REPORT

DURHAM YORK ENERGY CENTRE

COURTICE, ONTARIO

2022 Q4 AMBIENT AIR QUALITY MONITORING REPORT

RWDI #2205149

March 6, 2023

SUBMITTED TO:

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VERSION HISTORY

Index	Date	Pages	Author
1	February 10, 2023	All	Matt Agombar
2	March 6, 2023	All	Matt Agombar

1 INTRODUCTION

This is a revised version of the 2022 Q4 AMBIENT AIR QUALITY MONITORING REPORT as a result of PAH, Dioxin and Furans lab results that were unavailable at the time of reporting. These results have been added and updated in Table 9 - 12 and Appendix B.

RWDI AIR Inc. (RWDI) was retained by Durham Region and York Region (the Regions) to conduct discrete and continuous air quality ambient monitoring at the Durham York Energy Centre (DYEC) monitoring stations. The facility address is 1835 Energy Drive, Clarington, Ontario. The DYEC is a facility that manages post diversion municipal solid waste from Durham Region and York Region to create energy from waste combustion. Commercial operation of the DYEC commenced on February 1, 2016. The site location is shown below in Figure 1.

Condition 11 of the Environmental Assessment Notice of Approval and Condition 7(4) of the Environmental Compliance Approval (ECA) requires ambient air monitoring to be undertaken by the DYEC. An Ambient Air Monitoring and Reporting Plan was prepared and approved by the Ministry of Environment, Conservation and Parks (MECP) to satisfy these conditions. Two (2) monitoring stations were established to monitor ambient air quality around the DYEC and quantify the background ambient air quality levels and DYEC contributed emissions to ambient air quality levels.

This monitoring plan was developed based on the Regional Council mandate to provide ambient monitoring in the area of the DYEC. The purposes of the ambient monitoring program are to:

- Quantify any measurable ground level concentrations resulting from emissions from the DYEC cumulative to local air quality, including validating the predicted concentrations from the dispersion modelling conducted in the Environmental Assessment (2009a);
- Monitor concentration levels of EFW-related air contaminants in nearby residential areas; and,
- Quantify background ambient levels of air contaminants in the area.

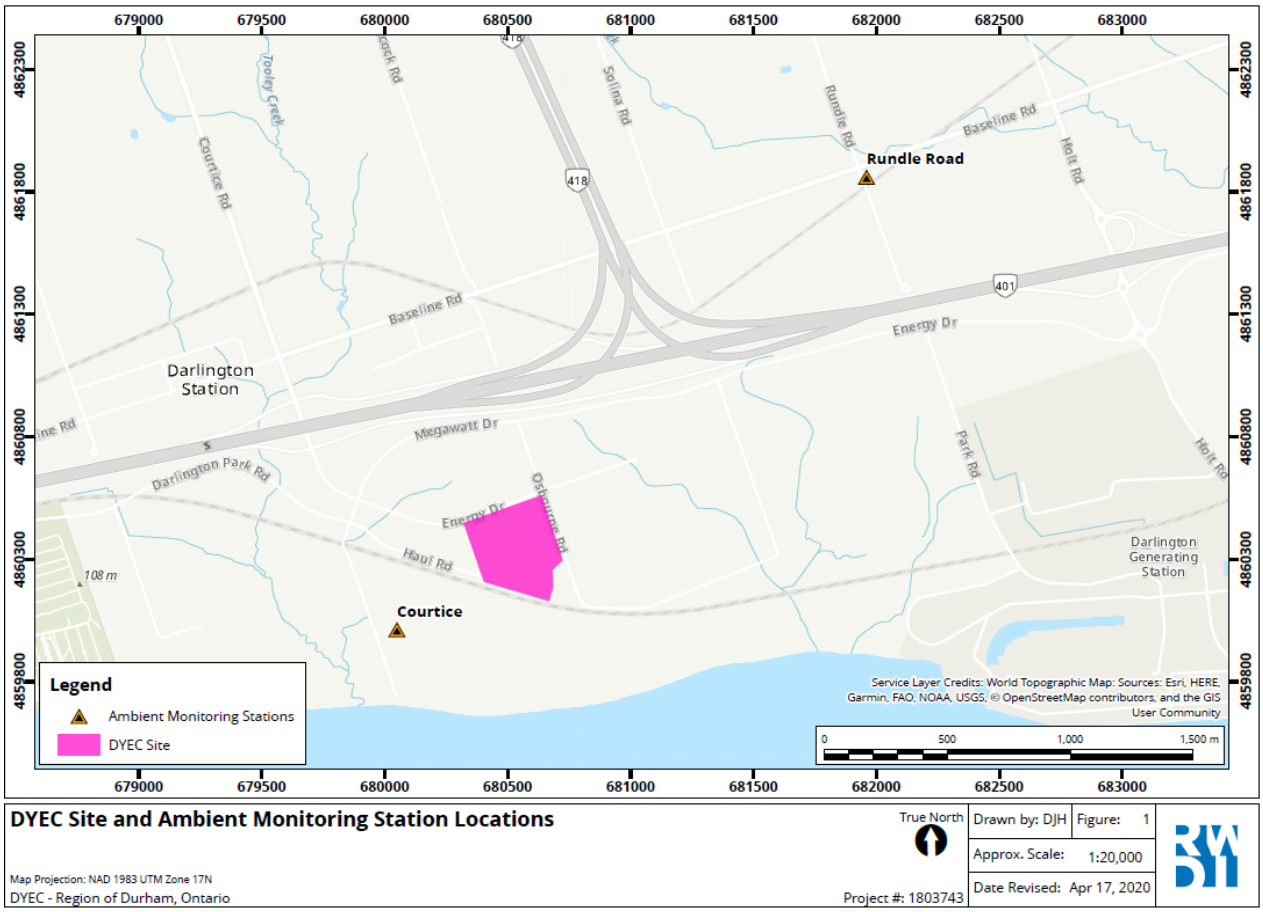
The facility has two (2) monitoring stations which collect continuous and discrete ambient measurements, known as the Courtice Station and Rundle Road Station. The station locations are shown in Figure 1. The Courtice and Rundle Road Stations were operational in May of 2013 and have been operated on behalf of the Region of Durham by Stantec Consulting Ltd. since that time up until July 31, 2018. RWDI has overseen the operation of the stations on behalf of the Region of Durham since August 1, 2018.

The Courtice and Rundle Road Stations continuously monitor the following air quality parameters: Particulate Matter less than 2.5 microns ($PM_{2.5}$), Nitrogen Oxides (NO_X) and Sulfur Dioxide (SO_2). In addition, both discretely monitor the following air quality parameters: Total Suspended Particulate (TSP), Metals, Dioxins and Furans (D&F) and Polycyclic Aromatic Hydrocarbons (PAHs).

Continuous meteorological data is collected at the Courtice and Rundle Road Stations. The Rundle Road Station collects the following meteorological parameters: wind speed, wind direction, ambient temperature, precipitation and relative humidity. The Courtice Station collects the following meteorological parameters: wind speed, wind direction, ambient temperature, ambient pressure, precipitation and relative humidity. The meteorological towers at both stations are approximately 10 meters tall.

Throughout this monitoring period there were sixty-two (62) exceedance events of the rolling 10-minute SO_2 AAQC and twenty-nine (29) exceedance events of the rolling 1-hour SO_2 AAQC at the Courtice station. There was one (1) exceedance of the Benzo(a) Pyrene AAQC, which occurred on November 1 at the Rundle Road Station. Data recovery rates were acceptable and valid for all measured Q4 continuous and discrete parameters.

Figure 1. DYEC Site and Ambient Monitoring Station Locations



1.1 Sampling Locations

The Station sites were selected in consultation with a working group that included representatives from the MECP, the Region of Durham, York Region, and the Energy from Waste Advisory Committee (EFWAC), as required by Condition 11.3 of the Environmental Assessment Notice of Approval. The Courtice Station is predominantly upwind of the DYEC and is located on the Courtice WPCP property just southwest of the DYEC. The Rundle Road Station is predominantly downwind of the DYEC and is located just southeast of the intersection of Baseline Road and Rundle Road just northeast of the DYEC. Pictures of the two (2) Stations are presented as Figure 2 and 3.

Figure 2. Rundle Road Station

Figure 3. Courtice Station

2 SAMPLING METHODOLOGY

The Rundle Road and Courtice Stations are both equipped with the following continuous monitors: Thermo Scientific Model 5030 SHARP (Synchronized Hybrid Ambient Real-time Particulate) monitor ($PM_{2.5}$ analyzer), Teledyne Nitrogen Oxides Analyzer Model T200 (NO_X analyzer), and a Teledyne Sulfur Dioxide Analyzer Model T100 (SO_2 analyzer). Both Stations also have the following periodic monitors: High Volume (Hi-Vol) Air Sampler outfitted with a TSP inlet head as approved by the United States Environmental Protection Agency (U.S. EPA), and a Hi-Vol Air Sampler outfitted with a polyurethane foam plug and circular quartz filter for measuring PAH's and D&F's as approved by U.S. EPA.

2.1 Nitrogen Oxide Analyzers

The Teledyne T200 Nitrogen Oxide (NO_X) analyzers use chemiluminescence detection, coupled with microprocessor technology to provide sensitivity and stability for ambient air quality applications. The instrument determines real-time concentration of nitric oxide (NO), total nitrogen oxides (NO_X) (the sum of NO and NO_2), and nitrogen dioxide (NO_2). The amount of NO is measured by detecting the chemiluminescence reaction that occurs in the reaction cell when NO molecules are exposed to ozone (O_3). The NO and O_3 molecules collide in the reaction cell and enter a higher energy state. When these excited molecules return to a stable energy state, they emit a photon of light which is proportional to the amount of NO in the sample stream of gas entering the analyzer. To determine the total NO_X ($NO+NO_2$) measurement, sample gas is periodically bypassed through a heated molybdenum converter cartridge that converts any NO_2 molecules in the sample stream into NO (any existing NO molecules in the stream remain as is). The instrument will switch the sample stream through the converter periodically and then through the reaction cell where the same chemiluminescence reaction occurs with ozone. The resultant response produced is now the sum of NO and converted NO_2 producing a NO_X measurement. The resultant NO_2 determination is the NO_X measurement subtracted from the NO measurement.

The NO_X analyzers were zero and span checked daily using the internal zero and span (IZS) system and calibrated once a month using either EPA protocol span gases and a dilution system or an ESA permeation tube calibrator. Automatic IZS checks were performed on a daily basis commencing at approximately 01:45 and ending at 02:15. The checks consisted of a 10-minute zero check, a 10-minute span check and a 10-minute purge. These checks provide a way to monitor daily performance of the analyzer using an external charcoal and purafil zeroing cartridge for the zero, and an internal permeation oven with a permeation tube for the span. These IZS checks are not for calibration purposes but are merely a diagnostic tool to identify instrument drift.

The instrument collects data using its own data acquisition system (DAS) on a 5-minute interval. Data is collected from the instrument directly to an EnviDAS logger at 1-min, 5-min and 60-min intervals. The logger can be accessed remotely, and all instrument parameters can be examined as well as the measurement data. This allows the tracking of instrument performance. Data was also collected at 1-minute intervals by an external datalogger using analog output connections as a back-up. The measurement data was averaged using Envista processing software over a 1-hour and 24-hour period to compare to the applicable ambient air quality criteria.

2.2 Sulphur Dioxide Analyzers

The Teledyne T100 Sulphur Dioxide (SO_2) Analyzer is a microprocessor-controlled analyzer that determines the concentration of SO_2 in a sample gas drawn through the instrument. In the sample chamber, sample gas is excited by ultraviolet light causing the SO_2 to absorb energy from the light and move to an active state (SO_2*). These active SO_2* molecules must decay into a stable state back to SO_2, and when this happens a photon of light is released which is recognized by the instrument as fluorescence. The instrument measures the amount of florescence to determine the amount of SO_2 present in the sample gas.

The SO_2 analyzers were zero and span checked daily using the IZS system and calibrated once a month using either EPA protocol span gases and a dilution system or an ESA permeation tube calibrator. Automatic IZS checks were performed on a daily basis commencing at approximately 01:45 and ending at 02:15. The checks consisted of a 10-minute zero check, a 10-minute span check and a 10-minute purge. These checks provide a way to monitor daily performance of the analyzer using an external charcoal and purafil zeroing cartridge for the zero, and an internal permeation oven with a permeation tube for the span. These IZS checks are not for calibration purposes but are merely a diagnostic tool to identify instrument drift.

The instrument collects data using its own data acquisition system (DAS) on a 5-minute interval. Data is collected from the instrument directly to an EnviDAS logger at 1-min, 5-min and 60-min intervals. The logger can be accessed remotely, and all instrument parameters can be examined as well as the measurement data. This allows the tracking of instrument performance. Data was also collected at 1-minute intervals by an external datalogger using analog output connections as a back-up. The measurement data was averaged using Envista processing software over a 1-hour and 24-hour period to compare to the applicable ambient air quality criteria.

2.3 SHARP 5030 $PM_{2.5}$ Analyzers

The SHARP 5030 is a hybrid nephelometric/radiometric particulate mass monitor capable of providing precise, real-time measurements with a superior detection limit. The SHARP incorporates a high sensitivity light scattering photometer whose output signal is continuously referenced to the time-averaged measurement of an integral beta attenuating mass sensor. The SHARP also incorporates a dynamic inlet heating system designed to maintain the relative humidity of the air passing through the filter tape constant.

The SHARP is calibrated once a month to ensure accuracy and validity of its data. The $PM_{2.5}$ inlet head and sharp cut cyclone is cleaned monthly as well to ensure proper performance. The monthly calibration process consists of the following: zeroing the nephelometer if necessary, calibration of ambient temperature, calibration of barometric pressure, and calibration of the flow.

The instrument collects data using its own data acquisition system (DAS) on a 5-minute interval. Data is collected from the instrument directly to an EnviDAS logger at 1-min, 5-min and 60-min intervals. The logger can be accessed remotely, and all instrument parameters can be examined as well as the measurement data. This allows the tracking of instrument performance. Data was also collected at 1-minute intervals by an external datalogger using analog output connections as a back-up. The measurement data was averaged using Envista processing software over a 1-hour and 24-hour period to compare to the applicable ambient air quality criteria.

2.4 TSP High Volume Air Samplers

The Tisch TE-5170 Total Suspended Particulate (TSP) high volume (Hi-Vol) air samplers were outfitted with a TSP gabled inlet capable of collecting particulate of all aerodynamic diameters. Each Hi-Vol is equipped with a mass flow controller, which ensures a flow rate of 40 cubic feet per minute (CFM), a chart recorder for measuring cfm flow throughout the run time, an elapsed timer and a wheel timer for starting and stopping each sample. In the latter part of 2019, the pin-based wheel timer was modified with an automated relay system controlled by a data logger to toggle the sampler on and off, and the chart recorder system was replaced by a digital pressure transducer to record the blower output pressure. Teflon coated glass fibre filters are outfitted at the top of the hi-vol samplers where air is drawn through the filter, thereby collecting TSP. Each Hi-Vol is calibrated quarterly (every three months) to ensure accuracy and validity of the volume of air drawn through the sampler.

The Teflon coated glass fibre filter media was pre and post weighed by ALS Laboratories in Burlington, Ontario. The filters are then analyzed for total particulate weight, metals analysis and mercury.

2.5 Polyurethane Foam Samplers

The D&F, and PAH samples were collected using Tisch TE-1000 samplers, which are listed as reference devices for U.S. EPA Methods TO-9 and TO-13. The samplers use a collection filter that is 'backed-up' by a polyurethane foam (PUF) plug. The airborne compounds present in the particulate phase are collected on the Teflon coated glass fibre filter and any compounds present in the vapour phase are absorbed in the PUF plug. Each PUF sampler is equipped with a mass flow controller, which can sustain 8 CFM of flow over the sampling period, an elapsed timer and a wheel timer for starting and stopping each sample. In the latter part of 2019, the pin-based wheel timer was modified with an automated relay system controlled by a data logger to toggle the sampler on and off, and the chart recorder system was replaced by a digital pressure transducer to record the blower output pressure. Each PUF sampler is calibrated quarterly (every three months) to ensure accuracy and validity of the volume of air drawn through the sampler.

The filter and PUF media/glassware is proofed and analyzed by ALS Laboratories in Burlington, Ontario. The filters and PUF/XAD plugs are then analyzed for PAH's and D&F's.

2.6 Meteorological Towers

Meteorological data was collected from the Rundle Road and Courtice Stations. This is done so that a vector could be associated with the applicable contaminant concentrations. The Rundle Road and Courtice Stations are outfitted with a Campbell Scientific HMP60 Temperature / Relative Humidity probe, and a Texas Instruments TE525M rain gauge. Meteorological data was collected at 1-minute intervals and was averaged using Envista processing software over a 1-hour period.

3 AIR QUALITY CRITERIA AND STANDARDS

The monitored contaminant concentrations were compared to air quality criteria and standards set by the MECP and by Environment Canada. The MECP developed Ambient Air Quality Criteria (AAQCs) which are the maximum desirable concentrations in the outdoor air, based on effects to the environment and health (MECP, 2012). Not all contaminants have an applicable regulatory limit; therefore, other criteria were used for comparison. These included human health risk assessment (HHRA) criteria.

Environment Canada has established a Canadian Ambient Air Quality Standard (CAAQS) which are health-based air quality objectives for the outdoor air (Environment Canada, 2013). The current CAAQS' for $PM_{2.5}$ are 27 µg/m^3 for the 3-year average of annual 98th percentile 24-hour concentration, and 8.8 µg/m^3 for the 3-year average of annual average concentrations (in effect as of 2020). The CAAQS' are listed in **Table 1**. No direct comparison to the 2020 CAAQS' is appropriate for this report, as the standards are only applicable to 3-year averaged data which is provided in the annual reports.

Table 1. $PM_{2.5}$, SO_2 and NO_2 CAAQS' by Implementation Year

Parameter	Averaging Time	Year Applied		Statistical Form
		2020	2025	
Fine Particulate Matter ($PM_{2.5}$)	24-hour	27 µg/m^3		The 3-year average of the annual 98th percentile of the daily 24-hour average concentrations
	Annual	8.8 µg/m^3		The 3-year average of the annual average of all 1-hour concentrations
Sulphur Dioxide (SO_2)	1-hour	70 ppb	65 ppb	The 3-year average of the annual 99th percentile of the SO_2 daily maximum 1-hour average concentrations
	Annual	5 ppb	4 ppb	The average over a single calendar year of all 1-hour average SO_2 concentrations
Nitrogen Dioxide (NO_2)	1-hour	60 Ppb	42 ppb	The 3-year average of the annual 98th percentile of the daily maximum 1-hour average concentrations
	Annual	17 Ppb	12 Ppb	The average over a single calendar year of all 1-hour average concentrations

(CCME,2019)

All applicable criteria and standards are shown in the 'Summary of Ambient Measurements' section of this report.

4 MECP AUDITS

An MECP audit took place on October 27, 2022. While all instruments met their respective audit criteria, one issue was identified. The Rundle Road station TSP hi-vol sampler was noted to have an elevated flow rate but was still within acceptable limits. This will be addressed during the hi-vol calibration in Q1 of 2023. All TSP sample volumes at Rundle Road were within the acceptable limits for Q4 of 2022.

5 SUMMARY OF AMBIENT MEASUREMENTS

Ambient air quality monitoring results for all contaminants sampled at the Courtice and Rundle Road Stations are discussed herein. Summary statistics from October to December 2022 are presented in a summary format below and in a more detailed matrix format in **Appendix A** for continuous measurements and **Appendix B** for discrete measurements.

5.1 Meteorological Station Results

5.1.1 Courtice Station Results

The Courtice Station collected the following meteorological parameters: wind speed, wind direction, relative humidity, ambient temperature, ambient pressure and precipitation. The meteorological tower at the station is at a height of approximately 10 meters tall. The Courtice Station maintained a minimum average of 90% of data collection for all of the parameters measured during Q4. Hourly statistics from the meteorological station are presented in **Table 2**. A wind rose showing trends in wind speed and wind direction during Q4 is provided in **Figure 4**.

Figure 4. Wind Roses of Hourly Wind Speed and Wind Direction – October to December 2022

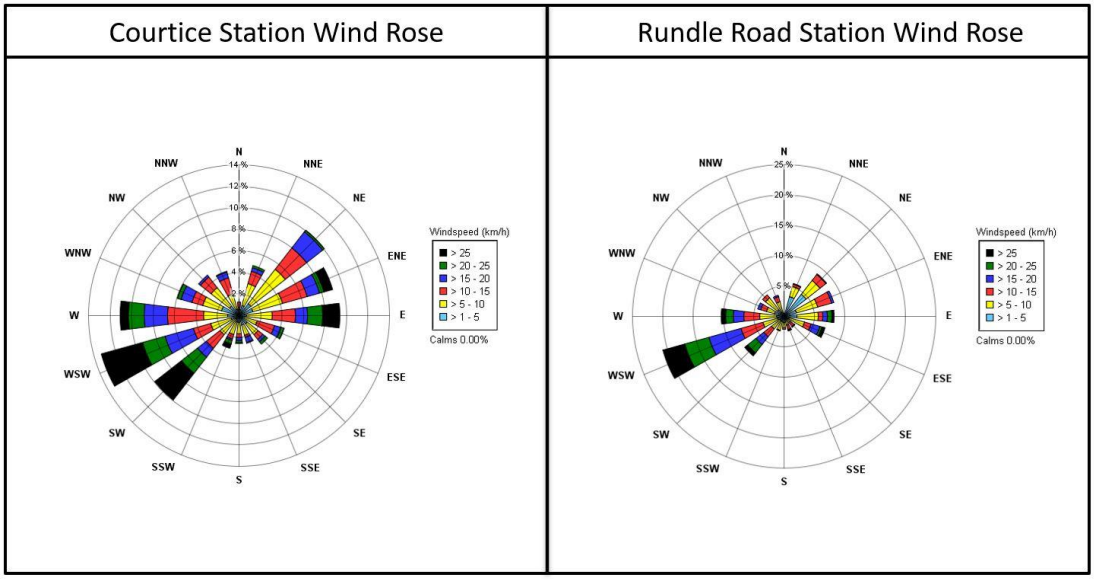


Table 2. Hourly Statistics from the Courtice Meteorological Station

October	36.0	19.0	100.0	30.3	4.8	0.6	1.0	28.7	29.2	0.0	10.7	9.7	70.1	29.7	0.1	30.3	76.7	74.7	76.7	76.7	76.7	77.3
November	46.9	18.7	100.0	30.5	4.3	0.2	-5.1	29.1	29.0	0.0	12.3	5.0	71.6	29.8	0.1	47.5	100.0	97.4	100.0	100.0	100.0	99.9
December	58.9	9.4	100.0	30.2	3.1	0.3	-11.2	40.3	28.6	0.0	16.9	0.0	70.6	29.8	0.1	63.4	99.9	98.8	100.0	100.0	100.0	99.9
Q4 Arithmetic Mean											13.3	4.5	70.8	29.7	0.1	141.2	92.1	90.2	92.2	92.2	92.2	92.3

5.1.2 Rundle Road Station Results

The Rundle Road Station collected the following meteorological parameters: wind speed, wind direction, relative humidity, ambient temperature and precipitation. The meteorological tower at the station is at a height of approximately 10 meters tall. The Rundle Road Station maintained a minimum average of 85% data collection for all of the meteorological parameters measured during Q4. Hourly statistics from the meteorological station is presented in **Table 3**. A wind rose showing trends in wind speed and wind direction during Q4 is provided in **Figure 4**.

Table 3. Hourly Statistics from the Rundle Road Meteorological Station

Rundle Road Station MET Statistics	Maximum 1 hr Mean				Minimum 1 hr Mean				Monthly Mean				Total	% Valid Hours				
Parameter	**WS**	**Temp**	**RH**	**Rain**	**WS**	**Temp**	**RH**	**Rain**	**WS**	**Temp**	**RH**	**Rain**	**Rain**	**WS**	**WD**	**Temp**	**RH**	**Rain**
Units	**(km/hr)**	**(°C)**	**(%)**	**mm**	**(km/hr)**	**(°C)**	**(%)**	**mm**	**(km/hr)**	**(°C)**	**(%)**	**mm**	**mm**	**(%)**				
October	28.5	19.3	100.0	4.9	0.1	-0.8	32.6	0.0	8.0	8.9	77.5	0.1	35.8	76.5	73.1	76.5	76.5	76.7
November	42.4	20.8	100.0	4.4	0.1	-5.7	34.1	0.0	10.0	4.4	77.0	0.1	53.6	100.0	94.3	100.0	100.0	100.0
December	48.7	9.6	100.0	4.3	0.1	-12.4	46.7	0.0	13.7	-0.5	76.3	0.1	86.9	99.7	88.6	100.0	100.0	99.1
Q4 Arithmetic Mean									10.8	4.3	76.9	0.1	176.3	92.0	85.2	92.1	92.1	91.8

5.2 NO_X, SO_2 and $PM_{2.5}$ Summary Table Results

Table 4 provides a summary of Maximum 1-hour Rolling Means, Maximum 24-hour Rolling Means, Monthly Means, Quarterly Means and Percent valid data for the Courtice Station. **Table 5** provides a summary of Maximum 1-hour Means, Maximum 24-hour Means, Monthly Means, Quarterly Means and Percent valid data for the Rundle Road Station. **Table 6** provides a summary of exceedance statistics for both Courtice and Rundle Road Stations. At the Courtice Station, there were sixty-two (62) exceedance events of the rolling 10-minute SO_2 AAQC and twenty-nine (29) exceedance events of the 1-hour SO_2 AAQC in Q4.

Table 4. Summary of Courtice Station Continuous Data Statistics

Courtice Monitoring Station Data Statistics	Maximum Rolling 10 min Mean	Maximum Rolling 1 hr Mean					Maximum 24 hr Rolling Mean					Monthly Mean					% Valid Hours				
Compound	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2
Units	ppb	(µg/m³)	ppb				(µg/m³)	ppb				(µg/m³)	ppb				(%)				
AAQC/CAAQS	67				200	40	27[A]			100											
October	192.6	84.4	49.4	33.8	31.8	78.2	19.2	16.8	6.3	11.9	12.2	N/A	N/A	N/A	N/A	N/A	73.0	73.0	73.0	73.0	72.6
November	223.0	52.6	65.5	43.5	31.3	138.1	24.6	35.9	16.1	21.6	18.9	7.0	9.1	3.4	5.7	3.5	99.9	94.6	94.6	94.6	99.6
December	76.5	62.1	59.4	31.7	28.2	44.3	13.2	20.9	7.5	13.4	18.8	5.4	6.8	1.6	5.2	2.6	99.9	99.3	99.3	99.3	99.6
Q4 Arithmetic Mean												6.2	7.9	2.5	5.5	3.1	90.8	88.9	88.9	88.9	90.5

[A] The 24-hour $PM_{2.5}$ CAAQS applies to the 98th percentile over 3 consecutive years.

Table 5. Summary of Rundle Road Station Continuous Data Statistics

Rundle Road Monitoring Station Data Statistics	Maximum Rolling 10 min Mean	Maximum Rolling 1 hr Mean					Maximum 24 hr Rolling Mean					Monthly Mean					% Valid Hours				
Compound	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2
Units	ppb	(µg/m³)	ppb				(µg/m³)	ppb				(µg/m³)	ppb				(%)				
AAQC/CAAQS	67				200	40	27[A]			100											
October	45.4	27.6	33.6	20.6	18.3	22.8	11.9	9.9	4.0	7.0	1.9	N/A	N/A	N/A	N/A	N/A	73.4	73.5	73.5	73.5	73.5
November	52.9	37.6	58.0	35.3	29.5	34.0	26.6	24.8	8.7	17.6	6.1	6.7	7.1	2.4	4.8	0.7	99.7	99.3	99.3	99.3	99.7
December	17.9	28.7	82.3	54.2	28.3	11.0	12.8	20.0	8.6	12.4	2.7	5.8	5.8	1.3	4.6	0.3	99.7	99.7	99.7	99.7	99.5
Q4 Arithmetic Mean												6.2	6.5	1.9	4.7	0.5	90.9	90.8	90.8	90.8	90.8

[A] The 24-hour $PM_{2.5}$ CAAQS applies to the 98th percentile over 3 consecutive years.

Table 6. Summary of Exceedance Statistics

Event Statistics	Rolling Mean > 10 min AAQC for Courtice	Rolling Mean > 10 min AAQC for Rundle Road	Mean > 1 hr AAQC for Courtice Monitoring Station			Mean > 1 hr AAQC for Rundle Road Monitoring Station			Rolling Mean > 24 hr AAQC for Courtice Monitoring Station			Rolling Mean > 24 hr AAQC for Rundle Road Monitoring Station		
Compound	SO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2
Units	No.	No.	No.			No.			No.			No.		
October	21	0		0	11		0	0	N/A	0		N/A	0	
November	39	0		0	16		0	0	N/A	0		N/A	0	
December	2	0		0	2		0	0	N/A	0		N/A	0	
Q4 Total	62	0		0	29		0	0	N/A	0		N/A	0	

5.3 Oxides of Nitrogen Results

5.3.1 Courtice Station Results

Data recovery levels were moderate for oxides of nitrogen (88.9% valid data). Monitoring results were compared to the AAQC for NO_2 only, as it is the only parameter that has AAQC values for 1-hour and 24-hour averaging periods (there are no AAQC's for NO or NO_X). There were no exceedances above the AAQC values for the entirety of the sampling period for rolling 1-hour and 24-hour averaged data. The highest NO_2 value seen among the 1-hour rolling averages was 31.8 ppb, which is 15.9% of the AAQC. The highest NO_2 value seen among the rolling 24-hour averages was 21.6 ppb, which is 21.6% of the AAQC. The measurements are summarized in **Table 4** above. A pollution rose is presented in **Figure 5** for the Courtice Station during Q4 composed of hourly average NO_2 concentrations. A pollution rose indicates the percentage of time that the wind originates from a given direction coupled with the pollutant measurement for that time in either ppb or micrograms per meter cubed. In order to show where possible major sources of pollutants are coming from, levels below 5 ppb were omitted from the graphic wind rose representation.

The Courtice Station pollution rose in **Figure 5** shows the majority of the NO_2 impacts were largely from the northeast to east-northeast. The Station is downwind of the DYEC when winds are from the northeast and east-northeast directions, which happened frequently during the monitoring period, therefore it is likely that the DYEC contributed to the observed concentrations. There are additional impacts from the west to west-northwest which indicates reception from surrounding industry or the highway and railway corridors.

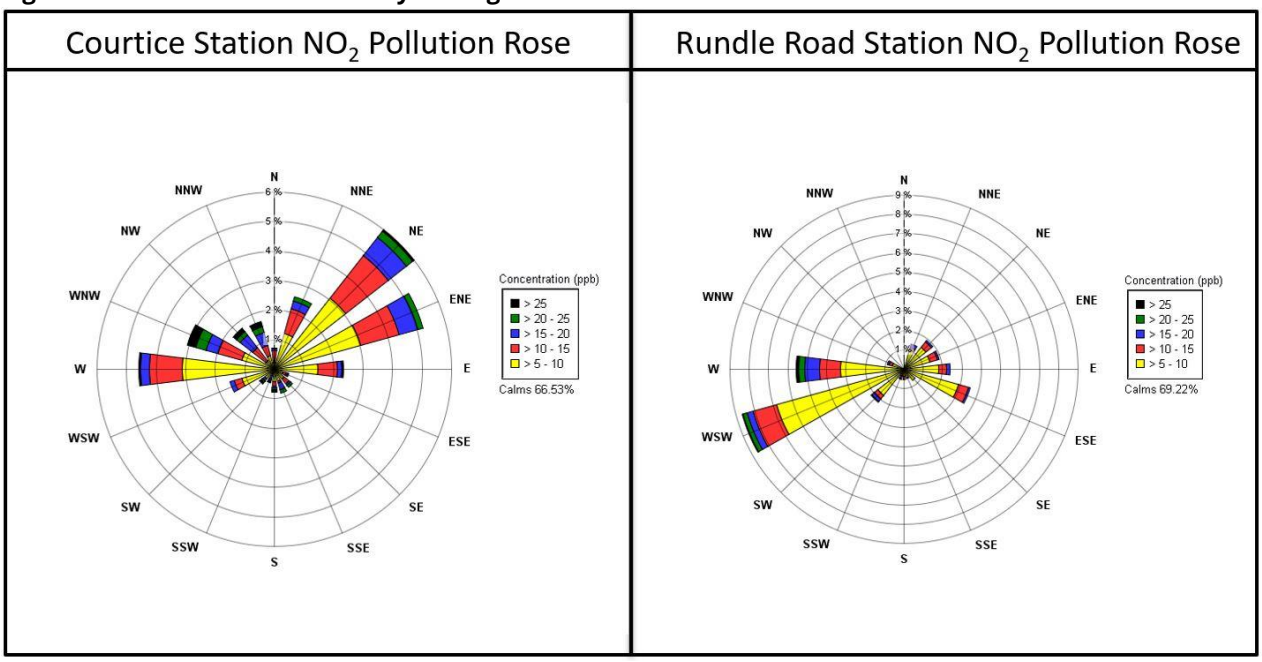
5.3.2 Rundle Road Station Results

Data recovery levels were moderate for oxides of nitrogen (90.8% valid data). There were no exceedances above the AAQC values for the entirety of the sampling period for rolling 1-hour and 24-hour averaged data. The highest NO_2 value seen among the 1-hour rolling averages was 29.5 ppb, which is 14.8% of the AAQC. The highest NO_2 value seen among the rolling 24-hour averages was 17.6 ppb, which is 17.6% of the AAQC. The measurements are summarized in **Table 5** above.

A pollution rose is presented in **Figure 5** for the Rundle Road Station during Q4 composed of hourly average NO_2 concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 ppb were omitted from the graphic wind rose representation.

The Rundle Road Station pollution rose in **Figure 5** shows that the majority of elevated NO_2 events at the Rundle Road Station occurred when winds were from the west-southwest to west. The Station is downwind of the DYEC when winds are from the southwest and south-southwest directions, which happened occasionally during the monitoring period, therefore it is likely that the DYEC partially contributed to the observed concentrations. There are additional impacts from the east-southeast which indicates reception from surrounding industry or the highway and railway corridors.

Figure 5. Pollution Roses of Hourly Average NO_2 Concentrations – October to December 2022



5.4 Sulphur Dioxide Results

5.4.1 Courtice Station Results

Data recovery levels were moderate for sulphur dioxide (90.5% valid data). Monitoring results were compared to the AAQC for 10-minute and 1-hour rolling average periods. In 2022, there have been more frequent SO_2 concentrations elevated above the AAQC's than in previous years due to the new limits imposed at the start of 2020. The highest SO_2 value seen among the 10-min rolling averages was 223.0 ppb, which is 332.8% of the AAQC. The highest SO_2 value seen among the 1-hour rolling averages was 138.1 ppb, which is 345.3% of the AAQC. There were sixty-two (62) exceedance events of the rolling 10-minute AAQC and twenty-nine (29) exceedance event of the rolling 1-hour AAQC. A table outlining the interpretation of the exceedance period can be found in **Appendix E**.

The SO_2 statistical results are summarized in Table 4 above. A pollution rose is presented in Figure 6 for the Courtice Station during Q4 composed of hourly average SO_2 concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 ppb were omitted from the graphic wind rose representation. A pollution rose is presented in Figure 7 for the Courtice Station during Q4 composed of 5-minute average SO_2 concentrations with levels below 67 ppb omitted to illustrate directionality of exceedance concentrations.

The Courtice Station pollution rose in Figure 6 shows that the majority of elevated SO_2 events at Courtice occurred from the north-northeast to east-northeast directions. The events were possibly a result of emissions from surrounding industrial sources with contributions from the DYEC in the east-northeast direction. The Courtice Station pollution rose in Figure 7 shows that <0.36% of the 5-min SO_2 events are elevated >67 ppb and occurred from the north-northwest, north-northeast to east-northeast and the southeast directions. The pollution rose indicates that the DYEC was not a contributor to SO_2 levels at the station and that the levels may be related to other industrial activity nearby.

