

## DURHAM YORK ENERGY CENTRE

COURTICE, ONTARIO

### 2023 Q4 AMBIENT AIR QUALITY MONITORING REPORT

RWDI #2400035

February 9, 2024

#### SUBMITTED TO

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# 1 INTRODUCTION

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.

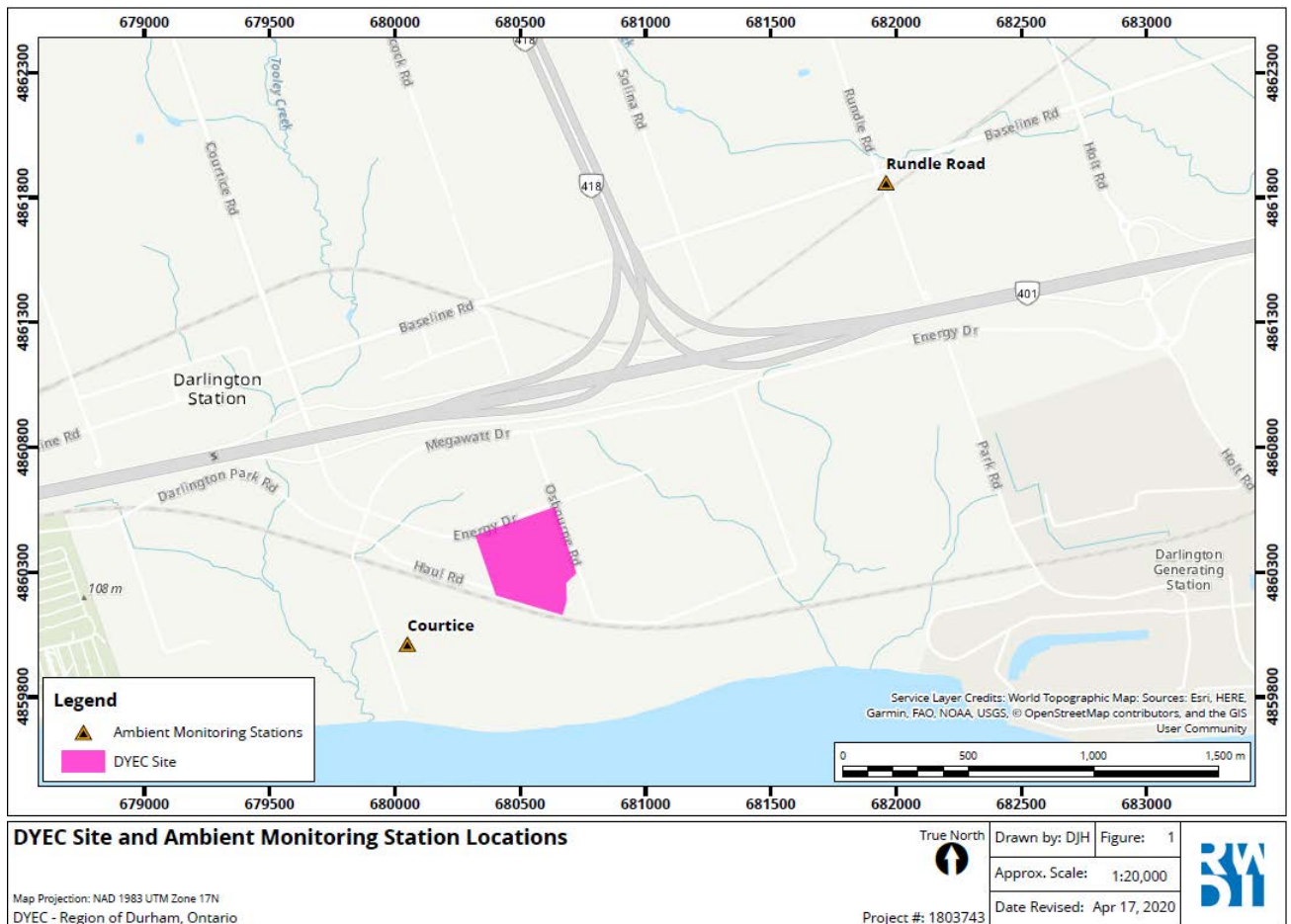
The Courtice and Rundle Road stations continuously monitor the following air quality parameters: Particulate Matter less than 2.5 microns ( $PM_{2.5}$ ), Nitrogen Oxides ( $NO_x$ ) and Sulfur Dioxide ( $SO_2$ ). In addition, both discretely monitor the following air quality parameters: Total Suspended 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 one-hundred and eighty-nine (189) exceedance events of the rolling 10-minute SO<sub>2</sub> AAQC and seventy-eight (78) exceedance events of the rolling 1-hour SO<sub>2</sub> AAQC at the Courtice station. There were two (2) exceedance of the Benzo(a) Pyrene (B(a)P) AAQC at the Courtice station and three (3) exceedance of the B(a)P AAQC at the Rundle Road station. The exceedances occurred at the Courtice station on October 3<sup>rd</sup> and December 14<sup>th</sup>, 2023, and the exceedances at the Rundle Road station occurred on October 3<sup>rd</sup>, November 20<sup>th</sup>, and December 14<sup>th</sup>, 2023. 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<sub>2.5</sub> analyzer), Teledyne Nitrogen Oxides Analyzer Model T200 (NO<sub>x</sub> analyzer), and a Teledyne Sulfur Dioxide Analyzer Model T100 (SO<sub>2</sub> 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<sub>x</sub>) 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<sub>x</sub>) (the sum of NO and NO<sub>2</sub>), and nitrogen dioxide (NO<sub>2</sub>). 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<sub>3</sub>). The NO and O<sub>3</sub> 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<sub>x</sub> (NO+NO<sub>2</sub>) measurement, sample gas is periodically bypassed through a heated molybdenum converter cartridge that converts any NO<sub>2</sub> 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<sub>2</sub> producing a NO<sub>x</sub> measurement. The resultant NO<sub>2</sub> determination is the NO<sub>x</sub> measurement subtracted from the NO measurement.

The NO<sub>x</sub> 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<sub>2</sub>) Analyzer is a microprocessor-controlled analyzer that determines the concentration of SO<sub>2</sub> in a sample gas drawn through the instrument. In the sample chamber, sample gas is excited by ultraviolet light causing the SO<sub>2</sub> to absorb energy from the light and move to an active state (SO<sub>2</sub>\*). These active SO<sub>2</sub>\* molecules must decay into a stable state back to SO<sub>2</sub>, and when this happens a photon of light is released which is recognized by the instrument as fluorescence. The instrument measures the amount of fluorescence to determine the amount of SO<sub>2</sub> present in the sample gas.



The SO<sub>2</sub> 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<sub>2.5</sub> 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<sub>2.5</sub> 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<sub>2.5</sub> are 27 µg/m<sup>3</sup> for the 3-year average of annual 98<sup>th</sup> percentile 24-hour concentration, and 8.8 µg/m<sup>3</sup> 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<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub> CAAQS' by Implementation Year

Parameter	Averaging Time	Year Applied		Statistical Form
		2020	2025	
Fine Particulate Matter (PM <sub>2.5</sub> )	24-hour	27 µg/m <sup>3</sup>		The 3-year average of the annual 98 <sup>th</sup> percentile of the daily 24-hour average concentrations
	Annual	8.8 µg/m <sup>3</sup>		The 3-year average of the annual average of all 1-hour concentrations
Sulphur Dioxide (SO <sub>2</sub> )	1-hour	70 ppb	65 ppb	The 3-year average of the annual 99 <sup>th</sup> percentile of the SO <sub>2</sub> daily maximum 1-hour average concentrations
	Annual	5 ppb	4 ppb	The average over a single calendar year of all 1-hour average SO <sub>2</sub> concentrations
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour	60 Ppb	42 ppb	The 3-year average of the annual 98 <sup>th</sup> 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

There was an MECP audit conducted on December 7, 2023. All instruments met their respective audit criteria.





## 5 SUMMARY OF AMBIENT MEASUREMENTS

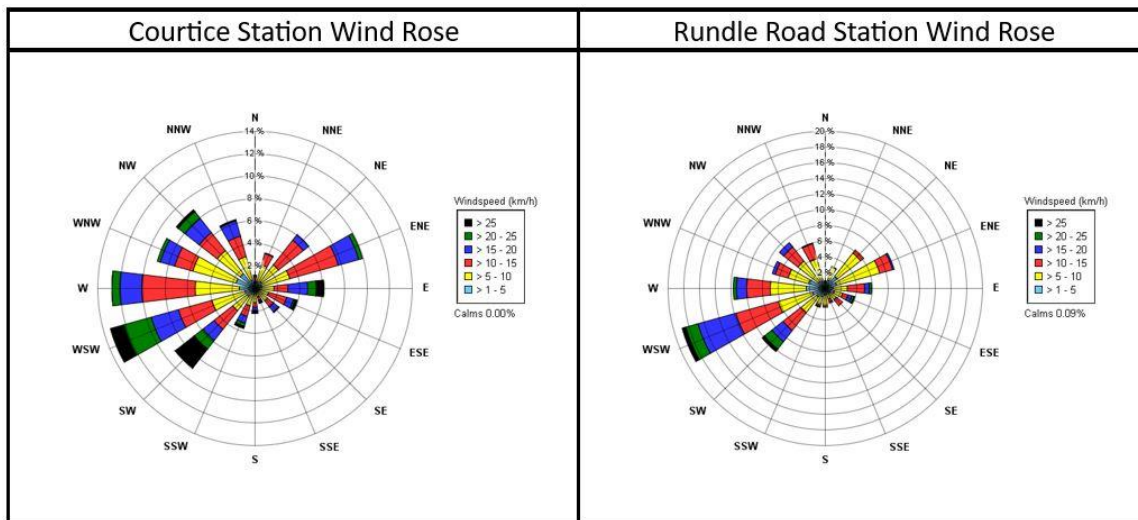
Ambient air quality monitoring results for all contaminants sampled at the Courtice and Rundle Road stations are discussed herein. Summary statistics from October to December 2023 are presented in a summary format below and in a more detailed matrix format in **Appendix A** for continuous measurements 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 88% 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**. The Courtice rain instrument malfunctioned, and no rain data was recorded from the beginning of the quarter until repairs were completed at 20:00 on October 11, 2023.

**Figure 4:** Wind Roses of Hourly Wind Speed and Wind Direction – October to December 2023





**Table 2:** Hourly Statistics from the Courtice Meteorological Station

Courtice Station MET Statistics	Maximum 1 hr. Mean					Minimum 1 hr. Mean					Monthly Mean					Total	% Valid hours						
	Parameter	WS	Temp	RH	Pres	Rain	WS	Temp	RH	Pres	Rain	WS	Temp	RH	Pres		Rain	Rain	WS	WD	Temp	RH	Pres
Units	(km/hr.)	( C)	(%)	Hg	mm	(km/hr.)	( C)	(%)	Hg	mm	(km/hr.)	( C)	(%)	Hg	mm	mm	mm	(%)					
<b>October</b>	36.0	24.6	100.0	30.0	1.7	0.5	-1.6	42.2	29.1	0.0	10.8	11.8	74.0	29.6	N/A <sup>1</sup>	N/A <sup>1</sup>	99.9	96.1	99.9	99.9	99.9	99.9	64.9
<b>November</b>	41.7	12.3	100.0	30.3	3.7	0.7	-6.4	38.1	29.3	0.0	13.4	4.0	67.6	29.8	0.0	33.8	99.6	97.8	99.6	99.6	99.6	99.6	99.6
<b>December</b>	38.1	10.1	100.0	30.3	5.5	0.4	-6.3	39.2	29.0	0.0	12.1	2.7	79.6	29.8	0.1	87.2	100.0	99.1	100.0	100.0	100.0	100.0	99.9
<b>Q4 Arithmetic Mean</b>											12.1	6.2	73.8	29.7	0.1	121.0	99.8	97.6	99.8	99.8	99.8	99.8	88.0

Notes:

<sup>1</sup> – Rain total, monthly and quarterly means not presented due to not meeting data validity criteria of >75%

### 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 97% 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
Units	(km/hr.)	( C)	(%)	mm	(km/hr.)	( C)	(%)	mm	(km/hr.)	( C)	(%)	mm	mm	mm	(%)				
<b>October</b>	26.4	25.4	100.0	2.8	0.2	-2.6	44.4	0.0	8.5	11.6	78.8	0.1	39.4	100.0	95.0	100.0	100.0	100.0	100.0
<b>November</b>	27.6	11.8	100.0	5.2	0.4	-7.8	39.9	0.0	10.5	3.4	73.0	0.1	47.5	100.0	96.5	100.0	100.0	100.0	100.0
<b>December</b>	30.8	10.6	100.0	5.3	0.7	-7.4	42.8	0.0	9.1	2.2	85.0	0.1	97.0	100.0	99.5	100.0	100.0	100.0	99.7
<b>Q4 Arithmetic Mean</b>									9.4	5.7	78.9	0.1	183.9	100.0	97.0	100.0	100.0	100.0	99.9

## 5.2 NO<sub>x</sub>, SO<sub>2</sub> and PM<sub>2.5</sub> 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 one-hundred and eighty-nine (189) exceedance events of the rolling 10-minute SO<sub>2</sub> AAQC and seventy-eight (78) exceedance events of the 1-hour SO<sub>2</sub> AAQC in Q4. At the Rundle Road station, there were no exceedances events of the rolling 10-minute SO<sub>2</sub> AAQC or the 1-hour SO<sub>2</sub> 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 <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	
Units	ppb	(µg/m <sup>3</sup> )	ppb				(µg/m <sup>3</sup> )	ppb				(µg/m <sup>3</sup> )	ppb				(%)					
<b>AAQC/CAAQS</b>	67				200	40	27 <sup>A</sup>			100												
<b>October</b>	467.5	23.5	59.4	41.0	41.4	121.4	17.4	23.6	7.7	17.2	16.8	4.9	5.4	1.3	4.2	3.2	99.6	99.6	99.6	99.6	99.5	
<b>November</b>	321.9	33.6	78.1	55.9	34.7	134.4	18.6	31.9	15.7	16.2	39.0	5.1	7.4	1.6	5.9	6.2	99.3	98.6	98.6	98.6	99.0	
<b>December</b>	220.0	31.4	68.7	44.0	32.8	130.7	20.0	23.6	6.6	18.9	22.4	6.7	8.1	1.4	6.7	3.7	99.7	99.3	99.3	99.3	99.5	
<b>Q4 Arithmetic Mean</b>												5.6	7.0	1.4	5.6	4.3	99.5	99.2	99.2	99.2	99.3	

<sup>A</sup> The 24-hour PM<sub>2.5</sub> CAAQS applies to the 98<sup>th</sup> 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 <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	
Units	ppb	(µg/m <sup>3</sup> )	ppb				(µg/m <sup>3</sup> )	ppb				(µg/m <sup>3</sup> )	ppb				(%)					
<b>AAQC/CAAQS</b>	67				200	40	27 <sup>A</sup>			100												
<b>October</b>	47.2	67.2	61.5	30.1	31.5	26.8	13.7	14.4	5.7	11.0	2.4	4.4	4.8	1.1	3.9	0.6	99.9	99.7	99.7	99.7	99.5	
<b>November</b>	2.4	30.4	45.6	23.4	26.5	1.9	18.8	16.7	5.0	12.2	0.8	5.5	6.9	1.4	5.7	0.4	99.9	99.6	99.6	99.6	99.7	
<b>December</b>	1.6	29.5	53.2	30.5	26.7	1.1	21.5	21.9	5.7	16.5	0.5	6.6	7.0	1.5	5.7	0.1	99.7	99.5	99.5	99.5	99.6	
<b>Q4 Arithmetic Mean</b>												5.5	6.2	1.3	5.1	0.4	99.8	99.6	99.6	99.6	99.6	

<sup>A</sup> The 24-hour PM<sub>2.5</sub> CAAQS applies to the 98<sup>th</sup> 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 <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>
Units	No.	No.	No.			No.			No.			No.		
<b>October</b>	32	0		0	11		0	0	N/A	0		N/A	0	
<b>November</b>	122	0		0	49		0	0	N/A	0		N/A	0	
<b>December</b>	35	0		0	18		0	0	N/A	0		N/A	0	
<b>Q4 Total</b>	189	0		0	78		0	0	N/A	0		N/A	0	



## 5.3 Oxides of Nitrogen Results

### 5.3.1 Courtice Station Results

Data recovery levels were high for oxides of nitrogen (99.2% valid data). Monitoring results were compared to the AAQC for NO<sub>2</sub> 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<sub>x</sub>). 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<sub>2</sub> value seen among the 1-hour rolling averages was 41.4 ppb, which is 20.7% of the AAQC. The highest NO<sub>2</sub> value seen among the rolling 24-hour averages was 18.9 ppb, which is 18.9% 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<sub>2</sub> 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<sub>2</sub> impacts were largely from the northeast to east and west-southwest to northwest. The station is downwind of the DYEC when winds are from the northeast and east-northeast directions, which occurred during the monitoring period, therefore it is likely that the DYEC contributed to the observed concentrations from those directions. There are additional impacts from the north-northeast, southwest, and north-northwest, which indicates reception from surrounding industry or the highway and railway corridors.

