Durham York Energy Centre

Long-Term Sampling System

Quarterly (Q1) Report

February 2026 to April 2026

Prepared by

The Regional Municipality of Durham

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1. Introduction

This report provides additional details with respect to the reporting of operational data related to the AMESA Long-Term Sampling System (LTSS) for dioxins and furans at the Durham York Energy Centre (DYEC).

This report covers the first quarter (Q1) of 2026 and includes AMESA data collected from February 5 to April 22, 2026.

2. Background

To meet the requirements of Environmental Compliance Approval (ECA) Condition 7(3), a continuous sampling system (the Adsorption Method for Sampling dioxins and furans (AMESA) LTSS) is installed on each of the two boiler units at the DYEC to sample dioxins and furans.

The operation of the AMESA system was initiated in 2015 and has been maintained in accordance with guidance from the AMESA manufacturer, the North American vendor ENVEA, and the AMESA Technical Manual.

The AMESA system is used only for the purpose stated in ECA Condition 7(3), which relates to dioxins and furans emissions trend analysis and evaluation of Air Pollution Control equipment performance. The AMESA results alone do not constitute a compliance point for the facility operations.

ECA Condition 7(3), Testing, Monitoring and Auditing Long-Term Sampling for dioxins and furans, states:

a) The Owner shall develop, install, maintain, and update as necessary a long-term sampling system, with a minimum monthly sampling frequency, to measure the concentration of dioxins and furans in the Undiluted Gases leaving the Air Pollution Control (APC) Equipment associated with each boiler.

b) The Owner shall evaluate the performance of the long-term sampling system in determining dioxins and furans emission trends and/or fluctuations as well as demonstrating the ongoing performance of the APC Equipment associated with the boilers.

AMESA results are available at the site when requested by the Ministry of Environment, Conservation and Parks (MECP) and reported to the MECP as part of the Annual Report required by ECA Approval Condition 15 and posted to the DYEC website.

As the results of the LTSS AMESA sampling are reported annually as a 12-month rolling average to the MECP and contained in the Annual Report, a request from the public was suggested to provide more frequent updates. In 2021, Regional Council issued a directive to enhance the frequency of updates. Hence, verified and calculated results for the AMESA sampling runs for both boiler units are prepared quarterly. These reports are prepared and subsequently published on the DYEC website.

3. Cartridge Replacement Schedule

The AMESA sampling cartridge is placed in situ for approximately 30 days in each boiler unit before it is removed and sent to the laboratory for analysis. As each boiler unit AMESA system is independent, the cartridge duration may differ between the two units due to alternating maintenance activities.

Table 1: AMESA Cartridge Replacement Schedule

Unit	Run	Start Date	End Date	Duration (days)
1	114/115*	February 5, 2026	March 20, 2026	31
2	114/115*	February 5, 2026	March 20, 2026	29
1	116	March 20, 2026	April 22, 2026	28
2	116	March 20, 2026	April 22, 2026	28

Note 1: The cartridge duration times may differ even though the start and end dates are the same for both boiler units.

***Runs 114 and 115 are part of the same sampling run.**

Runs 114 and 115 represent the same sampling run. The operating data were split between two run numbers due to an extended maintenance outage that occurred during the sampling period.

4. Laboratory Analysis

No issues were identified with the AMESA sample cartridges or the analysis at the laboratory.

5. Durham and York Regions and Reworld Monthly Data and Operations Review

Regional staff meet with Reworld on an established schedule to discuss facility operations and review environmental monitoring results, trends, and calculations where required for all monitoring programs, including the available AMESA results.

6. Oversight of AMESA Results

Representatives from the Regional Municipality of Durham, the Regional Municipality of York, Reworld, and the MECP meet quarterly to discuss matters related to the ECA, environmental monitoring programs, and facility operations. Concerns that are not deemed reportable incidents under the ECA are discussed during these meetings, along with routine operational and monitoring matters.

Any events the ECA deems reportable are done in accordance with the appropriate ECA condition.

Results of the AMESA LTSS are reported to the MECP in the DYEC Annual Reports and posted to the DYEC website. AMESA trends of validated data are presented as a 12-month rolling average together with an analysis to demonstrate the ongoing performance of the APC Equipment. The 2025 Annual Report has been posted to the DYEC website.