A Technical Memorandum summarizing the DYEC SO_2 continuous emissions monitoring system (CEMS) data during the exceedance events recorded at the Courtice and Rundle Road Ambient Monitoring Stations for Q4, is included in **Appendix G**. The Memorandum indicates that based on the in-stack concentration levels measured by the CEMS, that there were no unusual levels of SO_2 emissions during the ambient Station exceedance events and that the facility's impact on ambient air quality would be expected to be quite low.

5.4.2 Rundle Road Station Results

Data recovery levels were moderate for sulphur dioxide (90.8% valid data). Monitoring results were compared to the AAQC for 10-minute and 1-hour rolling average periods. The highest SO_2 value seen among the 10-min rolling averages was 52.9 ppb, which is 79.0% of the AAQC. The highest SO_2 value seen among the 1-hour rolling averages was 34.0 ppb, which is 85.0% of the AAQC.

The SO_2 statistical results are summarized in Table 5 above. A pollution rose is presented in Figure 6 for the Rundle Road Station during Q4 composed of hourly average SO_2 concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 ppb were omitted from the graphic wind rose representation. A pollution rose is presented in Figure 7 for the Rundle Road Station during Q4 composed of 5-minute average SO_2 concentrations with levels below 67 ppb omitted to illustrate directionality of exceedance concentrations.

The Rundle Road Station pollution rose in Figure 6 shows that the majority of elevated SO_2 events at the Rundle Road Station occurred when winds were from the east-southeast. The pollution rose indicates that the DYEC was not a contributor to SO_2 levels at the station and that the levels may be related to other industrial activity nearby. The Rundle Road Station pollution rose in Figure 7 shows that there were no SO_2 concentrations >67 ppb during Q4 of 2022.

Figure 6. Pollution Roses of Hourly Average SO_2 Concentrations – October to December 2022

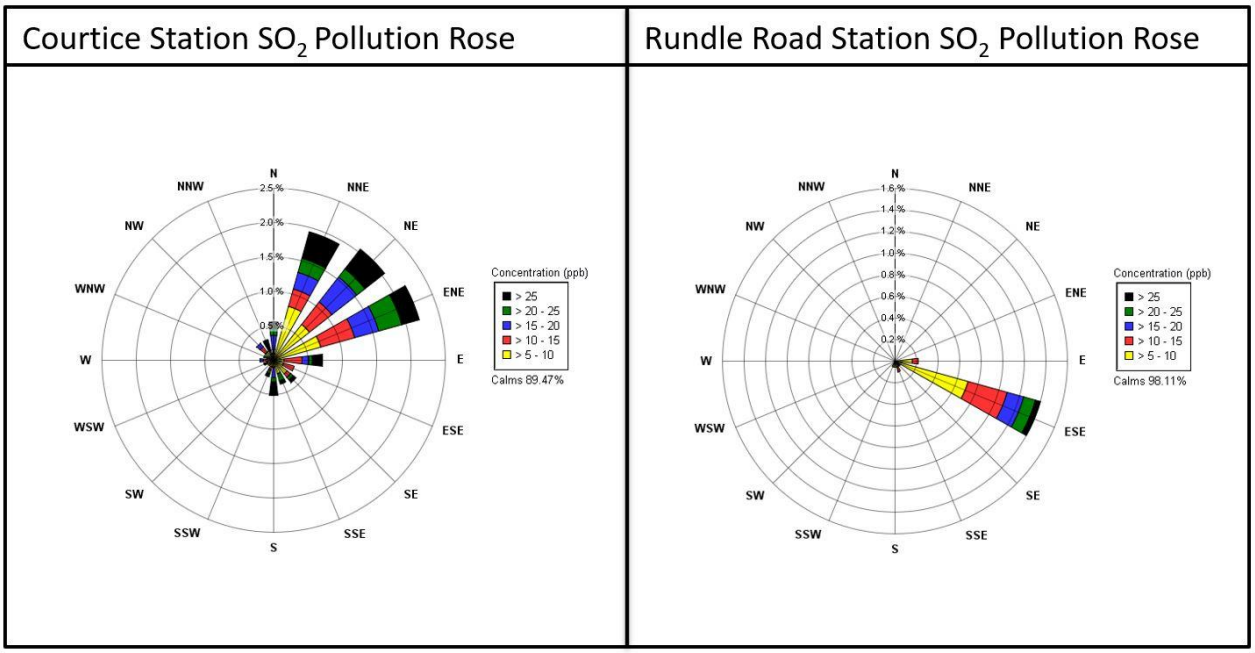
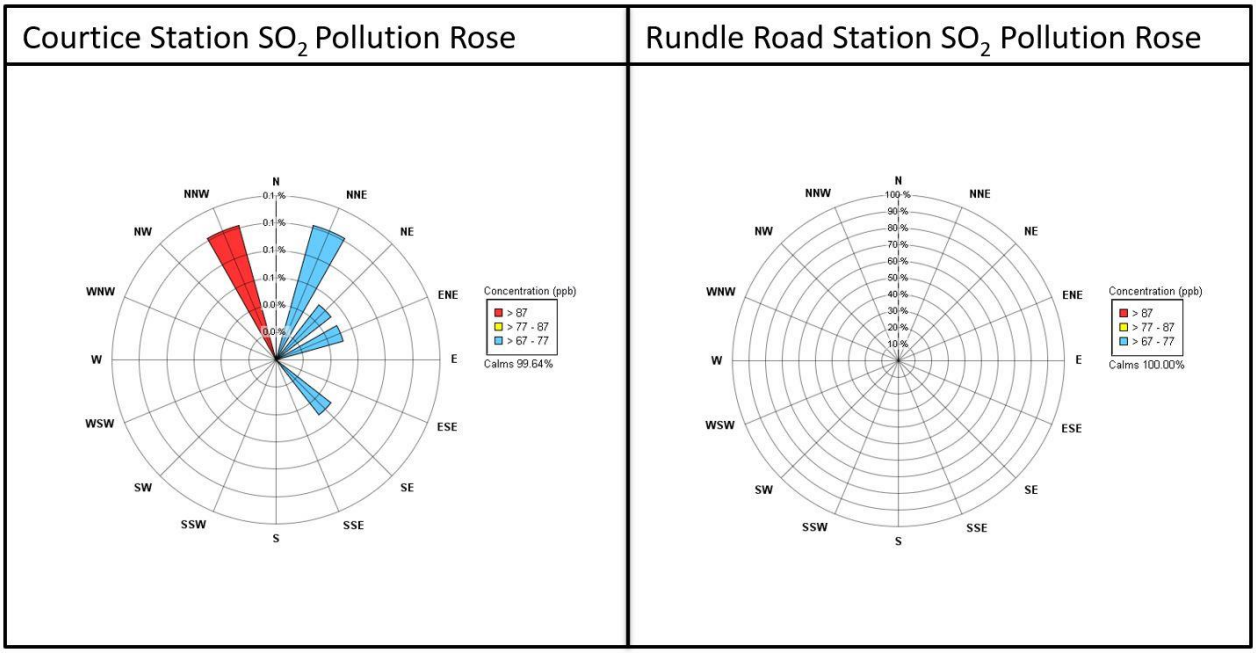


Figure 7. Pollution Roses of 5-minute Average SO_2 Concentrations >67 ppb – October to December 2022



5.5 Fine Particulate Matter ($PM_{2.5}$) Results

5.5.1 Courtice Station Results

Data recovery levels were moderate for particulate matter less than 2.5 microns (90.8% valid data). There is no 1-hour AAQC or standard for $PM_{2.5}$, but there is a 24-hour CAAQS of 27 µg/m^3 for the 3-year average of the annual 98th percentile 24-hour concentrations, and 8.8 µg/m^3 for the 3-year average of the annual average concentrations (in effect as of 2020). Note that since the reported data is only quarterly and the CAAQS is applicable to the 3-year average, the CAAQS' for $PM_{2.5}$ was not applicable to the data. The highest $PM_{2.5}$ value seen among the 1-hour rolling averages was 84.4 µg/m^3 and the highest value seen among the 24-hour rolling averages was 24.6 µg/m^3. The results are summarized in **Table 4** above. A pollution rose is presented in **Figure 8** for the Courtice Station during Q4 composed of hourly average $PM_{2.5}$ concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 µg/m^3 were omitted from the graphic wind rose representation.

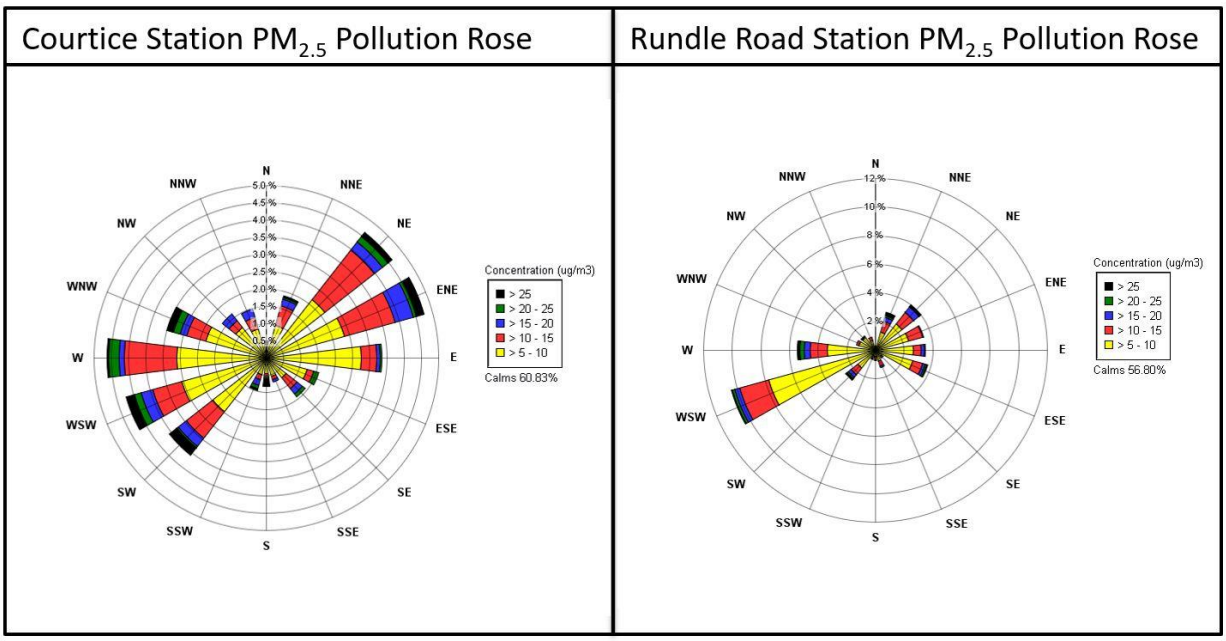
The Courtice Station pollution rose in **Figure 8** shows that the majority of elevated $PM_{2.5}$ events at Courtice occurred when winds were from the northeast to east and southwest to west-northwest, which places the station downwind of the DYEC only part of the time. Other contributions are in line with nearby industrial activity.

5.5.2 Rundle Road Station Results

Data recovery levels were moderate for particulate matter less than 2.5 microns (90.9% valid data). The highest $PM_{2.5}$ value seen among the 1-hour rolling averages was 37.6 µg/m^3 and the highest value seen among the 24-hour rolling averages was 26.6 µg/m^3. The results are summarized in **Table 5** above. A pollution rose is presented in **Figure 8** for the Rundle Road Station during Q4 composed of hourly average $PM_{2.5}$ concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 µg/m^3 were omitted from the graphic wind rose representation.

The Rundle Road pollution rose in **Figure 8** shows that the majority of elevated $PM_{2.5}$ events at the Rundle Road Station occurred when winds were from the west-southwest to west and northeast to east-southeast, which places the station downwind of the DYEC only part of the time. Other possible contributions include nearby high traffic areas and urban background.

Figure 8. Pollution Roses of Hourly Average $PM_{2.5}$ Concentrations – October to December 2022



5.6 TSP and Metals Hi-Vol Results

All of the TSP Hi-Vols operated on a discrete schedule every 6 days according to the NAPS schedule during Q4 with the sample days being: October 2, 8, 14, 20, 26, November 1, 7, 13, 19, 25, December 1, 7, 13, 19, 25, and 31, 2022.

5.6.1 Courtice Station Results

Data recovery levels were moderate for the TSP sampler at the Courtice Station (81% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria for TSP, mercury or metals during Q4. **Table 7** is a summary of the statistics for this station.

Table 7. Summary of TSP Sampler Courtice Station

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	No. > Criteria	Geometric Mean	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	µg/m³	*120*	*120*	0	11.8	19.9	0.03	36.73	36.73	31.53	29.73	13	81
Total Mercury (Hg)	µg/m³	*2*	*2*	0	4.14E-06	4.83E-06	2.80E-06	1.14E-05	9.74E-06	1.14E-05	3.18E-06	13	81
Aluminum (Al)	µg/m³	*4.8*	-	0	1.29E-01	1.63E-01	5.15E-02	5.30E-01	5.30E-01	3.04E-01	1.74E-01	13	81
Antimony (Sb)	µg/m³	*25*	*25*	0	7.87E-04	1.12E-03	2.32E-04	4.08E-03	7.99E-04	4.08E-03	9.52E-04	13	81
Arsenic (As)	µg/m³	*0.3*	*0.3*	0	9.49E-04	9.85E-04	8.41E-04	2.15E-03	9.43E-04	2.15E-03	9.54E-04	13	81
Barium (Ba)	µg/m³	*10*	*10*	0	5.85E-03	7.19E-03	2.19E-03	2.02E-02	1.11E-02	2.02E-02	1.10E-02	13	81
Beryllium (Be)	µg/m³	*0.01*	*0.01*	0	1.47E-05	1.47E-05	1.40E-05	1.60E-05	1.57E-05	1.60E-05	1.59E-05	13	81
Bismuth (Bi)	µg/m³	-	-	-	5.30E-04	5.31E-04	5.04E-04	5.77E-04	5.66E-04	5.77E-04	5.72E-04	13	81
Boron (B)	µg/m³	*120*	-	0	4.42E-03	4.42E-03	4.20E-03	4.80E-03	4.72E-03	4.80E-03	4.77E-03	13	81
Cadmium (Cd)	µg/m³	*0.025*	*0.025*	0	1.14E-04	1.91E-04	3.14E-05	1.10E-03	1.10E-04	3.42E-04	1.10E-03	13	81
Chromium (Cr)	µg/m³	*0.5*	-	0	1.64E-03	1.82E-03	9.53E-04	3.34E-03	3.27E-03	2.56E-03	3.34E-03	13	81
Cobalt (Co)	µg/m³	*0.1*	*0.1*	0	1.10E-04	1.25E-04	5.16E-05	2.51E-04	2.51E-04	2.11E-04	1.93E-04	13	81
Copper (Cu)	µg/m³	*50*	-	0	2.45E-02	3.68E-02	3.99E-03	1.33E-01	2.13E-02	8.27E-02	1.33E-01	13	81
Iron (Fe)	µg/m³	*4*	-	0	3.35E-01	3.76E-01	1.48E-01	7.11E-01	7.11E-01	6.17E-01	6.22E-01	13	81
Lead (Pb)	µg/m³	*0.5*	*0.5*	0	1.98E-03	2.35E-03	7.27E-04	6.51E-03	2.28E-03	6.51E-03	2.32E-03	13	81
Magnesium (Mg)	µg/m³	-	-	-	1.79E-01	2.11E-01	7.76E-02	4.70E-01	4.70E-01	3.40E-01	4.12E-01	13	81
Manganese (Mn)	µg/m³	*0.4*	-	0	9.51E-03	1.18E-02	3.26E-03	2.72E-02	2.19E-02	2.72E-02	2.30E-02	13	81
Molybdenum (Mo)	µg/m³	*120*	-	0	1.12E-03	1.40E-03	3.99E-04	4.07E-03	1.16E-03	2.58E-03	4.07E-03	13	81
Nickel (Ni)	µg/m³	*0.2*	-	0	1.11E-03	1.34E-03	4.65E-04	3.79E-03	1.53E-03	3.79E-03	3.16E-03	13	81
Phosphorus (P)	µg/m³	-	-	-	2.21E-01	2.21E-01	2.10E-01	2.40E-01	2.36E-01	2.40E-01	2.38E-01	13	81
Selenium (Se)	µg/m³	*10*	*10*	0	3.83E-04	3.83E-04	3.64E-04	4.16E-04	4.09E-04	4.16E-04	4.13E-04	13	81
Silver (Ag)	µg/m³	*1*	*1*	0	5.83E-05	1.04E-04	2.55E-05	4.24E-04	4.24E-04	9.34E-05	3.72E-04	13	81
Strontium (Sr)	µg/m³	*120*	-	0	3.57E-03	4.11E-03	9.61E-04	9.62E-03	9.62E-03	5.93E-03	5.97E-03	13	81
Thallium (Tl)	µg/m³	-	-	-	2.65E-05	2.65E-05	2.52E-05	2.88E-05	2.83E-05	2.88E-05	2.86E-05	13	81
Tin (Sn)	µg/m³	*10*	*10*	0	5.96E-04	7.18E-04	1.79E-04	1.68E-03	1.06E-03	1.68E-03	9.73E-04	13	81
Titanium (Ti)	µg/m³	*120*	-	0	5.83E-03	7.16E-03	3.08E-03	2.20E-02	2.20E-02	1.28E-02	9.05E-03	13	81
Uranium (Ur)	µg/m³	*1.5*	-	0	1.24E-05	1.45E-05	4.04E-06	2.86E-05	2.84E-05	2.86E-05	1.61E-05	13	81
Vanadium (V)	µg/m³	*2*	*1*	0	1.47E-03	1.47E-03	1.40E-03	1.60E-03	1.57E-03	1.60E-03	1.59E-03	13	81
Zinc (Zn)	µg/m³	*120*	-	0	3.35E-02	4.24E-02	1.24E-02	1.49E-01	4.25E-02	1.49E-01	4.58E-02	13	81
Zirconium (Zr)	µg/m³	*20*	-	0	5.89E-04	5.90E-04	5.61E-04	6.41E-04	6.29E-04	6.41E-04	6.36E-04	13	81

Note: All non-detectable results were reported as 1/2 of the detection limit

5.6.2 Rundle Road Station Results

Data recovery levels were very high for the TSP sampler at the Rundle Road Station (100% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria for TSP, mercury or metals during Q4. **Table 8** is a summary of the Station statistics.

Table 8. Summary of TSP Sampler Rundle Road Station

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	No. > Criteria	Geometric Mean	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	µg/m³	*120*	*120*	0	28.3	32.6	8.12	67.89	33.41	67.89	66.31	16	100
Total Mercury (Hg)	µg/m³	*2*	*2*	0	4.20E-06	4.91E-06	2.88E-06	1.17E-05	8.28E-06	1.17E-05	8.22E-06	16	100
Aluminum (Al)	µg/m³	*4.8*	-	0	1.77E-01	2.16E-01	6.40E-02	5.10E-01	2.28E-01	5.10E-01	4.53E-01	16	100
Antimony (Sb)	µg/m³	*25*	*25*	0	4.92E-04	5.51E-04	1.52E-04	1.32E-03	8.93E-04	1.32E-03	7.04E-04	16	100
Arsenic (As)	µg/m³	*0.3*	*0.3*	0	9.32E-04	9.53E-04	8.60E-04	1.92E-03	9.43E-04	1.92E-03	9.20E-04	16	100
Barium (Ba)	µg/m³	*10*	*10*	0	6.52E-03	7.49E-03	1.96E-03	1.81E-02	1.17E-02	1.81E-02	1.09E-02	16	100
Beryllium (Be)	µg/m³	*0.01*	*0.01*	0	1.48E-05	1.48E-05	1.43E-05	1.57E-05	1.57E-05	1.50E-05	1.53E-05	16	100
Bismuth (Bi)	µg/m³	-	-	-	5.33E-04	5.33E-04	5.16E-04	5.66E-04	5.66E-04	5.41E-04	5.52E-04	16	100
Boron (B)	µg/m³	*120*	-	0	4.44E-03	4.44E-03	4.30E-03	4.72E-03	4.72E-03	4.51E-03	4.60E-03	16	100
Cadmium (Cd)	µg/m³	*0.025*	*0.025*	0	9.15E-05	1.26E-04	3.74E-05	6.57E-04	6.79E-05	6.57E-04	2.14E-04	16	100
Chromium (Cr)	µg/m³	*0.5*	-	0	1.67E-03	1.92E-03	9.75E-04	4.03E-03	2.77E-03	3.34E-03	4.03E-03	16	100
Cobalt (Co)	µg/m³	*0.1*	*0.1*	0	1.28E-04	1.47E-04	5.11E-05	3.39E-04	1.65E-04	3.08E-04	3.39E-04	16	100
Copper (Cu)	µg/m³	*50*	-	0	1.94E-02	2.28E-02	6.79E-03	6.79E-02	3.15E-02	6.79E-02	2.62E-02	16	100
Iron (Fe)	µg/m³	*4*	-	0	3.67E-01	4.21E-01	1.34E-01	8.82E-01	5.97E-01	8.80E-01	8.82E-01	16	100
Lead (Pb)	µg/m³	*0.5*	*0.5*	0	2.15E-03	2.63E-03	6.83E-04	1.05E-02	2.55E-03	1.05E-02	3.05E-03	16	100
Magnesium (Mg)	µg/m³	-	-	-	2.45E-01	2.94E-01	1.02E-01	8.76E-01	3.09E-01	5.65E-01	8.76E-01	16	100
Manganese (Mn)	µg/m³	*0.4*	-	0	1.22E-02	1.49E-02	4.71E-03	3.59E-02	1.86E-02	3.59E-02	3.55E-02	16	100
Molybdenum (Mo)	µg/m³	*120*	-	0	9.10E-04	1.03E-03	3.91E-04	2.07E-03	1.63E-03	2.07E-03	1.58E-03	16	100
Nickel (Ni)	µg/m³	*0.2*	-	0	1.03E-03	1.18E-03	4.58E-04	3.57E-03	1.09E-03	3.57E-03	2.32E-03	16	100
Phosphorus (P)	µg/m³	-	-	-	2.22E-01	2.22E-01	2.15E-01	2.36E-01	2.36E-01	2.25E-01	2.30E-01	16	100
Selenium (Se)	µg/m³	*10*	*10*	0	3.85E-04	3.85E-04	3.73E-04	4.09E-04	4.09E-04	3.91E-04	3.99E-04	16	100
Silver (Ag)	µg/m³	*1*	*1*	0	3.99E-05	8.22E-05	2.58E-05	5.66E-04	3.36E-04	6.73E-05	5.66E-04	16	100
Strontium (Sr)	µg/m³	*120*	-	0	5.98E-03	7.49E-03	2.04E-03	2.17E-02	4.59E-03	1.39E-02	2.17E-02	16	100
Thallium (Tl)	µg/m³	-	-	-	2.93E-05	3.29E-05	2.58E-05	1.27E-04	2.83E-05	2.70E-05	1.27E-04	16	100
Tin (Sn)	µg/m³	*10*	*10*	0	7.52E-04	8.45E-04	1.75E-04	1.71E-03	1.08E-03	1.71E-03	1.01E-03	16	100
Titanium (Ti)	µg/m³	*120*	-	0	7.54E-03	9.37E-03	3.18E-03	2.25E-02	9.46E-03	2.13E-02	2.25E-02	16	100
Uranium (Ur)	µg/m³	*1.5*	-	0	1.64E-05	1.85E-05	7.16E-06	3.72E-05	3.01E-05	3.72E-05	2.91E-05	16	100
Vanadium (V)	µg/m³	*2*	*1*	0	1.48E-03	1.48E-03	1.43E-03	1.57E-03	1.57E-03	1.50E-03	1.53E-03	16	100
Zinc (Zn)	µg/m³	*120*	-	0	4.76E-02	7.71E-02	1.22E-02	4.05E-01	4.92E-02	4.05E-01	1.48E-01	16	100

Zirconium (Zr)	µg/m³	*20*	-	0	5.92E-04	5.92E-04	5.73E-04	6.29E-04	6.29E-04	6.01E-04	6.13E-04	16	100

Note: All non-detectable results were reported as 1/2 of the detection limit

5.7 PAH Results

All of the PUF Hi-Vols operated on a discrete schedule every 12 days for PAH's according to the NAPS schedule during Q4 with the sample days being: October 8, 20, November 1, 13, 25, December 7, 19 and 31, 2022.

The laboratory indicated that there was a hold time error for the December 31, 2022, PAH samples. The samples were received on Friday, January 6, 2023, with an acceptable hold time of Saturday, January 7, 2023. The sample extractions were taken on January 9, 2023, approximately forty-eight (48) hours beyond the acceptable hold time.

5.7.1 Courtice Station Results

Data recovery levels were very high for the PAH results at the Courtice Station (100% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria during Q4 of 2022.

Table 9 outlines the statistics summary for this station.

Table 9. Statistics Summary of PAH Results for Courtice Station

Contaminant	Units	MECP Criteria (µg/m³)	No. > Criteria	Arithmetic Mean	Minimum Q4 Concentration	Maximum Q4 Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m³	12000	0	2.56E+00	1.34E+00	5.11E+00	2.57E+00	5.11E+00	2.90E+00	8	100
2-Methylnaphthalene	ng/m³	10000	0	4.69E+00	2.55E+00	9.70E+00	4.83E+00	9.70E+00	4.62E+00	8	100
Acenaphthene	ng/m³	-	-	1.46E+00	1.86E-01	2.61E+00	1.74E+00	2.61E+00	2.18E+00	8	100
Acenaphthylene	ng/m³	3500	0	4.30E-01	4.88E-02	1.06E+00	5.17E-01	1.06E+00	5.98E-01	8	100
Anthracene	ng/m³	200	0	1.44E-01	2.38E-02	4.13E-01	2.28E-01	4.13E-01	1.98E-01	8	100
Benzo(a)Anthracene	ng/m³	-	-	2.46E-02	1.23E-03	4.37E-02	4.16E-02	4.37E-02	3.60E-02	8	100
Benzo(a)fluorene	ng/m³	-	-	5.58E-02	2.28E-02	8.23E-02	7.22E-02	8.23E-02	7.37E-02	8	100
Benzo(a)Pyrene (Historically High)	ng/m³	0.05	0	2.55E-02	2.93E-04	4.62E-02	3.86E-02	4.62E-02	3.56E-02	8	100
Benzo(b)Fluoranthene	ng/m³	-	-	7.59E-02	1.14E-03	1.78E-01	7.34E-02	1.15E-01	1.78E-01	8	100
Benzo(b)fluorene	ng/m³	-	-	3.72E-02	9.03E-03	5.92E-02	5.78E-02	5.59E-02	5.92E-02	8	100
Benzo(e)Pyrene	ng/m³	-	-	4.01E-02	2.93E-04	7.19E-02	4.45E-02	5.60E-02	7.19E-02	8	100
Benzo(g,h,i)Perylene	ng/m³	-	-	4.32E-02	2.93E-04	7.95E-02	4.46E-02	7.09E-02	7.95E-02	8	100
Benzo(k)Fluoranthene	ng/m³	-	-	6.87E-02	2.67E-03	2.17E-01	5.84E-02	8.44E-02	2.17E-01	8	100
Biphenyl	ng/m³	-	-	2.33E+00	1.10E+00	5.10E+00	1.36E+00	2.56E+00	5.10E+00	8	100
Chrysene	ng/m³	-	-	1.04E-01	1.41E-02	1.88E-01	1.28E-01	1.88E-01	1.54E-01	8	100
Dibenzo(a,h)Anthracene	ng/m³	-	-	8.05E-03	2.93E-04	1.43E-02	1.11E-02	1.42E-02	1.43E-02	8	100
Fluoranthene	ng/m³	-	-	7.26E-01	2.49E-01	1.52E+00	5.96E-01	1.52E+00	1.22E+00	8	100
Fluorene	ng/m³	-	-	1.54E+00	4.57E-01	2.89E+00	1.43E+00	2.75E+00	2.89E+00	8	100
Indeno(1,2,3-cd)Pyrene	ng/m³	-	-	4.16E-02	2.93E-04	7.46E-02	4.40E-02	6.70E-02	7.46E-02	8	100
Naphthalene	ng/m³	22500	0	1.32E+01	6.10E+00	3.05E+01	1.25E+01	3.05E+01	1.24E+01	8	100

Contaminant	Units	MECP Criteria (µg/m³)	No. > Criteria	Arithmetic Mean	Minimum Q4 Concentration	Maximum Q4 Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
o-Terphenyl	ng/m³	-	-	1.41E-02	3.72E-03	2.87E-02	1.50E-02	2.87E-02	2.20E-02	8	100
Perylene	ng/m³	-	-	7.02E-03	2.93E-04	4.92E-02	4.92E-02	1.34E-03	4.08E-03	8	100
Phenanthrene	ng/m³	-	-	3.01E+00	1.04E+00	6.02E+00	2.94E+00	6.02E+00	5.31E+00	8	100
Pyrene	ng/m³	-	-	4.13E-01	1.75E-01	8.41E-01	4.13E-01	8.41E-01	5.89E-01	8	100
Tetralin	ng/m³	-	-	1.42E+00	4.91E-01	4.11E+00	1.00E+00	4.11E+00	1.69E+00	8	100
Total PAH	ng/m³	-	-	32.46	19.02	59.95	30.62	59.95	35.43	8	100

Notes: All non-detectable results were reported as 1/2 of the detection limit

5.7.2 Rundle Road Station Results

Data recovery levels were very high for the PAH results at the Rundle Road Station (100% valid data). There was one (1) exceedances of the Benzo(a) Pyrene AAQC during Q4 of 2022. There were no other exceedances of any of the AAQC's or HHRA Criteria.

The BaP exceedance occurred on November 1, 2022. Since the winds were predominantly coming from the SW and the NNW, the Rundle Road Station was crosswind of the DYEC during the sampling period. It is unlikely that the measured BaP exceedance is attributable to the Energy Centre operations.

The exceedance documentation is attached in **Appendix F**. **Table 10** outlines the statistics summary for this station.

Table 10. Statistics Summary of PAH Results for Rundle Road Station

Contaminant	Units	MECP Criteria (µg/m³)	No. > Criteria	Arithmetic Mean	Minimum Q4 Concentration	Maximum Q4 Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m³	12000	0	2.74E+00	1.11E+00	7.39E+00	2.78E+00	7.39E+00	2.35E+00	8	100
2-Methylnaphthalene	ng/m³	10000	0	4.96E+00	1.81E+00	1.32E+01	5.21E+00	1.32E+01	4.01E+00	8	100
Acenaphthene	ng/m³	-	-	1.40E+00	1.72E-01	3.42E+00	1.07E+00	3.42E+00	3.38E+00	8	100
Acenaphthylene	ng/m³	3500	0	3.90E-01	1.55E-01	9.09E-01	1.70E-01	9.09E-01	4.16E-01	8	100
Anthracene	ng/m³	200	0	1.64E-01	4.76E-02	5.11E-01	8.94E-02	5.11E-01	2.19E-01	8	100
Benzo(a)Anthracene	ng/m³	-	-	3.08E-02	6.73E-03	5.60E-02	4.08E-02	5.60E-02	3.51E-02	8	100
Benzo(a)fluorene	ng/m³	-	-	6.52E-02	2.49E-02	1.21E-01	7.51E-02	1.21E-01	7.64E-02	8	100
Benzo(a)Pyrene (Historically High)	ng/m³	0.05	1	2.90E-02	1.47E-02	5.15E-02	3.40E-02	5.15E-02	3.85E-02	8	100
Benzo(b)Fluoranthene	ng/m³	-	-	8.50E-02	3.03E-02	1.73E-01	6.72E-02	1.24E-01	1.73E-01	8	100
Benzo(b)fluorene	ng/m³	-	-	6.03E-02	8.69E-03	2.24E-01	6.07E-02	2.24E-01	4.75E-02	8	100
Benzo(e)Pyrene	ng/m³	-	-	4.62E-02	1.99E-02	7.09E-02	3.64E-02	7.09E-02	6.43E-02	8	100
Benzo(g,h,i)Perylene	ng/m³	-	-	5.16E-02	2.36E-02	7.52E-02	4.59E-02	7.52E-02	7.11E-02	8	100
Benzo(k)Fluoranthene	ng/m³	-	-	7.90E-02	1.64E-02	2.04E-01	6.66E-02	1.14E-01	2.04E-01	8	100
Biphenyl	ng/m³	-	-	1.87E+00	7.91E-01	3.42E+00	1.48E+00	3.42E+00	2.49E+00	8	100
Chrysene	ng/m³	-	-	1.16E-01	4.39E-02	2.07E-01	1.11E-01	2.07E-01	1.43E-01	8	100
Dibenzo(a,h)Anthracene	ng/m³	-	-	8.25E-03	1.56E-03	1.57E-02	1.01E-02	1.57E-02	8.45E-03	8	100
Fluoranthene	ng/m³	-	-	8.17E-01	2.20E-01	2.01E+00	5.44E-01	2.01E+00	1.49E+00	8	100
Fluorene	ng/m³	-	-	1.74E+00	3.44E-01	3.82E+00	1.07E+00	3.71E+00	3.82E+00	8	100
Indeno(1,2,3-cd)Pyrene	ng/m³	-	-	4.82E-02	2.28E-02	7.36E-02	4.08E-02	7.36E-02	7.02E-02	8	100

Contaminant	Units	MECP Criteria (µg/m³)	No. > Criteria	Arithmetic Mean	Minimum Q4 Concentration	Maximum Q4 Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
Naphthalene	ng/m³	22500	0	1.26E+01	7.50E+00	3.06E+01	1.53E+01	3.06E+01	1.33E+01	8	100
o-Terphenyl	ng/m³	-	-	1.42E-02	4.71E-03	2.49E-02	1.49E-02	2.49E-02	2.34E-02	8	100
Perylene	ng/m³	-	-	3.39E-03	2.96E-04	9.67E-03	3.36E-03	9.67E-03	6.60E-03	8	100
Phenanthrene	ng/m³	-	-	3.11E+00	8.97E-01	6.35E+00	1.98E+00	6.35E+00	6.15E+00	8	100
Pyrene	ng/m³	-	-	5.06E-01	1.88E-01	1.15E+00	3.31E-01	1.15E+00	7.07E-01	8	100
Tetralin	ng/m³	-	-	1.76E+00	4.88E-01	5.36E+00	2.10E+00	5.36E+00	1.93E+00	8	100
Total PAH	ng/m³	-	-	32.70	14.04	68.91	32.72	68.91	40.59	8	100

Note: All non-detectable results were reported as 1/2 of the detection limit

5.8 Dioxin and Furan Results

All of the PUF Hi-Vols operated on a discrete schedule every 24 days for D&F's according to the NAPS schedule during Q4 with the sample days being: October 20, November 13, December 7 and 31, 2022.

The laboratory indicated that there was a hold time error for the December 31, 2022, D&F samples. The samples were received on Friday, January 6, 2023, with an acceptable hold time of Saturday, January 7, 2023. The sample extractions were taken on January 9, 2023, approximately forty-eight (48) hours beyond the acceptable hold time.

5.8.1 Courtice Station Results

Data recovery levels were very high for the D&F results at the Courtice Station (100% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria for any of the D&F's during Q4. **Table 11** is a summary of the statistics for this station.