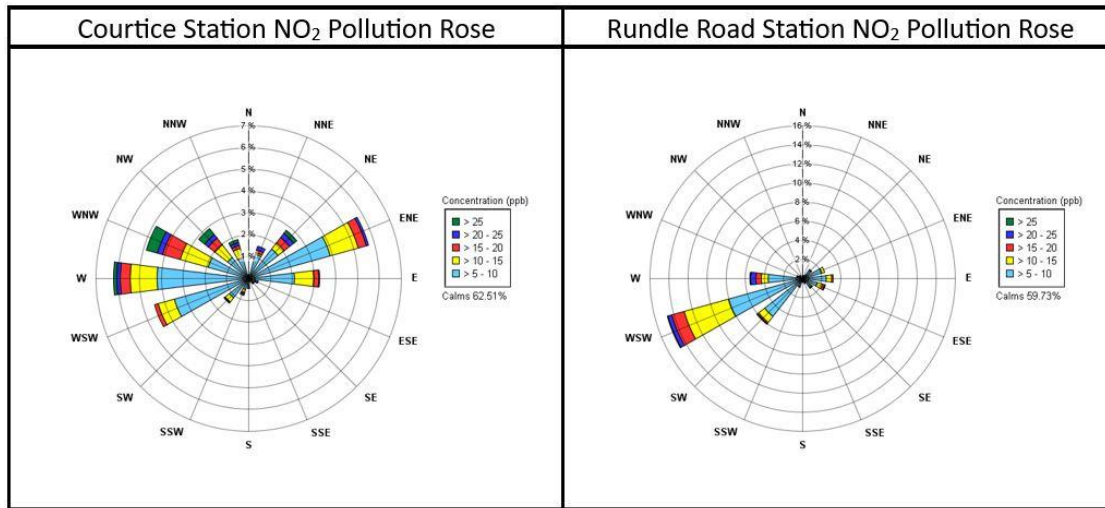
### 5.3.2 Rundle Road Station Results

Data recovery levels were high for oxides of nitrogen (99.6% 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<sub>2</sub> value seen among the 1-hour rolling averages was 31.5 ppb, which is 15.8% of the AAQC. The highest NO<sub>2</sub> value seen among the rolling 24-hour averages was 16.5 ppb, which is 16.5% 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<sub>2</sub> 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<sub>2</sub> events at the Rundle Road station occurred when winds were from the southwest to west. The station is downwind of the DYEC when winds are from the south-southwest and southwest directions. Elevated concentrations occurred occasionally from the southwest during the monitoring period, therefore it is likely that the DYEC partially contributed to the observed concentrations. There are additional impacts from the west-southwest to west and the east-northeast to east-southeast which indicates reception from surrounding industry or the highway and railway corridors.

**Figure 5:** Pollution Roses of Hourly Average NO<sub>2</sub> Concentrations – October to December 2023



## 5.4 Sulphur Dioxide Results

### 5.4.1 Courtice Station Results

Data recovery levels were high for sulphur dioxide (99.3% valid data). Monitoring results were compared to the AAQC for 10-minute and 1-hour rolling average periods. In 2023, there have been more frequent SO<sub>2</sub> concentrations elevated above the AAQC's than in previous years due to the new limits imposed at the start of 2020. The highest SO<sub>2</sub> value seen among the 10-min rolling averages was 467.5 ppb, which is 697.8% of the AAQC. The highest SO<sub>2</sub> value seen among the 1-hour rolling averages was 134.4 ppb, which is 336.0% of the AAQC. There were one-hundred and eighty-nine (189) exceedance events above the rolling 10-minute AAQC and seventy-eight (78) exceedance events above the rolling 1-hour AAQC. A table outlining the interpretation of the exceedance period can be found in **Appendix E**.

The SO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> events at Courtice occurred from the north-northeast to northeast directions. The events were likely a result of emissions from surrounding industrial sources with contributions from the DYEC in the northeast direction.

The Courtice station pollution rose in **Figure 7** shows that <1.25% of the 5-min SO<sub>2</sub> events are elevated >67 ppb and the majority occurred from the north-northwest to north-northeast directions. The pollution rose indicates that the DYEC maybe a potential contributor to SO<sub>2</sub> levels at the station along with other industrial activity nearby.



A Technical Memorandum summarizing the DYEC SO<sub>2</sub> 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<sub>2</sub> 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

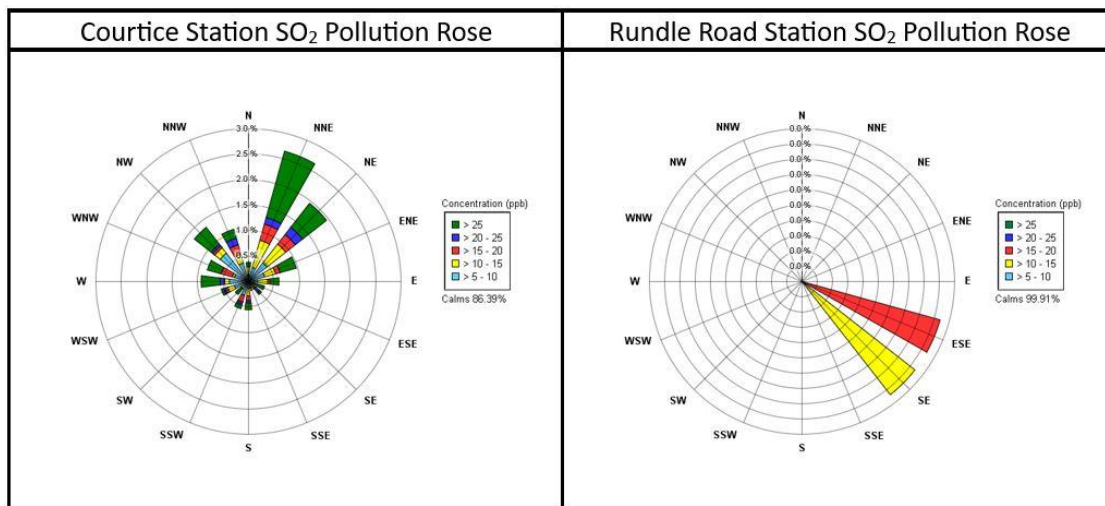
Data recovery levels were high for sulphur dioxide (99.6% valid data). Monitoring results were compared to the AAQC for 10-minute and 1-hour rolling average periods. The highest SO<sub>2</sub> value seen among the 10-min rolling averages was 47.2 ppb, which is 70.4% of the AAQC. The highest SO<sub>2</sub> value seen among the 1-hour rolling averages was 26.8 ppb, which is 67.0% of the AAQC.

The SO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> concentrations with levels below 67 ppb omitted to illustrate directionality of exceedance concentrations.

The Rundle Road station pollution rose in **Figure 6** shows the majority of elevated SO<sub>2</sub> events at Rundle Road occurred from the east-southeast and southeast directions. The events were likely a result of emissions from surrounding sources.

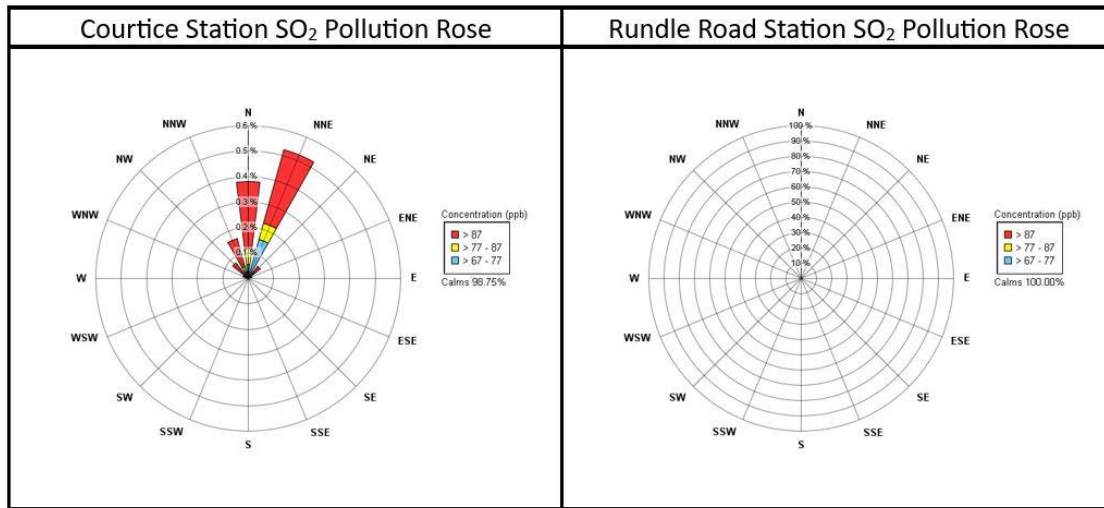
The Rundle Road station pollution rose in **Figure 7** shows that there were no 5-min SO<sub>2</sub> events that are elevated >67 ppb.

**Figure 6:** Pollution Roses of Hourly Average SO<sub>2</sub> Concentrations – October to December 2023





**Figure 7:** Pollution Roses of 5-minute Average SO<sub>2</sub> Concentrations >67 ppb – October to December 2023



## 5.5 Fine Particulate Matter (PM<sub>2.5</sub>) Results

### 5.5.1 Courtice Station Results

Data recovery levels were high for particulate matter less than 2.5 microns (99.5% valid data). There is no 1-hour AAQC or standard for PM<sub>2.5</sub>, but there is a 24-hour CAAQS of 27 µg/m<sup>3</sup> for the 3-year average of the annual 98<sup>th</sup> percentile 24-hour concentrations, and 8.8 µg/m<sup>3</sup> 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<sub>2.5</sub> was not applicable to the data. The highest PM<sub>2.5</sub> value seen among the 1-hour rolling averages was 33.6 µg/m<sup>3</sup> and the highest value seen among the 24-hour rolling averages was 20.0 µg/m<sup>3</sup>. 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<sub>2.5</sub> concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 µg/m<sup>3</sup> were omitted from the graphic wind rose representation.

The Courtice station pollution rose in **Figure 8** shows that the majority of elevated PM<sub>2.5</sub> events at Courtice occurred when winds were from the west-southwest and east-northeast, which places the station downwind of the DYEC occasionally. Other contributions are in line with nearby industrial activity.

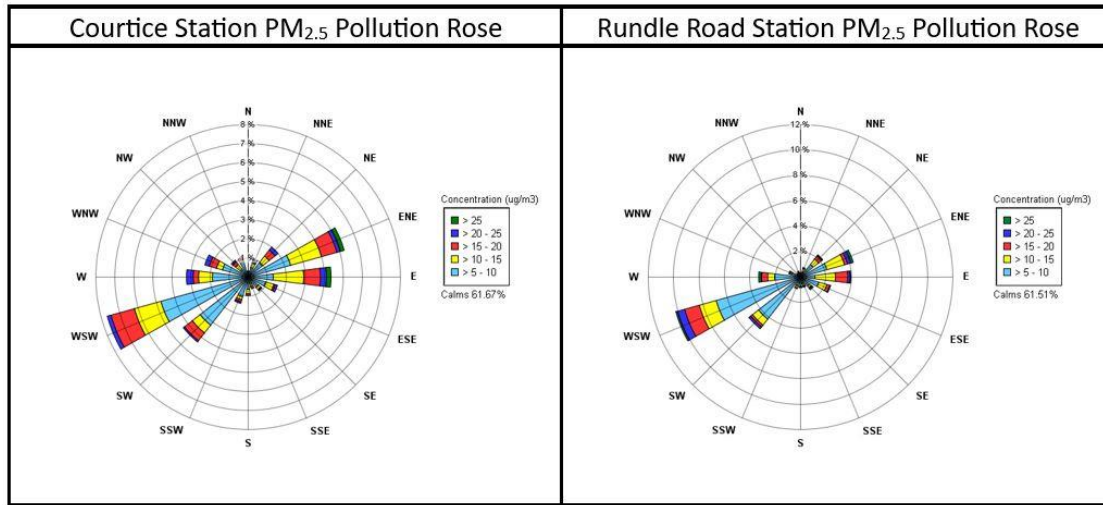
### 5.5.2 Rundle Road Station Results

Data recovery levels were high for particulate matter less than 2.5 microns (99.8% valid data). The highest PM<sub>2.5</sub> value seen among the 1-hour rolling averages was 67.2 µg/m<sup>3</sup> and the highest value seen among the 24-hour rolling averages was 21.5 µg/m<sup>3</sup>. 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<sub>2.5</sub> concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 µg/m<sup>3</sup> were omitted from the graphic wind rose representation.



The Rundle Road pollution rose in **Figure 8** shows that the majority of elevated PM<sub>2.5</sub> events at the Rundle Road station occurred when winds were from the southwest to west-southwest. Elevated concentrations were frequent from the southwest during the monitoring period, therefore it is likely that the DYEC partially contributed to the observed concentrations. Other possible contributions include surrounding industry, nearby high traffic areas and urban background.

**Figure 8:** Pollution Roses of Hourly Average PM<sub>2.5</sub> Concentrations – October to December 2023



## 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 3, 9, 15, 21, 27, November 2, 8, 14, 20, 26, December 2, 8, 14, 20 and 26, 2023.

### 5.6.1 Courtice Station Results

Data recovery levels were high for the TSP sampler at the Courtice station (93% 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	aluminum Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	µg/m <sup>3</sup>	120	120	0	13.9	17.6	2.08	39.20	17.42	15.84	39.20	14	93
Total Mercury (Hg)	µg/m <sup>3</sup>	2	2	0	4.67E-06	5.42E-06	2.86E-06	1.07E-05	3.08E-06	7.15E-06	1.07E-05	14	93
Aluminum (Al)	µg/m <sup>3</sup>	4.8	-	0	9.36E-02	1.13E-01	1.78E-02	2.45E-01	8.80E-02	1.61E-01	2.45E-01	14	93
Antimony (Sb)	µg/m <sup>3</sup>	25	25	0	6.64E-04	8.13E-04	2.14E-04	1.95E-03	6.65E-04	1.18E-03	1.95E-03	14	93
Arsenic (As)	µg/m <sup>3</sup>	0.3	0.3	0	8.84E-04	8.84E-04	8.57E-04	9.23E-04	9.23E-04	8.93E-04	8.94E-04	14	93
Barium (Ba)	µg/m <sup>3</sup>	10	10	0	5.05E-03	6.18E-03	1.67E-03	1.50E-02	4.35E-03	8.47E-03	1.50E-02	14	93
Beryllium (Be)	µg/m <sup>3</sup>	0.01	0.01	0	1.47E-05	1.47E-05	1.43E-05	1.54E-05	1.54E-05	1.49E-05	1.49E-05	14	93
Bismuth (Bi)	µg/m <sup>3</sup>	-	-	-	5.30E-04	5.30E-04	5.14E-04	5.54E-04	5.54E-04	5.36E-04	5.36E-04	14	93
Boron (B)	µg/m <sup>3</sup>	120	-	0	4.42E-03	4.42E-03	4.28E-03	4.62E-03	4.62E-03	4.47E-03	4.47E-03	14	93
Cadmium (Cd)	µg/m <sup>3</sup>	0.025	0.025	0	9.22E-05	1.16E-04	2.62E-05	2.92E-04	8.86E-05	2.92E-04	1.66E-04	14	93
Chromium (Cr)	µg/m <sup>3</sup>	0.5	-	0	1.14E-03	1.21E-03	9.71E-04	2.82E-03	1.05E-03	1.01E-03	2.82E-03	14	93
Cobalt (Co)	µg/m <sup>3</sup>	0.1	0.1	0	7.82E-05	9.01E-05	2.44E-05	1.80E-04	8.92E-05	1.19E-04	1.80E-04	14	93
Copper (Cu)	µg/m <sup>3</sup>	50	-	0	9.38E-03	1.17E-02	3.08E-03	2.74E-02	1.69E-02	2.56E-02	2.74E-02	14	93
Iron (Fe)	µg/m <sup>3</sup>	4	-	0	2.42E-01	2.81E-01	8.20E-02	6.50E-01	2.60E-01	3.85E-01	6.50E-01	14	93
Lead (Pb)	µg/m <sup>3</sup>	0.5	0.5	0	1.86E-03	2.46E-03	5.04E-04	6.73E-03	1.80E-03	4.94E-03	6.73E-03	14	93
Magnesium (Mg)	µg/m <sup>3</sup>	-	-	-	1.38E-01	1.76E-01	1.78E-02	5.02E-01	1.86E-01	2.19E-01	5.02E-01	14	93
Manganese (Mn)	µg/m <sup>3</sup>	0.4	-	0	6.41E-03	7.84E-03	1.38E-03	2.09E-02	9.29E-03	1.05E-02	2.09E-02	14	93
Molybdenum (Mo)	µg/m <sup>3</sup>	120	-	0	6.30E-04	7.24E-04	3.21E-04	1.51E-03	8.74E-04	1.39E-03	1.51E-03	14	93
Nickel (Ni)	µg/m <sup>3</sup>	0.2	-	0	7.12E-04	7.75E-04	2.86E-04	1.42E-03	8.00E-04	1.14E-03	1.42E-03	14	93
Phosphorus (P)	µg/m <sup>3</sup>	-	-	-	2.21E-01	2.21E-01	2.14E-01	2.31E-01	2.31E-01	2.23E-01	2.23E-01	14	93
Selenium (Se)	µg/m <sup>3</sup>	10	10	0	4.78E-04	5.39E-04	3.71E-04	1.49E-03	8.62E-04	3.87E-04	1.49E-03	14	93
Silver (Ag)	µg/m <sup>3</sup>	1	1	0	3.62E-05	7.63E-05	2.58E-05	6.68E-04	6.68E-04	2.68E-05	8.01E-05	14	93
Strontium (Sr)	µg/m <sup>3</sup>	120	-	0	3.17E-03	3.91E-03	8.91E-04	6.67E-03	3.31E-03	5.85E-03	6.67E-03	14	93
Thallium (Tl)	µg/m <sup>3</sup>	-	-	-	2.65E-05	2.65E-05	2.57E-05	2.77E-05	2.77E-05	2.68E-05	2.68E-05	14	93
Tin (Sn)	µg/m <sup>3</sup>	10	10	0	6.44E-04	8.87E-04	1.71E-04	2.72E-03	6.15E-04	1.02E-03	2.72E-03	14	93
Titanium (Ti)	µg/m <sup>3</sup>	120	-	0	5.16E-03	5.73E-03	3.14E-03	9.78E-03	3.38E-03	8.18E-03	9.78E-03	14	93
Uranium (Ur)	µg/m <sup>3</sup>	1.5	-	0	1.49E-05	2.00E-05	1.78E-06	4.27E-05	1.34E-05	3.87E-05	4.27E-05	14	93
Vanadium (V)	µg/m <sup>3</sup>	2	1	0	1.47E-03	1.47E-03	1.43E-03	1.54E-03	1.54E-03	1.49E-03	1.49E-03	14	93
Zinc (Zn)	µg/m <sup>3</sup>	120	-	0	2.51E-02	3.11E-02	6.65E-03	8.63E-02	2.82E-02	6.00E-02	8.63E-02	14	93
Zirconium (Zr)	µg/m <sup>3</sup>	25	-	0	5.89E-04	5.89E-04	5.71E-04	6.15E-04	6.15E-04	5.96E-04	5.96E-04	14	93