7. AMESA Performance

The measured concentrations for each of the 17 dioxin and furan congeners identified in the laboratory certificate of analysis are applied to established computations to obtain a result. These calculations quantify the dioxins and furans per cubic metre of gas at reference conditions. Standard temperature, pressure and oxygen correction factors are also applied to the measured concentration to obtain a value for regulatory comparison. Finally, each of the 17 dioxin and furan congeners is multiplied by their respective toxic equivalency factor (TEF) and added to obtain total dioxin and furan total toxic equivalence (TEQ). The ECA for the DYEC specifies the use of the NATO classification scheme for dioxins and furans; therefore, the NATO TEF factors are applied to obtain the TEQ calculation. Table 2 shows each AMESA sampling run, the start and end time the cartridge was in-situ for each boiler unit, and the calculated result.

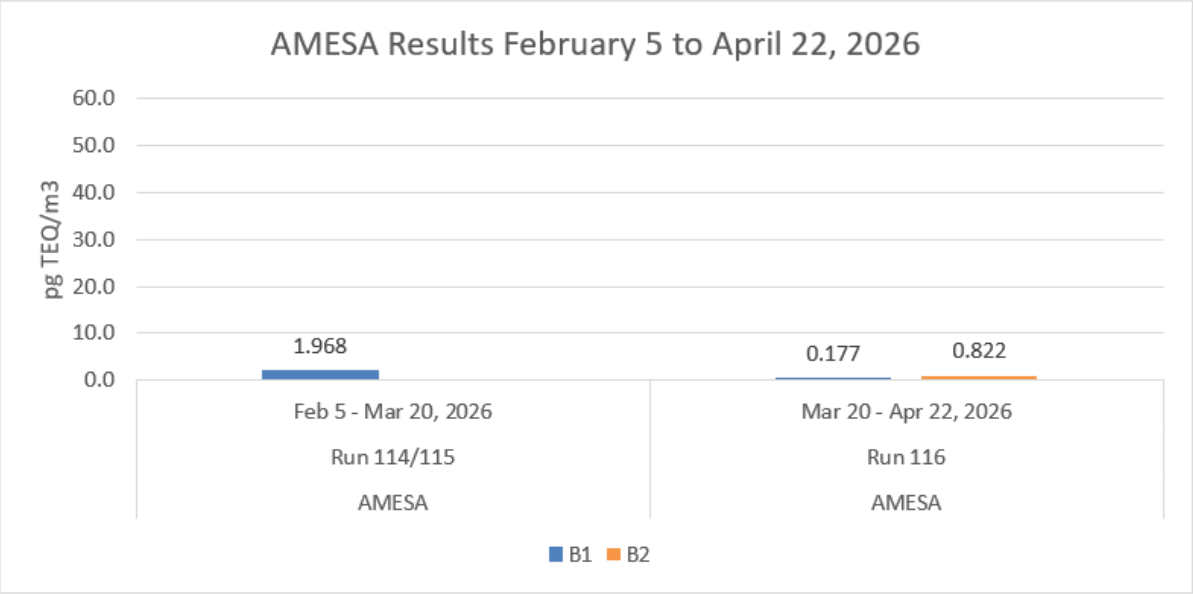
Table 2: AMESA Calculated Results

Unit	Run	Start Date	End Date	Calculated Result (pg TEQ/Rm^3)
1	114/115	February 5, 2026	March 20, 2026	1.968
2	114/115	February 5, 2026	March 20, 2026	Invalidated
1	116	March 20, 2026	April 22, 2026	0.177
2	116	March 20, 2026	April 22, 2026	0.822

Note 1: AMESA run 114 for Boiler 2 was invalidated (Refer to Section 7.1).

While AMESA has no regulatory limit associated with compliance as it is used to supplement source testing, the ECA directs that "The Owner shall evaluate the performance of the long-term sampling system in determining dioxin and furan emission trends and/or fluctuations as well as demonstrating the ongoing performance of the APC Equipment associated with the boilers." The Regions, their Engineering and Air Emissions oversight consultants, and Reworld will continue to monitor DYEC performance in relation to AMESA results and trends. Figure 1 displays the results of the AMESA sampling runs conducted in the first quarter (Q1) of 2026.