Table 11. Courtice Station Q4 Monitoring Results for Dioxins and Furans

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	No. > Criteria	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg/m³	-	-	-	2.84E-03	6.34E-04	7.12E-03	7.49E-04	7.12E-03	3.11E-03	4	100
1,2,3,7,8-PeCDD	pg/m³	-	-	-	5.04E-03	5.54E-04	1.00E-02	5.54E-04	1.00E-02	4.53E-03	4	100
1,2,3,4,7,8-HxCDD	pg/m³	-	-	-	4.80E-04	8.68E-05	9.45E-04	8.68E-05	9.45E-04	4.08E-04	4	100
1,2,3,6,7,8-HxCDD	pg/m³	-	-	-	8.97E-04	8.68E-05	1.69E-03	8.68E-05	9.16E-04	1.69E-03	4	100
1,2,3,7,8,9-HxCDD	pg/m³	-	-	-	9.11E-04	2.28E-04	1.57E-03	2.28E-04	9.30E-04	1.57E-03	4	100
1,2,3,4,6,7,8-HpCDD	pg/m³	-	-	-	8.48E-04	1.42E-04	2.20E-03	1.42E-04	2.03E-04	2.20E-03	4	100
OCDD	pg/m³	-	-	-	8.63E-05	3.00E-05	1.29E-04	3.00E-05	1.00E-04	1.29E-04	4	100
2,3,7,8-TCDF	pg/m³	-	-	-	2.86E-04	9.43E-05	5.52E-04	9.43E-05	5.52E-04	2.80E-04	4	100
1,2,3,7,8-PeCDF	pg/m³	-	-	-	8.40E-05	1.98E-05	1.23E-04	1.98E-05	1.09E-04	1.23E-04	4	100
2,3,4,7,8-PeCDF	pg/m³	-	-	-	8.73E-04	1.84E-04	1.43E-03	1.84E-04	1.00E-03	1.43E-03	4	100
1,2,3,4,7,8-HxCDF	pg/m³	-	-	-	2.48E-04	3.74E-05	5.09E-04	3.74E-05	5.09E-04	3.11E-04	4	100
1,2,3,6,7,8-HxCDF	pg/m³	-	-	-	2.24E-04	2.69E-05	4.80E-04	2.69E-05	4.80E-04	1.71E-04	4	100

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	No. > Criteria	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
2,3,4,6,7,8-HxCDF	pg/m^3	-	-	-	3.17E-04	2.54E-05	4.94E-04	2.54E-05	4.94E-04	4.32E-04	4	100
1,2,3,7,8,9-HxCDF	pg/m^3	-	-	-	2.58E-04	8.05E-05	5.96E-04	8.05E-05	5.96E-04	3.88E-04	4	100
1,2,3,4,6,7,8-HpCDF	pg/m^3	-	-	-	1.14E-04	4.01E-05	1.65E-04	4.01E-05	1.38E-04	1.65E-04	4	100
1,2,3,4,7,8,9-HpCDF	pg/m^3	-	-	-	6.23E-05	5.84E-06	1.74E-04	5.84E-06	1.74E-04	3.11E-05	4	100
OCDF	pg/m^3	-	-	-	3.89E-06	3.41E-07	1.00E-05	3.41E-07	1.00E-05	4.33E-06	4	100
Total Toxic Equivalency	pg TEQ/m^3	0.1 1[1]	-	0	1.36E-02	2.39E-03	2.43E-02	2.39E-03	2.43E-02	1.40E-02	4	100

Notes: All non-detectable results were reported as 1/2 of the detection limit
[1] O. Reg. 419/05 Schedule Upper Risk Thresholds

5.8.2 Rundle Road Station Results

Data recovery levels were moderate for the D&F results at the Rundle Road Station (75% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria for any of the D&F's during Q4. **Table 12** is a summary of the statistics for this station.

Table 12. Rundle Road Station Q4 Monitoring Results for Dioxins and Furans

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	No. > Criteria	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg/m^3	-	-	-	3.91E-03	1.20E-03	8.97E-03	1.20E-03	8.97E-03	1.55E-03	3	75
1,2,3,7,8-PeCDD	pg/m^3	-	-	-	3.28E-03	6.80E-04	5.59E-03	6.80E-04	5.59E-03	3.57E-03	3	75
1,2,3,4,7,8-HxCDD	pg/m^3	-	-	-	3.61E-04	1.83E-04	5.88E-04	1.83E-04	5.88E-04	3.11E-04	3	75
1,2,3,6,7,8-HxCDD	pg/m^3	-	-	-	6.88E-04	3.02E-04	1.19E-03	3.02E-04	5.74E-04	1.19E-03	3	75
1,2,3,7,8,9-HxCDD	pg/m^3	-	-	-	4.49E-04	2.60E-04	5.74E-04	2.60E-04	5.74E-04	5.12E-04	3	75
1,2,3,4,6,7,8-HpCDD	pg/m^3	-	-	-	8.56E-04	2.99E-04	1.47E-03	2.99E-04	7.97E-04	1.47E-03	3	75
OCDD	pg/m^3	-	-	-	4.44E-05	2.45E-05	6.53E-05	2.45E-05	6.53E-05	4.33E-05	3	75
2,3,7,8-TCDF	pg/m^3	-	-	-	3.46E-04	1.46E-04	7.21E-04	1.46E-04	7.21E-04	1.71E-04	3	75
1,2,3,7,8-PeCDF	pg/m^3	-	-	-	5.36E-05	2.26E-05	9.71E-05	2.26E-05	9.71E-05	4.10E-05	3	75
2,3,4,7,8-PeCDF	pg/m^3	-	-	-	8.05E-04	2.09E-04	1.32E-03	2.09E-04	8.82E-04	1.32E-03	3	75
1,2,3,4,7,8-HxCDF	pg/m^3	-	-	-	2.39E-04	1.49E-04	3.97E-04	1.49E-04	3.97E-04	1.71E-04	3	75
1,2,3,6,7,8-HxCDF	pg/m^3	-	-	-	2.49E-04	3.99E-05	3.68E-04	3.99E-05	3.68E-04	3.39E-04	3	75
2,3,4,6,7,8-HxCDF	pg/m^3	-	-	-	1.78E-04	3.99E-05	3.82E-04	3.99E-05	3.82E-04	1.12E-04	3	75
1,2,3,7,8,9-HxCDF	pg/m^3	-	-	-	2.13E-04	4.73E-05	4.71E-04	4.73E-05	4.71E-04	1.21E-04	3	75
1,2,3,4,6,7,8-HpCDF	pg/m^3	-	-	-	8.26E-05	1.63E-05	1.71E-04	1.63E-05	6.03E-05	1.71E-04	3	75
1,2,3,4,7,8,9-HpCDF	pg/m^3	-	-	-	3.03E-05	7.40E-06	7.35E-05	7.40E-06	7.35E-05	9.94E-06	3	75

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	No. > Criteria	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
OCDF	pg/m^3	-	-	-	2.74E-06	3.82E-07	5.29E-06	3.82E-07	5.29E-06	2.54E-06	3	75
Total Toxic Equivalency	pg TEQ/m^3	*0.1* *1*[1]	-	0	1.18E-02	3.63E-03	2.06E-02	3.63E-03	2.06E-02	1.11E-02	3	75

Notes: All non-detectable results were reported as 1/2 of the detection limit
[1] O. Reg. 419/05 Schedule Upper Risk Thresholds

6 DATA REQUESTS

The following sections outline any instrumentation issues encountered that have caused data loss at any of the monitors at each of the stations.

Appendix C contains monthly IZS zero trends for the NO_X and SO_2 analyzers at the Courtice and Rundle Road Stations.

Edit logs identifying missing data, maintenance times, calibrations and any other missing data have been included in **Appendix D**.

6.1 Continuous Monitoring

During October of 2022, a maintenance project was undertaken at both monitoring stations which required the removal of all analyzers for the duration. The Courtice station analyzers were removed beginning at 12:00 on October 4 and were fully reinstalled and calibrated by 18:00 on October 12, 2022. The Rundle Road station analyzers were removed beginning at 9:00 on October 4 and were fully reinstalled and calibrated by 14:00 on October 12, 2022.

On October 17, 2022, a power failure caused the loss of one hour of data at 11:00 for all analyzers at the Courtice station including the meteorological tower.

On October 18, 2022, a power failure caused the loss of two hours of data from 13:00 to 15:00 for all analyzers at the Courtice station including the meteorological tower.

On October 27, 2022, two hours of data was invalidated from 9:00 until 11:00 at the Courtice station and 11:00 to 13:00 at the Rundle Road station due to an MECP audit being performed.

On November 17, 2022, the Courtice station suffered from a communications malfunction which invalidated twenty-six hours of the NO_X data from 10:00 until 12:00 on November 18, 2022.

On November 29, 2022, nine hours of the NO_X data was invalidated from 2:00 until 11:00 due to failing the 'As Found' span calibrations. The overnight span check that morning had passed.

On December 28, 2022, at 16:00 the wind direction instrument at the Rundle Road station malfunction and the data was invalid until 18:00 on December 31, 2022.

6.2 Discrete Monitoring

The October 20, 2022, Courtice TSP & metals sample was invalidated because of insufficient sample volume due to a tripped breaker which stopped power to the sampler mid run.

The December 7, 2022, Courtice TSP & metals sample was invalidated due to an equipment malfunction.

The December 19, 2022, Courtice TSP & metals sample was invalidated because of a tripped breaker which interrupted the power to the sampler.

The December 31, 2022, D&F sample from the Rundle Road Station was invalid due to contamination which occurred at the laboratory while the sample was being processed for analysis.

7 CONCLUSIONS

This Q4 report provides a summary of the ambient air quality data collected at the Courtice and Rundle Road Stations. There were sixty-two (62) exceedance events of the rolling 10-minute SO_2 AAQC and twenty-nine (29) exceedance events of the 1-hour SO_2 AAQC at the Courtice Station. There was one (1) exceedance of the 24-Hour Benzo(a) Pyrene AAQC, which occurred on November 1 at the Rundle Road Station. Data recovery rates were acceptable and valid for all measured Q4 continuous and discrete parameters.

8 REFERENCES

1. Canadian Council of Ministers of the Environment (CCME), 2012. Guidance Document on Achievement Determination Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone. PN 1483 978-1-896997-91-9 PDF
2. Canadian Council of Ministers of the Environment (CCME), 2019. Guidance Document on Air Zone Management. PN 1593978-1-77202-050-2 PDF
3. Ontario Ministry of the Environment and Climate Change, 2018. [Technical Assessment and Standards Development Branch] Ontario Air Standards for Sulphur Dioxide (SO_2). [Online]
4. Ontario Ministry of the Environment and Climate Change, 2012. [Standards Development Branch] Ontario's AmbientAir Quality Criteria (Sorted by Contaminant Name). PIBS #6570e01

9 GENERAL STATEMENT OF LIMITATIONS

This report entitled "2022 Q4 Ambient Air Quality Monitoring Report", dated March 6, 2023, was prepared by RWDI AIR Inc. ("RWDI") for The Regional Municipality of Durham ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

This report was prepared for the exclusive use of The Regional Municipality of Durham and the MECP. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.

APPENDIX A

Table A1: 2022 Summary Statistics for Q4

Courtice Monitoring Station Data Statistics	Maximum 10 min Rolling Mean	Maximum 1 hr Rolling Mean					Maximum 24 hr Rolling Mean					Monthly Mean					Valid Data				
Compound	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2
Units	ppb	($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				(%)				
AAQC/CAAQS	67				200	40	27[A]			100											
October	192.6	84.4	49.4	33.8	31.8	78.2	19.2	16.8	6.3	11.9	12.2	N/A [1]	N/A [1]	N/A [1]	N/A [1]	N/A [1]	73.0	73.0	73.0	73.0	72.6
November	223.0	52.6	65.5	43.5	31.3	138.1	24.6	35.9	16.1	21.6	18.9	7.0	9.1	3.4	5.7	3.5	99.9	94.6	94.6	94.6	99.6
December	76.5	62.1	59.4	31.7	28.2	44.3	13.2	20.9	7.5	13.4	18.8	5.4	6.8	1.6	5.2	2.6	99.9	99.3	99.3	99.3	99.6
Q4 Arithmetic Mean												6.2	7.9	2.5	5.5	3.1	90.8	88.9	88.9	88.9	90.5

Rundle Monitoring Station Data Statistics	Maximum 10 min Rolling Mean	Maximum 1 hr Rolling Mean					Maximum 24 hr Rolling Mean					Monthly Mean					Valid Data				
Compound	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2
Units	ppb	($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				(%)				
AAQC/CAAQS	67				200	40	27[A]			100											
October	45.4	27.6	33.6	20.6	18.3	22.8	11.9	9.9	4.0	7.0	1.9	N/A [1]	N/A [1]	N/A [1]	N/A [1]	N/A [1]	73.4	73.5	73.5	73.5	73.5
November	52.9	37.6	58.0	35.3	29.5	34.0	26.6	24.8	8.7	17.6	6.1	6.7	7.1	2.4	4.8	0.7	99.7	99.3	99.3	99.3	99.7
December	17.9	28.7	82.3	54.2	28.3	11.0	12.8	20.0	8.6	12.4	2.7	5.8	5.8	1.3	4.6	0.3	99.7	99.7	99.7	99.7	99.5
Q4 Arithmetic Mean												6.2	6.5	1.9	4.7	0.5	90.9	90.8	90.8	90.8	90.8

Event Statistics	Rolling Mean > 10 min AAQC for Courtice	Rolling Mean > 10 min AAQC for Rundle	Rolling Mean > 1 hr AAQC for Courtice			Rolling Mean > 1 hr AAQC for Rundle			Rolling Mean > 24 hr AAQC for Courtice Monitoring Station			Rolling Mean > 24 hr AAQC for Rundle Monitoring Station		
Compound	SO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2
Units	No.	No.	No.			No.			No.			No.		
October	21	0		0	11		0	0	N/A	0		N/A	0	
November	39	0		0	16		0	0	N/A	0		N/A	0	
December	2	0		0	2		0	0	N/A	0		N/A	0	
Q4 Total	62	0		0	29		0	0	N/A	0		N/A	0	

Courtice Station MET Statistics	Maximum 1 hr Mean					Minimum 1 hr Mean					Monthly Mean					Total	Valid Data					
Parameter	WS	Temp	RH	Pres	Rain	WS	Temp	RH	Pres	Rain	WS	Temp	RH	Pres	Rain	Rain	WS	WD	Temp	RH	Pres	Rain
Units	(km/hr)	(°C)	(%)	"Hg	mm	(km/hr)	(°C)	(%)	"Hg	mm	(km/hr)	(°C)	(%)	"Hg	mm	mm	(%)					
October	36.0	19.0	100.0	30.3	4.8	0.6	1.0	28.7	29.2	0.0	10.7	9.7	70.1	29.7	0.1	30.3	76.7	74.7	76.7	76.7	76.7	77.3
November	46.9	18.7	100.0	30.5	4.3	0.2	-5.1	29.1	29.0	0.0	12.3	5.0	71.6	29.8	0.1	47.5	100.0	97.4	100.0	100.0	100.0	99.9
December	58.9	9.4	100.0	30.2	3.1	0.3	-11.2	40.3	28.6	0.0	16.9	0.0	70.6	29.8	0.1	63.4	99.9	98.8	100.0	100.0	100.0	99.9
Q4 Arithmetic Mean											13.3	4.5	70.8	29.7	0.1	141.2	92.1	90.2	92.2	92.2	92.2	92.3

Rundle Station MET Statistics	Maximum 1 hr Mean				Minimum 1 hr Mean				Monthly Mean				Total	Valid Data				
Parameter	WS	Temp	RH	Rain	WS	Temp	RH	Rain	WS	Temp	RH	Rain	Rain	WS	WD	Temp	RH	Rain
Units	(km/hr)	(°C)	(%)	mm	(km/hr)	(°C)	(%)	mm	(km/hr)	(°C)	(%)	mm	mm	(%)				
October	28.5	19.3	100.0	4.9	0.1	-0.8	32.6	0.0	8.0	8.9	77.5	0.1	35.8	76.5	73.1	76.5	76.5	76.7
November	42.4	20.8	100.0	4.4	0.1	-5.7	34.1	0.0	10.0	4.4	77.0	0.1	53.6	100.0	94.3	100.0	100.0	100.0
December	48.7	9.6	100.0	4.3	0.1	-12.4	46.7	0.0	13.7	-0.5	76.3	0.1	86.9	99.7	88.6	100.0	100.0	99.1
Q4 Arithmetic Mean									10.8	4.3	76.9	0.1	176.3	92.0	85.2	92.1	92.1	91.8

Notes:
1 - No October average presented due to not meeting monthly data validity criteria of >75%

Table A2: 2022 Q4 Station Courtice Monitoring Results for PM2.5

Data Statistics	Rolling Mean > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$
	No.	(ug/m^3)	(ug/m^3)	(ug/m^3)	No.	%
October	N/A	5.6	84.4	19.2	543	73.0
November	N/A	7.0	52.6	24.6	719	99.9
December	N/A	5.4	62.1	13.2	743	99.9

Table A3: 2022 Q4 Station Rundle Monitoring Results for PM2.5

Data Statistics	Rolling Mean > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$
	No.	(ug/m^3)	(ug/m^3)	(ug/m^3)	No.	%
October	N/A	5.4	27.6	11.9	546	73.4
November	N/A	6.7	37.6	26.6	718	99.7
December	N/A	5.8	28.7	12.8	742	99.7

Table A4: 2022 Q4 Station Courtice Monitoring Results for NOx

Data Statistics	Events > 1 hr AAQC	Events > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	NO_x	NO_x	NO_x	NO_x	NO_x	NO_x	NO_x
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
October	N/A	N/A	6.8	49.4	16.8	543	73.0
November	N/A	N/A	9.1	65.5	35.9	681	94.6
December	N/A	N/A	6.8	59.4	20.9	739	99.3

Table A5: 2022 Q4 Station Rundle Monitoring Results for NOx

Data Statistics	Events > 1 hr AAQC	Events > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	NO_x	NO_x	NO_x	NO_x	NO_x	NO_x	NO_x
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
October	N/A	N/A	4.8	33.6	9.9	547	73.5
November	N/A	N/A	7.1	58.0	24.8	715	99.3
December	N/A	N/A	5.8	82.3	20.0	742	99.7

Table A6: 2022 Q4 Station Courtice Monitoring Results for NO

Data Statistics	Events > 1 hr AAQC	Events > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	NO	NO	NO	NO	NO	NO	NO
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
October	N/A	N/A	2.3	33.8	6.3	543	73.0
November	N/A	N/A	3.4	43.5	16.1	681	94.6
December	N/A	N/A	1.6	31.7	7.5	739	99.3

Table A7: 2022 Q4 Station Rundle Monitoring Results for NO

Data Statistics	Events > 1 hr AAQC	Events > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	NO	NO	NO	NO	NO	NO	NO
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
October	N/A	N/A	1.7	20.6	4.0	547	73.5
November	N/A	N/A	2.4	35.3	8.7	715	99.3
December	N/A	N/A	1.3	54.2	8.6	742	99.7

Table A8: 2022 Q4 Station Courtice Monitoring Results for NO2

Data Statistics	Events > 1 hr AAQC	Events > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	NO_2	NO_2	NO_2	NO_2	NO_2	NO_2	NO_2
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
October	0	0	4.5	31.8	11.9	543	73.0
November	0	0	5.7	31.3	21.6	681	94.6
December	0	0	5.2	28.2	13.4	739	99.3

Table A9: 2022 Q4 Station Rundle Monitoring Results for NO2

Data Statistics	Events > 1 hr AAQC	Events > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	NO_2	NO_2	NO_2	NO_2	NO_2	NO_2	NO_2
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
October	0	0	3.2	18.3	7.0	547	73.5
November	0	0	4.8	29.5	17.6	715	99.3
December	0	0	4.6	28.3	12.4	742	99.7

Table A10: 2022 Q4 Station Courtice Monitoring Results for SO2

Data Statistics	Events > 10 min AAQC	Events > 1 hr AAQC	Arithmetic Mean	Maximum 10 min Rolling Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2
	No.	No.	(ppb)	(ppb)	(ppb)	(ppb)	No.	%
October	21	11	2.9	192.6	78.2	12.2	540	72.6
November	39	16	3.5	223.0	138.1	18.9	717	99.6
December	2	2	2.6	76.5	44.3	18.8	741	99.6

Table A11: 2022 Q4 Station Rundle Monitoring Results for SO2

Data Statistics	Events > 10 min AAQC	Events > 1 hr AAQC	Arithmetic Mean	Maximum 10 min Rolling Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2
	No.	No.	(ppb)	(ppb)	(ppb)	(ppb)	No.	%
October	0	0	0.6	45.4	22.8	1.9	547	73.5
November	0	0	0.7	52.9	34.0	6.1	718	99.7
December	0	0	0.3	17.9	11.0	2.7	740	99.5

Table A12: 2022 Q4 Courtice Meterological Station Windspeed Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Wind Speed	Wind Speed	Wind Speed	Wind Speed
	(km/hr)	(km/hr)	(km/hr)	(%)
October	36.0	0.6	10.7	76.7
November	46.9	0.2	12.3	100.0
December	58.9	0.3	16.9	99.9

Table A13: 2022 Q4 Rundle Meterological Station Windspeed Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Hours
Month	Wind Speed	Wind Speed	Wind Speed	Wind Speed
	(km/hr)	(km/hr)	(km/hr)	(%)
October	28.5	0.1	8.0	76.5
November	42.4	0.1	10.0	100.0
December	48.7	0.1	13.7	99.7

Table A14: 2022 Q4 Courtice Meterological Station Wind Direction Data Summary

MET Statistics	Valid Data
Month	Wind Direction
	(%)
October	74.7
November	97.4
December	98.8

Table A15: 2022 Q4 Rundle Meterological Station Wind Direction Data Summary

MET Statistics	Valid Data
Month	Wind Direction
	(%)
October	73.1
November	94.3
December	88.6

Table A16: 2022 Q4 Courtice Meterological Station Temperature Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Temperature	Temperature	Temperature	Temperature
	(°C)	(°C)	(°C)	(%)
October	19.0	1.0	9.7	76.7
November	18.7	-5.1	5.0	100.0
December	9.4	-11.2	0.0	100.0

Table A17: 2022 Q4 Rundle Meterological Station Temperature Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Temperature	Temperature	Temperature	Temperature
	(°C)	(°C)	(°C)	(%)
October	19.3	-0.8	8.9	76.5
November	20.8	-5.7	4.4	100.0
December	9.6	-12.4	-0.5	100.0

Table A18: 2022 Q4 Courtice Meterological Station Relative Humidity Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Relative Humidity	Relative Humidity	Relative Humidity	Relative Humidity
	(%)	(%)	(%)	(%)
October	100.0	28.7	70.1	76.7
November	100.0	29.1	71.6	100.0
December	100.0	40.3	70.6	100.0

Table A19: 2022 Q4 Rundle Meterological Station Relative Humidity Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Relative Humidity	Relative Humidity	Relative Humidity	Relative Humidity
	(%)	(%)	(%)	(%)
October	100.0	32.6	77.5	76.5
November	100.0	34.1	77.0	100.0
December	100.0	46.7	76.3	100.0

Table A20: 2022 Q4 Courtice Meterological Station Precipitation Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Total	Valid Data
Month	Precipitation	Precipitation	Precipitation	Precipitation	Precipitation
	(mm)	(mm)	(mm)	(mm)	%
October	4.8	0.0	0.1	30.3	77.3
November	4.3	0.0	0.1	47.5	99.9
December	3.1	0.0	0.1	63.4	99.9

Table A21: 2022 Q4 Rundle Meterological Station Precipitation Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Total	Valid Data
Month	Precipitation	Precipitation	Precipitation	Precipitation	Precipitation
	(mm)	(mm)	(mm)	(mm)	%
October	4.9	0.0	0.1	35.8	76.7
November	4.4	0.0	0.1	53.6	100.0
December	4.3	0.0	0.1	86.9	99.1

Table A22: 2022 Q4 Courtice Meterological Station Pressure Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Pressure	Pressure	Pressure	Pressure
	("Hg)	("Hg)	("Hg)	(%)
October	30.3	29.2	29.7	76.7
November	30.5	29.0	29.8	100.0
December	30.2	28.6	29.8	100.0

APPENDIX B

Table B1: Summary of Sample Flow Rate and Sample Duration for Dioxins & Furans

Sample Date	Courtice			Rundle		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)
October 20, 2022	L2737970-2	1440	334	L2737970-1	1440	338
November 13, 2022	L2740792-2	1440	344	L2740792-1	1440	340
December 7, 2022	L2743123-2	1440	331	L2743123-1	1440	322
December 31, 2022	L2744471-2	1440	322	Invalid		

Table B2: 2022 Courtice Station Q4 Monitoring Results for Dioxins & Furans

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	20-Oct-22	13-Nov-22	7-Dec-22	31-Dec-22	MECP Criteria (µg/m^3)	No. > Criteria	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg TEQ/m^3	-	-	7.49E-04	7.12E-03	6.34E-04	3.11E-03	-	-	2.84E-03	6.34E-04	7.12E-03	7.49E-04	7.12E-03	3.11E-03	4	100
1,2,3,7,8-PeCDD	pg TEQ/m^3	-	-	5.54E-04	1.00E-02	4.53E-03	3.73E-03	-	-	5.04E-03	5.54E-04	1.00E-02	5.54E-04	1.00E-02	4.53E-03	4	100
1,2,3,4,7,8-HxCDD	pg TEQ/m^3	-	-	8.68E-05	9.45E-04	4.08E-04	3.11E-04	-	-	4.80E-04	8.68E-05	9.45E-04	8.68E-05	9.45E-04	4.08E-04	4	100
1,2,3,6,7,8-HxCDD	pg TEQ/m^3	-	-	8.68E-05	9.16E-04	1.69E-03	3.42E-04	-	-	8.97E-04	8.68E-05	1.69E-03	8.68E-05	9.16E-04	1.69E-03	4	100
1,2,3,7,8,9-HxCDD	pg TEQ/m^3	-	-	2.28E-04	9.30E-04	1.57E-03	3.73E-04	-	-	9.11E-04	2.28E-04	1.57E-03	2.28E-04	9.30E-04	1.57E-03	4	100
1,2,3,4,6,7,8-HpCDD	pg TEQ/m^3	-	-	1.42E-04	2.03E-04	2.20E-03	6.86E-04	-	-	8.48E-04	1.42E-04	2.20E-03	1.42E-04	2.03E-04	2.20E-03	4	100
OCDD	pg TEQ/m^3	-	-	3.00E-05	1.00E-04	1.29E-04	6.24E-05	-	-	8.63E-05	3.00E-05	1.29E-04	3.00E-05	1.00E-04	1.29E-04	4	100
2,3,7,8-TCDF	pg TEQ/m^3	-	-	9.43E-05	5.52E-04	2.11E-04	2.80E-04	-	-	2.86E-04	9.43E-05	5.52E-04	9.43E-05	5.52E-04	2.80E-04	4	100
1,2,3,7,8-PeCDF	pg TEQ/m^3	-	-	1.98E-05	1.09E-04	1.23E-04	9.78E-05	-	-	8.40E-05	1.98E-05	1.23E-04	1.98E-05	1.09E-04	1.23E-04	4	100
2,3,4,7,8-PeCDF	pg TEQ/m^3	-	-	1.84E-04	1.00E-03	1.43E-03	5.59E-04	-	-	8.73E-04	1.84E-04	1.43E-03	1.84E-04	1.00E-03	1.43E-03	4	100
1,2,3,4,7,8-HxCDF	pg TEQ/m^3	-	-	3.74E-05	5.09E-04	1.96E-04	3.11E-04	-	-	2.48E-04	3.74E-05	5.09E-04	3.74E-05	5.09E-04	3.11E-04	4	100
1,2,3,6,7,8-HxCDF	pg TEQ/m^3	-	-	2.69E-05	4.80E-04	1.66E-04	1.71E-04	-	-	2.24E-04	2.69E-05	4.80E-04	2.69E-05	4.80E-04	1.71E-04	4	100
2,3,4,6,7,8-HxCDF	pg TEQ/m^3	-	-	2.54E-05	4.94E-04	4.32E-04	2.48E-04	-	-	3.17E-04	2.54E-05	4.94E-04	2.54E-05	4.94E-04	4.32E-04	4	100
1,2,3,7,8,9-HxCDF	pg TEQ/m^3	-	-	8.05E-05	5.96E-04	9.67E-05	3.88E-04	-	-	2.58E-04	8.05E-05	5.96E-04	8.05E-05	5.96E-04	3.88E-04	4	100
1,2,3,4,6,7,8-HpCDF	pg TEQ/m^3	-	-	4.01E-05	1.38E-04	1.65E-04	6.99E-05	-	-	1.14E-04	4.01E-05	1.65E-04	4.01E-05	1.38E-04	1.65E-04	4	100
1,2,3,4,7,8,9-HpCDF	pg TEQ/m^3	-	-	5.84E-06	1.74E-04	6.65E-06	3.11E-05	-	-	6.23E-05	5.84E-06	1.74E-04	5.84E-06	1.74E-04	3.11E-05	4	100
OCDF	pg TEQ/m^3	-	-	3.41E-07	1.00E-05	1.31E-06	4.33E-06	-	-	3.89E-06	3.41E-07	1.00E-05	3.41E-07	1.00E-05	4.33E-06	4	100
Total Toxic Equivalency	pg TEQ/m^3	*0.1* *1* [1]	-	2.39E-03	2.43E-02	1.40E-02	1.08E-02	0.1	0	1.36E-02	2.39E-03	2.43E-02	2.39E-03	2.43E-02	1.40E-02	4	100

NOTE: All non-detectable results were reported as 1/2 of the detection limit

[1] O. Reg. 419/05 Schedule Upper Risk Thresholds

Table B3: 2022 Rundle Road Station Q4 Monitoring Results for Dioxins & Furans

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	20-Oct-22	13-Nov-22	7-Dec-22	31-Dec-22	MECP Criteria (µg/m^3)	No. > Criteria	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg TEQ/m^3	-	-	1.20E-03	8.97E-03	1.55E-03		-	-	3.91E-03	1.20E-03	8.97E-03	1.20E-03	8.97E-03	1.55E-03	3	75
1,2,3,7,8-PeCDD	pg TEQ/m^3	-	-	6.80E-04	5.59E-03	3.57E-03		-	-	3.28E-03	6.80E-04	5.59E-03	6.80E-04	5.59E-03	3.57E-03	3	75
1,2,3,4,7,8-HxCDD	pg TEQ/m^3	-	-	1.83E-04	5.88E-04	3.11E-04		-	-	3.61E-04	1.83E-04	5.88E-04	1.83E-04	5.88E-04	3.11E-04	3	75
1,2,3,6,7,8-HxCDD	pg TEQ/m^3	-	-	3.02E-04	5.74E-04	1.19E-03		-	-	6.88E-04	3.02E-04	1.19E-03	3.02E-04	5.74E-04	1.19E-03	3	75
1,2,3,7,8,9-HxCDD	pg TEQ/m^3	-	-	2.60E-04	5.74E-04	5.12E-04		-	-	4.49E-04	2.60E-04	5.74E-04	2.60E-04	5.74E-04	5.12E-04	3	75
1,2,3,4,6,7,8-HpCDD	pg TEQ/m^3	-	-	2.99E-04	7.97E-04	1.47E-03		-	-	8.56E-04	2.99E-04	1.47E-03	2.99E-04	7.97E-04	1.47E-03	3	75
OCDD	pg TEQ/m^3	-	-	2.45E-05	6.53E-05	4.33E-05		-	-	4.44E-05	2.45E-05	6.53E-05	2.45E-05	6.53E-05	4.33E-05	3	75
2,3,7,8-TCDF	pg TEQ/m^3	-	-	1.46E-04	7.21E-04	1.71E-04		-	-	3.46E-04	1.46E-04	7.21E-04	1.46E-04	7.21E-04	1.71E-04	3	75
1,2,3,7,8-PeCDF	pg TEQ/m^3	-	-	2.26E-05	9.71E-05	4.10E-05		-	-	5.36E-05	2.26E-05	9.71E-05	2.26E-05	9.71E-05	4.10E-05	3	75
2,3,4,7,8-PeCDF	pg TEQ/m^3	-	-	2.09E-04	8.82E-04	1.32E-03	Invalid Sample	-	-	8.05E-04	2.09E-04	1.32E-03	2.09E-04	8.82E-04	1.32E-03	3	75
1,2,3,4,7,8-HxCDF	pg TEQ/m^3	-	-	1.49E-04	3.97E-04	1.71E-04		-	-	2.39E-04	1.49E-04	3.97E-04	1.49E-04	3.97E-04	1.71E-04	3	75
1,2,3,6,7,8-HxCDF	pg TEQ/m^3	-	-	3.99E-05	3.68E-04	3.39E-04		-	-	2.49E-04	3.99E-05	3.68E-04	3.99E-05	3.68E-04	3.39E-04	3	75
2,3,4,6,7,8-HxCDF	pg TEQ/m^3	-	-	3.99E-05	3.82E-04	1.12E-04		-	-	1.78E-04	3.99E-05	3.82E-04	3.99E-05	3.82E-04	1.12E-04	3	75
1,2,3,7,8,9-HxCDF	pg TEQ/m^3	-	-	4.73E-05	4.71E-04	1.21E-04		-	-	2.13E-04	4.73E-05	4.71E-04	4.73E-05	4.71E-04	1.21E-04	3	75
1,2,3,4,6,7,8-HpCDF	pg TEQ/m^3	-	-	1.63E-05	6.03E-05	1.71E-04		-	-	8.26E-05	1.63E-05	1.71E-04	1.63E-05	6.03E-05	1.71E-04	3	75
1,2,3,4,7,8,9-HpCDF	pg TEQ/m^3	-	-	7.40E-06	7.35E-05	9.94E-06		-	-	3.03E-05	7.40E-06	7.35E-05	7.40E-06	7.35E-05	9.94E-06	3	75
OCDF	pg TEQ/m^3	-	-	3.82E-07	5.29E-06	2.54E-06		-	-	2.74E-06	3.82E-07	5.29E-06	3.82E-07	5.29E-06	2.54E-06	3	75
Total Toxic Equivalency	pg TEQ/m^3	*0.1* *1* [1]	-	3.63E-03	2.06E-02	1.11E-02		0.1	0	1.18E-02	3.63E-03	2.06E-02	3.63E-03	2.06E-02	1.11E-02	3	75

NOTE: All non-detectable results were reported as 1/2 of the detection limit

[1] O. Reg. 419/05 Schedule Upper Risk Thresholds

Table B4: Summary of Sample Flow Rate and Sample Duration for PAHs

Sample Date	Courtice			Rundle		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)
October 8, 2022	L2736625-2	1394	317	L2736625-1	1419	321
October 20, 2022	L2737970-2	1440	334	L2737970-1	1440	338
November 1, 2022	L2739310-2	1440	327	L2739310-1	1440	307
November 13, 2022	L2738719-3	1440	344	L2738719-2	1440	340
November 25, 2022	L2740128-2	1440	331	L2740128-3	1440	330
December 7, 2022	L2743123-2	1440	331	L2743123-1	1440	322
December 19, 2022	L2743741-2	1440	341	L2743741-1	1440	332
December 31, 2022	L2744471-2	1440	322	L2744471-1	1440	317

