

**O.Reg. 206/24: Air Pollution – Discharge of Benzene from INEOS Styrolution
2-week Benzene Exceedance (September 24, 2024 – October 8, 2024)**

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 Park’s (MECP) Sarnia District Office, the Chief of the Aamjiwnaang First Nation (AFN), and the MECP’s Spills Action Centre within 14 days after an exceedance notification. This report describes the discharge above 14 µg/m³ over a two-week period that occurred between September 24, 2024 – October 8, 2024, at Property Line Monitoring Station #10.

This report contains the information requested in the order and regulation to the best of our abilities, with the understanding that property line monitoring (“PLM”) contributors cannot be considered with 100% certainty, as there can be many factors affecting the PLM values over any 14-day period. However, we have made every effort reasonable to attempt to identify potential processes, events and/or sources from onsite activities during this time period that may have contributed to the exceeded limit. The attached table summarizes these findings.

Summary of Exceedance:

Time Period:	September 24, 2024 – October 8, 2024
Station # and Measured Benzene Concentration:	Station 10: 21.3 µg/m ³
Operating Condition:	Shutdown/idle state
Wind Direction:	
Wind Speed (km/h):	

Analysis of the Contravention:

Tank 8 is a benzene storage tank at the Styrene 1 site (located offsite and primarily used for storage). Operations remained shutdown and idle during the time period of September 24, 2024 – October 8, 2024. The design specifications to safely store material and maintain the integrity of Tank 8 requires vents to be opened for sufficient pressure/vacuum relief and to minimize organic vapor accumulation in the tank vapor space below flammable concentrations. A Thermal Oxidizer with a 99.9% destruction efficiency was installed on Tank 8 in 2021 and has assisted with keeping emission levels below the previous hourly benchmark of 580 µg/m³ and below 30 µg/m³ over a two-week for a majority of the time. However, due to the open vents and normal rim and deck seal losses from storage tanks there are routine atmospheric benzene emissions from Tank 8 that are not captured by the Thermal Oxidizer. Further, wind and ambient temperature conditions can influence the emission loss from the storage tank.

Property Line Monitoring (“PLM”) Station #10 is located next to Tank 8 at Styrene 1; as a consequence of its close proximity to the tank, it was concluded that the exceedance was likely due to normal breathing emissions from the tank as well as the benzene removal activities that began on October 2nd. Emission reduction efforts and engineering evaluations were completed to support removing benzene from Tank 8. On October 1st, INEOS Styrolution began opening the vents on Tank 8 in order to commission a larger Thermal Oxidizer to control emissions during the upcoming benzene removal activities. Subsequently, benzene was removed from Tank 8 on October 2nd and the internal floating roof was landed on October 3rd.

A third-party company that specializes in controlling emissions during tank de-inventory activities was engaged throughout the entire process; however it was expected that there would be increased emissions from Tank 8 during the benzene removal activities which exceeded 14 µg/m³ over the 2-week averaging period. With that understanding, INEOS Styrolution has been actively working in collaboration with MECP, AFN, Environment and Climate Change Canada (“ECCC”) and the City of Sarnia over the last few months to develop a benzene removal plan for Tank 8 that minimizes emissions, provides open communication, includes proactive air monitoring and prioritizes the removal of benzene in a safe and responsible manner. On August 14, 2024, INEOS Styrolution received approvals of the site’s Suspension Plan (including the removal of benzene from Tank 8). This written approval from MECP allowed INEOS Styrolution to begin coordinating resources from various third-party suppliers and transportation services to receive and transport benzene while controlling emissions.

This approved plan includes the requirement to seal tank MT303 prior to transferring the remainder of benzene material from Tank 8 to tank MT303. Several steps have been taken to proceed towards the benzene removal plan as soon as possible:

- Completed risk assessment for sealing tank MT303.
- Scheduled and secured resources for controlling emissions during landing the floating roof of Tank 8.
- Completed third-party engineering assessment with design specifications for MT-303 PVRV, nitrogen regulator, pressure transmitter and emergency valve.
- Ordered equipment with expedited delivery.
- Arrange variety of logistics for the benzene removal plan (select temporary pump, schedule community air monitoring, diesel, etc).

A schedule (start and duration) of each step of the benzene removal plan was provided to MECP, AFN, ECCC and City of Sarnia on September 1, 2024, along with weekly updates. The removal of benzene from Tank 8 was completed on October 6, 2024. Fenceline emissions at the Styrene 1 site are very low; it was confirmed on October 9, 2024 that Tank 8 met ECCC Interim Order (section 4) requirements of “not in service”.

In conclusion, benzene removal from Tank 8 has eliminated this source of benzene that likely contributed to this exceedance and the corrective action has been completed to date as shown below:

Corrective Action:	Implementation Date:
Remove benzene from Tank 8 to eliminate this source of benzene at the Styrene 1 site.	Benzene removal activities were completed on October 6, 2024. Measurements of LEL% were taken inside the tank on October 9, 2024 (above and below the internal floating roof) to verify that the tank is “not in service” as per the ECCC Interim Order.