Figure 1: AMESA February 5 to April 22, 2026



Note 1: AMESA run 114 for Boiler 2 was invalidated (Refer to Section 7.1).

7.1 Investigation

During the first quarter (Q1) of 2026 the AMESA Investigation Checklist was triggered, and an investigation was initiated for Boiler 2, Run 114/115. The investigation determined that a boiler trip occurred during the sampling period, resulting in non-isokinetic sampling conditions. Under these conditions, the sample may not accurately represent stack emissions as the sampling velocity does not match the flue gas velocity. As a result, the sample was invalidated.

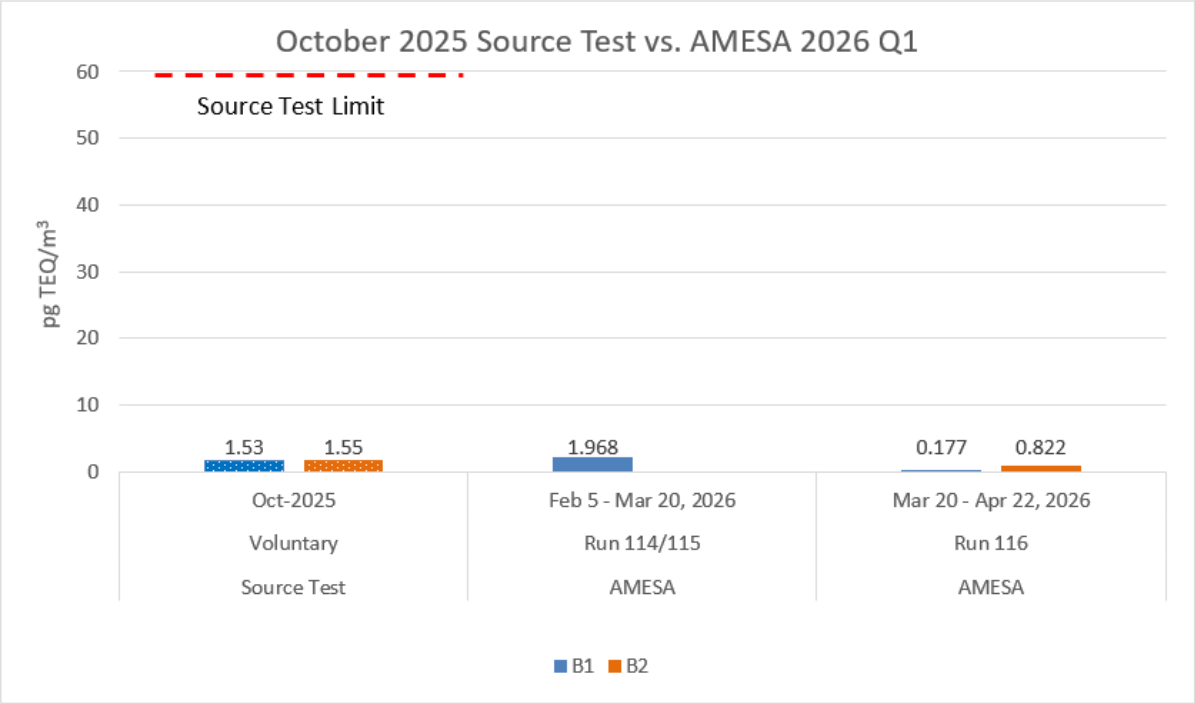
The investigation process identified the sampling issue, and the run was excluded from trend evaluation in accordance with established AMESA quality assurance procedures.

8. AMESA relative to most current Source Testing Dioxins and Furans Results

AMESA is not used to assess compliance and should not be evaluated against MECP standards, such as the dioxins and furans source testing limit. The comparison is provided for general context only and should not be interpreted as a direct comparison of compliance results because the sampling methods, durations and analytical approaches differ between the AMESA program and source testing.

The AMESA results are presented in Figure 2 to show how the Q1 calculated values compare to the most current source testing results. The source test compliance limit for dioxins and furans is 60 picogram Toxic Equivalency per cubic metre (pgTEQ/m3). The chart below shows the AMESA Q1 2026 results compared to the October 2025 voluntary source test results. Results from the October 2025 source test also indicated that the dioxins and furans results are below the regulatory compliance limit.