Table B5: 2022 Courtice Station Q4 Monitoring Results for PAHs

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	8-Oct-22	20-Oct-22	1-Nov-22	13-Nov-22	25-Nov-22	7-Dec-22	19-Dec-22	31-Dec-22	No. > Criteria	Arithmetic Mean	Minimum Q4 Concentration	Maximum Q4 Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m^3	*12000*	-	2.57E+00	1.34E+00	2.45E+00	1.73E+00	5.11E+00	2.90E+00	2.21E+00	2.16E+00	0	2.56E+00	1.34E+00	5.11E+00	2.57E+00	5.11E+00	2.90E+00	8	100
2-Methylnaphthalene	ng/m^3	*10000*	-	4.83E+00	2.55E+00	5.50E+00	3.14E+00	9.70E+00	4.62E+00	3.40E+00	3.79E+00	0	4.69E+00	2.55E+00	9.70E+00	4.83E+00	9.70E+00	4.62E+00	8	100
Acenaphthene	ng/m^3	-	-	1.74E+00	4.52E-01	2.61E+00	8.84E-01	2.19E+00	1.47E+00	1.86E-01	2.18E+00	-	1.46E+00	1.86E-01	2.61E+00	1.74E+00	2.61E+00	2.18E+00	8	100
Acenaphthylene	ng/m^3	*3500*	-	5.17E-01	4.88E-02	1.06E+00	1.81E-01	4.14E-01	5.98E-01	2.47E-01	3.76E-01	0	4.30E-01	4.88E-02	1.06E+00	5.17E-01	1.06E+00	5.98E-01	8	100
Anthracene	ng/m^3	*200*	-	2.28E-01	2.38E-02	4.13E-01	5.15E-02	7.07E-02	1.26E-01	4.08E-02	1.98E-01	0	1.44E-01	2.38E-02	4.13E-01	2.28E-01	4.13E-01	1.98E-01	8	100
Benzo(a)Anthracene	ng/m^3	-	-	1.44E-02	4.16E-02	4.37E-02	7.53E-03	2.45E-02	3.60E-02	1.23E-03	2.79E-02	-	2.46E-02	1.23E-03	4.37E-02	4.16E-02	4.37E-02	3.60E-02	8	100
Benzo(a)fluorene	ng/m^3	-	-	7.10E-02	7.22E-02	8.23E-02	2.59E-02	4.95E-02	7.37E-02	2.28E-02	4.91E-02	-	5.58E-02	2.28E-02	8.23E-02	7.22E-02	8.23E-02	7.37E-02	8	100
Benzo(a)Pyrene (Historically High)	ng/m^3	*0.05* [1] *5* [2] *1.1* [3]	*1*	2.39E-02	3.86E-02	4.62E-02	1.24E-02	2.35E-02	3.56E-02	2.93E-04	2.33E-02	0	2.55E-02	2.93E-04	4.62E-02	3.86E-02	4.62E-02	3.56E-02	8	100
Benzo(b)Fluoranthene	ng/m^3	-	-	6.88E-02	7.34E-02	1.15E-01	3.17E-02	7.49E-02	1.78E-01	1.14E-03	6.46E-02	-	7.59E-02	1.14E-03	1.78E-01	7.34E-02	1.15E-01	1.78E-01	8	100
Benzo(b)fluorene	ng/m^3	-	-	2.59E-02	5.78E-02	5.20E-02	1.06E-02	5.59E-02	5.92E-02	9.03E-03	2.69E-02	-	3.72E-02	9.03E-03	5.92E-02	5.78E-02	5.59E-02	5.92E-02	8	100
Benzo(e)Pyrene	ng/m^3	-	-	4.45E-02	3.89E-02	5.60E-02	1.97E-02	4.26E-02	7.19E-02	2.93E-04	4.72E-02	-	4.01E-02	2.93E-04	7.19E-02	4.45E-02	5.60E-02	7.19E-02	8	100
Benzo(g,h,i)Perylene	ng/m^3	-	-	3.60E-02	4.46E-02	7.09E-02	2.26E-02	4.23E-02	7.95E-02	2.93E-04	4.97E-02	-	4.32E-02	2.93E-04	7.95E-02	4.46E-02	7.09E-02	7.95E-02	8	100
Benzo(k)Fluoranthene	ng/m^3	-	-	4.98E-02	5.84E-02	8.44E-02	2.99E-02	4.80E-02	2.17E-01	2.67E-03	5.90E-02	-	6.87E-02	2.67E-03	2.17E-01	5.84E-02	8.44E-02	2.17E-01	8	100
Biphenyl	ng/m^3	-	-	1.36E+00	1.10E+00	2.37E+00	1.14E+00	2.56E+00	2.59E+00	5.10E+00	2.38E+00	-	2.33E+00	1.10E+00	5.10E+00	1.36E+00	2.56E+00	5.10E+00	8	100
Chrysene	ng/m^3	-	-	9.40E-02	1.28E-01	1.88E-01	4.45E-02	1.03E-01	1.54E-01	1.41E-02	1.07E-01	-	1.04E-01	1.41E-02	1.88E-01	1.28E-01	1.88E-01	1.54E-01	8	100
Dibenzo(a,h)Anthracene	ng/m^3	-	-	5.99E-03	1.11E-02	1.42E-02	3.11E-03	6.77E-03	8.64E-03	2.93E-04	1.43E-02	-	8.05E-03	2.93E-04	1.43E-02	1.11E-02	1.42E-02	1.43E-02	8	100
Fluoranthene	ng/m^3	-	-	5.96E-01	4.22E-01	1.52E+00	2.49E-01	4.80E-01	1.01E+00	3.08E-01	1.22E+00	-	7.26E-01	2.49E-01	1.52E+00	5.96E-01	1.52E+00	1.22E+00	8	100
Fluorene	ng/m^3	-	-	1.43E+00	5.78E-01	2.75E+00	6.57E-01	1.73E+00	1.83E+00	4.57E-01	2.89E+00	-	1.54E+00	4.57E-01	2.89E+00	1.43E+00	2.75E+00	2.89E+00	8	100
Indeno(1,2,3-cd)Pyrene	ng/m^3	-	-	3.63E-02	4.40E-02	6.70E-02	2.25E-02	4.35E-02	7.46E-02	2.93E-04	4.50E-02	-	4.16E-02	2.93E-04	7.46E-02	4.40E-02	6.70E-02	7.46E-02	8	100
Naphthalene	ng/m^3	*22500*	*22500*	1.25E+01	1.23E+01	1.16E+01	8.90E+00	3.05E+01	1.12E+01	6.10E+00	1.24E+01	0	1.32E+01	6.10E+00	3.05E+01	1.25E+01	3.05E+01	1.24E+01	8	100
o-Terphenyl	ng/m^3	-	-	7.54E-03	1.50E-02	2.87E-02	3.72E-03	1.34E-02	1.66E-02	5.48E-03	2.20E-02	-	1.41E-02	3.72E-03	2.87E-02	1.50E-02	2.87E-02	2.20E-02	8	100
Perylene	ng/m^3	-	-	4.92E-02	2.99E-04	3.06E-04	1.34E-03	3.02E-04	4.08E-03	2.93E-04	3.11E-04	-	7.02E-03	2.93E-04	4.92E-02	4.92E-02	1.34E-03	4.08E-03	8	100
Phenanthrene	ng/m^3	-	-	2.94E+00	1.04E+00	6.02E+00	1.19E+00	2.27E+00	3.81E+00	1.53E+00	5.31E+00	-	3.01E+00	1.04E+00	6.02E+00	2.94E+00	6.02E+00	5.31E+00	8	100
Pyrene	ng/m^3	-	-	4.13E-01	2.20E-01	8.41E-01	1.75E-01	2.86E-01	5.89E-01	1.97E-01	5.84E-01	-	4.13E-01	1.75E-01	8.41E-01	4.13E-01	8.41E-01	5.89E-01	8	100
Tetralin	ng/m^3	-	-	1.00E+00	7.78E-01	1.17E+00	4.91E-01	4.11E+00	7.13E-01	1.69E+00	1.42E+00	-	1.42E+00	4.91E-01	4.11E+00	1.00E+00	4.11E+00	1.69E+00	8	100
Total PAH[4]	ng/m^3	-	-	30.62	21.51	39.15	19.02	59.95	32.46	21.53	35.43	-	32.46	19.02	59.95	30.62	59.95	35.43	8	100

NOTE: All non-detectable results were reported as 1/2 of the detection limit

[1] AAQC
[2] O. Reg. 419/05 Schedule Upper Risk Thresholds
[3] O. Reg. 419/05 24 Hour Guideline
[4] Total PAH sums all PAH contaminants

Table B6: 2022 Rundle Road Station Q4 Monitoring Results for PAHs

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	8-Oct-22	20-Oct-22	1-Nov-22	13-Nov-22	25-Nov-22	7-Dec-22	19-Dec-22	31-Dec-22	No. > Criteria	Arithmetic Mean	Minimum Q4 Concentration	Maximum Q4 Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m^3	*12000*	-	2.01E+00	2.78E+00	1.97E+00	1.11E+00	7.39E+00	2.35E+00	2.04E+00	2.24E+00	0	2.74E+00	1.11E+00	7.39E+00	2.78E+00	7.39E+00	2.35E+00	8	100
2-Methylnaphthalene	ng/m^3	*10000*	-	3.55E+00	5.21E+00	4.59E+00	1.81E+00	1.32E+01	3.45E+00	3.80E+00	4.01E+00	0	4.96E+00	1.81E+00	1.32E+01	5.21E+00	1.32E+01	4.01E+00	8	100
Acenaphthene	ng/m^3	-	-	1.05E+00	1.07E+00	3.42E+00	1.72E-01	1.02E+00	6.37E-01	4.88E-01	3.38E+00	-	1.40E+00	1.72E-01	3.42E+00	1.07E+00	3.42E+00	3.38E+00	8	100
Acenaphthylene	ng/m^3	*3500*	-	1.55E-01	1.70E-01	5.11E-01	2.04E-01	9.09E-01	4.16E-01	3.80E-01	3.75E-01	0	3.90E-01	1.55E-01	9.09E-01	1.70E-01	9.09E-01	4.16E-01	8	100
Anthracene	ng/m^3	*200*	-	8.94E-02	6.48E-02	5.11E-01	4.76E-02	1.88E-01	7.89E-02	1.09E-01	2.19E-01	0	1.64E-01	4.76E-02	5.11E-01	8.94E-02	5.11E-01	2.19E-01	8	100
Benzo(a)Anthracene	ng/m^3	-	-	6.73E-03	4.08E-02	5.60E-02	9.71E-03	4.30E-02	3.51E-02	3.22E-02	2.30E-02	-	3.08E-02	6.73E-03	5.60E-02	4.08E-02	5.60E-02	3.51E-02	8	100
Benzo(a)fluorene	ng/m^3	-	-	2.82E-02	7.51E-02	1.21E-01	2.49E-02	9.48E-02	7.64E-02	4.67E-02	5.39E-02	-	6.52E-02	2.49E-02	1.21E-01	7.51E-02	1.21E-01	7.64E-02	8	100
Benzo(a)Pyrene (Historically High)	ng/m^3	*0.05* [1] *5* [2] *1.1* [3]	*1*	1.63E-02	3.40E-02	5.15E-02	1.47E-02	3.42E-02	3.85E-02	2.80E-02	1.52E-02	1	2.90E-02	1.47E-02	5.15E-02	3.40E-02	5.15E-02	3.85E-02	8	100
Benzo(b)Fluoranthene	ng/m^3	-	-	3.03E-02	6.72E-02	1.24E-01	3.65E-02	1.12E-01	1.73E-01	6.54E-02	7.22E-02	-	8.50E-02	3.03E-02	1.73E-01	6.72E-02	1.24E-01	1.73E-01	8	100
Benzo(b)fluorene	ng/m^3	-	-	8.69E-03	6.07E-02	6.78E-02	1.27E-02	2.24E-01	4.75E-02	2.82E-02	3.25E-02	-	6.03E-02	8.69E-03	2.24E-01	6.07E-02	2.24E-01	4.75E-02	8	100
Benzo(e)Pyrene	ng/m^3	-	-	1.99E-02	3.64E-02	6.87E-02	2.29E-02	7.09E-02	6.43E-02	4.61E-02	4.01E-02	-	4.62E-02	1.99E-02	7.09E-02	3.64E-02	7.09E-02	6.43E-02	8	100
Benzo(g,h,i)Perylene	ng/m^3	-	-	2.36E-02	4.59E-02	7.52E-02	2.82E-02	6.85E-02	7.11E-02	4.91E-02	5.14E-02	-	5.16E-02	2.36E-02	7.52E-02	4.59E-02	7.52E-02	7.11E-02	8	100
Benzo(k)Fluoranthene	ng/m^3	-	-	1.64E-02	6.66E-02	1.14E-01	2.92E-02	9.70E-02	2.04E-01	5.15E-02	5.33E-02	-	7.90E-02	1.64E-02	2.04E-01	6.66E-02	1.14E-01	2.04E-01	8	100
Biphenyl	ng/m^3	-	-	8.44E-01	1.48E+00	2.30E+00	7.91E-01	3.42E+00	2.36E+00	1.24E+00	2.49E+00	-	1.87E+00	7.91E-01	3.42E+00	1.48E+00	3.42E+00	2.49E+00	8	100
Chrysene	ng/m^3	-	-	4.39E-02	1.11E-01	2.07E-01	5.35E-02	1.52E-01	1.43E-01	1.12E-01	1.09E-01	-	1.16E-01	4.39E-02	2.07E-01	1.11E-01	2.07E-01	1.43E-01	8	100
Dibenzo(a,h)Anthracene	ng/m^3	-	-	1.56E-03	1.01E-02	1.57E-02	3.41E-03	1.16E-02	8.45E-03	8.34E-03	6.85E-03	-	8.25E-03	1.56E-03	1.57E-02	1.01E-02	1.57E-02	8.45E-03	8	100
Fluoranthene	ng/m^3	-	-	3.24E-01	5.44E-01	2.01E+00	2.20E-01	6.00E-01	8.57E-01	4.88E-01	1.49E+00	-	8.17E-01	2.20E-01	2.01E+00	5.44E-01	2.01E+00	1.49E+00	8	100
Fluorene	ng/m^3	-	-	9.10E-01	1.07E+00	3.71E+00	3.44E-01	1.74E+00	1.37E+00	9.58E-01	3.82E+00	-	1.74E+00	3.44E-01	3.82E+00	1.07E+00	3.71E+00	3.82E+00	8	100
Indeno(1,2,3-cd)Pyrene	ng/m^3	-	-	2.28E-02	4.08E-02	6.71E-02	2.50E-02	7.36E-02	7.02E-02	3.95E-02	4.67E-02	-	4.82E-02	2.28E-02	7.36E-02	4.08E-02	7.36E-02	7.02E-02	8	100
Naphthalene	ng/m^3	*22500*	*22500*	7.98E+00	1.53E+01	8.01E+00	7.50E+00	3.06E+01	1.06E+01	7.65E+00	1.33E+01	0	1.26E+01	7.50E+00	3.06E+01	1.53E+01	3.06E+01	1.33E+01	8	100
o-Terphenyl	ng/m^3	-	-	6.17E-03	1.49E-02	2.49E-02	4.71E-03	1.46E-02	1.65E-02	8.10E-03	2.34E-02	-	1.42E-02	4.71E-03	2.49E-02	1.49E-02	2.49E-02	2.34E-02	8	100
Perylene	ng/m^3	-	-	3.36E-03	2.96E-04	9.67E-03	1.85E-03	3.03E-04	4.72E-03	6.60E-03	3.15E-04	-	3.39E-03	2.96E-04	9.67E-03	3.36E-03	9.67E-03	6.60E-03	8	100
Phenanthrene	ng/m^3	-	-	1.70E+00	1.98E+00	6.35E+00	8.97E-01	2.82E+00	2.89E+00	2.08E+00	6.15E+00	-	3.11E+00	8.97E-01	6.35E+00	1.98E+00	6.35E+00	6.15E+00	8	100
Pyrene	ng/m^3	-	-	1.95E-01	3.31E-01	1.15E+00	1.88E-01	6.09E-01	5.06E-01	3.64E-01	7.07E-01	-	5.06E-01	1.88E-01	1.15E+00	3.31E-01	1.15E+00	7.07E-01	8	100
Tetralin	ng/m^3	-	-	1.14E+00	2.10E+00	6.16E-01	4.88E-01	5.36E+00	5.56E-01	1.93E+00	1.88E+00	-	1.76E+00	4.88E-01	5.36E+00	2.10E+00	5.36E+00	1.93E+00	8	100
Total PAH[4]	ng/m^3	-	-	20.17	32.72	36.17	14.04	68.91	26.99	22.05	40.59	-	32.70	14.04	68.91	32.72	68.91	40.59	8	100

NOTE: All non-detectable results were reported as 1/2 of the detection limit

[1] AAQC
[2] O. Reg. 419/05 Schedule Upper Risk Thresholds
[3] O. Reg. 419/05 24 Hour Guideline
[4] Total PAH sums all PAH contaminants

Table B7: Summary of Sample Flow Rate and Sample Duration for TSP

Sample Date	Courtice			Rundle		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)
October 2, 2022	L2736628-4	1440	1712	L2736628-2	1440	1698
October 8, 2022	L2736628-3	1414	1589	L2736628-1	1401	1592
October 14, 2022	L2737973-4	1440	1746	L2737973-2	1440	1691
October 20, 2022	Invalid			L2737973-1	1440	1730
October 26, 2022	L2739311-4	1440	1784	L2739311-2	1440	1704
November 1, 2022	L2739311-3	1440	1766	L2739311-1	1440	1664
November 7, 2022	L2740794-3	1440	1719	L2740794-1	1440	1694
November 13, 2022	L2740794-4	1440	1561	L2740794-2	1440	1712
November 19, 2022	L2742107-4	1440	1752	L2742107-2	1440	1705
November 25, 2022	L2742107-3	1440	1745	L2742107-1	1440	1665
December 1, 2022	L2743124-4	1440	1768	L2743124-2	1440	1689
December 7, 2022	Invalid			L2743124-1	1440	1661
December 13, 2022	L2743742-3	1440	1692	L2743742-2	1440	1744
December 19, 2022	Invalid			L2743742-1	1440	1703
December 25, 2022	L2744472-4	1440	1678	L2744472-2	1440	1739
December 31, 2022	L2744472-3	1440	1573	L2744472-1	1440	1630

Table B8: 2022 Courtice Station Q4 Monitoring Results for TSP and Metals

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	2 Oct 22	8 Oct 22	14 Oct 22	20 Oct 22	26 Oct 22	1 Nov 22	7 Nov 22	13 Nov 22	19 Nov 22	25 Nov 22	1 Dec-22	7 Dec-22	13 Dec-22	19 Dec-22	25 Dec-22	31 Dec-22	MECP Criteria ($\mu g/m^3$)	No. > Criteria	Geometric Mean	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	$\mu g/m^3$	*120*	*120*	11.70	36.73	28.98		14.85	30.24	31.53	6.79	18.49	17.48	19.57		29.73		0.03	12.97	*120*	0	11.8	19.9	0.03	36.73	36.73	31.53	29.73	13	81
Mercury (Hg)	$\mu g/m^3$	*2*	*2*	2.92E-06	6.92E-06	9.74E-06		2.80E-06	2.83E-06	8.14E-06	3.20E-06	1.14E-05	2.87E-06	2.83E-06		2.96E-06		2.98E-06	3.18E-06	*2*	0	4.14E-06	4.83E-06	2.80E-06	1.14E-05	9.74E-06	1.14E-05	3.18E-06	13	81
Aluminum (Al)	$\mu g/m^3$	*4.8*	-	1.25E-01	5.30E-01	2.17E-01		5.72E-02	5.15E-02	3.04E-01	6.23E-02	1.74E-01	9.51E-02	1.74E-01		9.10E-02		1.42E-01	9.66E-02	*4.8*	0	1.29E-01	1.63E-01	5.15E-02	5.30E-01	5.30E-01	3.04E-01	1.74E-01	13	81
Antimony (Sb)	$\mu g/m^3$	*25*	*25*	4.85E-04	7.99E-04	4.81E-04		3.76E-04	2.45E-03	4.08E-03	3.84E-04	2.00E-03	1.11E-03	4.75E-04		9.52E-04		2.32E-04	7.12E-04	*25*	0	7.87E-04	1.12E-03	2.32E-04	4.08E-03	7.99E-04	4.08E-03	9.52E-04	13	81
Arsenic (As)	$\mu g/m^3$	*0.3*	*0.3*	8.77E-04	9.43E-04	8.59E-04		8.41E-04	2.15E-03	8.73E-04	9.61E-04	8.56E-04	8.60E-04	8.48E-04		8.87E-04		8.94E-04	9.54E-04	*0.3*	0	9.49E-04	9.85E-04	8.41E-04	2.15E-03	9.43E-04	2.15E-03	9.54E-04	13	81
Barium (Ba)	$\mu g/m^3$	*10*	*10*	5.61E-03	1.11E-02	8.02E-03		3.00E-03	2.02E-02	9.02E-03	2.82E-03	4.11E-03	6.59E-03	7.13E-03		1.10E-02		2.61E-03	2.19E-03	*10*	0	5.85E-03	7.19E-03	2.19E-03	2.02E-02	1.11E-02	2.02E-02	1.10E-02	13	81
Beryllium (Be)	$\mu g/m^3$	*0.01*	*0.01*	1.46E-05	1.57E-05	1.43E-05		1.40E-05	1.42E-05	1.45E-05	1.60E-05	1.43E-05	1.43E-05	1.41E-05		1.48E-05		1.49E-05	1.59E-05	*0.01*	0	1.47E-05	1.47E-05	1.40E-05	1.60E-05	1.57E-05	1.60E-05	1.59E-05	13	81
Bismuth (Bi)	$\mu g/m^3$	-	-	5.26E-04	5.66E-04	5.15E-04		5.04E-04	5.10E-04	5.24E-04	5.77E-04	5.14E-04	5.16E-04	5.09E-04		5.32E-04		5.36E-04	5.72E-04	-	-	5.30E-04	5.31E-04	5.04E-04	5.77E-04	5.66E-04	5.77E-04	5.72E-04	13	81
Boron (B)	$\mu g/m^3$	*120*	-	4.39E-03	4.72E-03	4.30E-03		4.20E-03	4.25E-03	4.36E-03	4.80E-03	4.28E-03	4.30E-03	4.24E-03		4.43E-03		4.47E-03	4.77E-03	*120*	0	4.42E-03	4.42E-03	4.20E-03	4.80E-03	4.72E-03	4.80E-03	4.77E-03	13	81
Cadmium (Cd)	$\mu g/m^3$	*0.025*	*0.025*	6.37E-05	1.10E-04	5.38E-05		6.33E-05	1.35E-04	1.22E-04	3.14E-05	3.42E-04	1.09E-04	5.60E-05		9.46E-05		1.10E-03	1.96E-04	*0.025*	0	1.14E-04	1.91E-04	3.14E-05	1.10E-03	1.10E-04	3.42E-04	1.10E-03	13	81
Chromium (Cr)	$\mu g/m^3$	*0.5*	-	9.94E-04	3.27E-03	2.00E-03		9.53E-04	2.15E-03	2.56E-03	1.09E-03	2.00E-03	2.23E-03	3.34E-03		1.00E-03		1.01E-03	1.08E-03	*0.5*	0	1.64E-03	1.82E-03	9.53E-04	3.34E-03	3.27E-03	2.56E-03	3.34E-03	13	81
Cobalt (Co)	$\mu g/m^3$	*0.1*	*0.1*	8.48E-05	2.51E-04	1.42E-04		5.16E-05	1.14E-04	2.11E-04	5.38E-05	1.23E-04	7.51E-05	1.76E-04		9.46E-05		1.93E-04	5.59E-05	*0.1*	0	1.10E-04	1.25E-04	5.16E-05	2.51E-04	2.51E-04	2.11E-04	1.93E-04	13	81
Copper (Cu)	$\mu g/m^3$	*50*	-	1.98E-02	2.13E-02	8.76E-03		1.38E-02	8.27E-02	3.19E-02	2.06E-02	1.83E-02	7.51E-02	1.85E-02		1.33E-01		3.99E-03	3.09E-02	*50*	0	2.45E-02	3.68E-02	3.99E-03	1.33E-01	2.13E-02	8.27E-02	1.33E-01	13	81
Iron (Fe)	$\mu g/m^3$	*4*	-	2.77E-01	7.11E-01	4.77E-01		1.48E-01	3.85E-01	6.17E-01	1.75E-01	3.93E-01	3.35E-01	6.22E-01		3.43E-01		2.31E-01	1.79E-01	*4*	0	3.35E-01	3.76E-01	1.48E-01	7.11E-01	7.11E-01	6.17E-01	6.22E-01	13	81
Lead (Pb)	$\mu g/m^3$	*0.5*	*0.5*	1.58E-03	2.28E-03	1.38E-03	Invalid	1.85E-03	3.85E-03	3.07E-03	7.69E-04	6.51E-03	2.76E-03	2.32E-03	Invalid	1.44E-03	Invalid	7.27E-04	2.35E-03	*2*	0	1.98E-03	2.35E-03	7.27E-04	6.51E-03	2.28E-03	6.51E-03	2.32E-03	13	81
Magnesium (Mg)	$\mu g/m^3$	-	-	1.30E-01	4.70E-01	2.68E-01		1.10E-01	1.46E-01	3.40E-01	8.65E-02	2.67E-01	1.21E-01	4.12E-01		1.61E-01		1.48E-01	7.76E-02	-	-	1.79E-01	2.11E-01	7.76E-02	4.70E-01	4.70E-01	3.40E-01	4.12E-01	13	81
Manganese (Mn)	$\mu g/m^3$	*0.4*	-	7.49E-03	2.19E-02	1.62E-02		4.77E-03	1.02E-02	2.72E-02	4.50E-03	1.41E-02	7.62E-03	2.30E-02		6.80E-03		6.02E-03	3.26E-03	*0.4*	0	9.51E-03	1.18E-02	3.26E-03	2.72E-02	2.19E-02	2.72E-02	2.30E-02	13	81
Molybdenum (Mo)	$\mu g/m^3$	*120*	-	8.60E-04	1.16E-03	6.13E-04		5.83E-04	2.40E-03	9.77E-04	1.02E-03	5.65E-04	2.58E-03	1.18E-03		4.07E-03		3.99E-04	1.84E-03	*120*	0	1.12E-03	1.40E-03	3.99E-04	4.07E-03	1.16E-03	2.58E-03	4.07E-03	13	81
Nickel (Ni)	$\mu g/m^3$	*0.2*	-	1.02E-03	1.53E-03	9.68E-04		4.65E-04	1.01E-03	1.44E-03	7.56E-04	9.76E-04	3.79E-03	3.16E-03		7.51E-04		9.00E-04	6.61E-04	*0.2*	0	1.11E-03	1.34E-03	4.65E-04	3.79E-03	1.53E-03	3.79E-03	3.16E-03	13	81
Phosphorus (P)	$\mu g/m^3$	-	-	2.19E-01	2.36E-01	2.15E-01		2.10E-01	2.12E-01	2.18E-01	2.40E-01	2.14E-01	2.15E-01	2.12E-01		2.22E-01		2.23E-01	2.38E-01	-	-	2.21E-01	2.21E-01	2.10E-01	2.40E-01	2.36E-01	2.40E-01	2.38E-01	13	81
Selenium (Se)	$\mu g/m^3$	*10*	*10*	3.80E-04	4.09E-04	3.72E-04		3.64E-04	3.68E-04	3.78E-04	4.16E-04	3.71E-04	3.72E-04	3.68E-04		3.84E-04		3.87E-04	4.13E-04	*10*	0	3.83E-04	3.83E-04	3.64E-04	4.16E-04	4.09E-04	4.16E-04	4.13E-04	13	81
Silver (Ag)	$\mu g/m^3$	*1*	*1*	2.63E-05	2.83E-05	1.30E-04		4.24E-04	9.34E-05	2.62E-05	2.88E-05	2.57E-05	6.02E-05	2.55E-05		7.98E-05		2.68E-05	3.72E-04	*1*	0	5.83E-05	1.04E-04	2.55E-05	4.24E-04	4.24E-04	9.34E-05	3.72E-04	13	81
Strontium (Sr)	$\mu g/m^3$	*120*	-	2.34E-03	9.62E-03	3.61E-03		3.03E-03	3.57E-03	5.93E-03	9.61E-04	4.62E-03	3.15E-03	5.49E-03		5.97E-03		2.44E-03	2.67E-03	*120*	0	3.57E-03	4.11E-03	9.61E-04	9.62E-03	9.62E-03	5.93E-03	5.97E-03	13	81
Thallium (Tl)	$\mu g/m^3$	-	-	2.63E-05	2.83E-05	2.58E-05		2.52E-05	2.55E-05	2.62E-05	2.88E-05	2.57E-05	2.58E-05	2.55E-05		2.66E-05		2.68E-05	2.86E-05	-	-	2.65E-05	2.65E-05	2.52E-05	2.88E-05	2.83E-05	2.88E-05	2.86E-05	13	81
Tin (Sn)	$\mu g/m^3$	*10*	*10*	6.14E-04	1.06E-03	3.84E-04		4.20E-04	1.68E-03	7.39E-04	1.92E-04	1.23E-03	7.97E-04	9.73E-04		5.91E-04		1.79E-04	4.70E-04	*10*	0	5.96E-04	7.18E-04	1.79E-04	1.68E-03	1.06E-03	1.68E-03	9.73E-04	13	81
Titanium (Ti)	$\mu g/m^3$	*120*	-	7.02E-03	2.20E-02	8.59E-03		3.08E-03	3.11E-03	1.28E-02	3.52E-03	7.42E-03	3.15E-03	9.05E-03		6.50E-03		3.28E-03	3.50E-03	*120*	0	5.83E-03	7.16E-03	3.08E-03	2.20E-02	2.20E-02	1.28E-02	9.05E-03	13	81
Uranium (Ur)	$\mu g/m^3$	*1.5*	-	6.32E-06	2.52E-05	2.84E-05		6.84E-06	8.95E-06	2.86E-05	4.04E-06	1.70E-05	1.34E-05	1.61E-05		9.87E-06		1.50E-05	9.47E-06	*1.5*	0	1.24E-05	1.45E-05	4.04E-06	2.86E-05	2.84E-05	2.86E-05	1.61E-05	13	81
Vanadium (V)	$\mu g/m^3$	*2*	*1*	1.46E-03	1.57E-03	1.43E-03		1.40E-03	1.42E-03	1.45E-03	1.60E-03	1.43E-03	1.43E-03	1.41E-03		1.48E-03		1.49E-03	1.59E-03	*2*	0	1.47E-03	1.47E-03	1.40E-03	1.60E-03	1.57E-03	1.60E-03	1.59E-03	13	81
Zinc (Zn)	$\mu g/m^3$	*120*	-	2.13E-02	4.25E-02	1.94E-02		1.90E-02	3.34E-02	7.85E-02	1.24E-02	1.49E-01	3.82E-02	4.58E-02		3.03E-02		4.43E-02	1.73E-02	*120*	0	3.35E-02	4.24E-02	1.24E-02	1.49E-01	4.25E-02	1.49E-01	4.58E-02	13	81
Zirconium (Zr)	$\mu g/m^3$	*20*	-	5.85E-04	6.29E-04	5.73E-04		5.61E-04	5.66E-04	5.82E-04	6.41E-04	5.71E-04	5.73E-04	5.66E-04		5.91E-04		5.96E-04	6.36E-04	*20*	0	5.89E-04	5.90E-04	5.61E-04	6.41E-04	6.29E-04	6.41E-04	6.36E-04	13	81

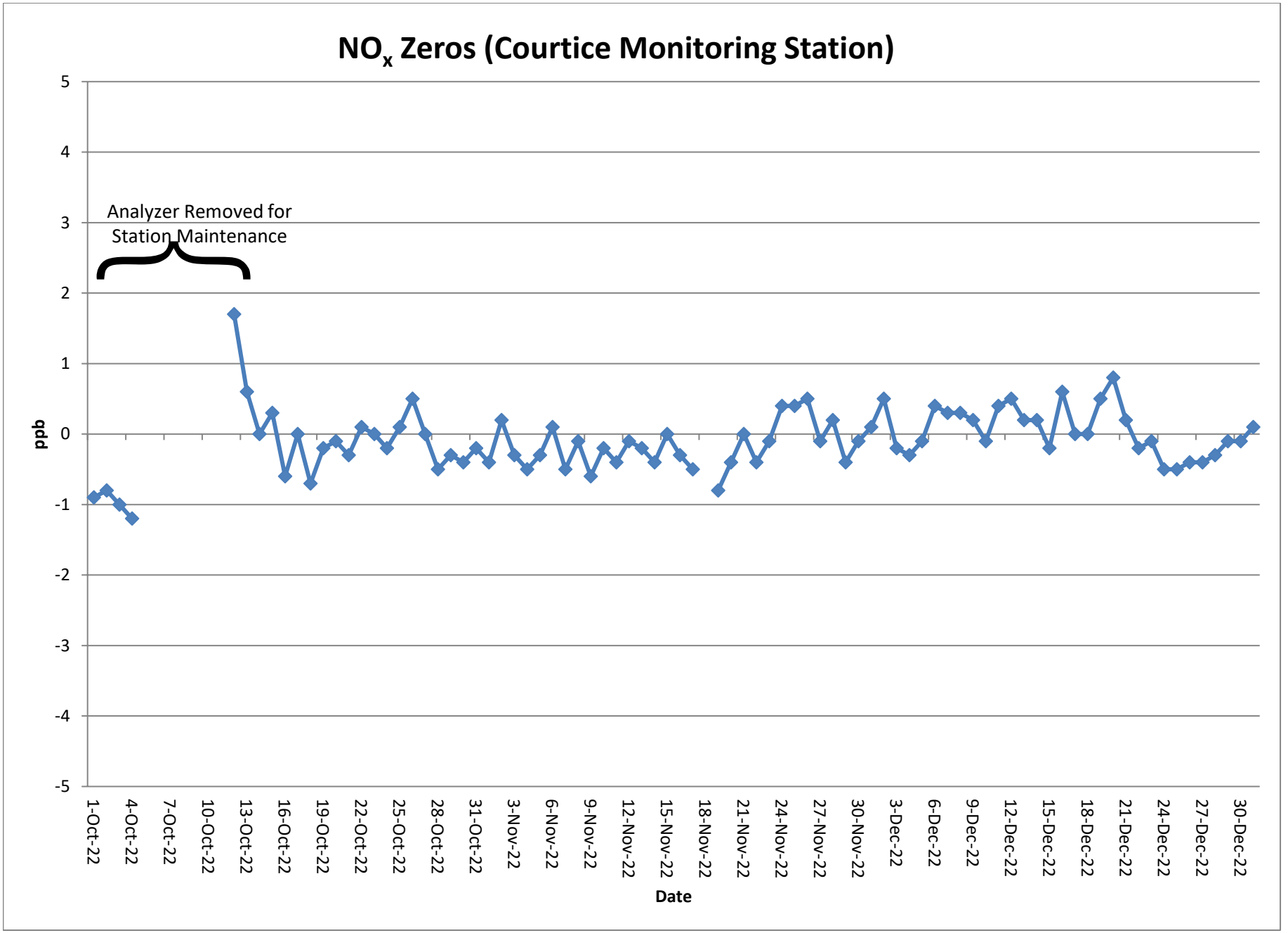
NOTE: All non-detectable results were reported as 1/2 of the detection limit