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



### 5.6.1 Rundle Road Station Results

Data recovery levels were high for the TSP sampler at the Rundle Road station (93% 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/m <sup>3</sup>	120	120	0	17.0	23.5	2.00	49.65	46.94	40.69	49.65	14	93
Total Mercury (Hg)	µg/m <sup>3</sup>	2	2	0	5.04E-06	6.23E-06	2.89E-06	1.42E-05	1.42E-05	9.44E-06	1.29E-05	14	93
Aluminum (Al)	µg/m <sup>3</sup>	4.8	-	0	1.11E-01	1.48E-01	1.84E-02	3.26E-01	3.26E-01	2.62E-01	2.66E-01	14	93
Antimony (Sb)	µg/m <sup>3</sup>	25	25	0	5.34E-04	7.44E-04	7.50E-05	2.02E-03	2.02E-03	8.55E-04	1.79E-03	14	93
Arsenic (As)	µg/m <sup>3</sup>	0.3	0.3	0	8.89E-04	8.89E-04	8.66E-04	9.26E-04	9.26E-04	8.85E-04	8.98E-04	14	93
Barium (Ba)	µg/m <sup>3</sup>	10	10	0	5.50E-03	7.26E-03	1.39E-03	1.98E-02	1.98E-02	1.02E-02	1.49E-02	14	93
Beryllium (Be)	µg/m <sup>3</sup>	0.01	0.01	0	1.48E-05	1.48E-05	1.44E-05	1.54E-05	1.54E-05	1.47E-05	1.50E-05	14	93
Bismuth (Bi)	µg/m <sup>3</sup>	-	-	-	5.33E-04	5.33E-04	5.19E-04	5.56E-04	5.56E-04	5.31E-04	5.39E-04	14	93
Boron (B)	µg/m <sup>3</sup>	120	-	0	4.44E-03	4.44E-03	4.33E-03	4.63E-03	4.63E-03	4.42E-03	4.49E-03	14	93
Cadmium (Cd)	µg/m <sup>3</sup>	0.025	0.025	0	6.61E-05	8.49E-05	1.81E-05	1.85E-04	1.85E-04	1.83E-04	1.39E-04	14	93
Chromium (Cr)	µg/m <sup>3</sup>	0.5	-	0	1.36E-03	1.55E-03	9.81E-04	3.77E-03	3.77E-03	2.41E-03	2.90E-03	14	93
Cobalt (Co)	µg/m <sup>3</sup>	0.1	0.1	0	1.01E-04	1.26E-04	2.76E-05	3.06E-04	3.06E-04	1.94E-04	2.48E-04	14	93
Copper (Cu)	µg/m <sup>3</sup>	50	-	0	3.39E-02	3.83E-02	1.22E-02	8.15E-02	8.15E-02	3.50E-02	6.33E-02	14	93
Iron (Fe)	µg/m <sup>3</sup>	4	-	0	2.53E-01	3.36E-01	5.41E-02	8.21E-01	8.21E-01	5.58E-01	6.62E-01	14	93
Lead (Pb)	µg/m <sup>3</sup>	0.5	0.5	0	1.79E-03	2.34E-03	4.10E-04	6.04E-03	4.39E-03	3.16E-03	6.04E-03	14	93
Magnesium (Mg)	µg/m <sup>3</sup>	-	-	-	1.85E-01	2.74E-01	1.76E-02	7.31E-01	4.84E-01	7.22E-01	7.31E-01	14	93
Manganese (Mn)	µg/m <sup>3</sup>	0.4	-	0	7.07E-03	1.00E-02	1.12E-03	2.54E-02	2.54E-02	2.08E-02	2.21E-02	14	93
Molybdenum (Mo)	µg/m <sup>3</sup>	120	-	0	2.22E-03	2.44E-03	9.75E-04	5.17E-03	5.17E-03	2.65E-03	3.60E-03	14	93
Nickel (Ni)	µg/m <sup>3</sup>	0.2	-	0	7.85E-04	8.84E-04	3.50E-04	2.00E-03	2.00E-03	1.17E-03	1.51E-03	14	93
Phosphorus (P)	µg/m <sup>3</sup>	-	-	-	2.22E-01	2.22E-01	2.16E-01	2.32E-01	2.32E-01	2.21E-01	2.25E-01	14	93
Selenium (Se)	µg/m <sup>3</sup>	10	10	0	4.95E-04	5.75E-04	3.75E-04	1.47E-03	1.42E-03	3.83E-04	1.47E-03	14	93
Silver (Ag)	µg/m <sup>3</sup>	1	1	0	3.07E-05	3.33E-05	2.60E-05	7.41E-05	7.41E-05	2.65E-05	7.40E-05	14	93
Strontium (Sr)	µg/m <sup>3</sup>	120	-	0	3.39E-03	4.61E-03	8.82E-04	9.45E-03	8.96E-03	9.45E-03	8.01E-03	14	93
Thallium (Tl)	µg/m <sup>3</sup>	-	-	-	2.67E-05	2.67E-05	2.60E-05	2.78E-05	2.78E-05	2.65E-05	2.69E-05	14	93
Tin (Sn)	µg/m <sup>3</sup>	10	10	0	6.79E-04	9.18E-04	1.80E-04	2.52E-03	2.09E-03	9.03E-04	2.52E-03	14	93
Titanium (Ti)	µg/m <sup>3</sup>	120	-	0	6.34E-03	7.66E-03	3.23E-03	1.67E-02	1.67E-02	1.36E-02	1.39E-02	14	93
Uranium (Ur)	µg/m <sup>3</sup>	1.5	-	0	1.45E-05	1.84E-05	1.76E-06	4.04E-05	2.33E-05	2.92E-05	4.04E-05	14	93
Vanadium (V)	µg/m <sup>3</sup>	2	1	0	1.48E-03	1.48E-03	1.44E-03	1.54E-03	1.54E-03	1.47E-03	1.50E-03	14	93
Zinc (Zn)	µg/m <sup>3</sup>	120	-	0	2.58E-02	3.52E-02	7.58E-03	1.06E-01	6.98E-02	6.61E-02	1.06E-01	14	93
Zirconium (Zr)	µg/m <sup>3</sup>	20	-	0	6.22E-04	6.37E-04	5.77E-04	1.24E-03	1.24E-03	5.90E-04	5.99E-04	14	93

**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 3, 15, 27, November 8, 20, December 2, 14 and 26, 2023.

### 5.7.1 Courtice Station Results

Data recovery levels were high for the PAH results at the Courtice station (100% valid data). There were two (2) exceedances of the B(a)P AAQC during Q4 of 2023. There were no other exceedances of any of the AAQC's or HHRA Criteria.

The BaP exceedances occurred on October 3 and December 14, 2023. Since the winds were predominantly coming from the west-southwest, southwest and northeast, the Courtice station was primarily upwind 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 9** outlines the statistics summary for this station.



**Table 9:** Statistics Summary of PAH Results for Courtice Station

Contaminant	Units	MECP Criteria (ng/m <sup>3</sup> )	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 <sup>3</sup>	35500	0	3.76E+00	1.06E+00	1.83E+01	1.83E+01	2.76E+00	2.29E+00	8	100
2-Methylnaphthalene	ng/m <sup>3</sup>	35500	0	6.79E+00	1.62E+00	3.34E+01	3.34E+01	4.64E+00	4.82E+00	8	100
Acenaphthene	ng/m <sup>3</sup>	-	-	3.42E+00	6.53E-01	2.01E+01	2.01E+01	1.11E+00	1.03E+00	8	100
Acenaphthylene	ng/m <sup>3</sup>	-	-	2.98E-01	3.16E-02	6.54E-01	6.54E-01	2.71E-01	4.02E-01	8	100
Anthracene	ng/m <sup>3</sup>	-	-	1.95E-01	3.97E-02	9.76E-01	9.76E-01	5.20E-02	1.05E-01	8	100
Benzo(a)Anthracene	ng/m <sup>3</sup>	-	-	3.20E-02	5.78E-03	8.50E-02	5.42E-02	3.03E-02	8.50E-02	8	100
Benzo(a)fluorene	ng/m <sup>3</sup>	-	-	7.32E-02	1.30E-02	2.12E-01	1.41E-01	1.58E-02	2.12E-01	8	100
Benzo(a)Pyrene (Historically High)	ng/m <sup>3</sup>	0.05	2	3.48E-02	1.51E-03	1.13E-01	7.90E-02	2.64E-02	1.13E-01	8	100
Benzo(b)Fluoranthene	ng/m <sup>3</sup>	-	-	7.45E-02	4.91E-03	1.60E-01	1.60E-01	5.10E-02	1.55E-01	8	100
Benzo(b)fluorene	ng/m <sup>3</sup>	-	-	1.45E-02	1.51E-03	5.28E-02	2.11E-02	1.71E-03	5.28E-02	8	100
Benzo(e)Pyrene	ng/m <sup>3</sup>	-	-	7.69E-02	7.17E-03	2.78E-01	2.78E-01	5.03E-02	1.32E-01	8	100
Benzo(g,h,i)Perylene	ng/m <sup>3</sup>	-	-	6.76E-02	8.86E-03	2.01E-01	1.19E-01	5.62E-02	2.01E-01	8	100
Benzo(k)Fluoranthene	ng/m <sup>3</sup>	-	-	8.12E-02	9.22E-03	2.43E-01	1.14E-01	8.49E-02	2.43E-01	8	100
Biphenyl	ng/m <sup>3</sup>	-	-	2.36E+00	9.13E-01	9.49E+00	9.49E+00	1.16E+00	1.89E+00	8	100
Chrysene	ng/m <sup>3</sup>	-	-	1.46E-01	2.27E-02	3.65E-01	2.89E-01	1.20E-01	3.65E-01	8	100
Dibenzo(a,h)Anthracene	ng/m <sup>3</sup>	-	-	7.81E-03	1.51E-03	2.58E-02	1.01E-02	5.14E-03	2.58E-02	8	100
Fluoranthene	ng/m <sup>3</sup>	-	-	9.49E-01	2.78E-01	3.83E+00	3.83E+00	3.20E-01	1.01E+00	8	100
Fluorene	ng/m <sup>3</sup>	-	-	2.84E+00	7.29E-01	1.44E+01	1.44E+01	7.53E-01	2.20E+00	8	100
Indeno(1,2,3-cd)Pyrene	ng/m <sup>3</sup>	-	-	5.66E-02	8.43E-03	1.64E-01	9.59E-02	4.79E-02	1.64E-01	8	100
Naphthalene	ng/m <sup>3</sup>	22500	0	1.17E+01	4.61E+00	3.90E+01	3.90E+01	1.35E+01	1.09E+01	8	100
o-Terphenyl	ng/m <sup>3</sup>	-	-	1.22E-02	4.87E-03	3.46E-02	3.46E-02	5.31E-03	2.11E-02	8	100
Perylene	ng/m <sup>3</sup>	-	-	7.80E-03	1.51E-03	2.52E-02	1.20E-02	7.33E-03	2.52E-02	8	100
Phenanthrene	ng/m <sup>3</sup>	-	-	4.75E+00	1.12E+00	2.39E+01	2.39E+01	1.35E+00	3.73E+00	8	100
Pyrene	ng/m <sup>3</sup>	-	-	4.81E-01	1.80E-01	1.57E+00	1.57E+00	2.24E-01	7.21E-01	8	100
Tetralin	ng/m <sup>3</sup>	-	-	1.07E+00	2.38E-01	2.17E+00	2.17E+00	1.47E+00	1.66E+00	8	100
<b>Total PAH</b>	ng/m <sup>3</sup>	-	-	3.93E+01	14.20	169.15	1.69E+02	2.78E+01	30.19	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 high for the PAH results at the Rundle Road station (88% valid data). The single invalid sample on November 8 was due to equipment malfunction. There were three (3) exceedances of the B(a)P AAQC during Q4 of 2023. There were no other exceedances of any of the AAQC's or HHRA Criteria.

The BaP exceedances occurred on October 3, November 20 and December 14, 2023. Since the winds were predominantly coming from the southwest (October 3), north-northwest to east (November 20) and west-southwest (December 14), the Rundle Road station was primarily downwind on October 3, primarily upwind on November 20 and neither upwind nor downwind on December 14 of the DYEC during the sampling periods. On October 3, it is possible that the measured BaP exceedance is attributable to the Energy Centre operations, however it is likely that there were significant contributions from offsite sources as measured at Courtice, which was upwind. On November 20 and December 14, the Rundle Road station was not downwind of the DYEC and so it is unlikely that the Energy Centre operations contributed to the measured exceedances.

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 (ng/m <sup>3</sup> )	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 <sup>3</sup>	35500	0	2.81E+00	6.54E-01	9.60E+00	9.60E+00	1.73E+00	2.56E+00	7	88
2-Methylnaphthalene	ng/m <sup>3</sup>	35500	0	4.98E+00	8.75E-01	1.61E+01	1.61E+01	2.96E+00	5.41E+00	7	88
Acenaphthene	ng/m <sup>3</sup>	-	-	2.57E+00	1.38E-01	7.86E+00	7.86E+00	6.12E-01	2.04E+00	7	88
Acenaphthylene	ng/m <sup>3</sup>	-	-	2.91E-01	1.46E-01	4.89E-01	4.17E-01	2.47E-01	4.89E-01	7	88
Anthracene	ng/m <sup>3</sup>	-	-	2.36E-01	3.33E-02	6.70E-01	6.70E-01	3.33E-02	1.89E-01	7	88
Benzo(a)Anthracene	ng/m <sup>3</sup>	-	-	3.93E-02	5.16E-03	1.07E-01	4.50E-02	4.31E-02	1.07E-01	7	88
Benzo(a)fluorene	ng/m <sup>3</sup>	-	-	9.00E-02	1.69E-02	2.25E-01	1.32E-01	2.83E-02	2.25E-01	7	88
Benzo(a)Pyrene (Historically High)	ng/m <sup>3</sup>	0.05	3	4.49E-02	1.49E-03	1.38E-01	5.91E-02	5.28E-02	1.38E-01	7	88
Benzo(b)Fluoranthene	ng/m <sup>3</sup>	-	-	8.02E-02	7.16E-03	1.77E-01	1.25E-01	6.96E-02	1.77E-01	7	88
Benzo(b)fluorene	ng/m <sup>3</sup>	-	-	1.74E-02	1.49E-03	5.80E-02	1.64E-02	3.91E-03	5.80E-02	7	88
Benzo(e)Pyrene	ng/m <sup>3</sup>	-	-	6.37E-02	5.91E-03	1.43E-01	1.08E-01	5.48E-02	1.43E-01	7	88
Benzo(g,h,i)Perylene	ng/m <sup>3</sup>	-	-	7.67E-02	9.52E-03	2.19E-01	9.82E-02	6.19E-02	2.19E-01	7	88
Benzo(k)Fluoranthene	ng/m <sup>3</sup>	-	-	8.86E-02	5.70E-03	2.57E-01	9.28E-02	9.13E-02	2.57E-01	7	88
Biphenyl	ng/m <sup>3</sup>	-	-	1.99E+00	7.01E-01	4.60E+00	4.60E+00	1.15E+00	2.36E+00	7	88
Chrysene	ng/m <sup>3</sup>	-	-	1.60E-01	2.21E-02	3.93E-01	2.50E-01	1.23E-01	3.93E-01	7	88
Dibenzo(a,h)Anthracene	ng/m <sup>3</sup>	-	-	9.41E-03	1.49E-03	2.87E-02	9.86E-03	7.69E-03	2.87E-02	7	88
Fluoranthene	ng/m <sup>3</sup>	-	-	1.20E+00	1.53E-01	3.21E+00	3.21E+00	2.52E-01	1.12E+00	7	88
Fluorene	ng/m <sup>3</sup>	-	-	2.45E+00	2.27E-01	6.49E+00	6.49E+00	5.92E-01	1.89E+00	7	88
Indeno(1,2,3-cd)Pyrene	ng/m <sup>3</sup>	-	-	6.47E-02	6.33E-03	1.78E-01	8.04E-02	5.62E-02	1.78E-01	7	88
Naphthalene	ng/m <sup>3</sup>	22500	0	9.13E+00	2.75E+00	2.17E+01	2.17E+01	6.59E+00	1.19E+01	7	88
o-Terphenyl	ng/m <sup>3</sup>	-	-	1.22E-02	5.28E-03	2.98E-02	2.98E-02	5.28E-03	1.60E-02	7	88
Perylene	ng/m <sup>3</sup>	-	-	9.36E-03	1.49E-03	2.96E-02	8.88E-03	9.13E-03	2.96E-02	7	88
Phenanthrene	ng/m <sup>3</sup>	-	-	4.73E+00	6.06E-01	1.23E+01	1.23E+01	9.87E-01	3.81E+00	7	88
Pyrene	ng/m <sup>3</sup>	-	-	6.37E-01	9.04E-02	1.46E+00	1.46E+00	1.69E-01	9.37E-01	7	88
Tetralin	ng/m <sup>3</sup>	-	-	9.59E-01	2.19E-01	1.75E+00	1.73E+00	5.55E-01	1.75E+00	7	88
Total PAH	ng/m <sup>3</sup>	-	-	3.27E+01	6.70E+00	8.72E+01	8.72E+01	1.65E+01	3.64E+01	7	88