Figure 2: October 2025 Source Test Results vs. 2026 Q1 AMESA Results (pg TEQ/m3)



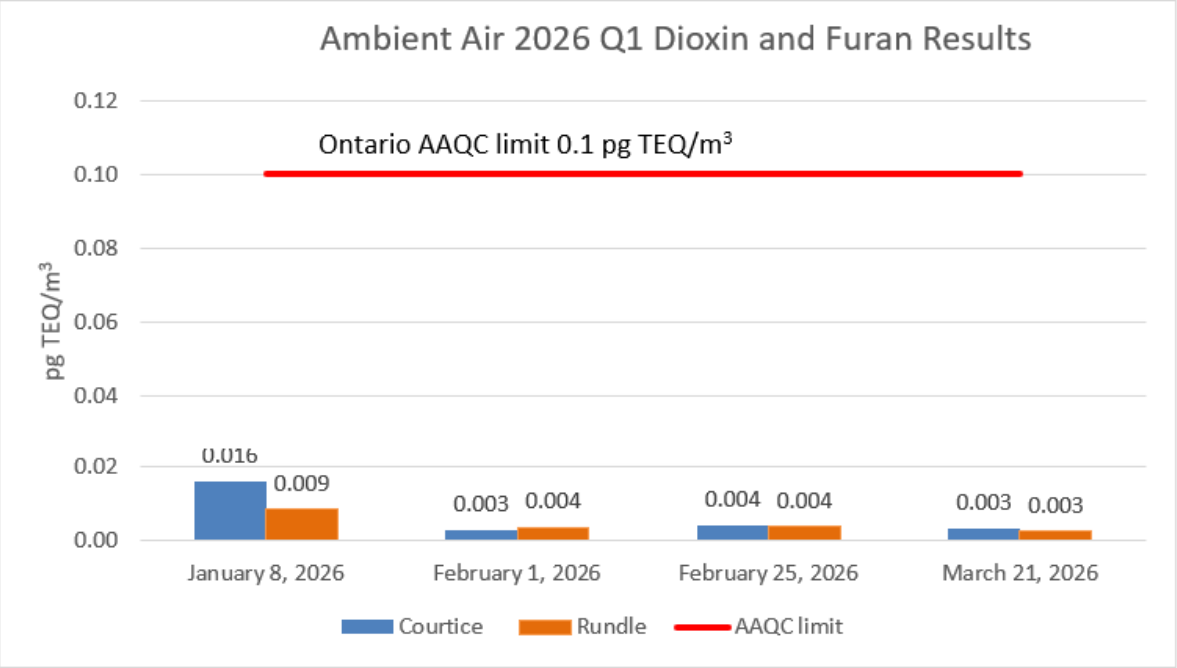
9. Ambient Air Dioxins and Furans Results – First Quarter (Q1) 2026

The ambient air monitoring program samples for dioxins and furans. The sampling methodology, units of measurement, and reporting limits are prescribed differently and cannot be compared directly to the source testing or AMESA results. The ambient air monitoring program does not measure point source emissions, but it provides an indication of local air quality. The monitoring equipment collects air samples, capturing ambient air emissions from various sources within the vicinity. The results from the ambient air monitoring provide insights into local air quality and may indicate potential factors influenced by meteorological conditions, including wind speed and direction.

Figure 3 illustrates the results of the first quarter (Q1) at the two ambient air stations near the DYEC. The dioxins and furans levels consistently remain below the Ontario Ambient Air Quality Criteria of 0.1 pgTEQ/m3.

Additionally, the Ontario Ambient Air Quality Criteria is 10 times lower than the Ontario Regulation 419 Upper Risk Threshold of 1 pgTEQ/m3 for dioxins and furans.

Figure 3: Ambient Air 2026 Q1 Dioxins and Furan Results



10. Conclusion

The valid AMESA results collected during the first quarter of 2026 remain within the range of results previously observed at the facility. One Boiler 2 sampling run was invalidated following an investigation that identified non-isokinetic sampling conditions associated with a boiler trip during the sampling period. The invalidated run was excluded from trend evaluation in accordance with established quality assurance procedures.

End of Report