Table B9: 2022 Rundle Road Station Q4 Monitoring Results for TSP and Metals

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	2-Oct-22	8-Oct-22	14-Oct-22	20-Oct-22	26-Oct-22	1-Nov-22	7-Nov-22	13-Nov-22	19-Nov-22	25-Nov-22	1-Dec-22	7-Dec-22	13-Dec-22	19-Dec-22	25-Dec-22	31-Dec-22	MECP Criteria ($\mu g/m^3$)	No. > Criteria	Geometric Mean	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	$\mu g/m^3$	*120*	*120*	25.12	24.34	33.41	18.61	20.31	58.83	67.89	8.12	49.03	27.51	66.31	18.36	30.45	21.14	32.20	20.31	*120*	0	28.3	32.6	8.12	67.89	33.41	67.89	66.31	16	100
Mercury (Hg)	$\mu g/m^3$	*2*	*2*	2.94E-06	3.14E-06	8.28E-06	2.89E-06	2.93E-06	3.00E-06	1.06E-05	2.92E-06	1.17E-05	3.00E-06	2.96E-06	3.01E-06	6.88E-06	8.22E-06	2.88E-06	3.07E-06	*2*	0	4.20E-06	4.91E-06	2.88E-06	1.17E-05	8.28E-06	1.17E-05	8.22E-06	16	100
Aluminum (Al)	$\mu g/m^3$	*4.8*	-	1.88E-01	1.87E-01	2.28E-01	1.00E-01	6.40E-02	9.62E-02	5.02E-01	7.65E-02	5.10E-01	1.65E-01	4.53E-01	9.51E-02	1.55E-01	1.51E-01	2.49E-01	2.36E-01	*4.8*	0	1.77E-01	2.16E-01	6.40E-02	5.10E-01	2.28E-01	5.10E-01	4.53E-01	16	100
Antimony (Sb)	$\mu g/m^3$	*25*	*25*	2.41E-04	6.48E-04	8.93E-04	4.57E-04	3.81E-04	1.32E-03	5.49E-04	1.52E-04	5.69E-04	6.19E-04	5.33E-04	7.04E-04	5.22E-04	3.35E-04	3.45E-04	5.46E-04	*25*	0	4.92E-04	5.51E-04	1.52E-04	1.32E-03	8.93E-04	1.32E-03	7.04E-04	16	100
Arsenic (As)	$\mu g/m^3$	*0.3*	*0.3*	8.82E-04	9.43E-04	8.87E-04	8.67E-04	8.80E-04	1.92E-03	8.85E-04	8.76E-04	8.80E-04	9.01E-04	8.88E-04	9.03E-04	8.60E-04	8.81E-04	8.63E-04	9.20E-04	*0.3*	0	9.32E-04	9.53E-04	8.60E-04	1.92E-03	9.43E-04	1.92E-03	9.20E-04	16	100
Barium (Ba)	$\mu g/m^3$	*10*	*10*	3.76E-03	7.99E-03	1.17E-02	6.30E-03	4.84E-03	1.81E-02	1.19E-02	1.96E-03	8.09E-03	7.81E-03	1.09E-02	7.28E-03	6.31E-03	5.07E-03	4.12E-03	3.59E-03	*10*	0	6.52E-03	7.49E-03	1.96E-03	1.81E-02	1.17E-02	1.81E-02	1.09E-02	16	100
Beryllium (Be)	$\mu g/m^3$	*0.01*	*0.01*	1.47E-05	1.57E-05	1.48E-05	1.45E-05	1.47E-05	1.50E-05	1.48E-05	1.46E-05	1.47E-05	1.50E-05	1.48E-05	1.51E-05	1.43E-05	1.47E-05	1.44E-05	1.53E-05	*0.01*	0	1.48E-05	1.48E-05	1.43E-05	1.57E-05	1.57E-05	1.50E-05	1.53E-05	16	100
Bismuth (Bi)	$\mu g/m^3$	-	-	5.29E-04	5.66E-04	5.32E-04	5.20E-04	5.28E-04	5.41E-04	5.31E-04	5.26E-04	5.28E-04	5.41E-04	5.33E-04	5.42E-04	5.16E-04	5.28E-04	5.18E-04	5.52E-04	-	-	5.33E-04	5.33E-04	5.16E-04	5.66E-04	5.66E-04	5.41E-04	5.52E-04	16	100
Boron (B)	$\mu g/m^3$	*120*	-	4.41E-03	4.72E-03	4.44E-03	4.34E-03	4.40E-03	4.51E-03	4.43E-03	4.38E-03	4.40E-03	4.50E-03	4.44E-03	4.52E-03	4.30E-03	4.40E-03	4.31E-03	4.60E-03	*120*	0	4.44E-03	4.44E-03	4.30E-03	4.72E-03	4.72E-03	4.51E-03	4.60E-03	16	100
Cadmium (Cd)	$\mu g/m^3$	*0.025*	*0.025*	5.65E-05	6.79E-05	5.80E-05	3.93E-05	6.63E-05	1.38E-04	1.22E-04	3.74E-05	6.57E-04	1.04E-04	4.91E-05	8.43E-05	1.44E-04	6.75E-05	2.14E-04	1.12E-04	*0.025*	0	9.15E-05	1.26E-04	3.74E-05	6.57E-04	6.79E-05	6.57E-04	2.14E-04	16	100
Chromium (Cr)	$\mu g/m^3$	*0.5*	-	1.00E-03	2.77E-03	2.42E-03	2.02E-03	9.98E-04	1.02E-03	2.95E-03	9.93E-04	3.34E-03	1.02E-03	4.03E-03	1.02E-03	9.75E-04	2.82E-03	2.30E-03	1.04E-03	*0.5*	0	1.67E-03	1.92E-03	9.75E-04	4.03E-03	2.77E-03	3.34E-03	4.03E-03	16	100
Cobalt (Co)	$\mu g/m^3$	*0.1*	*0.1*	9.18E-05	1.31E-04	1.65E-04	9.65E-05	5.11E-05	1.51E-04	3.08E-04	5.78E-05	2.59E-04	1.11E-04	3.39E-04	9.45E-05	1.13E-04	1.29E-04	1.63E-04	8.83E-05	*0.1*	0	1.28E-04	1.47E-04	5.11E-05	3.39E-04	1.65E-04	3.08E-04	3.39E-04	16	100
Copper (Cu)	$\mu g/m^3$	*50*	-	1.89E-02	3.14E-02	2.19E-02	2.26E-02	3.15E-02	6.79E-02	1.00E-02	1.07E-02	2.43E-02	3.00E-02	7.87E-03	2.48E-02	1.74E-02	1.30E-02	6.79E-03	2.62E-02	*50*	0	1.94E-02	2.28E-02	6.79E-03	6.79E-02	3.15E-02	6.79E-02	2.62E-02	16	100
Iron (Fe)	$\mu g/m^3$	*4*	-	2.64E-01	4.53E-01	5.97E-01	3.57E-01	1.88E-01	3.52E-01	8.80E-01	1.34E-01	7.68E-01	3.19E-01	8.82E-01	2.69E-01	2.58E-01	3.49E-01	3.96E-01	2.67E-01	*4*	0	3.67E-01	4.21E-01	1.34E-01	8.82E-01	5.97E-01	8.80E-01	8.82E-01	16	100
Lead (Pb)	$\mu g/m^3$	*0.5*	*0.5*	1.10E-03	1.96E-03	1.43E-03	1.55E-03	2.55E-03	4.19E-03	2.95E-03	6.83E-04	1.05E-02	1.92E-03	1.98E-03	2.79E-03	1.68E-03	1.58E-03	3.05E-03	2.21E-03	*2*	0	2.15E-03	2.63E-03	6.83E-04	1.05E-02	2.55E-03	1.05E-02	3.05E-03	16	100
Magnesium (Mg)	$\mu g/m^3$	-	-	1.54E-01	3.09E-01	2.87E-01	1.86E-01	1.17E-01	2.97E-01	5.63E-01	1.02E-01	5.65E-01	1.88E-01	8.76E-01	1.31E-01	1.99E-01	2.67E-01	2.82E-01	1.80E-01	-	-	2.45E-01	2.94E-01	1.02E-01	8.76E-01	3.09E-01	5.65E-01	8.76E-01	16	100
Manganese (Mn)	$\mu g/m^3$	*0.4*	-	8.53E-03	1.64E-02	1.86E-02	9.36E-03	6.63E-03	1.74E-02	3.59E-02	4.71E-03	2.74E-02	8.59E-03	3.55E-02	6.44E-03	7.34E-03	1.71E-02	1.35E-02	5.47E-03	*0.4*	0	1.22E-02	1.49E-02	4.71E-03	3.59E-02	1.86E-02	3.59E-02	3.55E-02	16	100
Molybdenum (Mo)	$\mu g/m^3$	*120*	-	9.00E-04	1.63E-03	1.01E-03	1.10E-03	4.75E-04	2.07E-03	6.14E-04	6.66E-04	5.51E-04	1.75E-03	6.34E-04	1.58E-03	5.85E-04	1.07E-03	3.91E-04	1.42E-03	*120*	0	9.10E-04	1.03E-03	3.91E-04	2.07E-03	1.63E-03	2.07E-03	1.58E-03	16	100
Nickel (Ni)	$\mu g/m^3$	*0.2*	-	6.29E-04	9.31E-04	1.09E-03	1.03E-03	4.58E-04	7.99E-04	1.43E-03	7.59E-04	1.49E-03	3.57E-03	2.32E-03	8.61E-04	7.28E-04	9.40E-04	8.80E-04	9.26E-04	*0.2*	0	1.03E-03	1.18E-03	4.58E-04	3.57E-03	1.09E-03	3.57E-03	2.32E-03	16	100
Phosphorus (P)	$\mu g/m^3$	-	-	2.21E-01	2.36E-01	2.22E-01	2.17E-01	2.20E-01	2.25E-01	2.21E-01	2.19E-01	2.20E-01	2.25E-01	2.22E-01	2.26E-01	2.15E-01	2.20E-01	2.16E-01	2.30E-01	-	-	2.22E-01	2.22E-01	2.15E-01	2.36E-01	2.36E-01	2.25E-01	2.30E-01	16	100
Selenium (Se)	$\mu g/m^3$	*10*	*10*	3.82E-04	4.09E-04	3.84E-04	3.76E-04	3.81E-04	3.91E-04	3.84E-04	3.80E-04	3.81E-04	3.90E-04	3.85E-04	3.91E-04	3.73E-04	3.82E-04	3.74E-04	3.99E-04	*10*	0	3.85E-04	3.85E-04	3.73E-04	4.09E-04	4.09E-04	3.91E-04	3.99E-04	16	100
Silver (Ag)	$\mu g/m^3$	*1*	*1*	2.65E-05	2.83E-05	2.66E-05	2.60E-05	3.36E-04	6.73E-05	2.66E-05	2.63E-05	2.64E-05	2.70E-05	2.66E-05	2.71E-05	2.58E-05	2.64E-05	2.59E-05	5.66E-04	*1*	0	3.99E-05	8.22E-05	2.58E-05	5.66E-04	3.36E-04	6.73E-05	5.66E-04	16	100
Strontium (Sr)	$\mu g/m^3$	*120*	-	2.24E-03	4.59E-03	4.38E-03	3.01E-03	3.76E-03	1.31E-02	1.39E-02	2.04E-03	1.28E-02	5.23E-03	2.17E-02	3.19E-03	7.51E-03	6.69E-03	7.13E-03	8.59E-03	*120*	0	5.98E-03	7.49E-03	2.04E-03	2.17E-02	4.59E-03	1.39E-02	2.17E-02	16	100
Thallium (Tl)	$\mu g/m^3$	-	-	2.65E-05	2.83E-05	2.66E-05	2.60E-05	2.64E-05	2.70E-05	2.66E-05	2.63E-05	2.64E-05	2.70E-05	2.66E-05	2.71E-05	2.58E-05	2.64E-05	2.59E-05	1.27E-04	-	-	2.93E-05	3.29E-05	2.58E-05	1.27E-04	2.83E-05	2.70E-05	1.27E-04	16	100
Tin (Sn)	$\mu g/m^3$	*10*	*10*	5.29E-04	1.08E-03	9.82E-04	9.65E-04	5.11E-04	1.64E-03	7.91E-04	1.75E-04	1.71E-03	8.83E-04	7.16E-04	1.01E-03	7.74E-04	5.64E-04	6.44E-04	5.52E-04	*10*	0	7.52E-04	8.45E-04	1.75E-04	1.71E-03	1.08E-03	1.71E-03	1.01E-03	16	100
Titanium (Ti)	$\mu g/m^3$	*120*	-	8.82E-03	8.18E-03	9.46E-03	3.18E-03	3.23E-03	3.31E-03	2.13E-02	3.21E-03	2.05E-02	7.21E-03	2.25E-02	3.31E-03	8.60E-03	7.63E-03	1.04E-02	9.20E-03	*120*	0	7.54E-03	9.37E-03	3.18E-03	2.25E-02	9.46E-03	2.13E-02	2.25E-02	16	100
Uranium (Ur)	$\mu g/m^3$	*1.5*	-	1.64E-05	1.30E-05	3.01E-05	7.57E-06	7.16E-06	2.14E-05	3.72E-05	7.36E-06	2.83E-05	1.62E-05	2.91E-05	8.97E-06	2.32E-05	1.40E-05	1.84E-05	1.82E-05	*1.5*	0	1.64E-05	1.85E-05	7.16E-06	3.72E-05	3.01E-05	3.72E-05	2.91E-05	16	100
Vanadium (V)	$\mu g/m^3$	*2*	*1*	1.47E-03	1.57E-03	1.48E-03	1.45E-03	1.47E-03	1.50E-03	1.48E-03	1.46E-03	1.47E-03	1.50E-03	1.48E-03	1.51E-03	1.43E-03	1.47E-03	1.44E-03	1.53E-03	*2*	0	1.48E-03	1.48E-03	1.43E-03	1.57E-03	1.57E-03	1.50E-03	1.53E-03	16	100
Zinc (Zn)	$\mu g/m^3$	*120*	-	2.96E-02	4.92E-02	2.42E-02	2.84E-02	3.99E-02	4.66E-02	2.13E-01	1.22E-02	4.05E-01	2.23E-02	3.76E-02	5.80E-02	5.91E-02	4.05E-02	1.48E-01	2.05E-02	*120*	0	4.76E-02	7.71E-02	1.22E-02	4.05E-01	4.92E-02	4.05E-01	1.48E-01	16	100
Zirconium (Zr)	$\mu g/m^3$	*20*	-	5.88E-04	6.29E-04	5.91E-04	5.78E-04	5.87E-04	6.01E-04	5.90E-04	5.84E-04	5.87E-04	6.01E-04	5.92E-04	6.02E-04	5.73E-04	5.87E-04	5.75E-04	6.13E-04	*20*	0	5.92E-04	5.92E-04	5.73E-04	6.29E-04	6.29E-04	6.01E-04	6.13E-04	16	100

NOTE: All non-detectable results were reported as 1/2 of the detection limit

APPENDIX C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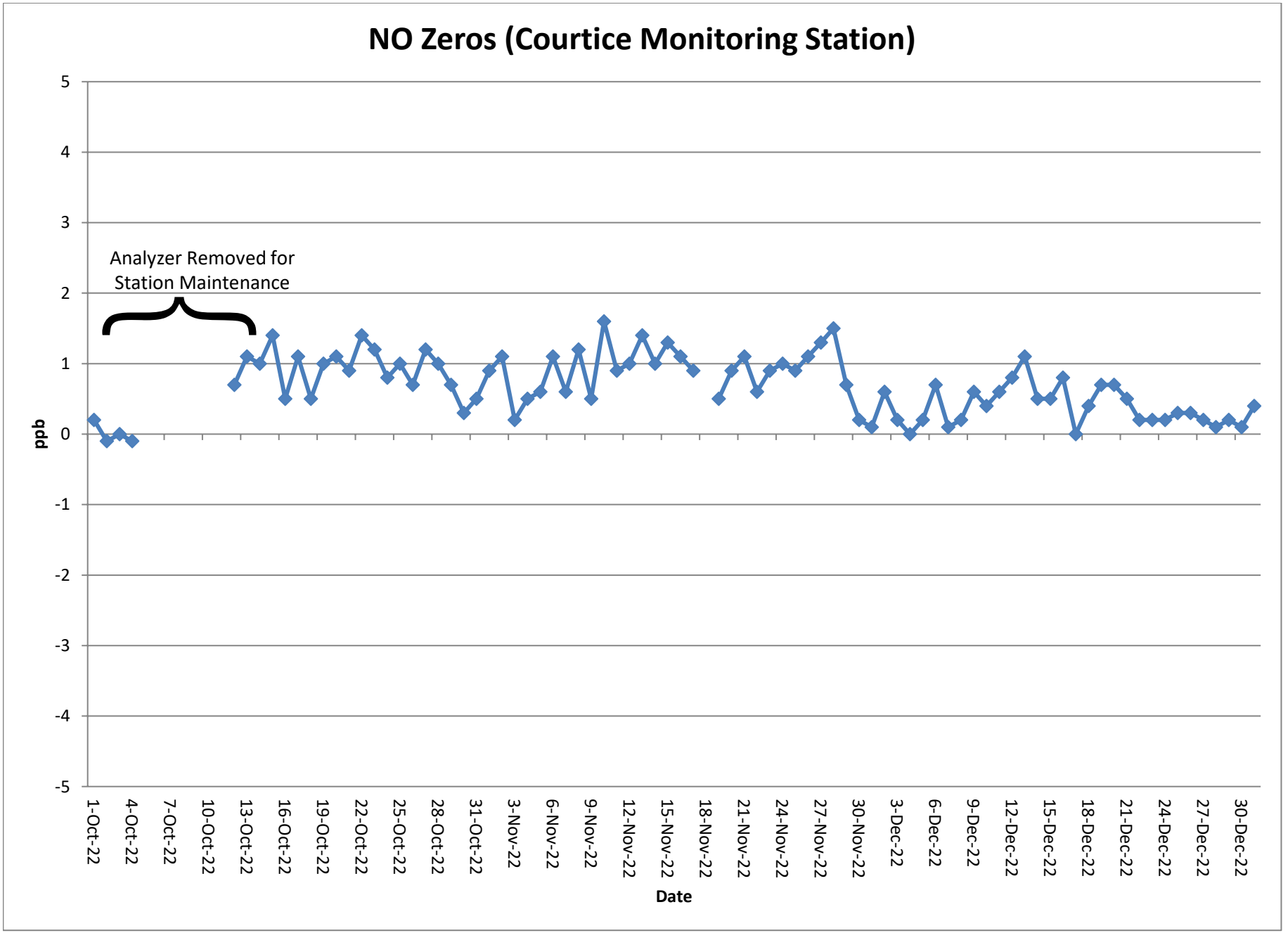
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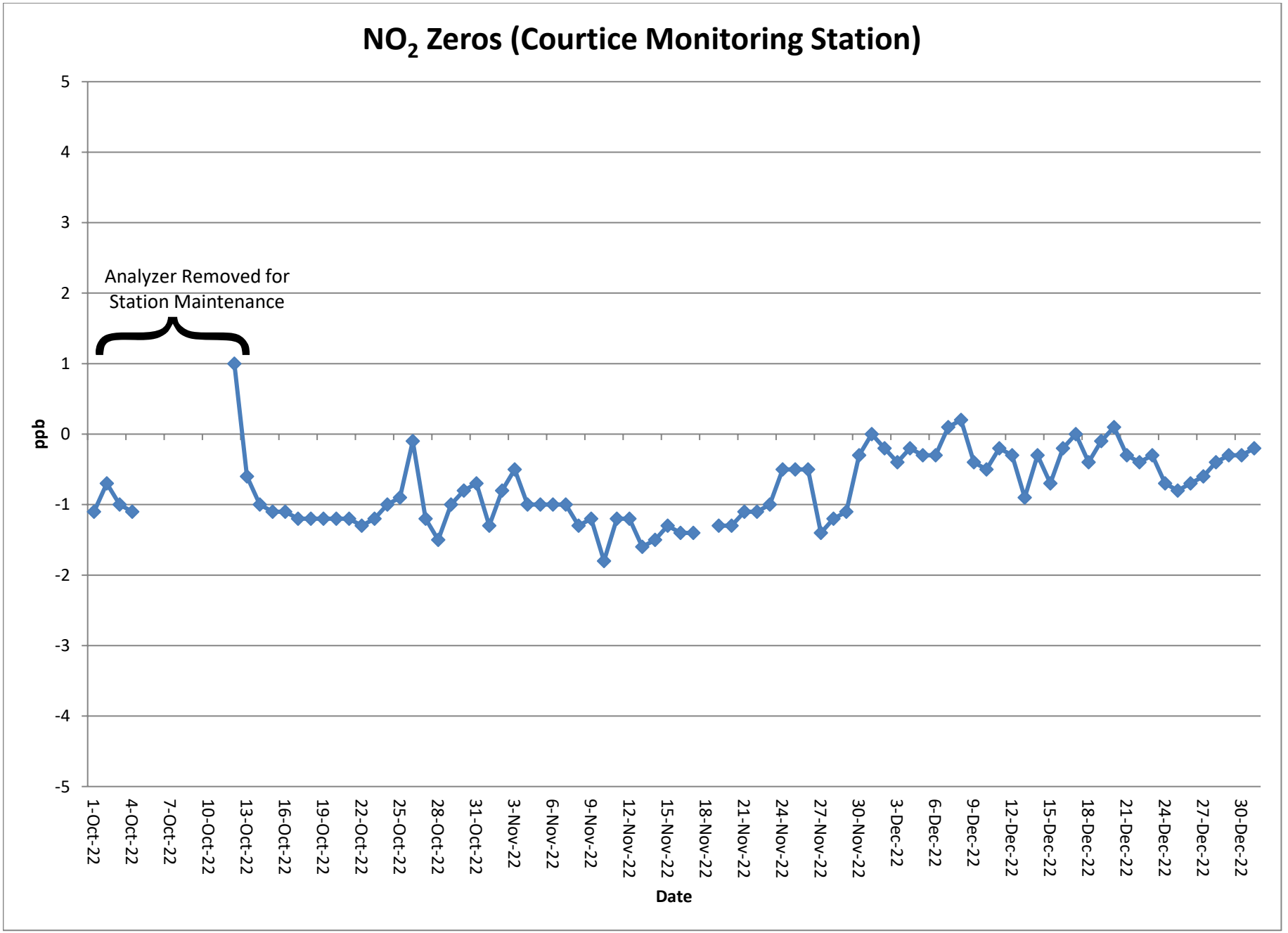
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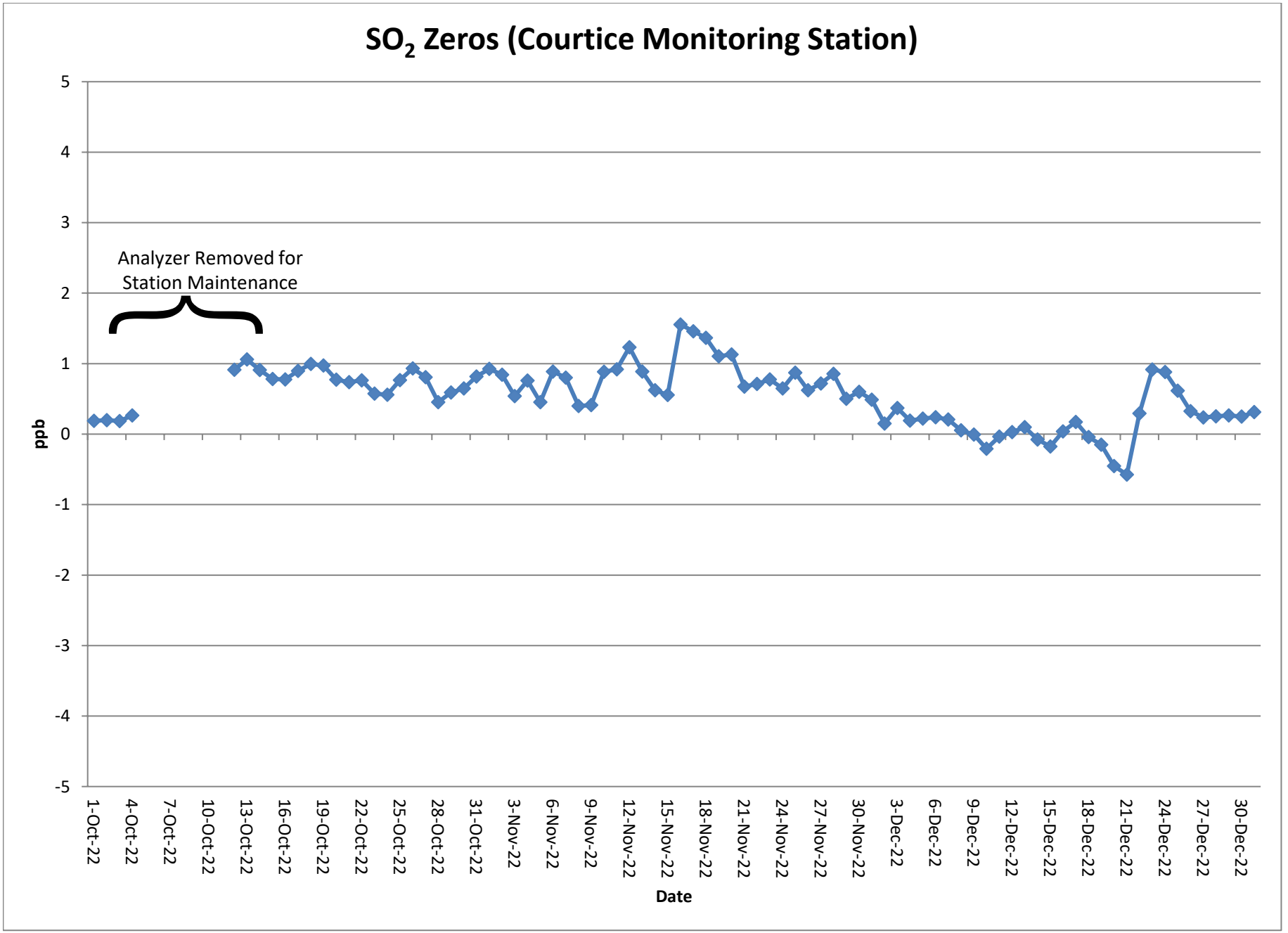
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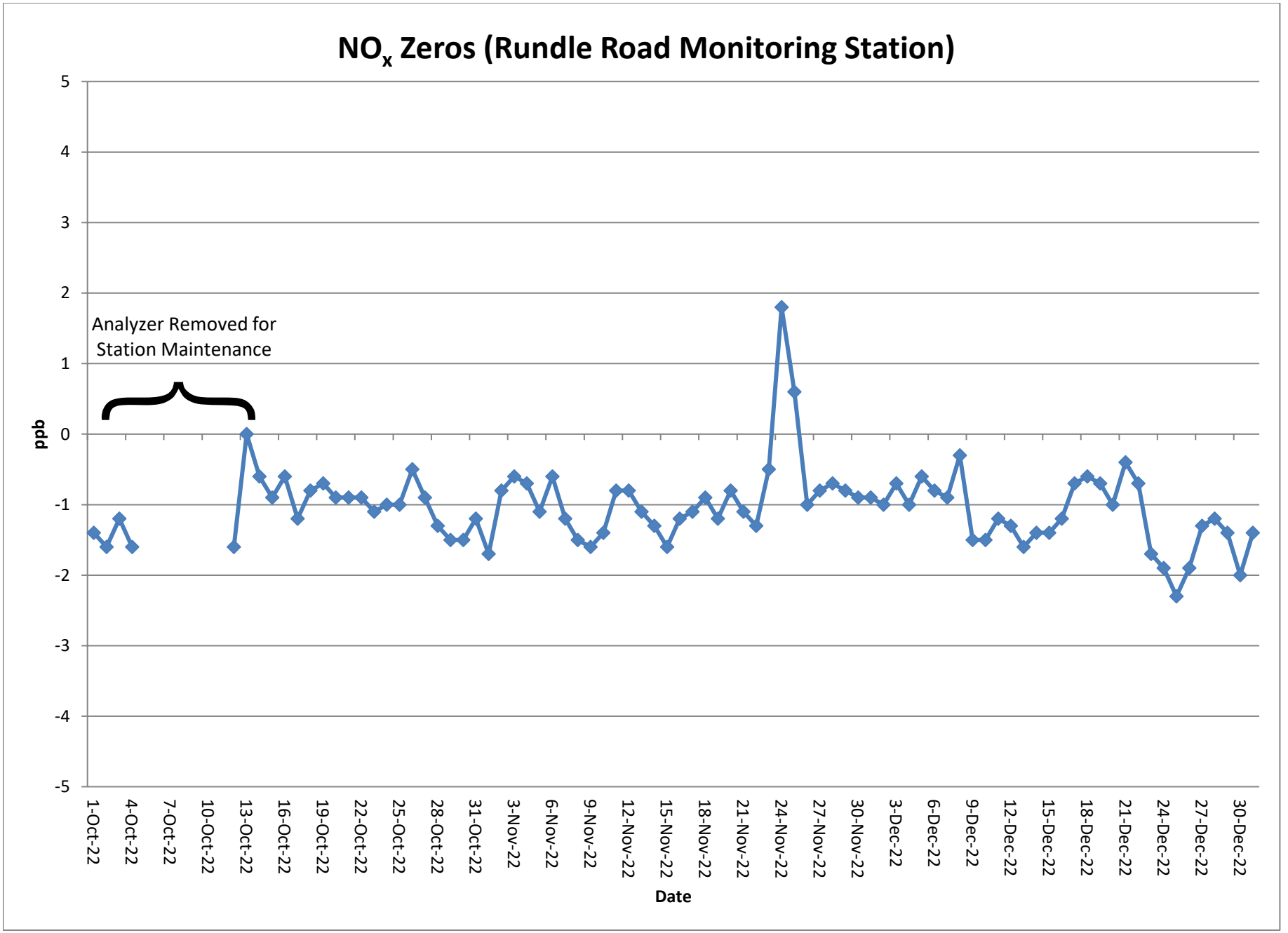
NOx Zeros (Rundle Road Monitoring Station)
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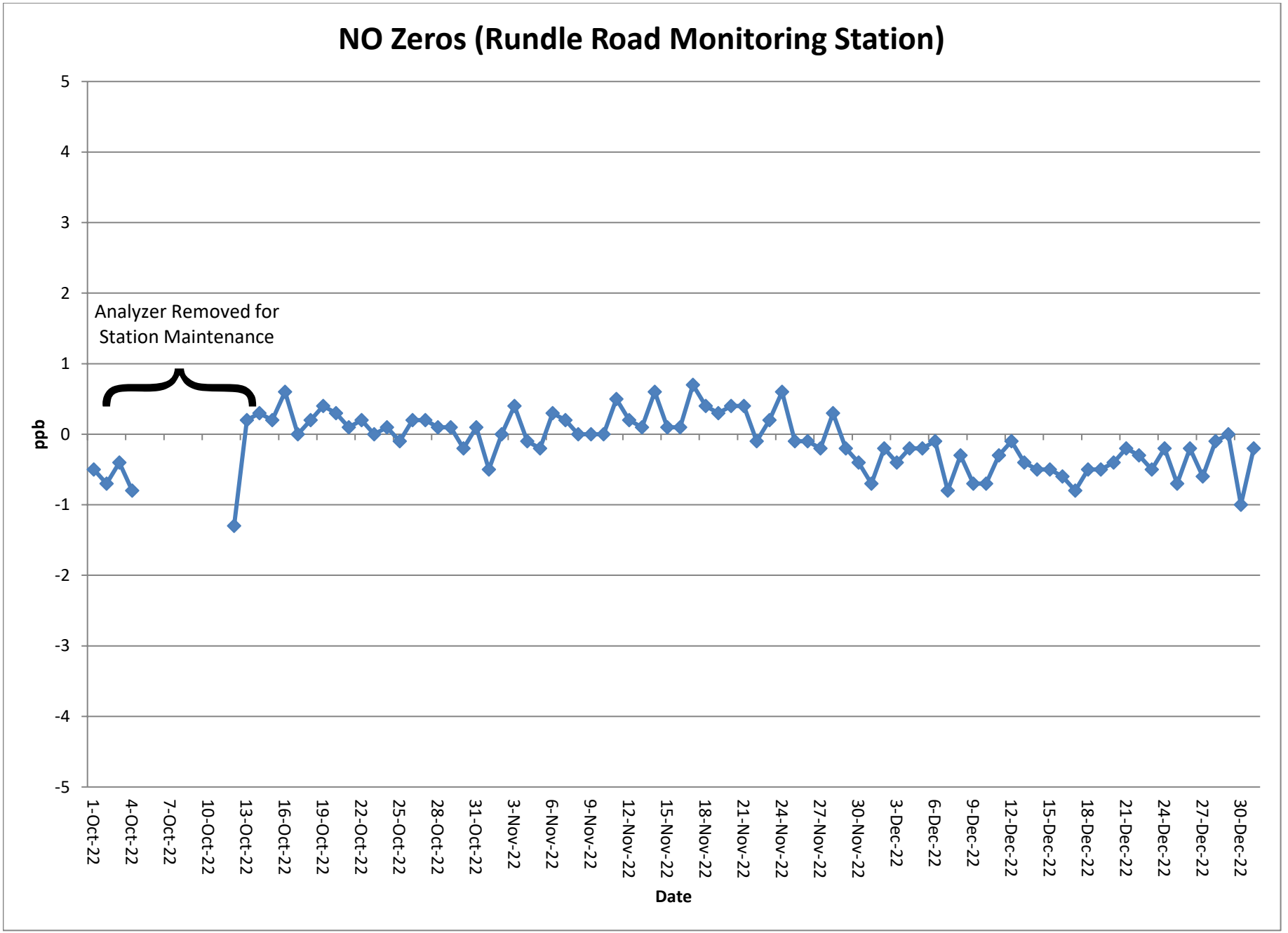
NO Zeros (Rundle Road Monitoring Station)
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Station Maintenance
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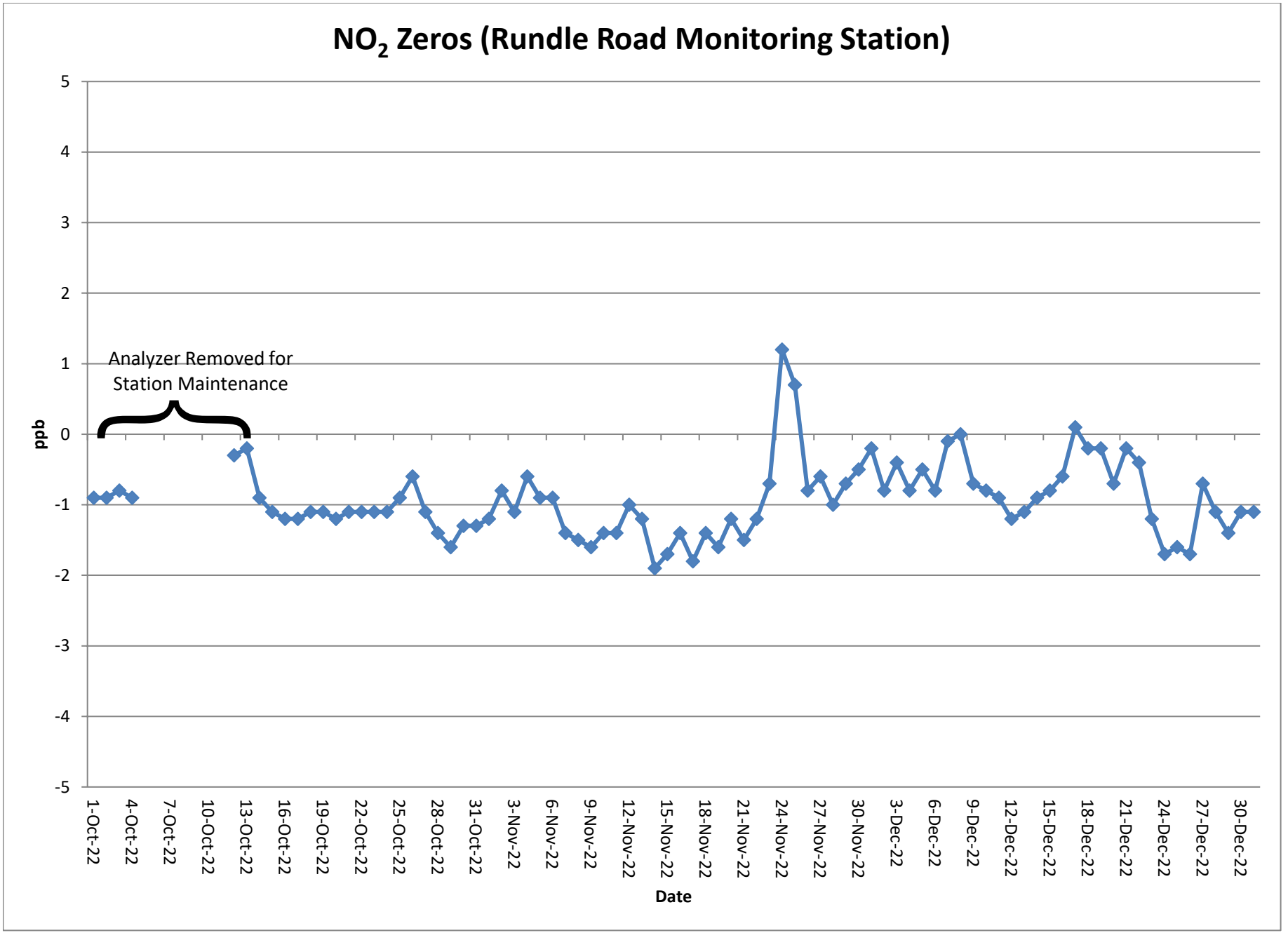
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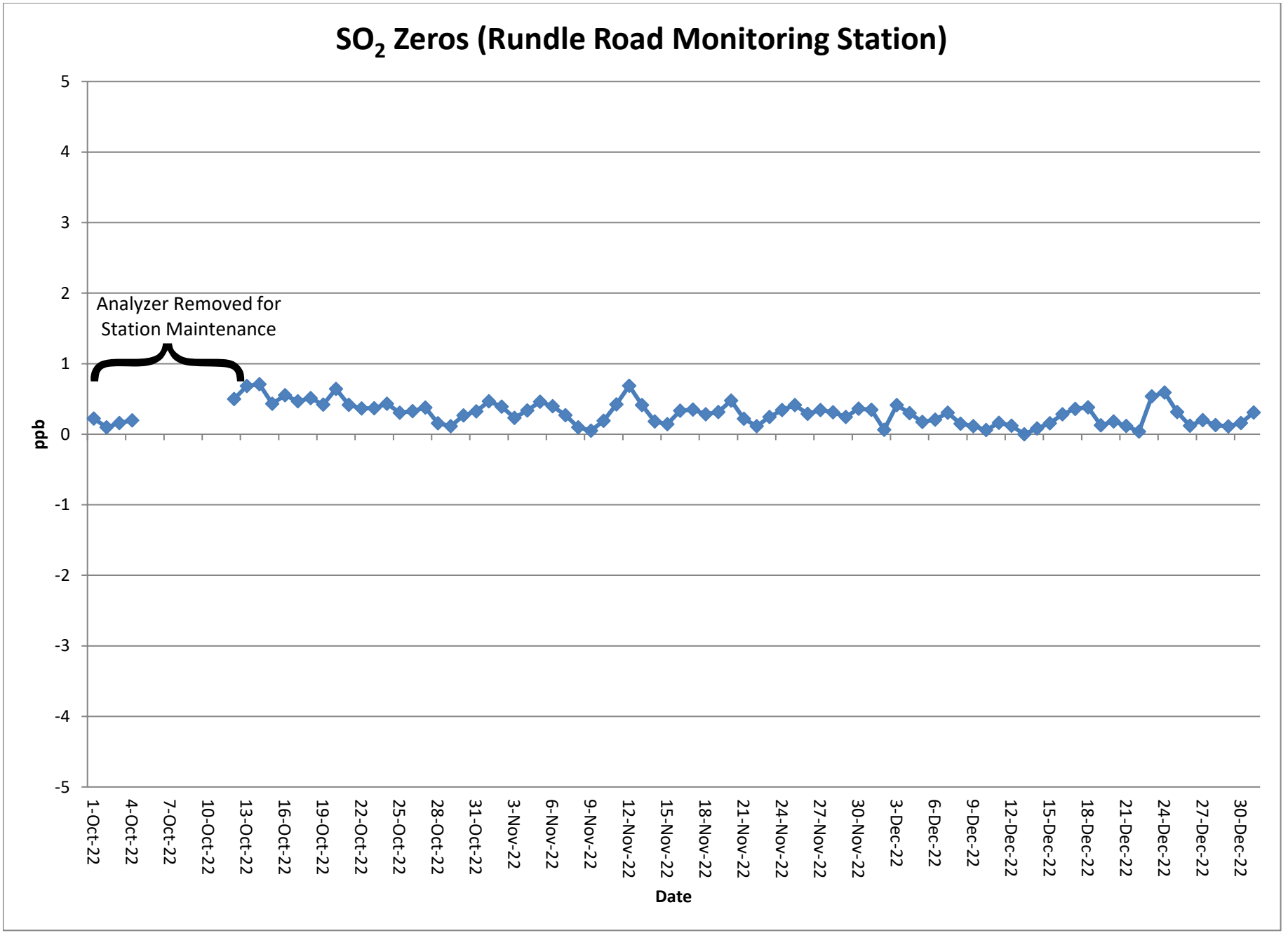
18-Dec-22
21-Dec-22
24-Dec-22
27-Dec-22
30-Dec-22
Date


