O.Reg. 206/24 – Air Pollution – Discharge of Benzene from INEOS Styrolution
Hourly (February 24, 2025) and 24-hour Benzene Exceedances (February 24, 2025)

Ontario Regulation 206/24: Air Pollution – Discharge of Benzene from INEOS Styrolution ("O.Reg. 206/24") requires a report to be submitted to the District Manager of the Ministry of the Environment, Conservation and Parks' ("MECP") Sarnia District Office, the Chief of the Aamjiwnaang First Nation ("AFN"), and the Ministry's Spills Action Centre within 14 days after an exceedance notification. This report describes the benzene concentration measured at eGC#3 above 90 µg/m^3 over any hour that occurred on February 24, 2025, and above 30 µg/m^3 over the preceding 24-hour period on February 24, 2025 (MECP Reference #1-HUSLRB).

This report contains the information requested in the regulation to the best of our abilities, with the understanding that eGC emission contributors cannot be considered with 100% certainty, as it is difficult to find exact source of emissions from such low concentrations. However, INEOS Styrolution has made every effort reasonable to attempt to identify any potential processes, events and/or sources from onsite activities during this period that may have contributed to the final value. The attached table summarizes these findings.

Summary of Hourly Exceedances on February 24, 2025:

Time Period	Measured Benzene Concentration (Rolling Hourly Average - µg/m^3)	Wind Direction	Wind Speed (km/hr)
08:36	336.24	SSW	9.3
19:46	86.55	SSW	9.4
20:46	190.19	S	7.5
21:26	95.01	SW	12.5

Summary of 24-hour Exceedance on February 24, 2025 (for preceding 24-hours):

Time Period	Measured Benzene Concentration (Rolling 24-hour Average - µg/m^3)	Wind Direction	Wind Speed (km/hr)
20:06	27.87	S	11.9
21:06	34.0	SSW	4.9
22:06	34.82	WSW	5.5
23:06	34.71	SSW	13.9

Analysis of the Contravention:

MT303 is a benzene storage tank at the Styrene II site. As per Provincial Officer's Order (1-208079516) a thermal oxidizer was installed on tank MT303 designed with benzene destruction efficiency of 99.9% on November 30, 2023, and the tank was completely enclosed in October 2024 to further support emission reduction. Operations remain shut down and idle during the time period of February 24, 2025. The thermal oxidizer with its 99.9% destruction efficiency paired with complete enclosure has assisted with keeping emission levels well below the hourly benchmark of 90 µg/m3 and below 30 µg/m3 over a 24-hour period for majority of the time.

On February 24, 2025, at 08:40 the site received an exceedance alert from eGC#3. Operations checked the area for potential sources of elevated benzene emissions. No measurable readings were detected in the area of MT303 or the frac tanks. At that time there was no work on-going at the frac tanks and no evidence linking the frac tanks to the alerts. Our third-party consultant confirmed that the unit calibrations passed and that the readings appeared valid.

On the same day, around 20:30, the site received another elevated alert from eGC#3. Operations again inspected the area of MT303 and upon further investigation found a cracked pressure gauge on a benzene fill line to the tank that had released a small volume of liquid/ice Benzene. Operations

quickly responded by isolating both valves on either side of the pressure gauge. The diminutive volume of liquid/frozen Benzene was cleaned up, and securely stored in the hazardous waste laydown area. The waste storage area is being monitored to ensure no benzene emissions are being emitted while the site awaits waste pick-up. eGC#3 values steadily decreased to less than detectable. An aerial view of contamination location with eGC#3, MT-303 tank along with the wind direction is included (see Figure 1).

Root cause for the exceedance was determined to be the cracked pressure gauge due to moisture accumulation at a low point and freezing temperatures. It is theorized that the initial crack occurred in the pressure gauge around 8:30 in the morning when the first alert was received followed by the exceedance alerts later that night.

In conclusion, Operations will be conducting routine walkthroughs of the unit, inspecting for similar low points and other potential sources of benzene emissions in gauges and piping.

Corrective Action:	**Implementation Date:**
Investigation initiated after first exceedance alert.	February 24, 2025, 08:30: No contributing factors found.
Investigation resumed around tank MT303 after second alert to find any other potential sources of benzene.	February 24, 2025, 20:30: Elevated emissions coming from cracked pressure gauge on a benzene fill line to MT303 releasing diminutive volume of liquid/ice Benzene.
Cracked pressure gauge was isolated by blocking in valves on both sides.	February 24, 2025, 23:00 Reduced readings around MT303 fill line area, reduced readings at eGC#3 and ceased all alerts.
The diminutive volume of liquid/frozen benzene was cleaned up, and securely stored in the hazardous waste laydown area.	February 24, 2025, waste stored in the hazardous waste laydown area awaiting removal from site.
Operations to look for similar low points and other potential sources of benzene emissions in gauges and piping.	As a part of routine rounds, operations will check for drips, odours, leaks, in the entire area each shift (twice a day).

Figure 1: Aerial View of Contamination Area, eGC#3, and MT303