**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 15, November 8, December 2 and 26, 2023.

### 5.8.1 Courtice Station Results

Data recovery levels were 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/m <sup>3</sup>	-	-	-	1.29E-03	2.56E-04	2.66E-03	2.56E-04	1.24E-03	2.66E-03	4	100
1,2,3,7,8-PeCDD	pg/m <sup>3</sup>	-	-	-	1.54E-03	8.28E-04	2.51E-03	8.28E-04	1.36E-03	2.51E-03	4	100
1,2,3,4,7,8-HxCDD	pg/m <sup>3</sup>	-	-	-	1.52E-04	7.23E-05	2.82E-04	7.23E-05	1.31E-04	2.82E-04	4	100
1,2,3,6,7,8-HxCDD	pg/m <sup>3</sup>	-	-	-	2.87E-04	1.05E-04	4.70E-04	1.05E-04	1.29E-04	4.70E-04	4	100
1,2,3,7,8,9-HxCDD	pg/m <sup>3</sup>	-	-	-	2.11E-04	8.58E-05	4.29E-04	8.58E-05	1.24E-04	4.29E-04	4	100
1,2,3,4,6,7,8-HpCDD	pg/m <sup>3</sup>	-	-	-	6.08E-04	1.63E-04	1.28E-03	3.95E-04	1.63E-04	1.28E-03	4	100
OCDD	pg/m <sup>3</sup>	-	-	-	6.21E-05	3.29E-05	1.28E-04	3.37E-05	3.29E-05	1.28E-04	4	100
2,3,7,8-TCDF	pg/m <sup>3</sup>	-	-	-	1.19E-04	3.92E-05	1.88E-04	3.92E-05	1.26E-04	1.88E-04	4	100
1,2,3,7,8-PeCDF	pg/m <sup>3</sup>	-	-	-	3.88E-05	2.08E-05	7.05E-05	2.08E-05	2.75E-05	7.05E-05	4	100
2,3,4,7,8-PeCDF	pg/m <sup>3</sup>	-	-	-	7.47E-04	2.03E-04	1.97E-03	2.03E-04	2.55E-04	1.97E-03	4	100
1,2,3,4,7,8-HxCDF	pg/m <sup>3</sup>	-	-	-	1.08E-04	6.33E-05	2.35E-04	6.33E-05	6.54E-05	2.35E-04	4	100
1,2,3,6,7,8-HxCDF	pg/m <sup>3</sup>	-	-	-	9.53E-05	6.17E-05	1.88E-04	6.17E-05	6.37E-05	1.88E-04	4	100
2,3,4,6,7,8-HxCDF	pg/m <sup>3</sup>	-	-	-	2.01E-04	6.33E-05	4.39E-04	6.33E-05	6.54E-05	4.39E-04	4	100
1,2,3,7,8,9-HxCDF	pg/m <sup>3</sup>	-	-	-	1.24E-04	7.23E-05	2.66E-04	7.23E-05	7.52E-05	2.66E-04	4	100
1,2,3,4,6,7,8-HpCDF	pg/m <sup>3</sup>	-	-	-	4.60E-05	1.02E-05	1.08E-04	1.02E-05	2.29E-05	1.08E-04	4	100
1,2,3,4,7,8,9-HpCDF	pg/m <sup>3</sup>	-	-	-	1.62E-05	1.09E-05	2.82E-05	1.20E-05	1.36E-05	2.82E-05	4	100
OCDF	pg/m <sup>3</sup>	-	-	-	3.00E-06	5.39E-07	6.02E-06	2.06E-06	5.39E-07	6.02E-06	4	100
<b>Total Toxic Equivalency</b>	pg TEQ/m <sup>3</sup>	0.1 1 <sup>[1]</sup>	-	0	5.64E-03	2.32E-03	1.13E-02	2.32E-03	3.89E-03	1.13E-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 acceptable 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 <sup>3</sup>	-	-	-	1.14E-03	5.82E-04	2.13E-03	5.82E-04	N/A	2.13E-03	3	75
1,2,3,7,8-PeCDD	pg/m <sup>3</sup>	-	-	-	1.90E-03	1.16E-03	2.90E-03	1.64E-03	N/A	2.90E-03	3	75
1,2,3,4,7,8-HxCDD	pg/m <sup>3</sup>	-	-	-	2.17E-04	1.25E-04	2.82E-04	1.25E-04	N/A	2.82E-04	3	75
1,2,3,6,7,8-HxCDD	pg/m <sup>3</sup>	-	-	-	2.06E-04	1.21E-04	2.69E-04	1.21E-04	N/A	2.69E-04	3	75
1,2,3,7,8,9-HxCDD	pg/m <sup>3</sup>	-	-	-	2.50E-04	2.29E-04	2.64E-04	2.64E-04	N/A	2.58E-04	3	75
1,2,3,4,6,7,8-HpCDD	pg/m <sup>3</sup>	-	-	-	7.05E-04	3.55E-04	1.16E-03	3.55E-04	N/A	1.16E-03	3	75
OCDD	pg/m <sup>3</sup>	-	-	-	6.53E-05	1.48E-05	1.17E-04	1.48E-05	N/A	1.17E-04	3	75
2,3,7,8-TCDF	pg/m <sup>3</sup>	-	-	-	1.67E-04	5.67E-05	2.74E-04	5.67E-05	N/A	2.74E-04	3	75
1,2,3,7,8-PeCDF	pg/m <sup>3</sup>	-	-	-	4.94E-05	2.42E-05	7.32E-05	2.42E-05	N/A	7.32E-05	3	75
2,3,4,7,8-PeCDF	pg/m <sup>3</sup>	-	-	-	4.61E-04	2.33E-04	6.86E-04	2.33E-04	N/A	6.86E-04	3	75
1,2,3,4,7,8-HxCDF	pg/m <sup>3</sup>	-	-	-	1.20E-04	5.82E-05	1.83E-04	5.82E-05	N/A	1.83E-04	3	75
1,2,3,6,7,8-HxCDF	pg/m <sup>3</sup>	-	-	-	1.31E-04	5.67E-05	1.83E-04	5.67E-05	N/A	1.83E-04	3	75
2,3,4,6,7,8-HxCDF	pg/m <sup>3</sup>	-	-	-	3.16E-04	5.82E-05	4.94E-04	5.82E-05	N/A	4.94E-04	3	75
1,2,3,7,8,9-HxCDF	pg/m <sup>3</sup>	-	-	-	1.37E-04	6.72E-05	2.13E-04	6.72E-05	N/A	2.13E-04	3	75
1,2,3,4,6,7,8-HpCDF	pg/m <sup>3</sup>	-	-	-	1.76E-04	1.64E-05	2.80E-04	1.64E-05	N/A	2.80E-04	3	75
1,2,3,4,7,8,9-HpCDF	pg/m <sup>3</sup>	-	-	-	3.45E-05	1.94E-05	5.18E-05	1.94E-05	N/A	5.18E-05	3	75
OCDF	pg/m <sup>3</sup>	-	-	-	2.06E-06	1.39E-06	2.64E-06	1.39E-06	N/A	2.64E-06	3	75
<b>Total Toxic Equivalency</b>	pg TEQ/m <sup>3</sup>	0.1 [1]	-	0	6.07E-03	3.70E-03	8.69E-03	3.70E-03	N/A	8.69E-03	3	75

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

N/A - No maximum concentration presented due to no valid results for the month of November due to equipment malfunction.

[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<sub>x</sub> and SO<sub>2</sub> 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

On October 1, 2023, the Courtice rain instrument was out of service beginning at 0:00 and lasted until October 11, 2023, at 20:00.

On October 25, 2023, the Courtice station experience a power outage that lasted 1 hour which caused data loss from 12:00 to 13:00.

On November 21, 2023, the Courtice station experience a power outage that lasted 3 hours which caused data loss from 11:00 to 14:00.

On November 22, 2023, the Courtice station experience a power outage that lasted 1 hour which caused data loss at 11:00.

### 6.2 Discrete Monitoring

The October 3, 2023, Courtice TSP samples were invalidated due to equipment malfunction.

The October 27, 2023, Rundle Road TSP samples were invalidated due to equipment malfunction.

The November 8, 2023, Rundle Road PAH sample was invalid due to an equipment malfunction.





## 7 CONCLUSIONS

This Q4 report provides a summary of the ambient air quality data collected at the Courtice and Rundle Road stations. There were one-hundred and eighty-nine (189) exceedance events above the rolling 10-minute SO<sub>2</sub> AAQC and seventy-eight (78) exceedance events above the 1-hour SO<sub>2</sub> AAQC at the Courtice station. There were two (2) exceedances of the B(a)P AAQC at the Courtice station on October 3 and December 14, 2023. There were three (3) exceedances of the B(a)P AAQC at the Rundle Road station on October 3, November 20 and December 14, 2023. 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<sub>2</sub>). [Online]
4. Human Toxicology and Air Standards Section, Technical Assessment and Standards Development Branch, Ontario Ministry of the Environment, Conservation and Parks (MECP). 2020. Ontario's Ambient Air Quality Criteria. MECP, Toronto, ON, Canada.

## 9 GENERAL STATEMENT OF LIMITATIONS

This report entitled "2023 Q4 Ambient Air Quality Monitoring Report", dated February 9, 2024, 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.

The background features a large, light beige circle on the right side and a blue triangle on the left side, both overlapping a white background. The text 'APPENDIX A' is centered within the beige circle.

# APPENDIX A

**Table A1: 2023 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 <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	
Units	ppb	(µg/m <sup>3</sup> )	ppb					(µg/m <sup>3</sup> )	ppb					(µg/m <sup>3</sup> )	ppb					(%)				
AAQC/CAAQS	67				200	40	27 <sup>A</sup>				100													
October	467.5	23.5	59.4	41.0	41.4	121.4	17.4	23.6	7.7	17.2	16.8	4.9	5.4	1.3	4.2	3.2	99.6	99.6	99.6	99.6	99.5			
November	321.9	33.6	78.1	55.9	34.7	134.4	18.6	31.9	15.7	16.2	39.0	5.1	7.4	1.6	5.9	6.2	99.3	98.6	98.6	98.6	99.0			
December	220.0	31.4	68.7	44.0	32.8	130.7	20.0	23.6	6.6	18.9	22.4	6.7	8.1	1.4	6.7	3.7	99.7	99.3	99.3	99.3	99.5			
Q4 Arithmetic Mean												5.6	7.0	1.4	5.6	4.3	99.5	99.2	99.2	99.2	99.3			

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 <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	NO	NO <sub>2</sub>	SO <sub>2</sub>	
Units	ppb	(µg/m <sup>3</sup> )	ppb					(µg/m <sup>3</sup> )	ppb					(µg/m <sup>3</sup> )	ppb					(%)				
AAQC/CAAQS	67				200	40	27 <sup>A</sup>				100													
October	47.2	67.2	61.5	30.1	31.5	26.8	13.7	14.4	5.7	11.0	2.4	4.4	4.8	1.1	3.9	0.6	99.9	99.7	99.7	99.7	99.5			
November	2.4	30.4	45.6	23.4	26.5	1.9	18.8	16.7	5.0	12.2	0.8	5.5	6.9	1.4	5.7	0.4	99.9	99.6	99.6	99.6	99.7			
December	1.6	29.5	53.2	30.5	26.7	1.1	21.5	21.9	5.7	16.5	0.5	6.6	7.0	1.5	5.7	0.1	99.7	99.5	99.5	99.5	99.6			
Q4 Arithmetic Mean												5.5	6.2	1.3	5.1	0.4	99.8	99.6	99.6	99.6	99.6			

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 <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>
Units	No.	No.	No.			No.			No.			No.		
October	32	0		0	11		0	0	N/A	0		N/A	0	
November	122	0		0	49		0	0	N/A	0		N/A	0	
December	35	0		0	18		0	0	N/A	0		N/A	0	
Q4 Total	189	0		0	78		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
Units	(km/hr)	(°C)	(%)	"Hg	mm	(km/hr)	(°C)	(%)	"Hg	mm	(km/hr)	(°C)	(%)	"Hg	mm	mm							
October	36.0	24.6	100.0	30.0	1.7	0.5	-1.6	42.2	29.1	0.0	10.8	11.8	74.0	29.6	N/A <sup>1</sup>	N/A <sup>1</sup>	99.9	96.1	99.9	99.9	99.9	64.9	
November	41.7	12.3	100.0	30.3	3.7	0.7	-6.4	38.1	29.3	0.0	13.4	4.0	67.6	29.8	0.0	33.8	99.6	97.8	99.6	99.6	99.6	99.6	
December	38.1	10.1	100.0	30.3	5.5	0.4	-6.3	39.2	29.0	0.0	12.1	2.7	79.6	29.8	0.1	87.2	100.0	99.1	100.0	100.0	100.0	99.9	
Q4 Arithmetic Mean											12.1	6.2	73.8	29.7	0.1	121.0	99.8	97.6	99.8	99.8	99.8	88.0	

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
Units	(km/hr)	(°C)	(%)	mm	(km/hr)	(°C)	(%)	mm	(km/hr)	(°C)	(%)	mm	mm						
October	26.4	25.4	100.0	2.8	0.2	-2.6	44.4	0.0	8.5	11.6	78.8	0.1	39.4	100.0	95.0	100.0	100.0	100.0	
November	27.6	11.8	100.0	5.2	0.4	-7.8	39.9	0.0	10.5	3.4	73.0	0.1	47.5	100.0	96.5	100.0	100.0	100.0	
December	30.8	10.6	100.0	5.3	0.7	-7.4	42.8	0.0	9.1	2.2	85.0	0.1	97.0	100.0	99.5	100.0	100.0	99.7	
Q4 Arithmetic Mean									9.4	5.7	78.9	0.1	183.9	100.0	97.0	100.0	100.0	99.9	

1 - No averages and totals presented due to not meeting monthly data validity criteria of >75%

**Table A2: 2023 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 <sub>2.5</sub>	PM <sub>2.5</sub>	PM <sub>2.5</sub>	PM <sub>2.5</sub>	PM <sub>2.5</sub>	PM <sub>2.5</sub>
	No.	(ug/m <sup>3</sup> )	(ug/m <sup>3</sup> )	(ug/m <sup>3</sup> )	No.	%
October	N/A	4.9	23.5	17.4	741	99.6
November	N/A	5.1	33.6	18.6	715	99.3
December	N/A	6.7	31.4	20.0	742	99.7

**Table A3: 2023 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 <sub>2.5</sub>	PM <sub>2.5</sub>	PM <sub>2.5</sub>	PM <sub>2.5</sub>	PM <sub>2.5</sub>	PM <sub>2.5</sub>
	No.	(ug/m <sup>3</sup> )	(ug/m <sup>3</sup> )	(ug/m <sup>3</sup> )	No.	%
October	N/A	4.4	67.2	13.7	743	99.9
November	N/A	5.5	30.4	18.8	719	99.9
December	N/A	6.6	29.5	21.5	742	99.7

**Table A4: 2023 Q4 Station Courtice Monitoring Results for NO<sub>x</sub>**

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 <sub>x</sub>	NO <sub>x</sub>	NO <sub>x</sub>	NO <sub>x</sub>	NO <sub>x</sub>	NO <sub>x</sub>	NO <sub>x</sub>
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
October	N/A	N/A	5.4	59.4	23.6	741	99.6
November	N/A	N/A	7.4	78.1	31.9	710	98.6
December	N/A	N/A	8.1	68.7	23.6	739	99.3

**Table A5: 2023 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 <sub>x</sub>	NO <sub>x</sub>	NO <sub>x</sub>	NO <sub>x</sub>	NO <sub>x</sub>	NO <sub>x</sub>	NO <sub>x</sub>
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
October	N/A	N/A	4.8	61.5	14.4	742	99.7
November	N/A	N/A	6.9	45.6	16.7	717	99.6
December	N/A	N/A	7.0	53.2	21.9	740	99.5

**Table A6: 2023 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	1.3	41.0	7.7	741	99.6
November	N/A	N/A	1.6	55.9	15.7	710	98.6
December	N/A	N/A	1.4	44.0	6.6	739	99.3



**Table A7: 2023 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	1.1	30.1	5.7	742	99.7
November	N/A	N/A	1.4	23.4	5.0	717	99.6
December	N/A	N/A	1.5	30.5	5.7	740	99.5

**Table A8: 2023 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 <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
October	0	0	4.2	41.4	17.2	741	99.6
November	0	0	5.9	34.7	16.2	710	98.6
December	0	0	6.7	32.8	18.9	739	99.3

**Table A9: 2023 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 <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>	NO <sub>2</sub>
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
October	0	0	3.9	31.5	11.0	742	99.7
November	0	0	5.7	26.5	12.2	717	99.6
December	0	0	5.7	26.7	16.5	740	99.5