SO2 Zeros (Rundle Road Monitoring Station)
5
4
3
2
1
0
-1
-2
-3
-4
-5
ppb
Analyzer Removed for
Station Maintenance
1-Oct-22
4-Oct-22
7-Oct-22
10-Oct-22
13-Oct-22
16-Oct-22
19-Oct-22
22-Oct-22
25-Oct-22
28-Oct-22
31-Oct-22
3-Nov-22
6-Nov-22
9-Nov-22
12-Nov-22
15-Nov-22
18-Nov-22
21-Nov-22
24-Nov-22
27-Nov-22
30-Nov-22
3-Dec-22
6-Dec-22
9-Dec-22
12-Dec-22
15-Dec-22
18-Dec-22
21-Dec-22
24-Dec-22
27-Dec-22
30-Dec-22
Date

APPENDIX D

Table D1: Q4 Edit Log for $PM_{2.5}$ at Courtice Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404-0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45201				**Station Name:** Courtice Station					
Station Address: 100 Osbourne Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: $PM_{2.5}$			**Instrument Make & Model:** Thermo Scientific Model 5030 SHARP Monitor						**s/n:** E-1563
Data Edit Period		**Start Date:** October 1, 2022		**End Date:** December 31, 2022			All testing done in EST		
Edit #	**Edit date (dd/mm/yyyy)**	**Editor s Name**	**Edit Action**	**Starting**		**Ending**		**Duration**	**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	**Deleted Hours**	
1	04/10/2022	SRS	Deleted Hours	04/10/2022	13:00	12/10/2022	17:00	196	Instrument Removed for Station Maintenance. Reinstalled Including Monthly Calibrations & Stabalization Period
2	08/11/2022	DAJH	Deleted Hours	17/10/2022	11:00	17/10/2022	12:00	1	Power Failure
3	08/11/2022	DAJH	Deleted Hours	18/10/2022	13:00	18/10/2022	15:00	2	Power Failure
4	27/10/2022	SRS	Deleted Hours	27/10/2022	09:00	27/10/2022	11:00	2	MECP Audit
5	08/11/2022	DAJH	Zero Correction	01/10/2022	00:00	01/11/2022	00:00	-	Correcting Values <0 to 0
6	29/11/2022	SRS	Deleted Hours	29/11/2022	15:00	29/11/2022	16:00	1	Monthly Calibration
7	22/12/2022	SRS	Deleted Hours	22/12/2022	11:00	22/12/2022	12:00	1	Monthly Calibration
8	05/01/2023	DAJH	Zero Correction	01/12/2022	00:00	01/01/2023	00:00	-	Correcting Values <0 to 0

Table D2: Q4 Edit Log for $PM_{2.5}$ at Rundle Road Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404-0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45200				**Station Name:** Rundle Road Station					
Station Address: Rundle Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: $PM_{2.5}$			**Instrument Make & Model:** Thermo Scientific Model 5030 SHARP Monitor						**s/n:** E-1569
Data Edit Period		**Start Date:** October 1, 2022		**End Date:** December 31, 2022			All testing done in EST		
Edit #	**Edit date (dd/mm/yyyy)**	**Editor s Name**	**Edit Action**	**Starting**		**Ending**		**Duration**	**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	**Deleted Hours**	
1	04/10/2022	SRS	Deleted Hours	04/10/2022	09:00	12/10/2022	14:00	197	Instrument Removed for Station Maintenance. Reinstalled Including Monthly Calibrations & Stabalization Period
2	27/10/2022	SRS	Deleted Hours	27/10/2022	11:00	27/10/2022	12:00	1	MECP Audit
3	28/11/2022	SRS	Deleted Hours	28/11/2022	15:00	28/11/2022	17:00	2	Monthly Calibration
4	22/12/2022	SRS	Deleted Hours	22/12/2022	14:00	22/12/2022	16:00	2	Monthly Calibration

Table D3: Q4 Edit Log for NO_X at Courtice Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404-0888 ext 4107			**Email:** Lyndsay.Waller@Durham.ca			
Station Number: 45201				**Station Name:** Courtice Station					
Station Address: 100 Osbourne Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: NOx			**Instrument Make & Model:** Teledyne Nitrogen Oxide Analyzer Model T200						**s/n:** 675
Data Edit Period		**Start Date:** October 1, 2022		**End Date:** December 31, 2022			All testing done in EST		
Edit #	**Edit date (dd/mm/yyyy)**	**Editor s Name**	**Edit Action**	**Starting**		**Ending**		**Duration**	**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	**Deleted Hours**	
1	04/10/2022	SRS	Deleted Hours	04/10/2022	13:00	12/10/2022	16:00	195	Instrument Removed for Station Maintenance. Reinstalled Including Monthly Calibrations & Stabalization Period
2	08/11/2022	DAJH	Deleted Hours	17/10/2022	11:00	17/10/2022	12:00	1	Power Failure
3	08/11/2022	DAJH	Deleted Hours	18/10/2022	13:00	18/10/2022	15:00	2	Power Failure
4	27/10/2022	SRS	Deleted Hours	27/10/2022	09:00	27/10/2022	11:00	2	MECP Audit
5	09/11/2022	DAJH	Zero Correction	01/10/2022	00:00	01/11/2022	00:00	-	Correcting Values <0 to 0
6	06/12/2022	DAJH	Deleted Hours	17/11/2022	10:00	18/11/2022	12:00	26	Communications Malfunction
7	09/12/2022	DAJH	Deleted Hours	29/11/2022	02:00	29/11/2022	11:00	9	Invalid Data - Failed Take Out Calibrations
8	29/11/2022	SRS	Deleted Hours	29/11/2022	11:00	29/11/2022	16:00	5	Monthly Calibration
9	09/12/2022	DAJH	Zero Correction	01/11/2022	00:00	01/12/2022	00:00	-	Correcting Values <0 to 0
10	22/12/2022	SRS	Deleted Hours	21/12/2022	13:00	21/12/2022	18:00	5	Monthly Calibration & Routine Maintenance
11	05/01/2023	DAJH	Zero Correction	01/12/2022	00:00	01/01/2023	00:00	-	Correcting Values <0 to 0

Table D4: Q4 Edit Log for NO_X at Rundle Road Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404-0888 ext 4107			**Email:** Lyndsay.Waller@Durham.ca			
Station Number: 45200				**Station Name:** Rundle Road Station					
Station Address: Rundle Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: NOx			**Instrument Make & Model:** Teledyne Nitrogen Oxide Analyzer Model T200						**s/n:** 676
Data Edit Period		**Start Date:** October 1, 2022		**End Date:** December 31, 2022			All testing done in EST		
Edit #	**Edit date (dd/mm/yyyy)**	**Editor s Name**	**Edit Action**	**Starting**		**Ending**		**Duration**	**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	**Deleted Hours**	
1	04/10/2022	SRS	Deleted Hours	04/10/2022	10:00	12/10/2022	14:00	196	Instrument Removed for Station Maintenance. Reinstalled Including Monthly Calibrations & Stabalization Period
2	27/10/2022	SRS	Deleted Hours	27/10/2022	11:00	27/10/2022	12:00	1	MECP Audit
3	09/11/2022	DAJH	Zero Offset Adjustment	01/10/2022	00:05	04/10/2022	10:00	-	Zero Drift Adjustment Based on Overnight Zeros
4	09/11/2022	DAJH	Zero Correction	01/10/2022	00:00	01/11/2022	00:00	-	Correcting Values <0 to 0
5	28/11/2022	SRS	Deleted Hours	28/11/2022	11:00	28/11/2022	16:00	5	Monthly Calibration & GPT
6	06/12/2022	DAJH	Zero Correction	01/11/2022	00:00	01/12/2022	00:00	-	Correcting Values <0 to 0
7	22/12/2022	SRS	Deleted Hours	22/12/2022	13:00	22/12/2022	15:00	2	Monthly Calibration
8	05/01/2023	DAJH	Zero Correction	01/12/2022	00:00	01/01/2023	00:00	-	Correcting Values <0 to 0

Table D5: Q4 Edit Log for SO_2 at Courtice Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404-0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45201				**Station Name:** Courtice Station					
Station Address: 100 Osbourne Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: SO_2			**Instrument Make & Model:** Teledyne Sulfur Dioxide Analyzer Model T100						**s/n:** 565
Data Edit Period		**Start Date:** October 1, 2022		**End Date:** December 31, 2022			All testing done in EST		
Edit #	**Edit Date (dd/mm/yyyy)**	**Editor s Name**	**Edit Action**	**Starting**		**Ending**		**Duration**	**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	**Deleted Hours**	
1	04/10/2022	SRS	Deleted Hours	04/10/2022	12:00	12/10/2022	18:00	198	Instrument Removed for Station Maintenance. Reinstalled Including Monthly Calibrations & Stabalization Period
2	08/11/2022	DAJH	Deleted Hours	17/10/2022	11:00	17/10/2022	12:00	1	Power Failure
3	08/11/2022	DAJH	Deleted Hours	18/10/2022	13:00	18/10/2022	15:00	2	Power Failure
4	27/10/2022	SRS	Deleted Hours	27/10/2022	09:00	27/10/2022	11:00	2	MECP Audit
5	29/11/2022	SRS	Deleted Hours	29/11/2022	12:00	29/11/2022	15:00	3	Monthly Calibration
6	12/12/2022	DAJH	Zero Correction	01/11/2022	00:00	01/12/2022	00:00	-	Correcting Values <0 to 0
7	22/12/2022	SRS	Deleted Hours	21/12/2022	14:00	21/12/2022	17:00	3	Monthly Calibration
8	05/01/2023	DAJH	Zero Correction	01/12/2022	00:00	01/01/2023	00:00	-	Correcting Values <0 to 0

Table D6: Q4 Edit Log for SO_2 at Rundle Road Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404-0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45200				**Station Name:** Rundle Road Station					
Station Address: Rundle Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: SO_2			**Instrument Make & Model:** Teledyne Sulfur Dioxide Analyzer Model T100						**s/n:** 566
Data Edit Period		**Start Date:** October 1, 2022		**End Date:** December 31, 2022			All testing done in EST		
Edit #	**Edit date (dd/mm/yyyy)**	**Editor s Name**	**Edit Action**	**Starting**		**Ending**		**Duration**	**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	**Deleted Hours**	
1	04/10/2022	SRS	Deleted Hours	04/10/2022	09:00	12/10/2022	13:00	196	Instrument Removed for Station Maintenance. Reinstalled Including Monthly Calibrations & Stabalization Period
2	27/10/2022	SRS	Deleted Hours	27/10/2022	11:00	27/10/2022	13:00	2	MECP Audit
3	08/11/2022	DAJH	Zero Correction	01/10/2022	00:00	01/11/2022	00:00	-	Correcting Values <0 to 0
4	28/11/2022	SRS	Deleted Hours	28/11/2022	15:00	28/11/2022	17:00	2	Monthly Calibration
5	06/12/2022	DAJH	Zero Correction	01/11/2022	00:00	01/12/2022	00:00	-	Correcting Values <0 to 0
6	22/12/2022	SRS	Deleted Hours	22/12/2022	12:00	22/12/2022	16:00	4	Monthly Calibration
7	05/01/2023	DAJH	Zero Correction	01/12/2022	00:00	01/01/2023	00:00	-	Correcting Values <0 to 0

Table D7: Q4 Edit Log for Meteorological Parameters at Courtice Road Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404-0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45201				**Station Name:** Courtice Station					
Station Address: 100 Osbourne Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: WS, WD, Ambient T, P, RH and Rain			**Instrument Make & Model:** Miscellaneous Meterological Instrumentation						**s/n:** N/A
Data Edit Period		**Start Date:** October 1, 2022		**End Date:** December 31, 2022			All testing done in EST		
Edit #	**Edit date (dd/mm/yyyy)**	**Editor s Name**	**Edit Action**	**Starting**		**Ending**		**Duration**	**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	**Deleted Hours**	
1	04/10/2022	SRS	Deleted Hours	04/10/2022	13:00	12/10/2022	15:00	170	Instruments Offline during Station Maintenance
2	08/11/2022	DAJH	Deleted Hours	17/10/2022	11:00	17/10/2022	12:00	1	Power Failure
3	08/11/2022	DAJH	Deleted Hours	18/10/2022	13:00	18/10/2022	15:00	2	Power Failure
4	28/12/2022	SRS	Deleted Hours	28/12/2022	13:00	28/12/2022	14:00	1	Calibration

Table D8: Q4 Edit Log for Meteorological Parameters at Rundle Road Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404-0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45200				**Station Name:** Rundle Station					
Station Address: Rundle Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: WS, WD, Ambient T, P, RH and Rain			**Instrument Make & Model:** Miscellaneous Meterological Instrumentation					**s/n:** N/A	
Data Edit Period		**Start Date:** October 1, 2022		**End Date:** December 31, 2022			All testing done in EST		
Edit #	**Edit date (dd/mm/yyyy)**	**Editor s Name**	**Edit Action**	**Starting**		**Ending**		**Duration**	**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	**Deleted Hours**	
1	04/10/2022	SRS	Deleted Hours	04/10/2022	10:00	12/10/2022	17:00	175	Instruments Offline during Station Maintenance
2	09/01/2023	DAJH	Deleted Hours	13/12/2022	10:00	13/12/2022	16:00	6	Rainfall Instrument Malfunction
3	28/12/2022	SRS	Deleted Hours	28/12/2022	14:00	28/12/2022	16:00	2	Calibration
4	05/01/2022	DAJH	Deleted Hours	28/12/2022	16:00	31/12/2022	18:00	74	Wind Direction Instrument Malfunction

Table D9: Q4 Edit Log for Discrete Sampling at Courtice Station

Emitter's Name: Durham York Energy Center									
Contact	**Name:** Ms. Lyndsay Waller	**Phone:** (905) 404 0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca					
Station Number: 45201				**Station Name:** Courtice Station					
Station Address: 100 Osbourne Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: N/A		**Instrument Make & Model:** N/A							**s/n:**
Data Edit Period	**Start Date:** October 1, 2022			**End Date:** December 31, 2022			All testing done in EST		
Edit #	**Edit date (dd/mm/yyyy)**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Duration**	**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	**Deleted Hours**	
1	08/11/2022	DAJH	Deleted Hours	20/10/2022	00:00	21/10/2022	00:00	24	TSP - Equipment Malfunction
2	22/12/2022	DAJH	Deleted Hours	07/12/2022	00:00	08/12/2022	00:00	24	TSP - Equipment Malfunction
3	22/12/2022	DAJH	Deleted Hours	19/12/2022	00:00	20/12/2022	00:00	24	TSP - Equipment Malfunction

Table D10: Q4 Edit Log for Discrete Sampling at Rundle Station

Emitter's Name: Durham York Energy Center									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404 0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45200				**Station Name:** Rundle Station					
Station Address: Rundle Rd				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: N/A			**Instrument Make & Model:** N/A						**s/n:**
Data Edit Period		**Start Date:** October 1, 2022		**End Date:** December 31, 2022			All testing done in EST		
Edit #	**Edit date (dd/mm/yyyy)**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Duration**	**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	**Deleted Hours**	
-									

APPENDIX E

SO2 Exceedance Report **Table E1**

Durham York Energy Centre
Courtice, Ontario
Courtice Station
Baseline Corrected Data

Date	Time	SO_2	SO_2
		5-min Avg.	10-min Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
10-01-2022	08:30	3.1	3.9
10-01-2022	08:35	3.3	3.2
10-01-2022	08:40	85.1	44.2
10-01-2022	08:45	106.3	95.7
10-01-2022	08:50	44.3	75.3
10-01-2022	08:55	34.6	39.4
10-01-2022	09:00	31.3	33.0
Hidden cells with no values exceeding limit.			
10-03-2022	08:20	3.8	4.1
10-03-2022	08:25	2.8	3.3
10-03-2022	08:30	82.5	42.7
10-03-2022	08:35	64.5	73.5
10-03-2022	08:40	43.0	53.8
10-03-2022	08:45	16.5	29.7
10-03-2022	08:50	11.7	14.1
Hidden cells with no values exceeding limit.			
10-16-2022	07:35	22.4	23.0
10-16-2022	07:40	36.1	29.2
10-16-2022	07:45	54.3	45.2
10-16-2022	07:50	87.6	70.9
10-16-2022	07:55	88.7	88.1
10-16-2022	08:00	57.3	73.0
10-16-2022	08:05	66.2	61.7
10-16-2022	08:10	77.1	71.6
10-16-2022	08:15	49.9	63.5
10-16-2022	08:20	20.4	35.2
10-16-2022	08:25	12.7	16.5
Hidden cells with no values exceeding limit.			
10-27-2022	20:00	73.2	45.0
10-27-2022	20:05	49.8	61.5
10-27-2022	20:10	67.5	58.7
10-27-2022	20:15	113.4	90.5
10-27-2022	20:20	47.7	80.6
10-27-2022	20:25	16.1	31.9
10-27-2022	20:30	8.5	12.3
Hidden cells with no values exceeding limit.			
10-27-2022	20:45	8.9	16.3
10-27-2022	20:50	16.1	12.5
10-27-2022	20:55	57.2	36.6
10-27-2022	21:00	86.4	71.8
10-27-2022	21:05	100.5	93.4
10-27-2022	21:10	93.6	97.0
10-27-2022	21:15	77.1	85.4
10-27-2022	21:20	92.3	84.7
10-27-2022	21:25	48.7	70.5
10-27-2022	21:30	36.3	42.5
10-27-2022	21:35	67.6	51.9
10-27-2022	21:40	60.5	64.0
10-27-2022	21:45	66.1	63.3
10-27-2022	21:50	73.1	69.6
10-27-2022	21:55	42.3	57.7
10-27-2022	22:00	34.0	38.2
10-27-2022	22:05	28.0	31.0
Hidden cells with no values exceeding limit.			
10-28-2022	22:10	1.0	1.0
10-28-2022	22:15	25.3	13.1
10-28-2022	22:20	107.0	66.2
10-28-2022	22:25	183.8	145.4

10-28-2022	22:30	201.5	192.6
10-28-2022	22:35	110.5	156.0
10-28-2022	22:40	100.9	105.7
10-28-2022	22:45	71.8	86.3
10-28-2022	22:50	57.5	64.6
10-28-2022	22:55	19.8	38.7
10-28-2022	23:00	11.8	15.8
Hidden cells with no values exceeding limit.			
10-29-2022	17:00	0.9	0.8
10-29-2022	17:05	0.9	0.9
10-29-2022	17:10	58.2	29.5
10-29-2022	17:15	248.4	153.3
10-29-2022	17:20	26.4	137.4
10-29-2022	17:25	13.8	20.1
10-29-2022	17:30	5.7	9.7
Hidden cells with no values exceeding limit.			
10-29-2022	17:50	5.8	18.8
10-29-2022	17:55	4.8	5.3
10-29-2022	18:00	34.2	19.5
10-29-2022	18:05	101.9	68.1
10-29-2022	18:10	119.2	110.6
10-29-2022	18:15	80.4	99.8
10-29-2022	18:20	103.8	92.1
10-29-2022	18:25	142.6	123.2
10-29-2022	18:30	43.9	93.3
10-29-2022	18:35	26.8	35.4
10-29-2022	18:40	54.8	40.8
10-29-2022	18:45	129.6	92.2
10-29-2022	18:50	40.8	85.2
10-29-2022	18:55	18.5	29.7
10-29-2022	19:00	10.5	14.5
Hidden cells with no values exceeding limit.			
10-30-2022	17:40	10.7	15.3
10-30-2022	17:45	24.2	17.5
10-30-2022	17:50	99.5	61.8
10-30-2022	17:55	57.5	78.5
10-30-2022	18:00	42.8	50.1
10-30-2022	18:05	114.8	78.8
10-30-2022	18:10	76.0	95.4
10-30-2022	18:15	37.3	56.6
10-30-2022	18:20	16.4	26.8
Hidden cells with no values exceeding limit.			
10-30-2022	18:35	48.5	54.0
10-30-2022	18:40	17.1	32.8
10-30-2022	18:45	66.0	41.5
10-30-2022	18:50	101.8	83.9
10-30-2022	18:55	72.9	87.3
10-30-2022	19:00	56.9	64.9
10-30-2022	19:05	28.9	42.9

Notes:

D, T & V	- Date, Time & Exceedence Value Reported
Faded Values	- Not used to calculate the number of reportable exceedences
	- Range of 5-minute measurements that contribute to the Exceedance Value Reported
Max	- Maximum of the Range
Min	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO2 = 67 ppb for 10-minute running average

Total Number of Reportable Exceedances: **21**

SO2 Exceedance Report **Table E2**

Durham York Energy Centre
Courtice, Ontario
Courtice Station
Baseline Corrected Data

Date	Time	SO_2 5-min Avg.	SO_2 10-min Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
11-01-2022	17:40	3.1	3.3
11-01-2022	17:45	3.2	3.1
11-01-2022	17:50	103.8	53.5
11-01-2022	17:55	141.8	122.8
11-01-2022	18:00	177.5	159.6
11-01-2022	18:05	234.4	205.9
11-01-2022	18:10	147.4	190.9
11-01-2022	18:15	30.9	89.2
11-01-2022	18:20	29.9	30.4
11-01-2022	18:25	104.0	67.0
11-01-2022	18:30	244.7	174.4
11-01-2022	18:35	201.3	223.0
11-01-2022	18:40	111.6	156.4
11-01-2022	18:45	35.6	73.6
11-01-2022	18:50	20.3	27.9
11-01-2022	18:55	12.4	16.3
Hidden cells with no values exceeding limit.			
11-02-2022	06:25	1.2	1.0
11-02-2022	06:30	1.4	1.3
11-02-2022	06:35	63.2	32.3
11-02-2022	06:40	71.7	67.5
11-02-2022	06:45	51.9	61.8
11-02-2022	06:50	36.9	44.4
11-02-2022	06:55	47.7	42.3
Hidden cells with no values exceeding limit.			
11-05-2022	07:25	1.8	1.8
11-05-2022	07:30	1.7	1.7
11-05-2022	07:35	46.6	24.2
11-05-2022	07:40	96.0	71.3
11-05-2022	07:45	21.9	59.0
11-05-2022	07:50	14.6	18.2
11-05-2022	07:55	7.6	11.1
Hidden cells with no values exceeding limit.			
11-08-2022	17:10	3.3	4.4
11-08-2022	17:15	0.6	1.9
11-08-2022	17:20	41.8	21.2
11-08-2022	17:25	156.3	99.1
11-08-2022	17:30	88.1	122.2
11-08-2022	17:35	10.5	49.3
11-08-2022	17:40	25.4	17.9
Hidden cells with no values exceeding limit.			
11-08-2022	18:25	2.0	2.1
11-08-2022	18:30	16.1	9.1
11-08-2022	18:35	88.8	52.5
11-08-2022	18:40	131.8	110.3
11-08-2022	18:45	56.5	94.1
11-08-2022	18:50	78.7	67.6
11-08-2022	18:55	95.5	87.1
11-08-2022	19:00	65.2	80.3
11-08-2022	19:05	43.0	54.1
11-08-2022	19:10	19.2	31.1
11-08-2022	19:15	7.2	13.2
Hidden cells with no values exceeding limit.			
11-09-2022	19:30	7.9	23.3
11-09-2022	19:35	5.8	6.9
11-09-2022	19:40	52.2	29.0
11-09-2022	19:45	132.5	92.3
11-09-2022	19:50	64.0	98.2

11-09-2022	19:55	67.9	65.9
11-09-2022	20:00	24.5	46.2
11-09-2022	20:05	74.0	49.3
11-09-2022	20:10	64.3	69.2
11-09-2022	20:15	100.1	82.2
11-09-2022	20:20	52.1	76.1
11-09-2022	20:25	88.6	70.4
11-09-2022	20:30	84.1	86.4
11-09-2022	20:35	121.6	102.8
11-09-2022	20:40	58.4	90.0
11-09-2022	20:45	65.3	61.9
11-09-2022	20:50	36.3	50.8
11-09-2022	20:55	63.4	49.9
Hidden cells with no values exceeding limit.			
11-09-2022	23:00	63.6	41.0
11-09-2022	23:05	40.5	52.1
11-09-2022	23:10	52.9	46.7
11-09-2022	23:15	98.5	75.7
11-09-2022	23:20	157.9	128.2
11-09-2022	23:25	36.9	97.4
11-09-2022	23:30	19.1	28.0
11-09-2022	23:35	27.7	23.4
11-09-2022	23:40	28.6	28.2
Hidden cells with no values exceeding limit.			
11-10-2022	00:10	46.3	54.0
11-10-2022	00:15	20.7	33.5
11-10-2022	00:20	48.5	34.6
11-10-2022	00:25	107.4	78.0
11-10-2022	00:30	61.0	84.2
11-10-2022	00:35	89.9	75.4
11-10-2022	00:40	27.4	58.6
11-10-2022	00:45	50.1	38.7
11-10-2022	00:50	32.9	41.5
11-10-2022	00:55	42.5	37.7
11-10-2022	01:00	122.6	82.5
11-10-2022	01:05	64.0	93.3
11-10-2022	01:10	56.2	60.1
11-10-2022	01:15	54.3	55.2
11-10-2022	01:20	19.8	37.0
11-10-2022	01:25	82.0	50.9
11-10-2022	01:30	156.6	119.3
11-10-2022	01:35	39.8	98.2
11-10-2022	01:40	18.7	29.2
11-10-2022	01:45		18.7
Hidden cells with no values exceeding limit.			
11-10-2022	02:05		
11-10-2022	02:10		
11-10-2022	02:15	40.5	40.5
11-10-2022	02:20	104.2	72.4
11-10-2022	02:25	111.0	107.6
11-10-2022	02:30	25.8	68.4
11-10-2022	02:35	50.7	38.2
11-10-2022	02:40	66.5	58.6
11-10-2022	02:45	57.4	61.9
Hidden cells with no values exceeding limit.			
11-11-2022	07:40	1.4	1.4
11-11-2022	07:45	3.9	2.6
11-11-2022	07:50	61.9	32.9
11-11-2022	07:55	80.0	70.9
11-11-2022	08:00	80.8	80.4
11-11-2022	08:05	59.7	70.3
11-11-2022	08:10	45.1	52.4
11-11-2022	08:15	36.1	40.6
11-11-2022	08:20	52.8	44.5
Hidden cells with no values exceeding limit.			
11-14-2022	17:40	4.7	2.6
11-14-2022	17:45	14.2	9.5
11-14-2022	17:50	2.1	8.1

11-14-2022	17:55	155.2	78.6
11-14-2022	18:00	201.4	178.3
11-14-2022	18:05	197.1	199.3
11-14-2022	18:10	160.2	178.7
11-14-2022	18:15	185.5	172.8
11-14-2022	18:20	183.0	184.3
11-14-2022	18:25	158.6	170.8
11-14-2022	18:30	42.6	100.6
11-14-2022	18:35	22.2	32.4
11-14-2022	18:40	52.7	37.5
11-14-2022	18:45	87.6	70.2
11-14-2022	18:50	211.5	149.6
11-14-2022	18:55	48.2	129.9
11-14-2022	19:00	13.9	31.0
11-14-2022	19:05	10.3	12.1
11-14-2022	19:10	6.2	8.2
Hidden cells with no values exceeding limit.			
11-23-2022	16:55	66.6	53.5
11-23-2022	17:00	26.6	46.6
11-23-2022	17:05	75.4	51.0
11-23-2022	17:10	81.5	78.5
11-23-2022	17:15	14.0	47.7
11-23-2022	17:20	7.1	10.5
11-23-2022	17:25	65.1	36.1
Hidden cells with no values exceeding limit.			
11-23-2022	18:15	32.7	30.2
11-23-2022	18:20	26.3	29.5
11-23-2022	18:25	60.3	43.3
11-23-2022	18:30	79.1	69.7
11-23-2022	18:35	19.6	49.4
11-23-2022	18:40	11.5	15.6
11-23-2022	18:45	29.1	20.3
11-23-2022	18:50	10.6	19.9
11-23-2022	18:55	7.3	8.9
11-23-2022	19:00	59.0	33.2
11-23-2022	19:05	93.2	76.1
11-23-2022	19:10	47.6	70.4
11-23-2022	19:15	31.9	39.8
11-23-2022	19:20	61.0	46.4
Hidden cells with no values exceeding limit.			
11-27-2022	05:45	1.9	1.7
11-27-2022	05:50	48.7	25.3
11-27-2022	05:55	37.3	43.0
11-27-2022	06:00	120.3	78.8
11-27-2022	06:05	19.4	69.8
11-27-2022	06:10	16.1	17.8
11-27-2022	06:15	66.6	41.4
Hidden cells with no values exceeding limit.			
11-27-2022	07:25	36.3	24.1
11-27-2022	07:30	39.1	37.7
11-27-2022	07:35	93.3	66.2
11-27-2022	07:40	45.3	69.3
11-27-2022	07:45	15.2	30.3
11-27-2022	07:50	13.6	14.4
11-27-2022	07:55	46.7	30.1
Hidden cells with no values exceeding limit.			
11-28-2022	22:30	0.9	0.7
11-28-2022	22:35	1.8	1.3
11-28-2022	22:40	91.0	46.4
11-28-2022	22:45	70.6	80.8
11-28-2022	22:50	11.3	41.0
11-28-2022	22:55	14.1	12.7
11-28-2022	23:00	11.7	12.9
Hidden cells with no values exceeding limit.			
11-29-2022	01:15	41.4	46.1
11-29-2022	01:20	48.2	44.8
11-29-2022	01:25	71.4	59.8
11-29-2022	01:30	78.9	75.2

11-29-2022	01:35	40.0	59.4
11-29-2022	01:40	20.1	30.0
11-29-2022	01:45		20.1

Notes:

	- Date, Time & Exceedence Value Reported
	- Not used to calculate the number of reportable exceedences
	- Range of 5-minute measurements that contribute to the Exceedance Value Reported
Max	- Maximum of the Range
Min	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO2 = 67 ppb for 10-minute running average

Total Number of Reportable Exceedances: **39**

SO2 Exceedance Report **Table E3**

Durham York Energy Centre
Courtice, Ontario
Courtice Station
Baseline Corrected Data

Date	Time	SO_2	SO_2
		5-min Avg.	10-min Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
12-12-2022	21:05	7.6	11.5
12-12-2022	21:10	32.1	19.9
12-12-2022	21:15	82.5	57.3
12-12-2022	21:20	70.6	76.5
12-12-2022	21:25	56.2	63.4
12-12-2022	21:30	25.2	40.7
12-12-2022	21:35	22.5	23.8
Hidden cells with no values exceeding limit.			
12-21-2022	18:00	43.7	44.4
12-21-2022	18:05	34.4	39.0
12-21-2022	18:10	75.8	55.1
12-21-2022	18:15	65.9	70.8
12-21-2022	18:20	37.0	51.4
12-21-2022	18:25	12.2	24.6
12-21-2022	18:30	4.8	8.5

Notes:

D, T & V	- Date, Time & Exceedence Value Reported
Faded Values	- Not used to calculate the number of reportable exceedences
	- Range of 5-minute measurements that contribute to the Exceedance Value Reported
Max	- Maximum of the Range
Min	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO2 = 67 ppb for 10-minute running average

Total Number of Reportable Exceedances: **2**

SO2 Exceedance Report **Table E4**

Durham York Energy Centre
Courtice, Ontario
Courtice Station
Baseline Corrected Data

