

Delegation to Works Committee
May 8, 2024

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Report #2024-WR-5

**Durham York Energy Centre – Analysis of Ambient Air and
Emissions Monitoring to Identify Local Airshed Impacts**

Executive Summary page 5

The **hypothesis in the research** assumed that if the DYEC contributed emissions that impacted local air quality, it would be observed in the change in air pollution concentrations between the upwind ambient air monitoring data and the downwind ambient air monitoring data. **The increases would occur if the DYEC were adding to the background concentrations of air pollutants.** The analysis leverages the long-term ambient air monitoring from the Courtice and Rundle Road ambient air monitoring sites and includes continuous emission monitoring concentrations from the DYEC. The monitoring is conducted as part of the DYEC's Ambient Air Quality Monitoring Plan and Air Emissions Monitoring Plan.

Report: research or established science?

Dictionary

Definitions from [Oxford Languages](#) · [Learn more](#)



hy·poth·e·sis

/hī'pāTHēsəs/

noun

a supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation.

"professional astronomers attacked him for popularizing an unconfirmed hypothesis"

Similar:

theory

theorem

thesis

conjecture

supposition

speculation



- **PHILOSOPHY**

a proposition made as a basis for reasoning, without any assumption of its truth.

"the **hypothesis** that every event has a cause"

Executive Summary Concluding Statement is nonsensical and unsupported.

It can be concluded that the DYEC's Air Emissions Monitoring Plan effectively controls emissions so that it does not make any significant contributions to air pollution in the local airshed.

Definition of Impact Misleads, Highly Inappropriate; Methodology Fundamentally Flawed

DURHAM YORK ENERGY CENTRE
ANALYSIS OF AMBIENT AND EMISSION MONITORING TO IDENTIFY LOCAL AIRSHED IMPACT

July 17, 2023

1 STUDY OBJECTIVE

This study aims to determine if the Durham York Energy Centre (DYEC) emissions impact air quality in the local airshed. **An impact is defined in this study as a statistically significant increase in any air pollutant measured relative to the background concentrations.** Statistically significant increases would occur when concentration changes are outside of the natural variation in the monitoring data, i.e. it is due to an outside factor and not measurement error. Ambient air quality measurements, such as those utilized in this work, quantify the sum of local, regional, and transboundary sources of natural and anthropogenic pollution. In this report, we overcome regional and transboundary source influences because of the short distance between the upwind and downwind monitoring locations; however, we have applied different approaches to control for other local emission effects.

Report contains errors

3.2 WIND DIRECTION ANALYSIS

Both Rundle Road and Courtice monitoring stations include measurements for wind direction and speed on an hourly basis. Data between January 2016 and June 2022 were analyzed to identify the frequency of upwind and downwind conditions for each monitor and crosswind conditions. Hourly measurements were averaged to daily wind direction and speed measurements by converting speed (m/s) and direction (degrees) into the component vector winds, which were then averaged (mean value) for each day and back-transformed to wind direction and wind speed. Wind calculations were conducted with the rWind package version 1.1.7 (Fernández-López and Schliep, 2019). Wind information was calculated daily to align with the 24-hour air sampling period.

Figure 3.1 presents a map of the ambient air monitoring locations and their relative positions to the DYEC. The pink line connecting the Courtice monitor to the Rundle Road Monitor is 46°, with north being 0°, which means the Rundle Road Monitor is directly downwind from the Courtice monitor when the wind direction is 224° (southwest wind); the Courtice Monitor is downwind from the Rundle Road monitor when the wind is blowing from the north east (46°). Therefore, measuring from the stack to each monitor in their downwind configuration would result in the

More Errors

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Courtice monitor being directly downwind during 43° winds and the Rundle Road being directly downwind during winds from 236° . For each wind observation, it was identified when the Courtice monitor was downwind from the stack (43°) and when the Rundle Road monitor was downwind from the stack (236°). We included ± 22.5 degrees in the downwind direction to ensure sufficient data. Observations that did not fall within either downwind classification were identified as crosswind conditions.