**Table A10: 2023 Q4 Station Courtice Monitoring Results for SO<sub>2</sub>**

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 <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>
	No.	No.	(ppb)	(ppb)	(ppb)	(ppb)	No.	%
October	32	11	3.2	467.5	121.4	16.8	740	99.5
November	122	49	6.2	321.9	134.4	39.0	713	99.0
December	35	18	3.7	220.0	130.7	22.4	740	99.5

**Table A11: 2023 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 <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>	SO <sub>2</sub>
	No.	No.	(ppb)	(ppb)	(ppb)	(ppb)	No.	%
October	0	0	0.6	47.2	26.8	2.4	740	99.5
November	0	0	0.4	2.4	1.9	0.8	718	99.7
December	0	0	0.1	1.6	1.1	0.5	741	99.6

**Table A12: 2023 Q4 Courtice Meterological Station Windspeed Data Summary**

<b>MET Statistics</b>	<b>Maximum 1 hr Mean</b>	<b>Minimum 1 hr</b>	<b>Monthly Mean</b>	<b>Valid Data</b>
Month	Wind Speed	Wind Speed	Wind Speed	Wind Speed
	(km/hr)	(km/hr)	(km/hr)	(%)
October	36.0	0.5	10.8	99.9
November	41.7	0.7	13.4	99.6
December	38.1	0.4	12.1	100.0

**Table A13: 2023 Q4 Rundle Meterological Station Windspeed Data Summary**

<b>MET Statistics</b>	<b>Maximum 1 hr Mean</b>	<b>Minimum 1 hr</b>	<b>Monthly Mean</b>	<b>Valid Hours</b>
Month	Wind Speed	Wind Speed	Wind Speed	Wind Speed
	(km/hr)	(km/hr)	(km/hr)	(%)
October	26.4	0.2	8.5	100.0
November	27.6	0.4	10.5	100.0
December	30.8	0.7	9.1	100.0

**Table A14: 2023 Q4 Courtice Meterological Station Wind Direction Data Summary**

MET Statistics	Valid Data
Month	Wind Direction
	(%)
October	96.1
November	97.8
December	99.1



**Table A15: 2023 Q4 Rundle Meterological Station Wind Direction Data Summary**

MET Statistics	Valid Data
Month	Wind Direction (%)
October	95.0
November	96.5
December	99.5

**Table A16: 2023 Q4 Courtice Meterological Station Temperature Data Summary**

<b>MET Statistics</b>	<b>Maximum 1 hr Mean</b>	<b>Minimum 1 hr</b>	<b>Monthly Mean</b>	<b>Valid Data</b>
Month	Temperature	Temperature	Temperature	Temperature
	(°C)	(°C)	(°C)	(%)
October	24.6	-1.6	11.8	99.9
November	12.3	-6.4	4.0	99.6
December	10.1	-6.3	2.7	100.0

**Table A17: 2023 Q4 Rundle Meterological Station Temperature Data Summary**

<b>MET Statistics</b>	<b>Maximum 1 hr Mean</b>	<b>Minimum 1 hr</b>	<b>Monthly Mean</b>	<b>Valid Data</b>
Month	Temperature	Temperature	Temperature	Temperature
	(°C)	(°C)	(°C)	(%)
October	25.4	-2.6	11.6	100.0
November	11.8	-7.8	3.4	100.0
December	10.6	-7.4	2.2	100.0

**Table A18: 2023 Q4 Courtice Meterological Station Relative Humidity Data Summary**

<b>MET Statistics</b>	<b>Maximum 1 hr Mean</b>	<b>Minimum 1 hr</b>	<b>Monthly Mean</b>	<b>Valid Data</b>
Month	Relative Humidity	Relative Humidity	Relative Humidity	Relative Humidity
	(%)	(%)	(%)	(%)
October	100.0	42.2	74.0	99.9
November	100.0	38.1	67.6	99.6
December	100.0	39.2	79.6	100.0

**Table A19: 2023 Q4 Rundle Meterological Station Relative Humidity Data Summary**

<b>MET Statistics</b>	<b>Maximum 1 hr Mean</b>	<b>Minimum 1 hr</b>	<b>Monthly Mean</b>	<b>Valid Data</b>
Month	Relative Humidity	Relative Humidity	Relative Humidity	Relative Humidity
	(%)	(%)	(%)	(%)
October	100.0	44.4	78.8	100.0
November	100.0	39.9	73.0	100.0
December	100.0	42.8	85.0	100.0

**Table A20: 2023 Q4 Courtice Meterological Station Precipitation Data Summary**

<b>MET Statistics</b>	<b>Maximum 1 hr Mean</b>	<b>Minimum 1 hr</b>	<b>Monthly Mean</b>	<b>Total</b>	<b>Valid Data</b>
Month	Precipitation	Precipitation	Precipitation	Precipitation	Precipitation
	(mm)	(mm)	(mm)	(mm)	%
October	1.7	0.0	0.0	19.2	64.9
November	3.7	0.0	0.0	33.8	99.6
December	5.5	0.0	0.1	87.2	99.9

**Table A21: 2023 Q4 Rundle Meterological Station Precipitation Data Summary**

<b>MET Statistics</b>	<b>Maximum 1 hr Mean</b>	<b>Minimum 1 hr</b>	<b>Monthly Mean</b>	<b>Total</b>	<b>Valid Data</b>
Month	Precipitation	Precipitation	Precipitation	Precipitation	Precipitation
	(mm)	(mm)	(mm)	(mm)	%
October	2.8	0.0	0.1	39.4	100.0
November	5.2	0.0	0.1	47.5	100.0
December	5.3	0.0	0.1	97.0	99.7

**Table A22: 2023 Q4 Courtice Meterological Station Pressure Data Summary**

<b>MET Statistics</b>	<b>Maximum 1 hr Mean</b>	<b>Minimum 1 hr</b>	<b>Monthly Mean</b>	<b>Valid Data</b>
Month	Pressure	Pressure	Pressure	Pressure
	("Hg)	("Hg)	("Hg)	(%)
October	30.0	29.1	29.6	99.9
November	30.3	29.3	29.8	99.6
December	30.3	29.0	29.8	100.0



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# 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 <sup>3</sup> )	No.	(min)	(m <sup>3</sup> )
October 15, 2023	L2753172-2	1440	332	L2753172-1	1440	335
November 8, 2023	L2753580-2	1440	306	Invalid		
December 2, 2023	L2753879-2	1440	317	L2753879-1	1440	328
December 26, 2023	L2754090-2	1400	319	L2754090-1	1440	324

Note: The Rundle Nov 8 sample is invalid due to an equipment malfunction

**Table B2: 2023 Courtice Station Q4 Monitoring Results for Dioxins & Furans**

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	15 Oct-23	8 Nov 23	2 Dec-23	26 Dec-23	MECP Criteria ( $\mu\text{g}/\text{m}^3$ )	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 <sup>3</sup>	-	-	2.56E-04	1.24E-03	9.78E-04	2.66E-03	-	-	1.29E-03	2.56E-04	2.66E-03	2.56E-04	1.24E-03	2.66E-03	4	100
1,2,3,7,8-PeCDD	pg TEQ/m <sup>3</sup>	-	-	8.28E-04	1.36E-03	1.45E-03	2.51E-03	-	-	1.54E-03	8.28E-04	2.51E-03	8.28E-04	1.36E-03	2.51E-03	4	100
1,2,3,4,7,8-HxCDD	pg TEQ/m <sup>3</sup>	-	-	7.23E-05	1.31E-04	1.21E-04	2.82E-04	-	-	1.52E-04	7.23E-05	2.82E-04	7.23E-05	1.31E-04	2.82E-04	4	100
1,2,3,6,7,8-HxCDD	pg TEQ/m <sup>3</sup>	-	-	1.05E-04	1.29E-04	4.42E-04	4.70E-04	-	-	2.87E-04	1.05E-04	4.70E-04	1.05E-04	1.29E-04	4.70E-04	4	100
1,2,3,7,8,9-HxCDD	pg TEQ/m <sup>3</sup>	-	-	8.58E-05	1.24E-04	2.05E-04	4.29E-04	-	-	2.11E-04	8.58E-05	4.29E-04	8.58E-05	1.24E-04	4.29E-04	4	100
1,2,3,4,6,7,8-HpCDD	pg TEQ/m <sup>3</sup>	-	-	3.95E-04	1.63E-04	5.96E-04	1.28E-03	-	-	6.08E-04	1.63E-04	1.28E-03	3.95E-04	1.63E-04	1.28E-03	4	100
OCDD	pg TEQ/m <sup>3</sup>	-	-	3.37E-05	3.29E-05	5.38E-05	1.28E-04	-	-	6.21E-05	3.29E-05	1.28E-04	3.37E-05	3.29E-05	1.28E-04	4	100
2,3,7,8-TCDF	pg TEQ/m <sup>3</sup>	-	-	3.92E-05	1.26E-04	1.23E-04	1.88E-04	-	-	1.19E-04	3.92E-05	1.88E-04	3.92E-05	1.26E-04	1.88E-04	4	100
1,2,3,7,8-PeCDF	pg TEQ/m <sup>3</sup>	-	-	2.08E-05	2.75E-05	3.64E-05	7.05E-05	-	-	3.88E-05	2.08E-05	7.05E-05	2.08E-05	2.75E-05	7.05E-05	4	100
2,3,4,7,8-PeCDF	pg TEQ/m <sup>3</sup>	-	-	2.03E-04	2.55E-04	5.56E-04	1.97E-03	-	-	7.47E-04	2.03E-04	1.97E-03	2.03E-04	2.55E-04	1.97E-03	4	100
1,2,3,4,7,8-HxCDF	pg TEQ/m <sup>3</sup>	-	-	6.33E-05	6.54E-05	6.94E-05	2.35E-04	-	-	1.08E-04	6.33E-05	2.35E-04	6.33E-05	6.54E-05	2.35E-04	4	100
1,2,3,6,7,8-HxCDF	pg TEQ/m <sup>3</sup>	-	-	6.17E-05	6.37E-05	6.78E-05	1.88E-04	-	-	9.53E-05	6.17E-05	1.88E-04	6.17E-05	6.37E-05	1.88E-04	4	100
2,3,4,6,7,8-HxCDF	pg TEQ/m <sup>3</sup>	-	-	6.33E-05	6.54E-05	2.36E-04	4.39E-04	-	-	2.01E-04	6.33E-05	4.39E-04	6.33E-05	6.54E-05	4.39E-04	4	100
1,2,3,7,8,9-HxCDF	pg TEQ/m <sup>3</sup>	-	-	7.23E-05	7.52E-05	8.04E-05	2.66E-04	-	-	1.24E-04	7.23E-05	2.66E-04	7.23E-05	7.52E-05	2.66E-04	4	100
1,2,3,4,6,7,8-HpCDF	pg TEQ/m <sup>3</sup>	-	-	1.02E-05	2.29E-05	4.26E-05	1.08E-04	-	-	4.60E-05	1.02E-05	1.08E-04	1.02E-05	2.29E-05	1.08E-04	4	100
1,2,3,4,7,8,9-HpCDF	pg TEQ/m <sup>3</sup>	-	-	1.20E-05	1.36E-05	1.09E-05	2.82E-05	-	-	1.62E-05	1.09E-05	2.82E-05	1.20E-05	1.36E-05	2.82E-05	4	100
OCDF	pg TEQ/m <sup>3</sup>	-	-	2.06E-06	5.39E-07	3.40E-06	6.02E-06	-	-	3.00E-06	5.39E-07	6.02E-06	2.06E-06	5.39E-07	6.02E-06	4	100
Total Toxic Equivalency	pg TEQ/m <sup>3</sup>	0.1 1 <sup>[1]</sup>	-	2.32E-03	3.89E-03	5.07E-03	1.13E-02	0.1	0	5.64E-03	2.32E-03	1.13E-02	2.32E-03	3.89E-03	1.13E-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

N/A - No maximum concentration presented due to no valid results for the month of November

**Table B3: 2023 Rundle Road Station Q4 Monitoring Results for Dioxins & Furans**

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	15 Oct-23	8 Nov 23	2 Dec-23	26 Dec-23	MECP Criteria (µg/m³)	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/m³	-	-	5.82E-04	Invalid	2.13E-03	6.94E-04	-	-	1.14E-03	5.82E-04	2.13E-03	5.82E-04	N/A	2.13E-03	3	75
1,2,3,7,8-PeCDD	pg TEQ/m³	-	-	1.64E-03		2.90E-03	1.16E-03	-	-	1.90E-03	1.16E-03	2.90E-03	1.64E-03	N/A	2.90E-03	3	75
1,2,3,4,7,8-HxCDD	pg TEQ/m³	-	-	1.25E-04		2.44E-04	2.82E-04	-	-	2.17E-04	1.25E-04	2.82E-04	1.25E-04	N/A	2.82E-04	3	75
1,2,3,6,7,8-HxCDD	pg TEQ/m³	-	-	1.21E-04		2.29E-04	2.69E-04	-	-	2.06E-04	1.21E-04	2.69E-04	1.21E-04	N/A	2.69E-04	3	75
1,2,3,7,8,9-HxCDD	pg TEQ/m³	-	-	2.64E-04		2.29E-04	2.58E-04	-	-	2.50E-04	2.29E-04	2.64E-04	2.64E-04	N/A	2.58E-04	3	75
1,2,3,4,6,7,8-HpCDD	pg TEQ/m³	-	-	3.55E-04		6.04E-04	1.16E-03	-	-	7.05E-04	3.55E-04	1.16E-03	3.55E-04	N/A	1.16E-03	3	75
OCDD	pg TEQ/m³	-	-	1.48E-05		6.44E-05	1.17E-04	-	-	6.53E-05	1.48E-05	1.17E-04	1.48E-05	N/A	1.17E-04	3	75
2,3,7,8-TCDF	pg TEQ/m³	-	-	5.67E-05		2.74E-04	1.70E-04	-	-	1.67E-04	5.67E-05	2.74E-04	5.67E-05	N/A	2.74E-04	3	75
1,2,3,7,8-PeCDF	pg TEQ/m³	-	-	2.42E-05		7.32E-05	5.09E-05	-	-	4.94E-05	2.42E-05	7.32E-05	2.42E-05	N/A	7.32E-05	3	75
2,3,4,7,8-PeCDF	pg TEQ/m³	-	-	2.33E-04		6.86E-04	4.63E-04	-	-	4.61E-04	2.33E-04	6.86E-04	2.33E-04	N/A	6.86E-04	3	75
1,2,3,4,7,8-HxCDF	pg TEQ/m³	-	-	5.82E-05		1.83E-04	1.19E-04	-	-	1.20E-04	5.82E-05	1.83E-04	5.82E-05	N/A	1.83E-04	3	75
1,2,3,6,7,8-HxCDF	pg TEQ/m³	-	-	5.67E-05		1.83E-04	1.54E-04	-	-	1.31E-04	5.67E-05	1.83E-04	5.67E-05	N/A	1.83E-04	3	75
2,3,4,6,7,8-HxCDF	pg TEQ/m³	-	-	5.82E-05		3.96E-04	4.94E-04	-	-	3.16E-04	5.82E-05	4.94E-04	5.82E-05	N/A	4.94E-04	3	75
1,2,3,7,8,9-HxCDF	pg TEQ/m³	-	-	6.72E-05		2.13E-04	1.31E-04	-	-	1.37E-04	6.72E-05	2.13E-04	6.72E-05	N/A	2.13E-04	3	75
1,2,3,4,6,7,8-HpCDF	pg TEQ/m³	-	-	1.64E-05		2.30E-04	2.80E-04	-	-	1.76E-04	1.64E-05	2.80E-04	1.64E-05	N/A	2.80E-04	3	75
1,2,3,4,7,8,9-HpCDF	pg TEQ/m³	-	-	1.94E-05		5.18E-05	3.24E-05	-	-	3.45E-05	1.94E-05	5.18E-05	1.94E-05	N/A	5.18E-05	3	75
OCDF	pg TEQ/m³	-	-	1.39E-06		2.15E-06	2.64E-06	-	-	2.06E-06	1.39E-06	2.64E-06	1.39E-06	N/A	2.64E-06	3	75
Total Toxic Equivalency	pg TEQ/m³	0.1 1 <sup>[1]</sup>	-	3.70E-03	8.69E-03	5.83E-03	0.1	0	6.07E-03	3.70E-03	8.69E-03	3.70E-03	N/A	8.69E-03	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 <sup>3</sup> )	No.	(min)	(m <sup>3</sup> )
October 3, 2023	L2752977-2	1440	295	L2752977-1	1440	276
October 15, 2023	L2753172-2	1440	332	L2753172-1	1440	335
October 27, 2023	L2753400-1	1439	288	L2753400-2	1438	291
November 8, 2023	L2753580-2	1440	306	Invalid		
November 20, 2023	L2753742-2	1440	292	L2753742-1	1440	299
December 2, 2023	L2753879-2	1440	317	L2753879-1	1440	328
December 14, 2023	L2754014-1	1440	326	L2754014-2	1440	331
December 26, 2023	L2754090-2	1440	319	L2754090-1	1440	324