Date	Time	SO_2	SO_2
		5-min Avg.	1-hr Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
10-16-2022	06:50	36.6	6.5
10-16-2022	06:55	8.4	6.9
10-16-2022	07:00	57.8	11.5
10-16-2022	07:05	74.6	17.4
10-16-2022	07:10	23.8	19.0
10-16-2022	07:15	13.0	19.9
10-16-2022	07:20	9.4	20.3
10-16-2022	07:25	14.7	21.3
10-16-2022	07:30	23.6	23.0
10-16-2022	07:35	22.4	24.7
10-16-2022	07:40	36.1	27.5
10-16-2022	07:45	54.3	31.2
10-16-2022	07:50	87.6	35.5
10-16-2022	07:55	88.7	42.2
10-16-2022	08:00	57.3	42.1
10-16-2022	08:05	66.2	41.4
10-16-2022	08:10	77.1	45.9
10-16-2022	08:15	49.9	48.9
10-16-2022	08:20	20.4	49.9
10-16-2022	08:25	12.7	49.7
10-16-2022	08:30	9.9	48.5
10-16-2022	08:35	9.4	47.5
10-16-2022	08:40	8.7	45.2
10-16-2022	08:45	7.1	41.3
10-16-2022	08:50	6.4	34.5
10-16-2022	08:55	5.5	27.6
10-16-2022	09:00	5.1	23.2
Hidden cells with no values exceeding limit.			
10-27-2022	17:55	16.7	1.9
10-27-2022	18:00	33.6	4.6
10-27-2022	18:05	61.1	9.7
10-27-2022	18:10	53.7	14.1
10-27-2022	18:15	5.3	14.5
10-27-2022	18:20	4.9	14.9
10-27-2022	18:25	44.4	18.6
10-27-2022	18:30	25.6	20.7
10-27-2022	18:35	38.8	23.8
10-27-2022	18:40	52.4	28.1
10-27-2022	18:45	71.1	34.0
10-27-2022	18:50	12.3	35.0
10-27-2022	18:55	44.5	37.3
10-27-2022	19:00	80.8	41.2
10-27-2022	19:05	33.8	39.0
10-27-2022	19:10	61.5	39.6
10-27-2022	19:15	38.5	42.4
10-27-2022	19:20	35.2	44.9
10-27-2022	19:25	15.4	42.5
10-27-2022	19:30	57.7	45.2
10-27-2022	19:35	38.8	45.2
10-27-2022	19:40	11.6	41.8
10-27-2022	19:45	5.8	36.3
10-27-2022	19:50	4.5	35.7
10-27-2022	19:55	16.9	33.4
10-27-2022	20:00	73.2	32.7
10-27-2022	20:05	49.8	34.1
10-27-2022	20:10	67.5	34.6
10-27-2022	20:15	113.4	40.8
10-27-2022	20:20	47.7	41.9

10-27-2022	20:25	16.1	41.9
10-27-2022	20:30	8.5	37.8
10-27-2022	20:35	12.9	35.7
10-27-2022	20:40	23.8	36.7
10-27-2022	20:45	8.9	36.9
10-27-2022	20:50	16.1	37.9
10-27-2022	20:55	57.2	41.3
10-27-2022	21:00	86.4	42.4
10-27-2022	21:05	100.5	46.6
10-27-2022	21:10	93.6	48.7
10-27-2022	21:15	77.1	45.7
10-27-2022	21:20	92.3	49.4
10-27-2022	21:25	48.7	52.1
10-27-2022	21:30	36.3	54.5
10-27-2022	21:35	67.6	59.0
10-27-2022	21:40	60.5	62.1
10-27-2022	21:45	66.1	66.8
10-27-2022	21:50	73.1	71.6
10-27-2022	21:55	42.3	70.4
10-27-2022	22:00	34.0	66.0
10-27-2022	22:05	28.0	60.0
10-27-2022	22:10	24.7	54.2
10-27-2022	22:15	24.1	49.8
10-27-2022	22:20	23.0	44.0
10-27-2022	22:25	20.1	41.6
10-27-2022	22:30	19.0	40.2
10-27-2022	22:35	17.5	36.0
10-27-2022	22:40	20.9	32.7
10-27-2022	22:45	25.2	29.3
10-27-2022	22:50	23.2	25.2
10-27-2022	22:55	20.9	23.4
10-27-2022	23:00	24.3	22.6
10-27-2022	23:05	33.1	23.0
10-27-2022	23:10	35.5	23.9
10-27-2022	23:15	38.1	25.1
10-27-2022	23:20	39.4	26.4
Hidden cells with no values exceeding limit.			
10-28-2022	21:25	1.6	1.3
10-28-2022	21:30	0.9	1.2
10-28-2022	21:35	0.9	1.1
10-28-2022	21:40	0.8	1.1
10-28-2022	21:45	0.8	1.1
10-28-2022	21:50	0.8	1.1
10-28-2022	21:55	0.8	1.1
10-28-2022	22:00	0.9	1.1
10-28-2022	22:05	1.0	1.0
10-28-2022	22:10	1.0	1.0
10-28-2022	22:15	25.3	3.0
10-28-2022	22:20	107.0	11.8
10-28-2022	22:25	183.8	27.0
10-28-2022	22:30	201.5	43.7
10-28-2022	22:35	110.5	52.9
10-28-2022	22:40	100.9	61.2
10-28-2022	22:45	71.8	67.1
10-28-2022	22:50	57.5	71.8
10-28-2022	22:55	19.8	73.4
10-28-2022	23:00	11.8	74.3
10-28-2022	23:05	15.5	75.5
10-28-2022	23:10	19.0	77.0
10-28-2022	23:15	39.7	78.2
10-28-2022	23:20	38.5	72.5
10-28-2022	23:25	35.0	60.1
10-28-2022	23:30	21.5	45.1
10-28-2022	23:35	17.9	37.4
10-28-2022	23:40	13.3	30.1
10-28-2022	23:45	4.9	24.5
10-28-2022	23:50	8.0	20.4
10-28-2022	23:55	24.9	20.8

10-29-2022	00:00	39.4	23.1
10-29-2022	00:05	28.5	24.2
10-29-2022	00:10	18.1	24.1
10-29-2022	00:15	8.7	21.6
10-29-2022	00:20	7.8	19.0
10-29-2022	00:25	6.1	16.6
10-29-2022	00:30	20.5	16.5
10-29-2022	00:35	26.3	17.2
Hidden cells with no values exceeding limit.			
10-29-2022	17:00	0.9	0.8
10-29-2022	17:05	0.9	0.8
10-29-2022	17:10	58.2	5.6
10-29-2022	17:15	248.4	26.2
10-29-2022	17:20	26.4	28.4
10-29-2022	17:25	13.8	29.4
10-29-2022	17:30	5.7	29.8
10-29-2022	17:35	3.6	30.1
10-29-2022	17:40	3.9	30.3
10-29-2022	17:45	31.8	32.9
10-29-2022	17:50	5.8	33.3
10-29-2022	17:55	4.8	33.7
10-29-2022	18:00	34.2	36.4
10-29-2022	18:05	101.9	44.9
10-29-2022	18:10	119.2	50.0
10-29-2022	18:15	80.4	36.0
10-29-2022	18:20	103.8	42.4
10-29-2022	18:25	142.6	53.1
10-29-2022	18:30	43.9	56.3
10-29-2022	18:35	26.8	58.3
10-29-2022	18:40	54.8	62.5
10-29-2022	18:45	129.6	70.7
10-29-2022	18:50	40.8	73.6
10-29-2022	18:55	18.5	74.7
10-29-2022	19:00	10.5	72.8
10-29-2022	19:05	7.0	64.8
10-29-2022	19:10	5.8	55.4
10-29-2022	19:15	5.4	49.1
10-29-2022	19:20	4.6	40.9
10-29-2022	19:25	3.5	29.3
10-29-2022	19:30	3.0	25.9
10-29-2022	19:35	2.4	23.8
10-29-2022	19:40	2.0	19.4
10-29-2022	19:45	2.1	8.8
10-29-2022	19:50	1.8	5.6
10-29-2022	19:55	1.7	4.2
10-29-2022	20:00	1.7	3.4
10-29-2022	20:05	2.1	3.0
10-29-2022	20:10	1.9	2.7
Hidden cells with no values exceeding limit.			
10-30-2022	17:05	0.8	0.8
10-30-2022	17:10	0.7	0.8
10-30-2022	17:15	0.7	0.8
10-30-2022	17:20	0.6	0.8
10-30-2022	17:25	1.7	0.8
10-30-2022	17:30	61.0	5.8
10-30-2022	17:35	19.9	7.4
10-30-2022	17:40	10.7	8.3
10-30-2022	17:45	24.2	10.2
10-30-2022	17:50	99.5	18.4
10-30-2022	17:55	57.5	23.2
10-30-2022	18:00	42.8	26.7
10-30-2022	18:05	114.8	36.2
10-30-2022	18:10	76.0	42.4
10-30-2022	18:15	37.3	45.5
10-30-2022	18:20	16.4	46.8
10-30-2022	18:25	50.5	50.9
10-30-2022	18:30	59.5	50.8
10-30-2022	18:35	48.5	53.1

10-30-2022	18:40	17.1	53.7
10-30-2022	18:45	66.0	57.1
10-30-2022	18:50	101.8	57.3
10-30-2022	18:55	72.9	58.6
10-30-2022	19:00	56.9	59.8
10-30-2022	19:05	28.9	52.6
10-30-2022	19:10	12.4	47.3
10-30-2022	19:15	7.9	44.9
10-30-2022	19:20	6.4	44.1
10-30-2022	19:25	5.4	40.3
10-30-2022	19:30	4.6	35.7
10-30-2022	19:35	4.9	32.1
10-30-2022	19:40	4.6	31.1
10-30-2022	19:45	4.6	25.9
10-30-2022	19:50	3.1	17.7
10-30-2022	19:55	2.7	11.9
10-30-2022	20:00	2.4	7.3
10-30-2022	20:05	2.4	5.1
10-30-2022	20:10	2.6	4.3
10-30-2022	20:15	2.2	3.8

Notes:

D, T & V	- Date, Time & Exceedence Value Reported
Faded Values	- Not used to calculate the number of reportable exceedences
	- Range of 5-minute measurements that contribute to the Exceedance Value Reported
Max	- Maximum of the Range
Min	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO2 = 40 ppb for 1-hour running average

Total Number of Reportable Exceedances: **11**

SO2 Exceedance Report **Table E5**

Durham York Energy Centre
Courtice, Ontario
Courtice Station
Baseline Corrected Data

Date	Time	SO_2	SO_2
		5-min Avg.	1-hr Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
11-01-2022	17:00	0.9	0.9
11-01-2022	17:05	0.8	0.9
11-01-2022	17:10	0.8	0.9
11-01-2022	17:15	0.8	0.9
11-01-2022	17:20	0.7	0.9
11-01-2022	17:25	0.7	0.9
11-01-2022	17:30	10.2	1.6
11-01-2022	17:35	3.6	1.8
11-01-2022	17:40	3.1	2.0
11-01-2022	17:45	3.2	2.2
11-01-2022	17:50	103.8	10.8
11-01-2022	17:55	141.8	22.5
11-01-2022	18:00	177.5	37.3
11-01-2022	18:05	234.4	56.7
11-01-2022	18:10	147.4	68.9
11-01-2022	18:15	30.9	71.4
11-01-2022	18:20	29.9	73.9
11-01-2022	18:25	104.0	82.5
11-01-2022	18:30	244.7	102.0
11-01-2022	18:35	201.3	118.5
11-01-2022	18:40	111.6	127.5
11-01-2022	18:45	35.6	130.2
11-01-2022	18:50	20.3	123.3
11-01-2022	18:55	12.4	112.5
11-01-2022	19:00	9.1	98.5
11-01-2022	19:05	7.3	79.5
11-01-2022	19:10	6.1	67.8
11-01-2022	19:15	5.5	65.7
11-01-2022	19:20	5.0	63.6
11-01-2022	19:25	5.0	55.3
11-01-2022	19:30	3.9	35.2
11-01-2022	19:35	3.3	18.7
11-01-2022	19:40	3.0	9.7
11-01-2022	19:45	2.6	7.0
11-01-2022	19:50	2.5	5.5
11-01-2022	19:55	2.5	4.7
11-01-2022	20:00	2.7	4.1
11-01-2022	20:05	2.4	3.7
11-01-2022	20:10	2.2	3.4
Hidden cells with no values exceeding limit.			
11-02-2022	06:15	0.8	0.8
11-02-2022	06:20	0.9	0.7
11-02-2022	06:25	1.2	0.8
11-02-2022	06:30	1.4	0.8
11-02-2022	06:35	63.2	6.1
11-02-2022	06:40	71.7	12.0
11-02-2022	06:45	51.9	16.2
11-02-2022	06:50	36.9	19.2
11-02-2022	06:55	47.7	23.2
11-02-2022	07:00	48.4	27.1
11-02-2022	07:05	42.8	30.6
11-02-2022	07:10	37.4	33.7
11-02-2022	07:15	43.1	37.2
11-02-2022	07:20	55.6	41.8
11-02-2022	07:25	48.3	45.7
11-02-2022	07:30	61.4	50.7
11-02-2022	07:35	60.2	50.4
11-02-2022	07:40	45.3	48.2

11-02-2022	07:45	64.1	49.2
11-02-2022	07:50	57.3	50.9
11-02-2022	07:55	26.0	49.1
11-02-2022	08:00	14.8	46.3
11-02-2022	08:05	13.7	43.9
11-02-2022	08:10	10.0	41.6
11-02-2022	08:15	8.4	38.8
11-02-2022	08:20	7.0	34.7
11-02-2022	08:25	8.2	31.4
Hidden cells with no values exceeding limit.			
11-08-2022	17:50	11.0	34.2
11-08-2022	17:55	17.2	35.7
11-08-2022	18:00	6.3	36.2
11-08-2022	18:05	4.5	36.1
11-08-2022	18:10	3.5	36.1
11-08-2022	18:15	2.5	36.3
11-08-2022	18:20	2.2	33.0
11-08-2022	18:25	2.0	20.1
11-08-2022	18:30	16.1	14.1
11-08-2022	18:35	88.8	20.6
11-08-2022	18:40	131.8	29.5
11-08-2022	18:45	56.5	28.5
11-08-2022	18:50	78.7	34.2
11-08-2022	18:55	95.5	40.7
11-08-2022	19:00	65.2	45.6
11-08-2022	19:05	43.0	48.8
11-08-2022	19:10	19.2	50.1
11-08-2022	19:15	7.2	50.5
11-08-2022	19:20	4.6	50.7
11-08-2022	19:25	3.4	50.8
11-08-2022	19:30	2.9	49.7
11-08-2022	19:35	2.6	42.5
11-08-2022	19:40	2.5	31.8
11-08-2022	19:45	2.4	27.3
11-08-2022	19:50	3.3	21.0
11-08-2022	19:55	4.0	13.4
11-08-2022	20:00	4.9	8.3
Hidden cells with no values exceeding limit.			
11-09-2022	18:45	32.1	17.2
11-09-2022	18:50	17.9	18.6
11-09-2022	18:55	14.1	19.7
11-09-2022	19:00	67.2	24.2
11-09-2022	19:05	30.2	26.6
11-09-2022	19:10	29.5	29.0
11-09-2022	19:15	28.2	30.3
11-09-2022	19:20	27.8	26.3
11-09-2022	19:25	38.7	28.8
11-09-2022	19:30	7.9	28.8
11-09-2022	19:35	5.8	28.8
11-09-2022	19:40	52.2	29.3
11-09-2022	19:45	132.5	37.7
11-09-2022	19:50	64.0	41.5
11-09-2022	19:55	67.9	46.0
11-09-2022	20:00	24.5	42.4
11-09-2022	20:05	74.0	46.1
11-09-2022	20:10	64.3	49.0
11-09-2022	20:15	100.1	55.0
11-09-2022	20:20	52.1	57.0
11-09-2022	20:25	88.6	61.2
11-09-2022	20:30	84.1	67.5
11-09-2022	20:35	121.6	77.2
11-09-2022	20:40	58.4	77.7
11-09-2022	20:45	65.3	72.1
11-09-2022	20:50	36.3	69.8
11-09-2022	20:55	63.4	69.4
11-09-2022	21:00	43.6	71.0
11-09-2022	21:05	37.2	67.9
11-09-2022	21:10	32.1	65.2

11-09-2022	21:15	42.7	60.5
11-09-2022	21:20	53.2	60.5
11-09-2022	21:25	29.4	55.6
11-09-2022	21:30	35.6	51.6
11-09-2022	21:35	10.9	42.4
11-09-2022	21:40	10.3	38.3
11-09-2022	21:45	33.7	35.7
11-09-2022	21:50	17.1	34.1
11-09-2022	21:55	36.7	31.9
Hidden cells with no values exceeding limit.			
11-09-2022	22:15	50.1	28.2
11-09-2022	22:20	12.0	24.8
11-09-2022	22:25	25.4	24.5
11-09-2022	22:30	37.7	24.6
11-09-2022	22:35	17.4	25.2
11-09-2022	22:40	9.3	25.1
11-09-2022	22:45	11.4	23.2
11-09-2022	22:50	7.2	22.4
11-09-2022	22:55	18.3	20.9
11-09-2022	23:00	63.6	25.0
11-09-2022	23:05	40.5	27.7
11-09-2022	23:10	52.9	28.8
11-09-2022	23:15	98.5	32.9
11-09-2022	23:20	157.9	45.0
11-09-2022	23:25	36.9	46.0
11-09-2022	23:30	19.1	44.4
11-09-2022	23:35	27.7	45.3
11-09-2022	23:40	28.6	46.9
11-09-2022	23:45	12.6	47.0
11-09-2022	23:50	10.6	47.3
11-09-2022	23:55	20.4	47.4
Hidden cells with no values exceeding limit.			
11-10-2022	00:00	33.3	44.9
11-10-2022	00:05	61.7	46.7
11-10-2022	00:10	46.3	46.1
11-10-2022	00:15	20.7	39.6
11-10-2022	00:20	48.5	30.5
11-10-2022	00:25	107.4	36.4
11-10-2022	00:30	61.0	39.9
11-10-2022	00:35	89.9	45.1
11-10-2022	00:40	27.4	45.0
11-10-2022	00:45	50.1	48.1
11-10-2022	00:50	32.9	50.0
11-10-2022	00:55	42.5	51.8
11-10-2022	01:00	122.6	59.3
11-10-2022	01:05	64.0	59.4
11-10-2022	01:10	56.2	60.3
11-10-2022	01:15	54.3	63.1
11-10-2022	01:20	19.8	60.7
11-10-2022	01:25	82.0	58.5
11-10-2022	01:30	156.6	66.5
11-10-2022	01:35	39.8	62.3
11-10-2022	01:40	18.7	61.6
11-10-2022	01:45	Zero	62.7
11-10-2022	01:50	Zero	65.6
11-10-2022	01:55	Span	68.2
11-10-2022	02:00	Span	61.4
11-10-2022	02:05	Purge	61.0
11-10-2022	02:10	Purge	61.8
11-10-2022	02:15	40.5	59.5
11-10-2022	02:20	104.2	73.6
11-10-2022	02:25	111.0	78.5
11-10-2022	02:30	25.8	56.7
11-10-2022	02:35	50.7	58.5
11-10-2022	02:40	66.5	66.5
11-10-2022	02:45	57.4	65.2
11-10-2022	02:50	71.7	66.0
11-10-2022	02:55	28.6	61.8

11-10-2022	03:00	15.2	57.2
11-10-2022	03:05	10.3	52.9
11-10-2022	03:10	9.5	49.3
11-10-2022	03:15	7.1	46.5
11-10-2022	03:20	5.8	38.3
11-10-2022	03:25	5.1	29.5
11-10-2022	03:30	4.5	27.7
11-10-2022	03:35	4.3	23.8
11-10-2022	03:40	4.1	18.6
Hidden cells with no values exceeding limit.			
11-11-2022	07:25	1.9	2.0
11-11-2022	07:30	1.5	2.0
11-11-2022	07:35	1.5	2.0
11-11-2022	07:40	1.4	1.9
11-11-2022	07:45	3.9	2.1
11-11-2022	07:50	61.9	7.1
11-11-2022	07:55	80.0	13.6
11-11-2022	08:00	80.8	20.1
11-11-2022	08:05	59.7	24.8
11-11-2022	08:10	45.1	28.4
11-11-2022	08:15	36.1	31.3
11-11-2022	08:20	52.8	35.6
11-11-2022	08:25	44.0	39.1
11-11-2022	08:30	22.1	40.8
11-11-2022	08:35	13.2	41.8
11-11-2022	08:40	12.6	42.7
11-11-2022	08:45	7.7	43.0
11-11-2022	08:50	5.9	38.3
11-11-2022	08:55	4.9	32.1
11-11-2022	09:00	4.7	25.7
11-11-2022	09:05	7.6	21.4
11-11-2022	09:10	4.7	18.0
11-11-2022	09:15	3.9	15.3
11-11-2022	09:20	3.5	11.2
11-11-2022	09:25	3.4	7.9
11-11-2022	09:30	3.4	6.3
11-11-2022	09:35	3.4	5.5
Hidden cells with no values exceeding limit.			
11-14-2022	17:00	0.3	0.3
11-14-2022	17:05	0.3	0.3
11-14-2022	17:10	0.3	0.3
11-14-2022	17:15	0.3	0.3
11-14-2022	17:20	0.3	0.3
11-14-2022	17:25	0.3	0.3
11-14-2022	17:30	0.3	0.3
11-14-2022	17:35	0.4	0.3
11-14-2022	17:40	4.7	0.7
11-14-2022	17:45	14.2	1.8
11-14-2022	17:50	2.1	2.0
11-14-2022	17:55	155.2	14.9
11-14-2022	18:00	201.4	31.7
11-14-2022	18:05	197.1	48.1
11-14-2022	18:10	160.2	61.4
11-14-2022	18:15	185.5	76.8
11-14-2022	18:20	183.0	92.0
11-14-2022	18:25	158.6	105.2
11-14-2022	18:30	42.6	108.8
11-14-2022	18:35	22.2	110.6
11-14-2022	18:40	52.7	114.6
11-14-2022	18:45	87.6	120.7
11-14-2022	18:50	211.5	138.1
11-14-2022	18:55	48.2	129.2
11-14-2022	19:00	13.9	113.6
11-14-2022	19:05	10.3	98.0
11-14-2022	19:10	6.2	85.2
11-14-2022	19:15	4.0	70.1
11-14-2022	19:20	3.1	55.1
11-14-2022	19:25	2.5	42.1

11-14-2022	19:30	45.9	42.3
11-14-2022	19:35	35.8	43.5
11-14-2022	19:40	10.9	40.0
11-14-2022	19:45	57.3	37.5
11-14-2022	19:50	13.0	20.9
11-14-2022	19:55	6.4	17.4
11-14-2022	20:00	5.4	16.7
11-14-2022	20:05	3.7	16.2
11-14-2022	20:10	2.9	15.9
Hidden cells with no values exceeding limit.			
11-23-2022	16:45	5.0	1.1
11-23-2022	16:50	40.4	4.4
11-23-2022	16:55	66.6	9.9
11-23-2022	17:00	26.6	12.1
11-23-2022	17:05	75.4	18.4
11-23-2022	17:10	81.5	25.1
11-23-2022	17:15	14.0	26.2
11-23-2022	17:20	7.1	26.8
11-23-2022	17:25	65.1	32.2
11-23-2022	17:30	55.1	36.7
11-23-2022	17:35	13.8	37.7
11-23-2022	17:40	8.0	38.2
11-23-2022	17:45	8.2	38.5
11-23-2022	17:50	63.2	40.4
11-23-2022	17:55	40.3	38.2
11-23-2022	18:00	39.8	39.3
11-23-2022	18:05	71.9	39.0
11-23-2022	18:10	27.8	34.5
11-23-2022	18:15	32.7	36.1
11-23-2022	18:20	26.3	37.7
11-23-2022	18:25	60.3	37.3
11-23-2022	18:30	79.1	39.3
11-23-2022	18:35	19.6	39.8
11-23-2022	18:40	11.5	40.1
11-23-2022	18:45	29.1	41.8
11-23-2022	18:50	10.6	37.4
11-23-2022	18:55	7.3	34.7
11-23-2022	19:00	59.0	36.3
11-23-2022	19:05	93.2	38.1
11-23-2022	19:10	47.6	39.7
11-23-2022	19:15	31.9	39.6
11-23-2022	19:20	61.0	42.5
11-23-2022	19:25	28.9	39.9
11-23-2022	19:30	16.7	34.7
11-23-2022	19:35	25.4	35.2
11-23-2022	19:40	17.9	35.7
11-23-2022	19:45	16.1	34.6
11-23-2022	19:50	8.2	34.4
11-23-2022	19:55	5.9	34.3
11-23-2022	20:00	4.8	29.8
11-23-2022	20:05	3.7	22.3
11-23-2022	20:10	12.7	19.4
11-23-2022	20:15	21.7	18.6
11-23-2022	20:20	7.8	14.2
11-23-2022	20:25	4.9	12.1
Hidden cells with no values exceeding limit.			
11-29-2022	00:50	2.8	27.1
11-29-2022	00:55	2.8	24.3
11-29-2022	01:00	2.6	21.9
11-29-2022	01:05	27.3	19.5
11-29-2022	01:10	50.9	17.7
11-29-2022	01:15	41.4	17.8
11-29-2022	01:20	48.2	17.6
11-29-2022	01:25	71.4	22.1
11-29-2022	01:30	78.9	28.1
11-29-2022	01:35	40.0	31.1
11-29-2022	01:40	20.1	32.5
11-29-2022	01:45	Zero	35.1

11-29-2022	01:50	Zero	38.4
11-29-2022	01:55	Span	42.3
11-29-2022	02:00	Span	47.3
11-29-2022	02:05	Purge	50.1
11-29-2022	02:10	Purge	50.0
11-29-2022	02:15	3.9	43.7
11-29-2022	02:20	12.7	37.8
11-29-2022	02:25	13.9	28.2
11-29-2022	02:30	5.0	15.9
11-29-2022	02:35	3.8	9.9
11-29-2022	02:40	3.1	7.1
11-29-2022	02:45	2.4	6.4
11-29-2022	02:50	2.1	5.9
11-29-2022	02:55	1.9	5.4
11-29-2022	03:00	1.9	5.1

Notes:

D, T & V	- Date, Time & Exceedence Value Reported
Faded Values	- Not used to calculate the number of reportable exceedences
	- Range of 5-minute measurements that contribute to the Exceedance Value Reported
Max	- Maximum of the Range
Min	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO2 = 40 ppb for 1-hour running average

Total Number of Reportable Exceedances: **16**

SO2 Exceedance Report **Table E6**

Durham York Energy Centre
Courtice, Ontario
Courtice Station
Baseline Corrected Data

Date	Time	SO_2	SO_2
		5-min Avg.	1-hr Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
12-12-2022	23:50	8.0	17.7
12-12-2022	23:55	10.6	15.9
12-13-2022	00:00	3.8	13.5
12-13-2022	00:05	34.1	13.8
12-13-2022	00:10	37.8	15.2
12-13-2022	00:15	70.1	20.3
12-13-2022	00:20	48.9	23.6
12-13-2022	00:25	48.7	26.5
12-13-2022	00:30	44.1	28.6
12-13-2022	00:35	47.5	31.0
12-13-2022	00:40	22.7	32.0
12-13-2022	00:45	13.4	32.5
12-13-2022	00:50	66.7	37.4
12-13-2022	00:55	53.5	40.9
12-13-2022	01:00	44.8	44.3
12-13-2022	01:05	29.9	44.0
12-13-2022	01:10	31.4	43.5
12-13-2022	01:15	28.1	40.0
12-13-2022	01:20	31.0	38.5
12-13-2022	01:25	11.8	35.4
12-13-2022	01:30	26.4	33.9
12-13-2022	01:35	40.4	33.3
12-13-2022	01:40	42.8	35.0
12-13-2022	01:45	Zero	37.0
12-13-2022	01:50	Zero	34.0
12-13-2022	01:55	Span	31.8
12-13-2022	02:00	Span	30.2
Hidden cells with no values exceeding limit.			
12-21-2022	17:45	8.7	25.9
12-21-2022	17:50	18.0	25.2
12-21-2022	17:55	45.0	26.8
12-21-2022	18:00	43.7	30.3
12-21-2022	18:05	34.4	31.6
12-21-2022	18:10	75.8	32.9
12-21-2022	18:15	65.9	36.5
12-21-2022	18:20	37.0	39.4
12-21-2022	18:25	12.2	38.0
12-21-2022	18:30	4.8	33.3
12-21-2022	18:35	32.9	34.2
12-21-2022	18:40	80.6	38.2
12-21-2022	18:45	12.3	38.5
12-21-2022	18:50	37.0	40.1
12-21-2022	18:55	22.5	38.2
12-21-2022	19:00	27.1	36.9
12-21-2022	19:05	21.7	35.8
12-21-2022	19:10	10.7	30.4
12-21-2022	19:15	3.9	25.2
12-21-2022	19:20	21.3	23.9
12-21-2022	19:25	34.7	25.8
12-21-2022	19:30	13.0	26.5
12-21-2022	19:35	8.9	24.5
12-21-2022	19:40	20.3	19.4
12-21-2022	19:45	23.9	20.4
12-21-2022	19:50	39.7	20.6
12-21-2022	19:55	8.6	19.5

Notes:

D, T & V	- Date, Time & Exceedence Value Reported
Faded Values	- Not used to calculate the number of reportable exceedences
	- Range of 5-minute measurements that contribute to the Exceedance Value Reported
Max	- Maximum of the Range
Min	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO2 = 40 ppb for 1-hour running average

Total Number of Reportable Exceedances: **2**

APPENDIX F

600 Southgate Drive
Guelph ON Canada
N1G 4P6

Tel: +1.519.823.1311
Fax: +1.519.823.1316
E-mail: solutions@rwdi.com

MEMORANDUM

DATE:	2022-11-28	**RWDI Reference No.:** 2205149
TO:	Gioseph Anello	**EMAIL:** Gioseph.Anello@Durham.ca
CC:	Andrew Evans	**EMAIL:** Andrew.Evans@Durham.ca
CC:	Lyndsay Waller	**EMAIL:** Lyndsay.Waller@Durham.ca
FROM:	Khalid Hussein	**EMAIL:** Khalid.Hussein@rwdi.com
RE:	**Exceedance Report – Benzo(a)Pyrene November 1, 2022 Region of Durham, DYEC**	

On November 23, 2022, the results from ALS Environmental were received regarding the PAH results from the November 1, 2022 sampling event. On November 23, 2022, the results were entered and assessed. It was noted that there was one (1) Benzo(a)Pyrene (BaP) concentration in excess of the 24-hour AAQC on the November 1st sampling date at the Rundle Road Station measured by the onsite PUF PS-1 sampler. Attached is a figure depicting the wind rose (indicating the wind speed and direction during the sampling day), and the location of the sampling stations relative to the DYEC.

The following summarizes the BaP concentrations and onsite conditions during the November 1st sampling date:

1. The guideline concentration for BaP is 0.05 ng/m^3. The measured concentration at the Rundle Road sampler was 0.051 ng/m^3.
2. During the sampling day the wind was predominantly from the SW to NNW with a less significant contribution from the NE, as recorded at the Rundle Road Meteorological Tower. One-hour average wind speeds at Rundle Road Meteorological Tower ranged from 0.27 km/h to 10.96 km/h.
3. RWDI reviewed the available CEMS data over a 72-hour period which includes the day before and after the BaP exceedance date. The data showed no unusual readings, and all parameters were within the expected values as well as below the listed Limits. Based on the data, both boiler 1 and 2 were operating normally during the time reviewed.
4. A review of the current ESDM data shows that Benzo(a)Pyrene emissions from the DYEC for a 24-hour period are estimated to be less than 1% of the MECP limit.
5. At the time of the data review, MECP monitoring station data for BaP was not available.

6. The Rundle Road meteorological data suggests that the Rundle Road Station was primarily crosswind of the DYEC during the sampling period. Given the wind conditions, it is likely that the measured BaP exceedance is attributable to sources other than the Energy Centre operations.

At the Rundle Road Station, the NO_2 hourly values were less than 8% of the criteria for the same period. The $PM_{2.5}$ 24-hour average value was 8.5 micrograms per cubic metre at the Rundle Road Station.

We have attached the data files for the samples in question to aid with the review.

Respectfully submitted by:

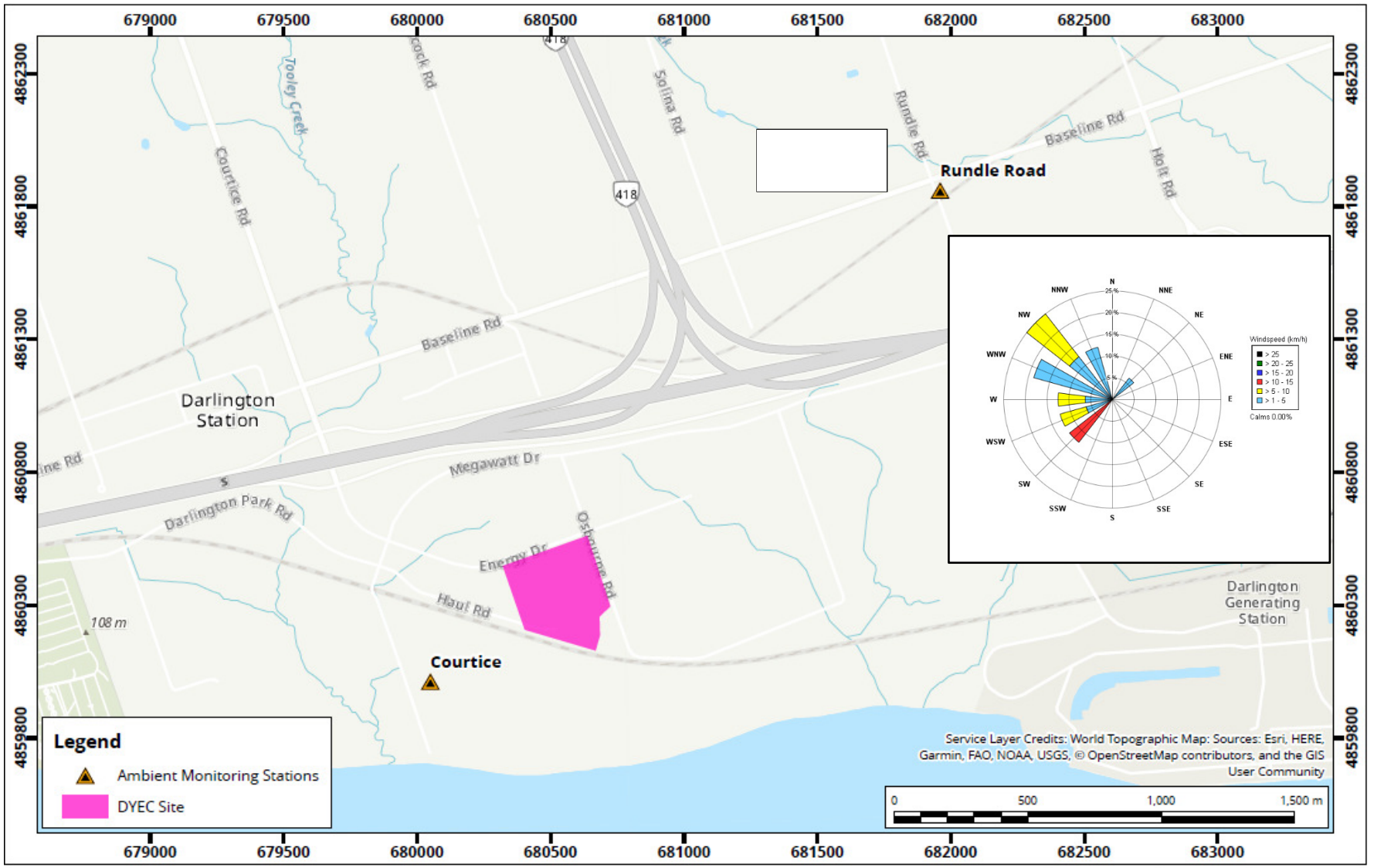
RWDI AIR Inc.

