 10 were detected to be leakers. Seven of the 10 leakers were repaired during the October 2023 shutdown, leaving three on the Delay of Repair List.

□ For a component to not end up on the Delay of Repair List, Rain Carbon must attempt to repair LDAR leakers with recorded concentrations of > 1,000 ppm VOC within 30 days; LDAR leakers with recorded concentrations of < 1,000 ppm VOC must be attempted to be repaired within 60 days.

□ Robin noted that the threshold for repairs back in April was for any LDAR component with recorded concentrations greater than 500 ppm VOC. The threshold was reduced to 250 ppm VOC in the month of August, and it was expected that the number of components would increase as a result.

□ In August 2023, there were a total of 1,274 components, of which 1,003 were accessible and 271 were inaccessible. There were 48 leaker points detected, where 41 were repaired and 7 were unsuccessful repairs and remained on the Delay of Repair List.

□ In November 2023, 1,570 components were accessible and 742 were inaccessible. There were 21 leaker points, none of which have been repaired so far. There are no components on the Delay of Repair List since the time

constraints have not been reached yet.

□ Robin explained that “inaccessible” refers to components that are simply too difficult to reach and would require scaffolding, or special equipment to reach.

□ Robin mentioned that due to the Optical Gas Imaging (OGI), Rain Carbon has been able to monitor the 742 inaccessible components in November, and it was determined that none were leaking. These components will continue to be monitored in 2024.

□ Robin noted that the threshold for benzene was also reduced from 1% to 0.5%, leading to a higher number of components to be included in the LDAR Program.

4.0 REGULATORY UPDATES

□ Kate presented the regulatory updates since the last meeting.

□ Rain Carbon continues to meet monthly with the MECP since Spring 2023.

□ Two applications have been submitted: the SSS Application and the ECA Amendment Application.

□ First set of comments from the MECP was received on September 1, 2023, and Rain Carbon submitted responses to these comments.

□ Rain Carbon is continuing to implement the Abatement Plan that has already been discussed at previous meetings.

□ Second set of follow-up comments from the MECP was received on November 16. Comments will be addressed in a revised ESDM Report and discussed with the MECP.

□ Rain is required to use a 3rd party consultant to develop a detailed LDAR Program specific to the Hamilton facility requirements by Feb 15, 2024.

5.0 ABATEMENT PLAN UPDATE

□ Gord presented an update on the abatement plan.

□ The LDAR Program, which is part of the Abatement Plan, included additions to the LDAR Program as a result of the recommendations from the LDAR Audit.

□ Gord commented that one of Rain Carbon’s initiatives is to isolate the light oil and tar acid oil tanks from the FGI System and provide those tanks with their own emission controls equipment making a significant improvement in the remaining FGI System which, in turn, will result in better vapor quality for those tanks.

□ Three groups of tanks have been created for similar products, each with its own emissions control:

o Tanks 13, 14, 25 – light oil and tar acid oil – This group involves the lightest distillates which contain the most benzene. They will now be isolated so that their vapours are contained and don’t spread to other tanks.

o Tanks 15, 21, 26, 39, 40 – naphthalene oil, heavy aromatic oil, and refined tar – This group involves the heavier distillates which do not contain benzene and are protected from the lighter distillates.

o Tanks 1 -5, 7-11, 51, 52, 70 – coal tar, heavy aromatic oil – This group has not been assembled yet and involves other products containing benzene.

□ The truck loading spot 1 has fully automated loading capability since the fall shutdown (October 2023). This will eliminate operator issues and provide more consistent emissions control for truck loading.

□ The upgrading of existing coal tar pitch pumps to reduce B(a)P fugitive emissions involves replacing these pumps with new style pumps, which will be centrifugal pumps with double mechanical seals, which have better emission

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control. Rain Carbon has already completed P4 N/S and P13 E. P-42 N, P-202 N/S, and P-201 N/S are to be completed. There are 7 pumps collectively and three have already been done.

□ The pilot project to install hermetic pump (seal less pump) in coal tar oil service will be done on the P105 E/W pumps - both pumps are in the coal tar oil service. A test is targeted in December 2023.

□ The new coal tar pitch cooler will be different than the traditional steam-based cooler that Rain Carbon currently uses. Rain Carbon will use the hot oil cooling approach instead of steam for better temperature control with reduced

variability while minimizing coal tar pitch high temperature excursions. This will help reduce fugitive emissions during vehicle loading. The equipment has been installed and will be commissioned in December 2023.

6.0 TK-6 INCIDENT

- Gord discussed an incident which occurred to Tank 6 on October 23, 2023
- On September 14, a Rain Carbon employee noticed an odour associated near TK-6 (storage tank for process wastewater generated in distillation units). An investigation revealed a small hole in the top section of the tank (vapour section) due to corrosion under the insulation. A repair was made the next day on September 15 by an external company.
- On September 18, the odour was noticed again at TK-6. More insulation was stripped off and two additional small holes were found. Repairs were made on September 19 and measurements using the TVA 2020 confirmed successful repairs.
- An inspection company completed tank wall thickness measurements on the entire top tank shell on October 17 to identify any other possible weak areas of the tank. The contractor prepared a detailed repair plan for the top shell plates which was shared with the MECP.
- On October 19, the patch repair was inspected by Rain Carbon and was found intact.
- On October 23, the MECP mobile emissions testing unit took place on Strathearne Ave downwind of TK-6. The plant was in the Fall shutdown with all the units down and only coal tar feedstock receiving was active. Rain Carbon checked TK-6 and found the patch had separated from the shell, likely due to the new activity from coal tar loading. This was repaired immediately, and subsequent testing showed low VOC emissions.
- Since October 24, Rain Carbon has tested TK-6 daily for leaks at several points and reported results daily to the MECP. To date, the latest temporary repairs remain in good condition. Final repair of the top tank shell is planned and the contractor mobilized this week to place new metal sheets on top of older ones. The target is to complete this in middle of December 2023.
- Neil stated that the MECP identified the incident as a significant issue but was pleased to see that there were no major concerns in the nearby residential neighborhood. Measurements were immediately taken downwind in nearby residential areas, and it was found that the benzene concentrations were much lower (around 2.5 ug/m₃ – below the AAQC). It is believed that the higher concentrations from the tank were due to the tank being close to the analyzer.
- Pascale asked if there are plans to proactively identify leaks like the one in TK-6.
- o Gord answered that when tanks are taken out of service to be cleaned, it allows Rain to inspect them thoroughly to see if repairs are needed.
- o Denis added that the enhanced LDAR Program should expect to identify any holes or defects in the tanks at an earlier stage.

7.0 2024 EMT MEETINGS

- Date of the next meeting – February 2024 (tentatively February 28, 2024).
- The format of the next meeting will be virtual.
- Potential topics for next meeting: Air quality monitoring and Abatement Plan updates.



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