Note: The Rundle Nov 8 sample is invalid due to an equipment malfunction

Table B5: 2023 Courtice Station Q4 Monitoring Results for PAHs

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	3 Oct 23	15 Oct 23	27 Oct 23	8 Nov 23	20 Nov 23	2 Dec 23	14 Dec 23	26 Dec 23	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 <sup>3</sup>	35500	-	1.83E+01	1.77E+00	1.06E+00	2.76E+00	1.77E+00	1.08E+00	2.29E+00	1.06E+00	0	3.76E+00	1.06E+00	1.83E+01	1.83E+01	2.76E+00	2.29E+00	8	100
2-Methylnaphthalene	ng/m <sup>3</sup>	35500	-	3.34E+01	3.01E+00	1.90E+00	4.64E+00	3.17E+00	1.79E+00	4.82E+00	1.62E+00	0	6.79E+00	1.62E+00	3.34E+01	3.34E+01	4.64E+00	4.82E+00	8	100
Acenaphthene	ng/m <sup>3</sup>	-	-	2.01E+01	1.74E+00	6.53E-01	1.11E+00	1.05E+00	8.33E-01	8.19E-01	1.03E+00	-	3.42E+00	6.53E-01	2.01E+01	2.01E+01	1.11E+00	1.03E+00	8	100
Acenaphthylene	ng/m <sup>3</sup>	-	-	6.54E-01	1.79E-01	3.16E-02	2.71E-01	2.56E-01	2.37E-01	4.02E-01	3.51E-01	-	2.98E-01	3.16E-02	6.54E-01	6.54E-01	2.71E-01	4.02E-01	8	100
Anthracene	ng/m <sup>3</sup>	-	-	9.76E-01	1.34E-01	4.79E-02	5.20E-02	3.97E-02	1.02E-01	1.05E-01	1.05E-01	-	1.95E-01	3.97E-02	9.76E-01	9.76E-01	5.20E-02	1.05E-01	8	100
Benzo(a)Anthracene	ng/m <sup>3</sup>	-	-	5.42E-02	5.78E-03	3.58E-02	1.19E-02	3.03E-02	8.86E-03	8.50E-02	2.40E-02	-	3.20E-02	5.78E-03	8.50E-02	5.42E-02	3.03E-02	8.50E-02	8	100
Benzo(a)fluorene	ng/m <sup>3</sup>	-	-	1.41E-01	1.92E-02	3.23E-02	1.58E-02	1.30E-02	4.07E-02	2.12E-01	1.12E-01	-	7.32E-02	1.30E-02	2.12E-01	1.41E-01	1.58E-02	2.12E-01	8	100
Benzo(a)Pyrene (Historically High)	ng/m <sup>3</sup>	0.05 <sup>[1]</sup> 5 <sup>[2]</sup> 1.1 <sup>[3]</sup>	1	7.90E-02	1.51E-03	2.98E-02	7.12E-03	2.64E-02	4.45E-03	1.13E-01	1.79E-02	2	3.48E-02	1.51E-03	1.13E-01	7.90E-02	2.64E-02	1.13E-01	8	100
Benzo(b)Fluoranthene	ng/m <sup>3</sup>	-	-	1.60E-01	4.91E-03	4.48E-02	4.25E-02	5.10E-02	2.91E-02	1.55E-01	1.09E-01	-	7.45E-02	4.91E-03	1.60E-01	1.60E-01	5.10E-02	1.55E-01	8	100
Benzo(b)fluorene	ng/m <sup>3</sup>	-	-	2.11E-02	1.51E-03	7.53E-03	1.63E-03	1.71E-03	6.25E-03	5.28E-02	2.39E-02	-	1.45E-02	1.51E-03	5.28E-02	2.11E-02	1.71E-03	5.28E-02	8	100
Benzo(e)Pyrene	ng/m <sup>3</sup>	-	-	2.78E-01	7.17E-03	3.61E-02	2.58E-02	5.03E-02	2.06E-02	1.32E-01	6.52E-02	-	7.69E-02	7.17E-03	2.78E-01	2.78E-01	5.03E-02	1.32E-01	8	100
Benzo(g,h,i)Perylene	ng/m <sup>3</sup>	-	-	1.19E-01	8.86E-03	3.54E-02	2.72E-02	5.62E-02	2.21E-02	2.01E-01	7.15E-02	-	6.76E-02	8.86E-03	2.01E-01	1.19E-01	5.62E-02	2.01E-01	8	100
Benzo(k)Fluoranthene	ng/m <sup>3</sup>	-	-	1.14E-01	9.22E-03	4.06E-02	3.37E-02	8.49E-02	3.72E-02	2.43E-01	8.81E-02	-	8.12E-02	9.22E-03	2.43E-01	1.14E-01	8.49E-02	2.43E-01	8	100
Biphenyl	ng/m <sup>3</sup>	-	-	9.49E+00	1.14E+00	9.13E-01	1.13E+00	1.16E+00	1.33E+00	1.89E+00	1.84E+00	-	2.36E+00	9.13E-01	9.49E+00	9.49E+00	1.16E+00	1.89E+00	8	100
Chrysene	ng/m <sup>3</sup>	-	-	2.89E-01	2.27E-02	7.05E-02	5.82E-02	1.20E-01	8.17E-02	3.65E-01	1.62E-01	-	1.46E-01	2.27E-02	3.65E-01	2.89E-01	1.20E-01	3.65E-01	8	100
Dibenzo(a,h)Anthracene	ng/m <sup>3</sup>	-	-	1.01E-02	1.51E-03	6.35E-03	1.63E-03	5.14E-03	1.58E-03	2.58E-02	1.04E-02	-	7.81E-03	1.51E-03	2.58E-02	1.01E-02	5.14E-03	2.58E-02	8	100
Fluoranthene	ng/m <sup>3</sup>	-	-	3.83E+00	4.25E-01	4.31E-01	3.20E-01	2.78E-01	4.35E-01	8.62E-01	1.01E+00	-	9.49E-01	2.78E-01	3.83E+00	3.83E+00	3.20E-01	1.01E+00	8	100
Fluorene	ng/m <sup>3</sup>	-	-	1.44E+01	1.11E+00	9.55E-01	7.29E-01	7.53E-01	1.13E+00	1.45E+00	2.20E+00	-	2.84E+00	7.29E-01	1.44E+01	1.44E+01	7.53E-01	2.20E+00	8	100
Indeno(1,2,3-cd)Pyrene	ng/m <sup>3</sup>	-	-	9.59E-02	8.43E-03	3.09E-02	2.05E-02	4.79E-02	1.98E-02	1.64E-01	6.55E-02	-	5.66E-02	8.43E-03	1.64E-01	9.59E-02	4.79E-02	1.64E-01	8	100
Naphthalene	ng/m <sup>3</sup>	22500	22500	3.90E+01	5.96E+00	6.11E+00	1.35E+01	7.81E+00	4.61E+00	1.09E+01	5.92E+00	0	1.17E+01	4.61E+00	3.90E+01	3.90E+01	1.35E+01	1.09E+01	8	100
o-Terphenyl	ng/m <sup>3</sup>	-	-	3.46E-02	6.27E-03	1.05E-02	4.87E-03	5.31E-03	6.72E-03	7.85E-03	2.11E-02	-	1.22E-02	4.87E-03	3.46E-02	3.46E-02	5.31E-03	2.11E-02	8	100
Perylene	ng/m <sup>3</sup>	-	-	1.20E-02	1.51E-03	6.88E-03	1.63E-03	7.33E-03	1.58E-03	2.52E-02	6.33E-03	-	7.80E-03	1.51E-03	2.52E-02	1.20E-02	7.33E-03	2.52E-02	8	100
Phenanthrene	ng/m <sup>3</sup>	-	-	2.39E+01	2.13E+00	1.35E+00	1.35E+00	1.12E+00	1.91E+00	2.55E+00	3.73E+00	-	4.75E+00	1.12E+00	2.39E+01	2.39E+01	1.35E+00	3.73E+00	8	100
Pyrene	ng/m <sup>3</sup>	-	-	1.57E+00	1.95E-01	1.80E-01	2.24E-01	1.87E-01	2.41E-01	7.21E-01	5.27E-01	-	4.81E-01	1.80E-01	1.57E+00	1.57E+00	2.24E-01	7.21E-01	8	100
Tetralin	ng/m <sup>3</sup>	-	-	2.17E+00	3.86E-01	8.26E-01	1.47E+00	5.21E-01	2.38E-01	1.66E+00	1.25E+00	-	1.07E+00	2.38E-01	2.17E+00	2.17E+00	1.47E+00	1.66E+00	8	100
Total PAH <sup>[4]</sup>	ng/m <sup>3</sup>	-	-	169.15	18.27	14.86	27.84	18.61	14.20	30.19	21.43	-	3.93E+01	14.20	169.15	1.69E+02	2.78E+01	30.19	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: 2023 Rundle Road Station Q4 Monitoring Results for PAHs

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	3 Oct 23	15 Oct 23	27 Oct 23	8 Nov 23	20 Nov 23	2 Dec 23	14 Dec 23	26 Dec 23	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 <sup>3</sup>	35500	-	9.60E+00	6.54E-01	3.29E+00	Invalid	1.73E+00	8.84E-01	2.56E+00	9.51E-01	0	2.81E+00	6.54E-01	9.60E+00	9.60E+00	1.73E+00	2.56E+00	7	88	
2-Methylnaphthalene	ng/m <sup>3</sup>	35500	-	1.61E+01	8.75E-01	6.53E+00		2.96E+00	1.55E+00	5.41E+00	1.38E+00	1.38E+00	0	4.98E+00	8.75E-01	1.61E+01	1.61E+01	2.96E+00	5.41E+00	7	88
Acenaphthene	ng/m <sup>3</sup>	-	-	7.86E+00	1.38E-01	5.95E+00		6.12E-01	5.58E-01	2.04E+00	8.12E-01	8.12E-01	-	2.57E+00	1.38E-01	7.86E+00	7.86E+00	6.12E-01	2.04E+00	7	88
Acenaphthylene	ng/m <sup>3</sup>	-	-	4.17E-01	1.46E-01	1.70E-01		2.47E-01	2.40E-01	4.89E-01	3.27E-01	3.27E-01	-	2.91E-01	1.46E-01	4.89E-01	4.17E-01	2.47E-01	4.89E-01	7	88
Anthracene	ng/m <sup>3</sup>	-	-	6.70E-01	3.85E-02	5.19E-01		3.33E-02	7.10E-02	1.89E-01	1.31E-01	1.31E-01	-	2.36E-01	3.33E-02	6.70E-01	6.70E-01	3.33E-02	1.89E-01	7	88
Benzo(a)Anthracene	ng/m <sup>3</sup>	-	-	3.84E-02	5.16E-03	4.50E-02		4.31E-02	1.23E-02	1.07E-01	2.35E-02	2.35E-02	-	3.93E-02	5.16E-03	1.07E-01	4.50E-02	4.31E-02	1.07E-01	7	88
Benzo(a)fluorene	ng/m <sup>3</sup>	-	-	1.32E-01	1.69E-02	7.90E-02		2.83E-02	4.97E-02	2.25E-01	9.88E-02	9.88E-02	-	9.00E-02	1.69E-02	2.25E-01	1.32E-01	2.83E-02	2.25E-01	7	88
Benzo(a)Pyrene (Historically High)	ng/m <sup>3</sup>	0.05 <sup>[1]</sup> 5 <sup>[2]</sup> 1.1 <sup>[3]</sup>	1	5.91E-02	1.49E-03	3.71E-02		5.28E-02	5.70E-03	1.38E-01	2.01E-02	2.01E-02	3	4.49E-02	1.49E-03	1.38E-01	5.91E-02	5.28E-02	1.38E-01	7	88
Benzo(b)Fluoranthene	ng/m <sup>3</sup>	-	-	1.25E-01	7.16E-03	5.67E-02		6.96E-02	3.35E-02	1.77E-01	9.20E-02	9.20E-02	-	8.02E-02	7.16E-03	1.77E-01	1.25E-01	6.96E-02	1.77E-01	7	88
Benzo(b)fluorene	ng/m <sup>3</sup>	-	-	1.64E-02	1.49E-03	1.54E-02		3.91E-03	6.83E-03	5.80E-02	2.01E-02	2.01E-02	-	1.74E-02	1.49E-03	5.80E-02	1.64E-02	3.91E-03	5.80E-02	7	88
Benzo(e)Pyrene	ng/m <sup>3</sup>	-	-	1.08E-01	5.91E-03	4.85E-02		5.48E-02	2.56E-02	1.43E-01	5.96E-02	5.96E-02	-	6.37E-02	5.91E-03	1.43E-01	1.08E-01	5.48E-02	1.43E-01	7	88
Benzo(g,h,i)Perylene	ng/m <sup>3</sup>	-	-	9.82E-02	9.52E-03	4.85E-02		6.19E-02	3.14E-02	2.19E-01	6.85E-02	6.85E-02	-	7.67E-02	9.52E-03	2.19E-01	9.82E-02	6.19E-02	2.19E-01	7	88
Benzo(k)Fluoranthene	ng/m <sup>3</sup>	-	-	9.28E-02	5.70E-03	5.19E-02		9.13E-02	4.60E-02	2.57E-01	7.50E-02	7.50E-02	-	8.86E-02	5.70E-03	2.57E-01	9.28E-02	9.13E-02	2.57E-01	7	88
Biphenyl	ng/m <sup>3</sup>	-	-	4.60E+00	7.01E-01	2.28E+00		1.15E+00	1.11E+00	2.36E+00	1.73E+00	1.73E+00	-	1.99E+00	7.01E-01	4.60E+00	4.60E+00	1.15E+00	2.36E+00	7	88
Chrysene	ng/m <sup>3</sup>	-	-	2.50E-01	2.21E-02	1.08E-01		1.23E-01	8.51E-02	3.93E-01	1.37E-01	1.37E-01	-	1.60E-01	2.21E-02	3.93E-01	2.50E-01	1.23E-01	3.93E-01	7	88
Dibenzo(a,h)Anthracene	ng/m <sup>3</sup>	-	-	9.86E-03	1.49E-03	7.29E-03		7.69E-03	1.52E-03	2.87E-02	9.26E-03	9.26E-03	-	9.41E-03	1.49E-03	2.87E-02	9.86E-03	7.69E-03	2.87E-02	7	88
Fluoranthene	ng/m <sup>3</sup>	-	-	3.21E+00	1.53E-01	2.36E+00		2.52E-01	4.27E-01	1.12E+00	8.83E-01	8.83E-01	-	1.20E+00	1.53E-01	3.21E+00	3.21E+00	2.52E-01	1.12E+00	7	88
Fluorene	ng/m <sup>3</sup>	-	-	6.49E+00	2.27E-01	5.19E+00		5.92E-01	1.00E+00	1.89E+00	1.75E+00	1.75E+00	-	2.45E+00	2.27E-01	6.49E+00	6.49E+00	5.92E-01	1.89E+00	7	88
Indeno(1,2,3-cd)Pyrene	ng/m <sup>3</sup>	-	-	8.04E-02	6.33E-03	3.71E-02		5.62E-02	2.95E-02	1.78E-01	6.51E-02	6.51E-02	-	6.47E-02	6.33E-03	1.78E-01	8.04E-02	5.62E-02	1.78E-01	7	88
Naphthalene	ng/m <sup>3</sup>	22500	22500	2.17E+01	2.75E+00	1.13E+01		6.59E+00	3.93E+00	1.19E+01	5.71E+00	5.71E+00	0	9.13E+00	2.75E+00	2.17E+01	2.17E+01	6.59E+00	1.19E+01	7	88
o-Terphenyl	ng/m <sup>3</sup>	-	-	2.98E-02	6.66E-03	1.37E-02		5.28E-03	7.87E-03	6.37E-03	1.60E-02	1.60E-02	-	1.22E-02	5.28E-03	2.98E-02	2.98E-02	5.28E-03	1.60E-02	7	88
Perylene	ng/m <sup>3</sup>	-	-	8.88E-03	1.49E-03	8.52E-03		9.13E-03	1.52E-03	2.96E-02	6.42E-03	6.42E-03	-	9.36E-03	1.49E-03	2.96E-02	8.88E-03	9.13E-03	2.96E-02	7	88
Phenanthrene	ng/m <sup>3</sup>	-	-	1.23E+01	6.06E-01	1.06E+01		9.87E-01	1.70E+00	3.81E+00	3.15E+00	3.15E+00	-	4.73E+00	6.06E-01	1.23E+01	1.23E+01	9.87E-01	3.81E+00	7	88
Pyrene	ng/m <sup>3</sup>	-	-	1.46E+00	9.04E-02	1.08E+00		1.69E-01	2.48E-01	9.37E-01	4.75E-01	4.75E-01	-	6.37E-01	9.04E-02	1.46E+00	1.46E+00	1.69E-01	9.37E-01	7	88
Tetralin	ng/m <sup>3</sup>	-	-	1.73E+00	2.23E-01	1.19E+00		5.55E-01	2.19E-01	1.75E+00	1.06E+00	1.06E+00	-	9.59E-01	2.19E-01	1.73E+00	1.73E+00	5.55E-01	1.75E+00	7	88
Total PAH <sup>[4]</sup>	ng/m <sup>3</sup>	-	-	87.23	6.70	50.96		16.49	12.28	36.41	19.04	19.04	-	3.27E+01	6.70E+00	8.72E+01	8.72E+01	1.65E+01	3.64E+01	7	88