Khalid Hussein, P.Eng.
Project Manager

KAMH/kta

Attach.

FIGURES



DYEC Site and Ambient Monitoring Station Locations

True North

Map Projection: NAD 1983 UTM Zone 17N

DYEC - Region of Durham, Ontario

Project #:

Drawn by:	Figure: 1
Approx. Scale:	1:20,000
Date Revised:	

APPENDIX A

1435 Norjohn Court, Unit 1, Burlington ON, L7L 0E6
Phone: 905-331-3111, FAX: 905-331-4567

Certificate of Analysis

ALS Project Contact:	Claire Kocharakkal	**Client Name:**	RWDI Air Inc.
ALS Project ID:	23601	**Client Address:**	600 Southgate Drive
ALS WO#:	L2739310		Guelph, ON N1G 4P6
Date of Report	22-Nov-22		CANADA
Date of Sample Receipt	4-Nov-22	**Client Contact:**	Khalid Hussein
		Client Project ID:	DYEC

COMMENTS: **PAH by CARB method 429 (LR option)- Isotope dilution**

Select results have been reported from the analysis of a diluted extract due to elevated target concentrations.

The recoveries of the field standards were below typical values.

Certified by:

Steve Kennedy
Technical Supervisor

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		Method Blank		RUNDLE-PAH-NOV01		COURTICE-PAH-NOV01		Laboratory Control Sample	
ALS Sample ID	WG3771424-1		WG3771424-4		L2739310-1		L2739310-2		WG3771424-2	
Sample Size	1		1		1		1		1	
Sample units	sample		sample		sample		sample		n/a	
Moisture Content	n/a		n/a		n/a		n/a		n/a	
Matrix	MEDIA		REAGENT		PUF		PUF		MEDIA	
Sampling Date	n/a		n/a		1-Nov-22		1-Nov-22		n/a	
Extraction Date	8-Nov-22		8-Nov-22		8-Nov-22		8-Nov-22		8-Nov-22	
Target Analytes	**ng/sample**		**ng/sample**		**ng/sample**		**ng/sample**		**%**	
Naphthalene	59.7		3.26		2460		3790		125.3	
2-Methylnaphthalene	4.09		1.39		1410		1800		98.8	
1-Methylnaphthalene	2.36		0.540		605		802		90.2	
Acenaphthylene	1.61		<0.20	U	157		345		92.5	
Acenaphthene	2.09		<0.20	U	1050		855		81.7	
Fluorene	<0.20	U	<0.20	U	1140		900		87.0	
Phenanthrene	2.43		2.54		1950		1970		90.6	
Anthracene	<0.20	U	<0.20	U	157		135		84.5	
Fluoranthene	0.630		0.340		618		496		84.6	
Pyrene	0.450		0.400		353		275		86.7	
Benzo(a)Anthracene	<0.20	U	0.400		17.2		14.3		74.9	
Chrysene	0.960		1.53		63.6		61.4		89.6	
Benzo(b)Fluoranthene	<0.20	U	<0.20	U	38.0	M	37.7	M	91.4	
Benzo(k)Fluoranthene	<0.20	U	<0.20	U	34.9	M	27.6	M	97.4	
Benzo(e)Pyrene	<0.20	U	<0.20	U	21.1		18.3		76.3	
Benzo(a)Pyrene	<0.20	U	<0.20	U	15.8		15.1		77.4	
Perylene	<0.20	U	<0.20	U	2.97		<0.20	U	77.3	
Indeno(1,2,3-cd)Pyrene	<0.20	U	<0.20	U	20.6		21.9		84.9	
Dibenzo(a,h)Anthracene	<0.20	U	<0.20	U	4.83		4.63		95.1	
Benzo(g,h,i)Perylene	<0.20	U	<0.20	U	23.1		23.2		81.1	
Additional Analytes										
Tetralin	30.0		<0.20	U	189	B	382		<0.20	U
Biphenyl	2.67		1.38	B	706		775		<0.20	U
o-Terphenyl	<0.20	U	<0.20	U	7.65		9.39		<0.20	U
Benzo(a)fluorene	<0.20	U	<0.20	U	37.2	M	26.9	M	<0.20	U
Benzo(b)fluorene	<0.20	U	<0.20	U	20.8		17.0		<0.20	U
Field Sampling Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
1-Methylnaphthalene-D10	NS		NS		29.3		29.3		NS	
Fluorene D10	NS		NS		26.0		22.1		NS	
Terphenyl D14(Surr.)	NS		NS		98.8		104.6		NS	

ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank		Method Blank		RUNDLE-PAH-NOV01		COURTICE-PAH-NOV01		Laboratory Control Sample	
ALS Sample ID	WG3771424-1		WG3771424-4		L2739310-1		L2739310-2		WG3771424-2	
Extraction Standards	**% Rec**		**% Rec**		**% Rec**		**% Rec**		**% Rec**	
Naphthalene D8	73.2		73.8		36.5		32.7		70.4	
2-Methylnaphthalene-D10	85.3		89.7		34.4		55.4		82.5	
Acenaphthylene D8	119.5		110.9		85.3		80.1		103.7	
Phenanthrene D10	92.2		85.1		115.5	M	116.6	M	81.8	
Anthracene-D10	99.4		75.7		102.2		97.5		89.8	
Fluoranthene D10	121.9		107.1		124.4		118.4		115.1	
Benz(a)Anthracene-D12	144.4		98.1		104.0		105.7		129.0	
Chrysene D12	85.8		77.4		75.5		72.3		89.6	
Benzo(b)Fluoranthene-D12	105.2		108.4		96.1		109.3		93.6	
Benzo(k)Fluoranthene-D12	83.6		97.5		78.1		94.6		75.4	
Benzo(a)Pyrene D12	130.5	M	108.5		103.0		122.1		121.4	M
Perylene D12	130.5		42.7		106.2		125.6		117.3	
Indeno(1,2,3,cd)Pyrene-D12	142.7		125.4		103.7		128.7		125.4	
Dibenz(a,h)Anthracene-D14	143.8		117.3		96.7		126.0		126.1	
Benzo(g,h,i)Perylene D12	111.4		111.1		87.2		109.0		98.5	

U	Indicates that this compound was not detected above the LOD.
M	Indicates that a peak has been manually integrated.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
NS	Indicates that this compound was not spiked in

ALS Life Sciences

Laboratory Method Blank Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a
ALS Sample ID	WG3771424-1	Extraction Date	8-Nov-22
Analysis Method	PAH by CARB 429		
Analysis Type	blank		
Sample Matrix	MEDIA		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	1	Workgroup	WG3771424

Approved:
Andrew Reid
--e-signature--
22-Nov-2022

Run Information	**Run 1**
Filename	22111719.D
Run Date	11/18/2022 4:50
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2543815H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.78	59.7	
2-Methylnaphthalene	3.37	4.09	
1-Methylnaphthalene	3.48	2.36	
Acenaphthylene	4.52	1.61	
Acenaphthene	4.82	2.09	
Fluorene	NotFnd	<0.20	U
Phenanthrene	7.95	2.43	
Anthracene	NotFnd	<0.20	U
Fluoranthene	11.36	0.630	
Pyrene	12.01	0.450	
Benzo(a)Anthracene	NotFnd	<0.20	U
Chrysene	16.03	0.960	
Benzo(b)Fluoranthene	NotFnd	<0.20	U
Benzo(k)Fluoranthene	NotFnd	<0.20	U
Benzo(e)Pyrene	NotFnd	<0.20	U
Benzo(a)Pyrene	NotFnd	<0.20	U
Perylene	NotFnd	<0.20	U
Indeno(1,2,3-cd)Pyrene	NotFnd	<0.20	U
Dibenzo(a,h)Anthracene	NotFnd	<0.20	U
Benzo(g,h,i)Perylene	NotFnd	<0.20	U
Additional Analytes			
Tetralin	2.65	30.0	
Biphenyl	3.90	2.67	
o-Terphenyl	NotFnd	<0.20	U
Benzo(a)fluorene	NotFnd	<0.20	U
Benzo(b)fluorene	NotFnd	<0.20	U

Field Sampling Standards	**ng spiked**	**% Rec**
1-Methylnaphthalene-D10		NS
Fluorene D10		NS
Terphenyl D14(Surr.)		NS

Extraction Standards			**% Rec**		**Limits**
Naphthalene D8	200	2.77	73.2		50-150
2-Methylnaphthalene-D10	200	3.34	85.3		50-150
Acenaphthylene D8	200	4.50	119.5		50-150
Phenanthrene D10	200	7.90	92.2		50-150
Anthracene-D10	200	8.03	99.4		50-150
Fluoranthene D10	200	11.31	121.9		50-150
Benz(a)Anthracene-D12	200	15.85	144.4		50-150
Chrysene D12	200	15.96	85.8		50-150
Benzo(b)Fluoranthene-D12	200	19.19	105.2		50-150
Benzo(k)Fluoranthene-D12	200	19.27	83.6		50-150
Benzo(a)Pyrene D12	200	20.07	130.5	M	50-150
Perylene D12	200	20.30	130.5		50-150
Indeno(1,2,3,cd)Pyrene-D12	200	23.77	142.7		50-150
Dibenz(a,h)Anthracene-D14	200	23.94	143.8		50-150
Benzo(g,h,i)Perylene D12	200	24.74	111.4		50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
NS	Indicates that this compound was not spiked in

ALS Life Sciences

Sample Analysis Report

Sample Name	**Method Blank**	Sampling Date	n/a
ALS Sample ID	WG3771424-4	Extraction Date	8-Nov-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	REAGENT		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	1	Workgroup	WG3771424

Approved:
Andrew Reid
--e-signature--
22-Nov-2022

Run Information	**Run 1**
Filename	22111720.D
Run Date	11/18/2022 5:29
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2543815H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**
Naphthalene	2.80	3.26	
2-Methylnaphthalene	3.38	1.39	
1-Methylnaphthalene	3.50	0.540	
Acenaphthylene	NotFnd	<0.20	U
Acenaphthene	NotFnd	<0.20	U
Fluorene	NotFnd	<0.20	U
Phenanthrene	7.96	2.54	
Anthracene	NotFnd	<0.20	U
Fluoranthene	11.38	0.340	
Pyrene	12.03	0.400	
Benzo(a)Anthracene	15.95	0.400	
Chrysene	16.06	1.53	
Benzo(b)Fluoranthene	NotFnd	<0.20	U
Benzo(k)Fluoranthene	NotFnd	<0.20	U
Benzo(e)Pyrene	NotFnd	<0.20	U
Benzo(a)Pyrene	NotFnd	<0.20	U
Perylene	NotFnd	<0.20	U
Indeno(1,2,3-cd)Pyrene	NotFnd	<0.20	U
Dibenzo(a,h)Anthracene	NotFnd	<0.20	U
Benzo(g,h,i)Perylene	NotFnd	<0.20	U
Additional Analytes			
Tetralin	NotFnd	<0.20	U
Biphenyl	3.91	1.38	
o-Terphenyl	NotFnd	<0.20	U
Benzo(a)fluorene	NotFnd	<0.20	U
Benzo(b)fluorene	NotFnd	<0.20	U

Field Sampling Standards	**ng spiked**	**% Rec**
1-Methylnaphthalene-D10		NS
Fluorene D10		NS
Terphenyl D14(Surr.)		NS

Extraction Standards			**% Rec**	**Limits**
Naphthalene D8	200	2.79	73.8	50-150
2-Methylnaphthalene-D10	200	3.35	89.7	50-150
Acenaphthylene D8	200	4.51	110.9	50-150
Phenanthrene D10	200	7.92	85.1	50-150
Anthracene-D10	200	8.05	75.7	50-150
Fluoranthene D10	200	11.34	107.1	50-150
Benz(a)Anthracene-D12	200	15.88	98.1	50-150
Chrysene D12	200	15.99	77.4	50-150
Benzo(b)Fluoranthene-D12	200	19.21	108.4	50-150
Benzo(k)Fluoranthene-D12	200	19.30	97.5	50-150
Benzo(a)Pyrene D12	200	20.10	108.5	50-150
Perylene D12	200	20.33	42.7	50-150
Indeno(1,2,3,cd)Pyrene-D12	200	23.82	125.4	50-150
Dibenz(a,h)Anthracene-D14	200	24.00	117.3	50-150
Benzo(g,h,i)Perylene D12	200	24.78	111.1	50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.
NS	Indicates that this compound was not spiked in

ALS Life Sciences

Sample Analysis Report

Sample Name	**RUNDLE-PAH-NOV01**	Sampling Date	01-Nov-22 00:00
ALS Sample ID	L2739310-1	Extraction Date	8-Nov-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	PUF		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	1	Workgroup	WG3771424

Approved:
Andrew Reid
--e-signature--
22-Nov-2022

Run Information	**Run 1**	**Run 2**
Filename	22111723.D	22111721.D
Run Date	11/18/2022 7:26	11/18/2022 6:08
Final Volume	0.1 mL	0.1 mL
Dilution Factor	1	10
Analysis Units	ng/sample	ng/sample
Instrument	MSD-5	MSD-5
Column	HP-5MS US2543815H	HP-5MS US2543815H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**	**Ret. Time.**	**Concentration ng/sample**	**Flags**
Naphthalene				2.81	2460	
2-Methylnaphthalene				3.39	1410	
1-Methylnaphthalene				3.50	605	
Acenaphthylene	4.53	157				
Acenaphthene				4.83	1050	
Fluorene				5.76	1140	
Phenanthrene				7.97	1950	
Anthracene	8.07	157				
Fluoranthene				11.39	618	
Pyrene	12.01	353				
Benzo(a)Anthracene	15.93	17.2				
Chrysene	16.04	63.6				
Benzo(b)Fluoranthene	19.26	38.0	M			
Benzo(k)Fluoranthene	19.34	34.9	M			
Benzo(e)Pyrene	20.00	21.1				
Benzo(a)Pyrene	20.14	15.8				
Perylene	20.37	2.97				
Indeno(1,2,3-cd)Pyrene	23.89	20.6				
Dibenzo(a,h)Anthracene	24.10	4.83				
Benzo(g,h,i)Perylene	24.87	23.1				
Additional Analytes						
Tetralin				2.68	189	B
Biphenyl				3.92	706	
o-Terphenyl	9.23	7.65				
Benzo(a)fluorene	13.18	37.2	M			
Benzo(b)fluorene	13.40	20.8				

Field Sampling Standards	**ng spiked**		**% Rec**			**% Rec**
1-Methylnaphthalene-D10	200	3.46	29.3			
Fluorene D10	200	5.70	26			
Terphenyl D14(Surr.)	200	12.82	98.8			

Extraction Standards			**% Rec**	**Limits**		**% Rec**
Naphthalene D8	200			50-150	2.80	36.5
2-Methylnaphthalene-D10	200			50-150	3.36	34.4
Acenaphthylene D8	200	4.51	85.3	50-150		
Phenanthrene D10	200			50-150	7.89	115.5 M
Anthracene-D10	200	8.03	102.2	50-150		
Fluoranthene D10	200	11.31	124.4	50-150		
Benz(a)Anthracene-D12	200	15.86	104.0	50-150		
Chrysene D12	200	15.97	75.5	50-150		
Benzo(b)Fluoranthene-D12	200	19.20	96.1	50-150		
Benzo(k)Fluoranthene-D12	200	19.29	78.1	50-150		
Benzo(a)Pyrene D12	200	20.09	103.0	50-150		
Perylene D12	200	20.32	106.2	50-150		
Indeno(1,2,3,cd)Pyrene-D12	200	23.80	103.7	50-150		
Dibenz(a,h)Anthracene-D14	200	23.97	96.7	50-150		
Benzo(g,h,i)Perylene D12	200	24.76	87.2	50-150		

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
B	Indicates that this compound was detected in the method blank at greater than 10% of the sample value.

ALS Life Sciences

Sample Analysis Report

Sample Name	**COURTICE-PAH-NOV01**	Sampling Date	01-Nov-22 00:00
ALS Sample ID	L2739310-2	Extraction Date	8-Nov-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	PUF		
Sample Size	1 sample		
Percent Moisture	n/a		
Split Ratio	1	Workgroup	WG3771424

Approved:
Andrew Reid
--e-signature--
22-Nov-2022

Run Information	**Run 1**	**Run 2**
Filename	22111724.D	22111722.D
Run Date	11/18/2022 8:04	11/18/2022 6:47
Final Volume	0.1 mL	0.1 mL
Dilution Factor	1	10
Analysis Units	ng/sample	ng/sample
Instrument	MSD-5	MSD-5
Column	HP-5MS US2543815H	HP-5MS US2543815H

Target Analytes	**Ret. Time**	**Concentration ng/sample**	**Flags**	**Ret. Time.**	**Concentration ng/sample**	**Flags**
Naphthalene				2.81	3790	
2-Methylnaphthalene				3.39	1800	
1-Methylnaphthalene				3.50	802	
Acenaphthylene	4.53	345				
Acenaphthene				4.83	855	
Fluorene				5.75	900	
Phenanthrene				7.97	1970	
Anthracene	8.07	135				
Fluoranthene	11.36	496				
Pyrene	12.01	275				
Benzo(a)Anthracene	15.93	14.3				
Chrysene	16.04	61.4				
Benzo(b)Fluoranthene	19.26	37.7	M			
Benzo(k)Fluoranthene	19.35	27.6	M			
Benzo(e)Pyrene	20.00	18.3				
Benzo(a)Pyrene	20.14	15.1				
Perylene	NotFnd	<0.20	U			
Indeno(1,2,3-cd)Pyrene	23.89	21.9				
Dibenzo(a,h)Anthracene	24.10	4.63				
Benzo(g,h,i)Perylene	24.87	23.2				
Additional Analytes						
Tetralin				2.67	382	
Biphenyl				3.92	775	
o-Terphenyl	9.23	9.39				
Benzo(a)fluorene	13.18	26.9	M			
Benzo(b)fluorene	13.40	17.0				

Field Sampling Standards	**ng spiked**		**% Rec**			**% Rec**
1-Methylnaphthalene-D10	200	3.46	29.3			
Fluorene D10	200	5.70	22.1			
Terphenyl D14(Surr.)	200	12.82	104.6			

Extraction Standards			**% Rec**	**Limits**		**% Rec**
Naphthalene D8	200			50-150	2.79	32.7
2-Methylnaphthalene-D10	200	3.35	55.4	50-150		
Acenaphthylene D8	200	4.51	80.1	50-150		
Phenanthrene D10	200			50-150	7.89	116.6 M
Anthracene-D10	200	8.03	97.5	50-150		
Fluoranthene D10	200	11.31	118.4	50-150		
Benz(a)Anthracene-D12	200	15.86	105.7	50-150		
Chrysene D12	200	15.97	72.3	50-150		
Benzo(b)Fluoranthene-D12	200	19.19	109.3	50-150		
Benzo(k)Fluoranthene-D12	200	19.28	94.6	50-150		
Benzo(a)Pyrene D12	200	20.08	122.1	50-150		
Perylene D12	200	20.31	125.6	50-150		
Indeno(1,2,3,cd)Pyrene-D12	200	23.79	128.7	50-150		
Dibenz(a,h)Anthracene-D14	200	23.97	126.0	50-150		
Benzo(g,h,i)Perylene D12	200	24.76	109.0	50-150		

M Indicates that a peak has been manually integrated.
U Indicates that this compound was not detected above the MDL.

ALS Life Sciences

Sample Analysis Report

Sample Name	**Laboratory Control Sample**	Sampling Date	n/a
ALS Sample ID	WG3771424-2	Extraction Date	8-Nov-22
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	MEDIA		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	1	Workgroup	WG3771424

Approved:
Andrew Reid
--e-signature--
22-Nov-2022

Run Information	**Run 1**
Filename	22111718.D
Run Date	11/18/2022 4:12
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS US2543815H

Target Analytes	**Ret. Time**	**Concentration %**	**Flags**
Naphthalene	2.78	125.3	
2-Methylnaphthalene	3.37	98.8	
1-Methylnaphthalene	3.49	90.2	
Acenaphthylene	4.52	92.5	
Acenaphthene	4.82	81.7	
Fluorene	5.75	87.0	
Phenanthrene	7.96	90.6	
Anthracene	8.07	84.5	
Fluoranthene	11.37	84.6	
Pyrene	12.01	86.7	
Benzo(a)Anthracene	15.92	74.9	
Chrysene	16.04	89.6	
Benzo(b)Fluoranthene	19.25	91.4	
Benzo(k)Fluoranthene	19.33	97.4	
Benzo(e)Pyrene	19.99	76.3	
Benzo(a)Pyrene	20.13	77.4	
Perylene	20.37	77.3	
Indeno(1,2,3-cd)Pyrene	23.86	84.9	
Dibenzo(a,h)Anthracene	24.07	95.1	
Benzo(g,h,i)Perylene	24.85	81.1	

Additional Analytes	
Tetralin	NS
Biphenyl	NS
o-Terphenyl	NS
Benzo(a)fluorene	NS
Benzo(b)fluorene	NS

Field Sampling Standards	**ng spiked**	**% Rec**
1-Methylnaphthalene-D10		NS
Fluorene D10		NS
Terphenyl D14(Surr.)		NS

Extraction Standards			**% Rec**		**Limits**
Naphthalene D8	200	2.77	70.4		50-150
2-Methylnaphthalene-D10	200	3.34	82.5		50-150
Acenaphthylene D8	200	4.50	103.7		50-150
Phenanthrene D10	200	7.90	81.8		50-150
Anthracene-D10	200	8.03	89.8		50-150
Fluoranthene D10	200	11.31	115.1		50-150
Benz(a)Anthracene-D12	200	15.85	129.0		50-150
Chrysene D12	200	15.96	89.6		50-150
Benzo(b)Fluoranthene-D12	200	19.19	93.6		50-150
Benzo(k)Fluoranthene-D12	200	19.27	75.4		50-150
Benzo(a)Pyrene D12	200	20.07	121.4	M	50-150
Perylene D12	200	20.30	117.3		50-150
Indeno(1,2,3,cd)Pyrene-D12	200	23.77	125.4		50-150
Dibenz(a,h)Anthracene-D14	200	23.94	126.1		50-150
Benzo(g,h,i)Perylene D12	200	24.74	98.5		50-150

M	Indicates that a peak has been manually integrated.
U	Indicates that this compound was not detected above the MDL.
NS	Indicates that this compound was not spiked in

Chain of Custody (COC) / Analytical Request Form

L2739310-COFC

COC Number: 17 -

Page 1 of 1

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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report	Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	RWDI	Select Report Format:	☑ PDF ☐ EXCEL ☑ EDD (DIGITAL)	Standard TAT is 15 business days. DTOX analysis standard TAT is 5 business days
Contact:	Matt Lentz	Quality Control (QC) Report with Report	☐ YES ☐ NO	PRIORITY (Business Days): ☐ 15 day [R- Regular] — EMERGENCY: ☐ 5 Business day - DTOX [R - Regular]
Phone:	519 823 1311	☐ Compare Results to Criteria on Report - provide details below if box checked		☐ 10 day [P-50%] — ☐ 3 Business day - DTOX [E - 100%]
	Company address below will appear on the final report	Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	☐ 5 day [E-100%]
Street:	600 Southgate Drive	Email 1 or Fax	Matt.Lentz@rwdi.com	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Guelph, Ontario	Email 2		For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	N1G 4P6	Email 3		
Invoice To	Same as Report To ☐ YES ☐ NO	Invoice Distribution		Analysis Request
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax		
Contact:		Email 2		

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#:
Job #:	DYEC	Major/Minor Code:	Routing Code:
PO / AFE:	1803743 Phase 1000	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: Martin Town

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Sample Air Volume (m3)	Date (dd-mmm-yy)	Sample Period	Sample Type	NUMBER OF CONTAINERS — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below: TSP, ICP on Hi-Vol Filter	PAH	DX	SAMPLES ON HOLD
1	L2737652-3 - Kundle	307	01-Nov-22	24hr	Air		X		
1	738 764	1664	01-NOV-22	24hr	Air	X			
2	738 761	1704	26-Oct-22	24hr	Air	X			
2	L2737652-2 - Courtice	327	01-Nov-22	24hr	Air		X		
3	743 758	1766	01-Nov-22	24hr	Air	X			
4	738 763	1784	26-Oct-22	24hr	Air	X			
				24hr	Air				
				24hr	Air				
				24hr	Air				
				24hr	Air				
				24hr	Air				
				24hr	Air				

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	Samples are 10 day TAT
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐		☐
Ice Packs	☑	Ice Cubes ☐	Custody seal intact	Yes ☑	☐
Cooling Initiated	☑				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.6°C	10.7°C						

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
M Town	02-Nov-22	12:45	AARON BURTON	4-NOV-2022	9:30			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NOV 29

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Table B6: 2022 Rundle Road Station Q4 Monitoring Results for PAHs

Contaminant	Units	*MECP Criteria*	1 Nov 22	No. > Criteria
1-Methylnaphthalene	ng/m^3	*12000*	1.97E+00	0
2-Methylnaphthalene	ng/m^3	*10000*	4.59E+00	0
Acenaphthene	ng/m^3	-	3.42E+00	-
Acenaphthylene	ng/m^3	*3500*	5.11E-01	0
Anthracene	ng/m^3	*200*	5.11E-01	0
Benzo(a)Anthracene	ng/m^3	-	5.60E-02	-
Benzo(a)fluorene	ng/m^3	-	1.21E-01	-
Benzo(a)Pyrene (Historically High)	ng/m^3	*0.05* [1] *5* [2] *1.1* [3]	5.15E-02	1
Benzo(b)Fluoranthene	ng/m^3	-	1.24E-01	-
Benzo(b)fluorene	ng/m^3	-	6.78E-02	-
Benzo(e)Pyrene	ng/m^3	-	6.87E-02	-
Benzo(g,h,i)Perylene	ng/m^3	-	7.52E-02	-
Benzo(k)Fluoranthene	ng/m^3	-	1.14E-01	-
Biphenyl	ng/m^3	-	2.30E+00	-
Chrysene	ng/m^3	-	2.07E-01	-
Dibenzo(a,h)Anthracene	ng/m^3	-	1.57E-02	-
Fluoranthene	ng/m^3	-	2.01E+00	-
Fluorene	ng/m^3	-	3.71E+00	-
Indeno(1,2,3-cd)Pyrene	ng/m^3	-	6.71E-02	-
Naphthalene	ng/m^3	*22500*	8.01E+00	0
o-Terphenyl	ng/m^3	-	2.49E-02	-
Perylene	ng/m^3	-	9.67E-03	-
Phenanthrene	ng/m^3	-	6.35E+00	-
Pyrene	ng/m^3	-	1.15E+00	-
Tetralin	ng/m^3	-	6.16E-01	-
Total PAH[4]	ng/m^3	-	36.17	-

NOTE: All non-detectable results were reported as 1/2 of the detection limit
[1] AAQC
[2] O. Reg. 419/05 Schedule Upper Risk Thresholds
[3] O. Reg. 419/05 24 Hour Guideline
[4] Total PAH sums all PAH contaminants

Station: RofD Rundle Daily: 01/11/2022 Type: AVG 1 Hr. [5 Mins.]

Date & Time	PM2.5	NO	NO2	NOX	SO2	ET	Tr_Temp	RH AVG	Rain total	WS km/hr	WD	Vol Pres	PUF Pressure	ET	Hivol Flow	PUF Flow
	ug/m3	ppb	ppb	ppb	ppb	C°	C°	%	mm	km/hr	Deg	in H20	in H20	K	cfm	cfm
01/11/2022 00:00	9.5	0.4	5.6	6	0.32	10.9	23.5	100	0.02	2.48	45	4.08	47.81	284.022	41.52	7.59
01/11/2022 01:00	7.8	0.4	4.7	5.1	0.36	10.9	23.4	100	0	1.31	<Samp	4.05	47.72	284.079	41.34	7.59
01/11/2022 02:00	6.9	0.4	3.1	3.5	0.31	11	23	100	0	0.35	<Samp	4.03	47.62	284.197	41.24	7.57
01/11/2022 03:00	6	0.3	3.3	3.6	0.36	11.1	23.6	100	0	1.07	<Samp	4.02	47.61	284.258	41.18	7.58
01/11/2022 04:00	6.1	11.6	6.5	18.1	0.38	11.3	22.6	100	0	0.27	<Samp	4.01	46.43	284.421	41.12	7.49
01/11/2022 05:00	7.2	6.6	6.7	13.3	0.48	11.4	23.6	100	0	0.67	<Samp	4	45.78	284.532	41.07	7.44
01/11/2022 06:00	7.4	6.9	7.6	14.5	0.33	11.4	22.7	100	0	1.04	<Samp	4.01	45.31	284.557	41.1	7.4
01/11/2022 07:00	9.3	33.7	12.6	46.3	0.84	11.8	23.1	100	0	1.46	<Samp	4	45.43	284.954	41.05	7.41
01/11/2022 08:00	9.1	22.3	13.5	35.8	0.65	12.2	23.2	100	0	2.43	294	4	45.07	285.31	40.99	7.38
01/11/2022 09:00	9.4	21.8	12.1	33.8	0.72	12.7	23	100	0.18	1.5	290	4	44.57	285.814	40.94	7.33
01/11/2022 10:00	7.9	8.3	5.2	13.5	0.49	14	22.8	100	0.02	4.77	334	3.99	44.34	287.173	40.81	7.3
01/11/2022 11:00	10.8	4.4	4.1	8.5	0.36	14.5	22.9	99.8	0	4.22	329	4	44.63	287.652	40.85	7.32
01/11/2022 12:00	7.5	4.2	3.4	7.6	0.45	15.8	22.8	80.6	0	6.29	315	3.98	44.34	288.964	40.65	7.28
01/11/2022 13:00	5.7	10.5	9	19.6	0.54	17.5	22.6	64.3	0	6.28	276	3.97	43.76	290.67	40.47	7.22
01/11/2022 14:00	8	4	6.4	10.4	0.46	15.8	22.6	77.9	0	10.9	228	3.98	44.16	288.953	40.63	7.27
01/11/2022 15:00	7.9	5.1	9.4	14.4	0.44	14.7	22.6	84.3	0	10.96	235	4.02	44.6	287.86	40.95	7.31
01/11/2022 16:00	6.8	1.8	11.4	13.3	0.33	13.6	22.8	94.1	0	9.96	238	4.07	44.86	286.79	41.23	7.34
01/11/2022 17:00	7.6	1.7	14.1	15.8	0.35	12.2	23.3	100	0	4.67	258	4.05	45.44	285.374	41.27	7.4
01/11/2022 18:00	13.2	1.6	6.4	8	0.33	10.4	23.3	100	0	1.97	286	4.05	45.99	283.551	41.41	7.47
01/11/2022 19:00	9.3	1.5	4.5	5.9	0.26	8.8	22.6	100	0	2.32	315	4.1	46.69	281.959	41.78	7.53
01/11/2022 20:00	14.7	2.7	2.8	5.5	0.14	7.8	21.9	100	0	1.69	<Samp	4.1	47.47	280.93	41.84	7.61
01/11/2022 21:00	10.7	3	2.5	5.5	0.21	7.5	21.7	100	0	3.62	305	4.11	48.11	280.689	41.91	7.65
01/11/2022 22:00	8.2	-0.2	1.1	0.9	0.24	10.3	21.5	97.1	0	5.38	325	4.1	48.33	283.44	41.65	7.64
01/11/2022 23:00	7.3	1.7	2.2	3.9	0.28	7.6	21.8	98.6	0	1.45	268	4.08	48.45	280.713	41.76	7.68
Minimum	5.7	-0.2	1.1	0.9	0.14	7.5	21.5	64.3	0	0.27	45	3.97	43.76	280.689	40.47	7.22
MinDate	13:00	22:00	22:00	22:00	20:00	21:00	22:00	13:00	01:00	04:00	00:00	13:00	13:00	21:00	13:00	13:00
Maximum	14.7	33.7	14.1	46.3	0.84	17.5	23.6	100	0.18	10.96	334	4.11	48.45	290.67	41.91	7.68
MaxDate	20:00	07:00	17:00	07:00	07:00	13:00	03:00	00:00	09:00	15:00	10:00	21:00	23:00	13:00	21:00	23:00
Avg	8.5	6.4	6.6	13	0.4	11.9	22.8	95.7	0.01	3.63	271	4.03	46.02	285.036	41.2	7.45
Num	24	24	24	24	24	24	24	24	24	24	16	24	24	24	24	24
Data[%]	100	100	100	100	100	100	100	100	100	100	66.67	100	100	100	100	100
STD	2.1	8.2	3.8	11	0.2	2.6	0.6	9.1	0	3.2	67	0	1.5	2.6	0.4	0.1

APPENDIX G

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Guelph, ON N1G 4P6
Canada

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February 9, 2023

Lyndsay Waller
Operations Technician
The Regional Municipality of Durham
Durham York Energy Centre
605 Rossland Road East, 1st Floor
Corporate Services-Legislative Services Division
Whitby, ON L1N 6A3
Lyndsay.Waller@durham.ca
Lipika.Saha@durham.ca

Re: Durham York Energy Centre (DYEC)
2022 Ambient Air Q4 Sulphur Dioxide Emissions
RWDI Reference No. 2205149

In support of the 2022, Q4 Ambient Air Quality Monitoring Report prepared by RWDI Inc., the following information is provided in relation to the performance of the DYEC during the periods of elevated sulphur dioxide (SO_2) concentrations observed at the facility's Courtice and Rundle ambient air monitoring stations.

The Emission Summary and Dispersion Modelling (ESDM) report submitted as part of the DYEC ECA Application modelled SO_2 concentrations at the maximum point of impingement (POI) for a facility operating at 110% maximum continuous rating (MCR) with in-stack SO_2 concentrations at the permit limit of 35 mg/m^3. Under this conservative assumed facility operating condition, the predicted maximum 1-hour average concentration at the POI was 8.62 µg/m^3, which represents 8.62% of the new ambient air standard of 100 µg/m^3, which was implemented in 2020.

During Q4, there were sixty-two (62) exceedance events of the rolling 10-minute SO_2 Ambient Air Quality Criteria (AAQC) and twenty-nine (29) exceedance events of the rolling 1-hour SO_2 AAQC recorded at the Courtice Station.

Each of the date and times of the SO_2 AAQC exceedances were compared against the wind direction recorded at the ambient air stations as well as the SO_2 concentrations measured at the DYEC by the continuous emissions monitoring system (CEMS).

As indicated by RWDI in the 2022 DYEC Ambient Air Q4 Report, the Courtice Station pollution rose in Figure 6 shows that the majority of elevated SO_2 events at Courtice occurred from the north-northeast to east-northeast directions. The events were possibly a result of emissions from surrounding industrial sources with potential contributions from DYEC in the east-northeast direction. The Courtice Station pollution rose in Figure 7 shows that <0.36% of the 5-min SO_2 events are elevated >67 ppb and occurred predominately from the north-northwest to north-northeast directions. The pollution rose indicates that the DYEC was not the main contributor to SO_2 levels at the station and that the levels may be related to other industrial activity nearby.

The Rundle Road Station pollution rose in Figure 6 shows that the majority of elevated SO_2 events at the Rundle Road Station occurred when winds were from the east-southeast. The pollution rose indicates that the

DYEC was not a contributor to SO_2 levels at the station and that the levels may be related to other industrial activity nearby. The Rundle Road Station pollution rose in Figure 7 shows that there were no SO_2 concentrations >67 ppb.

During the times the SO_2 AAQC events occurred, both boilers CEMS concentrations, comprised of 24-hour rolling arithmetic average, were recorded between 0-21 mg/Rm^3. The DYEC's CEMS concentrations for both boilers were below the DYEC regulatory compliance limit of 35 mg/Rm^3 and the facility was operating under normal conditions.