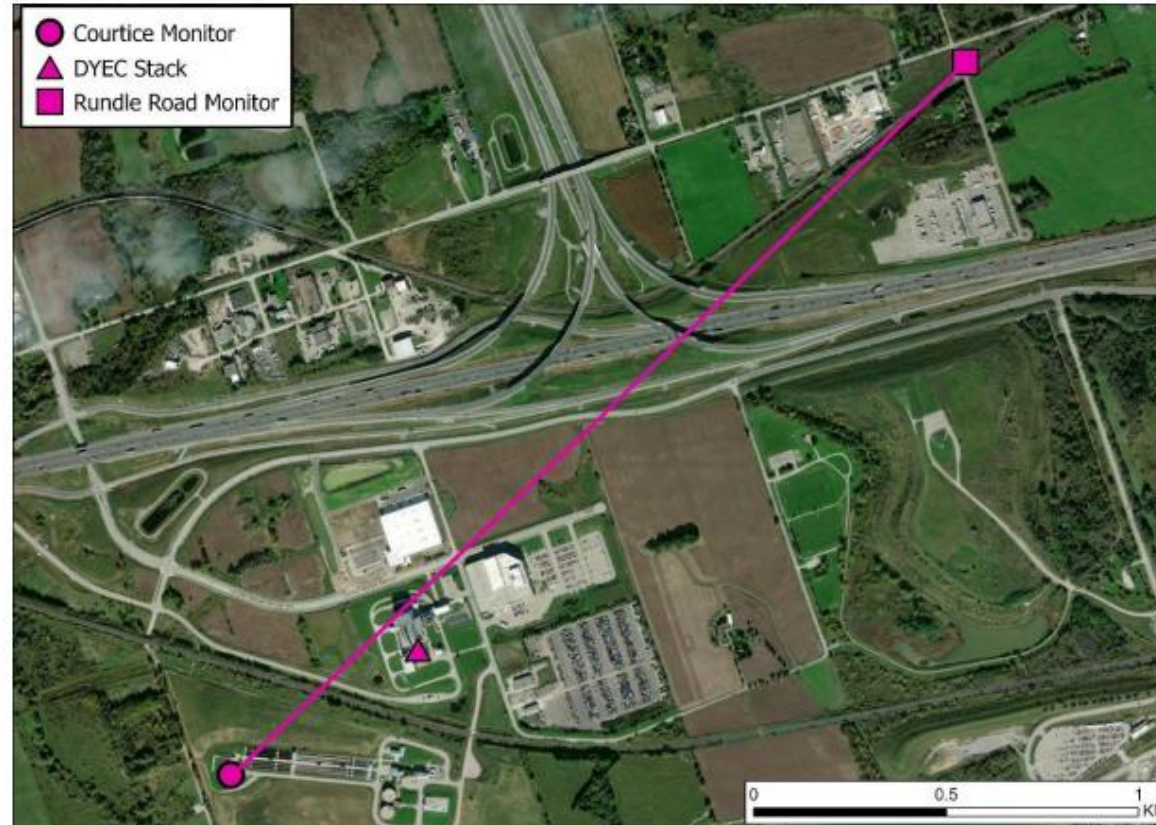


Figure 3.1 Map of Ambient Air Monitoring Locations Relative to the DYEC

Flawed Methodology

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Flawed Methodology

3.3.1 DISCRETE MONITORING AMBIENT DATA ANALYSIS

The pollutants measured with discrete monitoring were quantified into multiple chemical species in the laboratory, which allows for analysis of the specific components and the sum of their parts. The species analyzed for each pollutant class (PCDD/PCDF, PAH & TSP) are listed in Table 3.1. Each sample was a 24-hour integrated measurement, and the concentrations were determined by laboratory processing following sample collection.

Daily wind direction data were assigned to each 24-hour air pollution observation to identify upwind-downwind relationships between the air monitors and the DYEC stack. Downwind alignments are based on the relative position of the monitor to the emission stack. Concentration data for each pollutant were separated into the following three conditions: (1) Rundle Road monitor downwind (Courtice monitor upwind), (2) Courtice monitor downwind (Rundle Road monitor upwind), or (3) Crosswind conditions neither monitor downwind.

Regional Comparisons Misleading

4.5 REGIONAL EMISSIONS

Regional emissions will impact Durham and York Regions' airshed. Comparing the emission quantities from the DYEC with NPRI-reported regional emissions (NPRI Emissions in Durham and York Regions) contextualizes the scale of emissions. The emissions for each pollutant reported by the DYEC are compared against the regional outputs between 2015 and 2021, provided in Table 4.5. The DYEC emits 3.6 percent or less of total regional emissions for each pollutant reported to the NPRI. Ten reported pollutants represent less than one percent of regional emissions from the DYEC. Maps highlighting the percentage of regional emissions by location for each pollutant listed in Table 4.5 are available in Appendix C.

Unsupportable statement.

Misleading statement. Attachment #2, page 5

Attachment #2 to Report #2024-WR-5

DURHAM YORK ENERGY CENTRE

SUMMARY OF ANALYSIS OF AMBIENT AND EMISSION MONITORING TO IDENTIFY LOCAL AIRSHED IMPACT

July 17, 2023

DYEC's annual dioxins and furan emissions are emitted by Canada's largest emitter in less than one day.

The DYEC emits 0.63% of dioxins and furans yearly compared to Canada's forest fires.