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 <sup>3</sup> )	No.	(min)	(m <sup>3</sup> )
October 3, 2023	Invalid			L2752978-1	1440	1619
October 9, 2023	L2753173-4	1440	1751	L2753173-2	1440	1733
October 15, 2023	L2753173-3	1440	1680	L2753173-1	1440	1666
October 21, 2023	L2753401-2	1440	1667	L2753401-4	1440	1659
October 27, 2023	L2753401-1	1439	1625	Invalid		
November 2, 2023	L2753582-4	1440	1679	L2753582-2	1440	1703
November 8, 2023	L2753582-3	1440	1711	L2753582-1	1440	1698
November 14, 2023	L2753743-4	1440	1692	L2753743-2	1440	1696
November 20, 2023	L2753743-3	1440	1721	L2753743-1	1440	1698
November 26, 2023	L2753880-4	1440	1682	L2753880-2	1440	1695
December 2, 2023	L2753880-3	1440	1683	L2753880-1	1440	1701
December 8, 2023	L2754015-1	1440	1678	L2754015-2	1440	1670
December 14, 2023	L2754094-3	1440	1738	L2754094-6	1440	1723
December 20, 2023	L2754094-2	1440	1745	L2754094-5	1440	1700
December 26, 2023	L2754094-1	1440	1711	L2754094-4	1440	1676

Note: The Courtice Oct 3 sample is invalid due to an equipment malfunction

The Rundle Oct 27 sample is invalid due to an equipment malfunction



Table B8: 2023 Courtice Station Q4 Monitoring Results for TSP and Metals

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	3 Oct 23	9 Oct 23	15 Oct 23	21 Oct 23	27 Oct 23	2 Nov 23	8 Nov 23	14 Nov 23	20 Nov 23	26 Nov 23	2 Dec 23	8 Dec 23	14 Dec 23	20 Dec 23	26 Dec 23	MECP Criter (µg/m³)	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	Invalid	17.42	5.36	6.30	15.57	15.84	12.97	12.29	14.06	14.51	2.08	32.72	34.41	39.20	24.31	120	0	13.9	17.6	2.08	39.20	17.42	15.84	39.20	14	93
Mercury (Hg)	µg/m³	2	2	Invalid	2.86E-06	2.98E-06	3.00E-06	3.08E-06	7.15E-06	2.92E-06	2.96E-06	2.91E-06	7.13E-06	2.97E-06	1.07E-05	9.78E-06	8.02E-06	9.35E-06	2	0	4.67E-06	5.42E-06	2.86E-06	1.07E-05	3.08E-06	7.15E-06	1.07E-05	14	93
Aluminum (Al)	µg/m³	12	-	Invalid	7.48E-02	3.67E-02	4.54E-02	8.80E-02	1.06E-01	1.61E-01	1.38E-01	1.41E-01	1.45E-01	1.78E-02	2.45E-01	1.91E-01	1.05E-01	8.53E-02	12	0	9.36E-02	1.13E-01	1.78E-02	2.45E-01	8.80E-02	1.61E-01	2.45E-01	14	93
Antimony (Sb)	µg/m³	25	-	Invalid	2.40E-04	2.14E-04	3.84E-04	6.65E-04	5.36E-04	1.18E-03	5.85E-04	8.02E-04	1.11E-03	2.73E-04	8.05E-04	1.95E-03	1.36E-03	1.29E-03	25	0	6.64E-04	8.13E-04	2.14E-04	1.95E-03	6.65E-04	1.18E-03	1.95E-03	14	93
Arsenic (As)	µg/m³	0.3	0.3	Invalid	8.57E-04	8.93E-04	9.00E-04	9.23E-04	8.93E-04	8.77E-04	8.87E-04	8.72E-04	8.92E-04	8.91E-04	8.94E-04	8.63E-04	8.60E-04	8.77E-04	0.3	0	8.84E-04	8.84E-04	8.57E-04	9.23E-04	9.23E-04	8.93E-04	8.94E-04	14	93
Barium (Ba)	µg/m³	10	10	Invalid	2.14E-03	1.67E-03	3.49E-03	4.35E-03	5.47E-03	8.47E-03	7.74E-03	7.55E-03	4.28E-03	1.87E-03	5.45E-03	1.50E-02	1.38E-02	5.24E-03	10	0	5.05E-03	6.18E-03	1.67E-03	1.50E-02	4.35E-03	8.47E-03	1.50E-02	14	93
Beryllium (Be)	µg/m³	0.01	0.01	Invalid	1.43E-05	1.49E-05	1.50E-05	1.54E-05	1.49E-05	1.46E-05	1.48E-05	1.45E-05	1.49E-05	1.49E-05	1.49E-05	1.44E-05	1.43E-05	1.46E-05	0.01	0	1.47E-05	1.47E-05	1.43E-05	1.54E-05	1.54E-05	1.49E-05	1.49E-05	14	93
Bismuth (Bi)	µg/m³	-	-	Invalid	5.14E-04	5.36E-04	5.40E-04	5.54E-04	5.36E-04	5.26E-04	5.32E-04	5.23E-04	5.35E-04	5.35E-04	5.36E-04	5.18E-04	5.16E-04	5.26E-04	-	-	5.30E-04	5.30E-04	5.14E-04	5.54E-04	5.54E-04	5.36E-04	5.36E-04	14	93
Boron (B)	µg/m³	120	-	Invalid	4.28E-03	4.46E-03	4.50E-03	4.62E-03	4.47E-03	4.38E-03	4.43E-03	4.36E-03	4.46E-03	4.46E-03	4.47E-03	4.32E-03	4.30E-03	4.38E-03	120	0	4.42E-03	4.42E-03	4.28E-03	4.62E-03	4.62E-03	4.47E-03	4.47E-03	14	93
Cadmium (Cd)	µg/m³	0.025	0.025	Invalid	4.80E-05	2.62E-05	7.86E-05	8.86E-05	6.19E-05	2.92E-04	4.79E-05	1.23E-04	2.59E-04	3.62E-05	1.66E-04	1.65E-04	9.91E-05	1.35E-04	0.025	0	9.22E-05	1.16E-04	2.62E-05	2.92E-04	8.86E-05	2.92E-04	1.66E-04	14	93
Chromium (Cr)	µg/m³	0.5	-	Invalid	9.71E-04	1.01E-03	1.02E-03	1.05E-03	1.01E-03	9.94E-04	1.00E-03	9.88E-04	1.01E-03	1.01E-03	1.01E-03	2.82E-03	2.01E-03	9.94E-04	0.5	0	1.14E-03	1.21E-03	9.71E-04	2.82E-03	1.05E-03	1.01E-03	2.82E-03	14	93
Cobalt (Co)	µg/m³	0.1	0.1	Invalid	5.03E-05	2.86E-05	4.02E-05	8.92E-05	1.15E-04	1.19E-04	1.17E-04	1.15E-04	8.68E-05	2.44E-05	9.83E-05	1.80E-04	1.27E-04	7.13E-05	0.1	0	7.82E-05	9.01E-05	2.44E-05	1.80E-04	8.92E-05	1.19E-04	1.80E-04	14	93
Copper (Cu)	µg/m³	50	-	Invalid	3.08E-03	6.01E-03	9.18E-03	1.69E-02	4.05E-03	2.56E-02	7.68E-03	2.16E-02	5.05E-03	8.08E-03	1.15E-02	2.74E-02	1.24E-02	5.14E-03	50	0	9.38E-03	1.17E-02	3.08E-03	2.74E-02	1.69E-02	2.56E-02	2.74E-02	14	93
Iron (Fe)	µg/m³	4	-	Invalid	1.30E-01	9.23E-02	1.40E-01	2.60E-01	2.57E-01	3.16E-01	3.35E-01	3.85E-01	2.89E-01	8.20E-02	3.30E-01	6.50E-01	4.33E-01	2.27E-01	4	0	2.42E-01	2.81E-01	8.20E-02	6.50E-01	2.60E-01	3.85E-01	6.50E-01	14	93
Lead (Pb)	µg/m³	0.5	0.5	Invalid	8.68E-04	7.68E-04	5.04E-04	1.80E-03	2.00E-03	4.94E-03	1.05E-03	1.96E-03	3.08E-03	6.65E-04	4.29E-03	6.73E-03	2.44E-03	3.34E-03	0.5	0	1.86E-03	2.46E-03	5.04E-04	6.73E-03	1.80E-03	4.94E-03	6.73E-03	14	93
Magnesium (Mg)	µg/m³	-	-	Invalid	1.45E-01	4.52E-02	6.96E-02	1.86E-01	2.12E-01	1.64E-01	2.19E-01	1.75E-01	1.66E-01	1.78E-02	1.98E-01	5.02E-01	2.71E-01	9.64E-02	-	-	1.38E-01	1.76E-01	1.78E-02	5.02E-01	1.86E-01	2.19E-01	5.02E-01	14	93
Manganese (Mn)	µg/m³	0.4	-	Invalid	5.09E-03	2.34E-03	3.22E-03	9.29E-03	1.05E-02	7.83E-03	9.52E-03	8.54E-03	6.96E-03	1.38E-03	8.58E-03	2.09E-02	1.13E-02	4.29E-03	0.4	0	6.41E-03	7.84E-03	1.38E-03	2.09E-02	9.29E-03	1.05E-02	2.09E-02	14	93
Molybdenum (Mo)	µg/m³	120	-	Invalid	3.83E-04	3.21E-04	4.08E-04	8.74E-04	4.71E-04	1.39E-03	4.31E-04	1.28E-03	4.04E-04	5.11E-04	5.60E-04	1.51E-03	1.08E-03	5.26E-04	120	0	6.30E-04	7.24E-04	3.21E-04	1.51E-03	8.74E-04	1.39E-03	1.51E-03	14	93
Nickel (Ni)	µg/m³	0.2	-	Invalid	4.63E-04	2.86E-04	7.20E-04	8.00E-04	1.14E-03	7.83E-04	8.87E-04	7.55E-04	6.84E-04	3.03E-04	8.46E-04	1.42E-03	1.02E-03	7.54E-04	0.2	0	7.12E-04	7.75E-04	2.86E-04	1.42E-03	8.00E-04	1.14E-03	1.42E-03	14	93
Phosphorus (P)	µg/m³	-	-	Invalid	2.14E-01	2.23E-01	2.25E-01	2.31E-01	2.23E-01	2.19E-01	2.22E-01	2.18E-01	2.23E-01	2.23E-01	2.23E-01	2.16E-01	2.15E-01	2.19E-01	-	-	2.21E-01	2.21E-01	2.14E-01	2.31E-01	2.31E-01	2.23E-01	2.23E-01	14	93
Selenium (Se)	µg/m³	10	10	Invalid	3.71E-04	3.87E-04	3.90E-04	8.62E-04	3.87E-04	3.80E-04	3.84E-04	3.78E-04	3.86E-04	3.86E-04	3.87E-04	9.78E-04	1.49E-03	3.80E-04	10	0	4.78E-04	5.39E-04	3.71E-04	1.49E-03	8.62E-04	3.87E-04	1.49E-03	14	93
Silver (Ag)	µg/m³	1	1	Invalid	6.68E-04	2.68E-05	2.70E-05	2.77E-05	2.68E-05	2.63E-05	2.66E-05	2.61E-05	2.68E-05	2.67E-05	2.68E-05	2.59E-05	2.58E-05	8.01E-05	1	0	3.62E-05	7.63E-05	2.58E-05	6.68E-04	6.68E-04	2.68E-05	8.01E-05	14	93
Strontium (Sr)	µg/m³	120	-	Invalid	3.31E-03	8.93E-04	9.00E-04	1.97E-03	4.82E-03	4.85E-03	5.85E-03	5.75E-03	4.52E-03	8.91E-04	6.50E-03	6.67E-03	4.58E-03	3.16E-03	120	0	3.17E-03	3.91E-03	8.91E-04	6.67E-03	3.31E-03	5.85E-03	6.67E-03	14	93
Thallium (Tl)	µg/m³	-	-	Invalid	2.57E-05	2.68E-05	2.70E-05	2.77E-05	2.68E-05	2.63E-05	2.66E-05	2.61E-05	2.68E-05	2.67E-05	2.68E-05	2.59E-05	2.58E-05	2.63E-05	-	-	2.65E-05	2.65E-05	2.57E-05	2.77E-05	2.77E-05	2.68E-05	2.68E-05	14	93
Tin (Sn)	µg/m³	10	10	Invalid	1.71E-04	1.79E-04	3.78E-04	6.15E-04	6.55E-04	9.41E-04	6.21E-04	5.40E-04	1.02E-03	1.78E-04	1.73E-03	2.72E-03	1.63E-03	1.03E-03	10	0	6.44E-04	8.87E-04	1.71E-04	2.72E-03	6.15E-04	1.02E-03	2.72E-03	14	93
Titanium (Ti)	µg/m³	120	-	Invalid	3.14E-03	3.27E-03	3.30E-03	3.38E-03	3.28E-03	8.18E-03	7.09E-03	8.13E-03	7.73E-03	3.27E-03	8.94E-03	9.78E-03	7.45E-03	3.21E-03	120	0	5.16E-03	5.73E-03	3.14E-03	9.78E-03	3.38E-03	8.18E-03	9.78E-03	14	93
Uranium (Ur)	µg/m³	1.5	-	Invalid	6.68E-06	1.34E-05	7.56E-06	1.05E-05	1.05E-05	3.58E-05	1.22E-05	3.87E-05	2.76E-05	1.78E-06	4.27E-05	1.97E-05	1.24E-05	4.10E-05	1.5	0	1.49E-05	2.00E-05	1.78E-06	4.27E-05	1.34E-05	3.87E-05	4.27E-05	14	93
Vanadium (V)	µg/m³	2	1	Invalid	1.43E-03	1.49E-03	1.50E-03	1.54E-03	1.49E-03	1.46E-03	1.48E-03	1.45E-03	1.49E-03	1.49E-03	1.44E-03	1.43E-03	1.46E-03	2	0	1.47E-03	1.47E-03	1.43E-03	1.54E-03	1.54E-03	1.49E-03	1.49E-03	14	93	
Zinc (Zn)	µg/m³	120	-	Invalid	2.55E-02	8.57E-03	1.36E-02	2.82E-02	2.79E-02	3.47E-02	1.60E-02	2.02E-02	6.00E-02	6.65E-03	4.13E-02	8.63E-02	3.85E-02	2.82E-02	120	0	2.51E-02	3.11E-02	6.65E-03	8.63E-02	2.82E-02	6.00E-02	8.63E-02	14	93
Zirconium (Zr)	µg/m³	25	-	Invalid	5.71E-04	5.95E-04	6.00E-04	6.15E-04	5.96E-04	5.84E-04	5.91E-04	5.81E-04	5.95E-04	5.94E-04	5.96E-04	5.75E-04	5.73E-04	5.84E-04	25	0	5.89E-04	5.89E-04	5.71E-04	6.15E-04	6.15E-04	5.96E-04	5.96E-04	14	93

Table B9: 2023 Rundle Road Station Q4 Monitoring Results for TSP and Metals

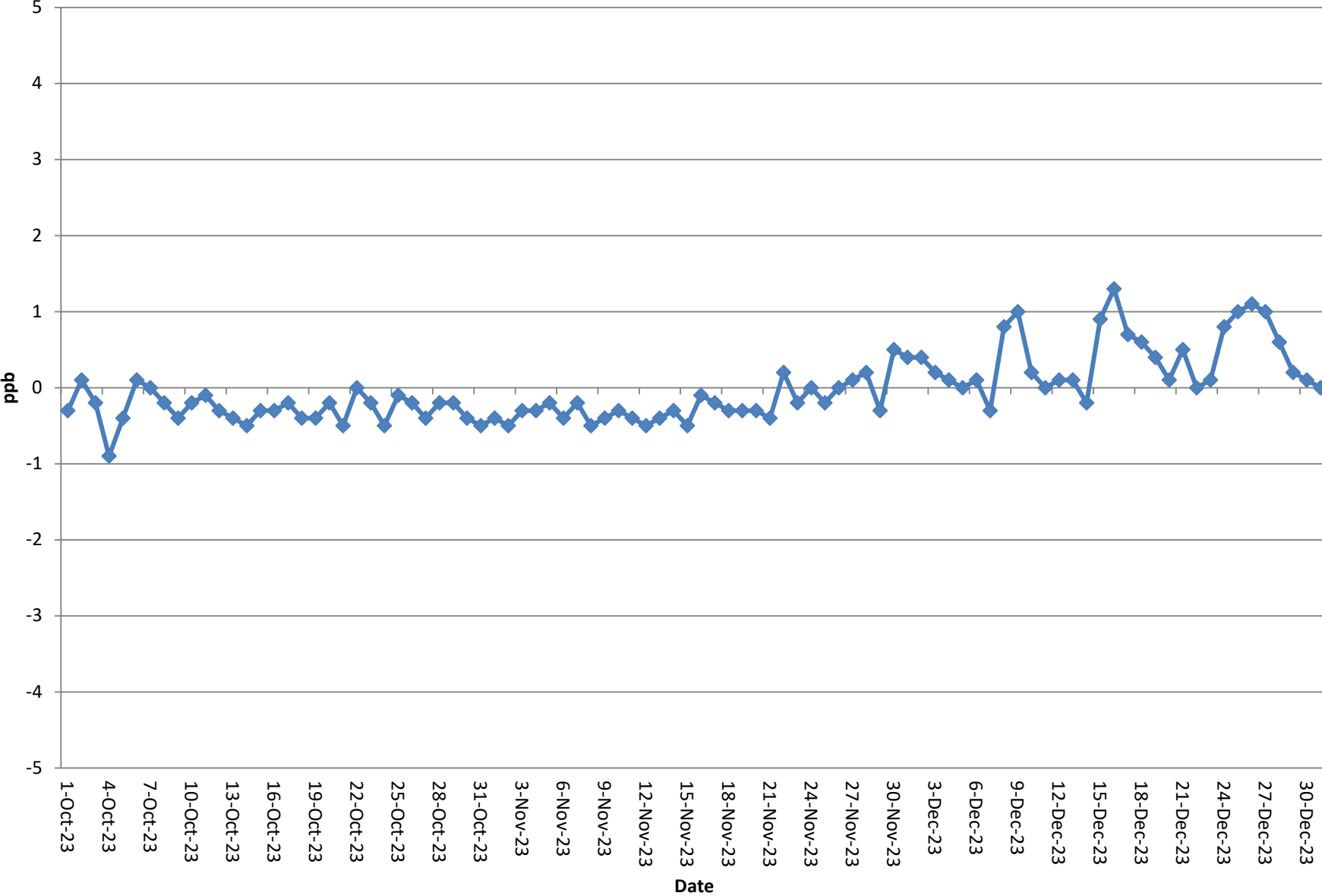
Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	3 Oct 23	9 Oct 23	15 Oct 23	21 Oct 23	27 Oct 23	2 Nov 23	8 Nov 23	14 Nov 23	20 Nov 23	26 Nov 23	2 Dec 23	8 Dec 23	14 Dec 23	20 Dec 23	26 Dec 23	MECP Criteria (µg/m³)	No. > Criteria	Geometric Mean	Arithmetic Mean	Q4 Minimum Concentration	Q4 Maximum Concentration	October Maximum Concentration	November Maximum Concentration	December Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	µg/m³	120	120	46.94	22.22	5.94	7.53		40.69	5.30	12.50	24.26	27.02	2.00	23.83	40.63	49.65	21.18	120	0	17.0	23.5	2.00	49.65	46.94	40.69	49.65	14	93
Mercury (Hg)	µg/m³	2	2	1.42E-05	2.89E-06	3.00E-06	3.01E-06		8.81E-06	2.94E-06	6.49E-06	2.94E-06	9.44E-06	2.94E-06	2.99E-06	1.16E-05	1.29E-05	2.98E-06	2	0	5.04E-06	6.23E-06	2.89E-06	1.42E-05	1.42E-05	9.44E-06	1.29E-05	14	93
Aluminum (Al)	µg/m³	12	-	3.26E-01	1.22E-01	3.51E-02	6.51E-02		2.62E-01	6.95E-02	1.30E-01	2.26E-01	2.58E-01	1.84E-02	8.92E-02	2.66E-01	1.48E-01	5.02E-02	12	0	1.11E-01	1.48E-01	1.84E-02	3.26E-01	3.26E-01	2.62E-01	2.66E-01	14	93
Antimony (Sb)	µg/m³	25	25	2.02E-03	3.58E-04	7.50E-05	2.11E-04		6.87E-04	3.18E-04	5.37E-04	3.71E-04	8.55E-04	2.06E-04	8.50E-04	1.79E-03	1.12E-03	1.02E-03	25	0	5.34E-04	7.44E-04	7.50E-05	2.02E-03	2.02E-03	8.55E-04	1.79E-03	14	93
Arsenic (As)	µg/m³	0.3	0.3	9.26E-04	8.66E-04	9.00E-04	9.04E-04		8.81E-04	8.83E-04	8.84E-04	8.83E-04	8.85E-04	8.82E-04	8.98E-04	8.71E-04	8.82E-04	8.95E-04	0.3	0	8.89E-04	8.89E-04	8.66E-04	9.26E-04	9.26E-04	8.85E-04	8.98E-04	14	93
Barium (Ba)	µg/m³	10	10	1.98E-02	3.66E-03	1.39E-03	2.25E-03		1.02E-02	3.82E-03	7.84E-03	5.09E-03	6.14E-03	1.60E-03	5.99E-03	1.49E-02	1.35E-02	5.48E-03	10	0	5.50E-03	7.26E-03	1.39E-03	1.98E-02	1.98E-02	1.02E-02	1.49E-02	14	93
Beryllium (Be)	µg/m³	0.01	0.01	1.54E-05	1.44E-05	1.50E-05	1.51E-05		1.47E-05	1.47E-05	1.47E-05	1.47E-05	1.47E-05	1.47E-05	1.50E-05	1.45E-05	1.47E-05	1.49E-05	0.01	0	1.48E-05	1.48E-05	1.44E-05	1.54E-05	1.54E-05	1.47E-05	1.50E-05	14	93
Bismuth (Bi)	µg/m³	-	-	5.56E-04	5.19E-04	5.40E-04	5.42E-04		5.28E-04	5.30E-04	5.31E-04	5.30E-04	5.31E-04	5.29E-04	5.39E-04	5.22E-04	5.29E-04	5.37E-04	-	-	5.33E-04	5.33E-04	5.19E-04	5.56E-04	5.56E-04	5.31E-04	5.39E-04	14	93
Boron (B)	µg/m³	120	-	4.63E-03	4.33E-03	4.50E-03	4.52E-03		4.40E-03	4.42E-03	4.42E-03	4.42E-03	4.42E-03	4.41E-03	4.49E-03	4.35E-03	4.41E-03	4.47E-03	120	0	4.44E-03	4.44E-03	4.33E-03	4.63E-03	4.63E-03	4.42E-03	4.49E-03	14	93
Cadmium (Cd)	µg/m³	0.025	0.025	1.85E-04	4.33E-05	4.14E-05	1.81E-05		6.28E-05	3.12E-05	3.95E-05	3.47E-05	1.83E-04	4.00E-05	1.32E-04	1.39E-04	1.33E-04	1.05E-04	0.025	0	6.61E-05	8.49E-05	1.81E-05	1.85E-04	1.85E-04	1.83E-04	1.39E-04	14	93
Chromium (Cr)	µg/m³	0.5	-	3.77E-03	9.81E-04	1.02E-03	1.02E-03		2.41E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	9.99E-04	1.02E-03	2.90E-03	2.59E-03	1.01E-03	0.5	0	1.36E-03	1.55E-03	9.81E-04	3.77E-03	3.77E-03	2.41E-03	2.90E-03	14	93
Cobalt (Co)	µg/m³	0.1	0.1	3.06E-04	1.03E-04	4.08E-05	3.74E-05		1.94E-04	6.77E-05	1.13E-04	1.47E-04	1.69E-04	2.76E-05	1.07E-04	2.48E-04	1.48E-04	5.97E-05	0.1	0	1.01E-04	1.26E-04	2.76E-05	3.06E-04	3.06E-04	1.94E-04	2.48E-04	14	93
Copper (Cu)	µg/m³	50	-	8.15E-02	1.22E-02	2.54E-02	2.96E-02		1.56E-02	3.05E-02	3.13E-02	3.07E-02	3.50E-02	5.16E-02	4.83E-02	6.33E-02	5.64E-02	2.50E-02	50	0	3.39E-02	3.83E-02	1.22E-02	8.15E-02	8.15E-02	3.50E-02	6.33E-02	14	93
Iron (Fe)	µg/m³	4	-	8.21E-01	2.49E-01	6.54E-02	1.05E-01		5.58E-01	1.62E-01	2.84E-01	3.85E-01	4.22E-01	5.41E-02	2.62E-01	6.62E-01	5.06E-01	1.62E-01	4	0	2.53E-01	3.36E-01	5.41E-02	8.21E-01	8.21E-01	5.58E-01	6.62E-01	14	93
Lead (Pb)	µg/m³	0.5	0.5	4.39E-03	9.52E-04	9.84E-04	4.10E-04		2.42E-03	2.04E-03	8.31E-04	1.14E-03	3.16E-03	7.52E-04	4.07E-03	6.04E-03	3.07E-03	2.55E-03	0.5	0	1.79E-03	2.34E-03	4.10E-04	6.04E-03	4.39E-03	3.16E-03	6.04E-03	14	93
Magnesium (Mg)	µg/m³	-	-	4.84E-01	2.63E-01	9.36E-02	1.01E-01		7.22E-01	1.08E-01	1.71E-01	1.90E-01	3.19E-01	1.76E-02	1.77E-01	7.31E-01	4.02E-01	5.97E-02	-	-	1.85E-01	2.74E-01	1.76E-02	7.31E-01	4.84E-01	7.22E-01	7.31E-01	14	93
Manganese (Mn)	µg/m³	0.4	-	2.54E-02	7.85E-03	2.43E-03	3.58E-03		2.08E-02	4.75E-03	6.66E-03	7.89E-03	1.06E-02	1.12E-03	7.37E-03	2.21E-02	1.72E-02	2.56E-03	0.4	0	7.07E-03	1.00E-02	1.12E-03	2.54E-02	2.08E-02	2.21E-02	2.21E-02	14	93
Molybdenum (Mo)	µg/m³	120	-	5.17E-03	9.75E-04	1.44E-03	1.69E-03		1.09E-03	2.20E-03	2.26E-03	2.53E-03	2.65E-03	2.27E-03	3.13E-03	3.60E-03	3.28E-03	1.84E-03	120	0	2.22E-03	2.44E-03	9.75E-04	5.17E-03	5.17E-03	2.65E-03	3.60E-03	14	93
Nickel (Ni)	µg/m³	0.2	-	2.00E-03	6.75E-04	4.20E-04	3.50E-04		1.17E-03	4.89E-04	9.96E-04	7.42E-04	9.38E-04	5.06E-04	8.02E-04	1.51E-03	1.19E-03	5.79E-04	0.2	0	7.85E-04	8.84E-04	3.50E-04	2.00E-03	2.00E-03	1.17E-03	1.51E-03	14	93
Phosphorus (P)	µg/m³	-	-	2.32E-01	2.16E-01	2.25E-01	2.26E-01		2.20E-01	2.21E-01	2.21E-01	2.21E-01	2.21E-01	2.20E-01	2.25E-01	2.18E-01	2.21E-01	2.24E-01	-	-	2.22E-01	2.22E-01	2.16E-01	2.32E-01	2.32E-01	2.21E-01	2.25E-01	14	93
Selenium (Se)	µg/m³	10	10	1.42E-03	3.75E-04	3.90E-04	3.92E-04		3.82E-04	3.83E-04	3.83E-04	3.83E-04	3.83E-04	3.82E-04	3.89E-04	9.29E-04	1.47E-03	3.88E-04	10	0	4.95E-04	5.75E-04	3.75E-04	1.47E-03	1.42E-03	3.83E-04	1.47E-03	14	93
Silver (Ag)	µg/m³	1	1	7.41E-05	2.60E-05	2.70E-05	2.71E-05		2.64E-05	2.65E-05	2.65E-05	2.65E-05	2.65E-05	2.65E-05	2.69E-05	2.61E-05	2.65E-05	7.40E-05	1	0	3.07E-05	3.33E-05	2.60E-05	7.41E-05	7.41E-05	2.65E-05	7.40E-05	14	93
Strontium (Sr)	µg/m³	120	-	8.96E-03	3.23E-03	9.00E-04	1.99E-03		9.45E-03	2.59E-03	3.13E-03	6.60E-03	8.44E-03	8.82E-04	2.81E-03	8.01E-03	6.71E-03	8.95E-04	120	0	3.39E-03	4.61E-03	8.82E-04	9.45E-03	8.96E-03	9.45E-03	8.01E-03	14	93
Thallium (Tl)	µg/m³	-	-	2.78E-05	2.60E-05	2.70E-05	2.71E-05		2.64E-05	2.65E-05	2.65E-05	2.65E-05	2.65E-05	2.65E-05	2.69E-05	2.61E-05	2.65E-05	2.68E-05	-	-	2.67E-05	2.67E-05	2.60E-05	2.78E-05	2.78E-05	2.65E-05	2.69E-05	14	93
Tin (Sn)	µg/m³	10	10	2.09E-03	3.75E-04	1.80E-04	1.81E-04		8.46E-04	5.30E-04	6.66E-04	3.59E-04	9.03E-04	3.70E-04	1.20E-03	2.52E-03	1.71E-03	9.31E-04	10	0	6.79E-04	9.18E-04	1.80E-04	2.52E-03	2.09E-03	9.03E-04	2.52E-03	14	93
Titanium (Ti)	µg/m³	120	-	1.67E-02	6.35E-03	3.30E-03	3.32E-03		1.17E-02	3.24E-03	7.08E-03	8.83E-03	1.36E-02	3.23E-03	3.29E-03	1.39E-02	9.41E-03	3.28E-03	120	0	6.34E-03	7.66E-03	3.23E-03	1.67E-02	1.67E-02	1.36E-02	1.39E-02	14	93
Uranium (Ur)	µg/m³	1.5	-	2.33E-05	1.14E-05	6.24E-06	4.88E-06		1.93E-05	2.26E-05	1.43E-05	2.92E-05	2.47E-05	1.76E-06	4.04E-05	2.07E-05	1.38E-05	2.52E-05	1.5	0	1.45E-05	1.84E-05	1.76E-06	4.04E-05	2.33E-05	2.92E-05	4.04E-05	14	93
Vanadium (V)	µg/m³	2	1	1.54E-03	1.44E-03	1.50E-03	1.51E-03		1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.50E-03	1.45E-03	1.47E-03	1.49E-03	2	0	1.48E-03	1.48E-03	1.44E-03	1.54E-03	1.47E-03	1.50E-03	1.50E-03	14	93
Zinc (Zn)	µg/m³	120	-	6.98E-02	2.36E-02	1.31E-02	9.83E-03		4.10E-02	1.27E-02	1.49E-02	1.14E-02	6.61E-02	7.58E-03	3.48E-02	1.06E-01	4.98E-02	3.33E-02	120	0	2.58E-02	3.52E-02	7.58E-03	1.06E-01	6.98E-02	6.61E-02	1.06E-01	14	93
Zirconium (Zr)	µg/m³	25	-	1.24E-03	5.77E-04	6.00E-04	6.03E-04		5.87E-04	5.89E-04	5.90E-04	5.89E-04	5.90E-04	5.88E-04	5.99E-04	5.80E-04	5.88E-04	5.97E-04	20	0	6.22E-04	6.37E-04	5.77E-04	1.24E-03	1.24E-03	5.90E-04	5.99E-04	14	93

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

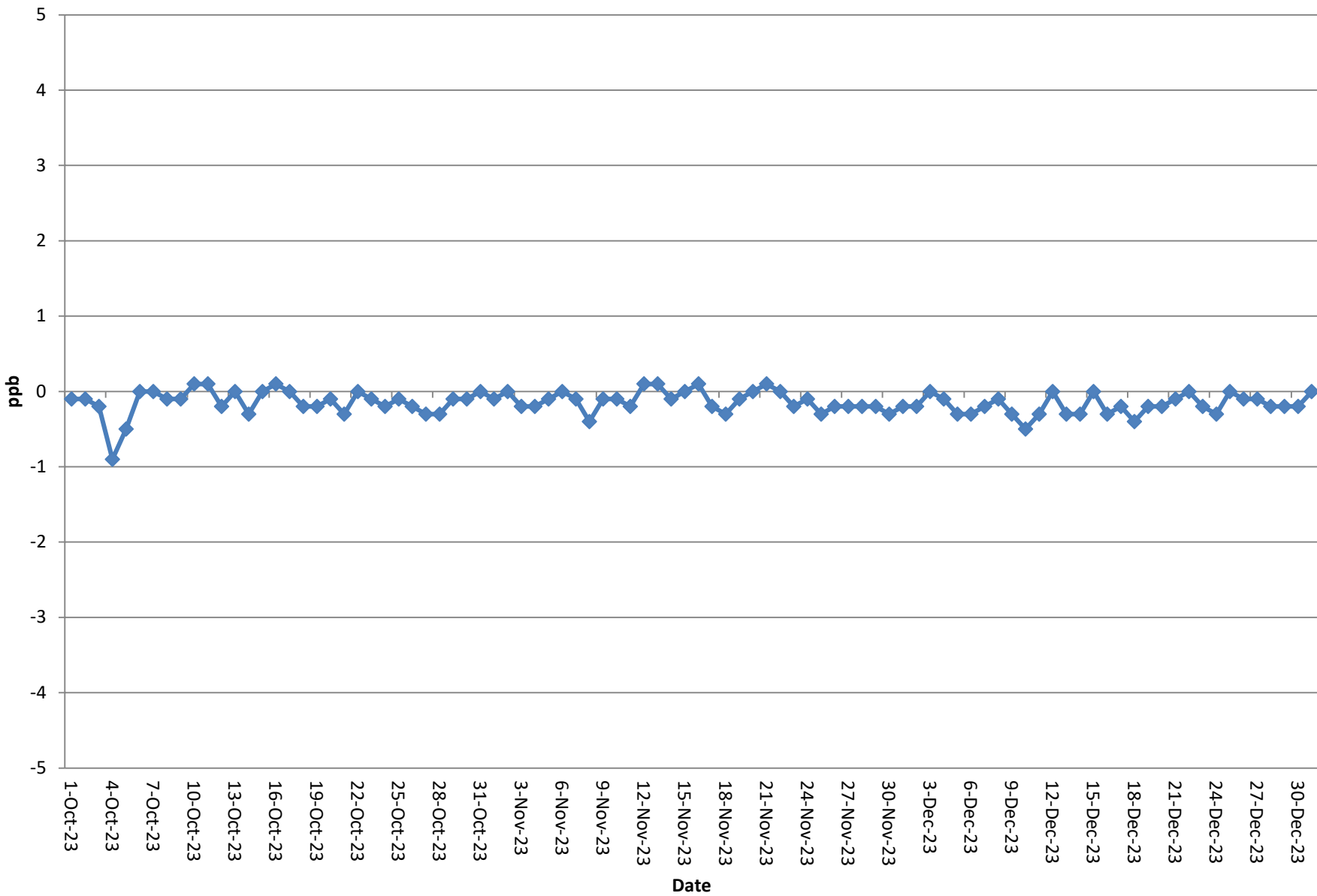
A large decorative graphic on the left side of the page, featuring a blue triangle at the top left corner and a large, light beige circular shape that overlaps the triangle and extends across the page.

# APPENDIX C

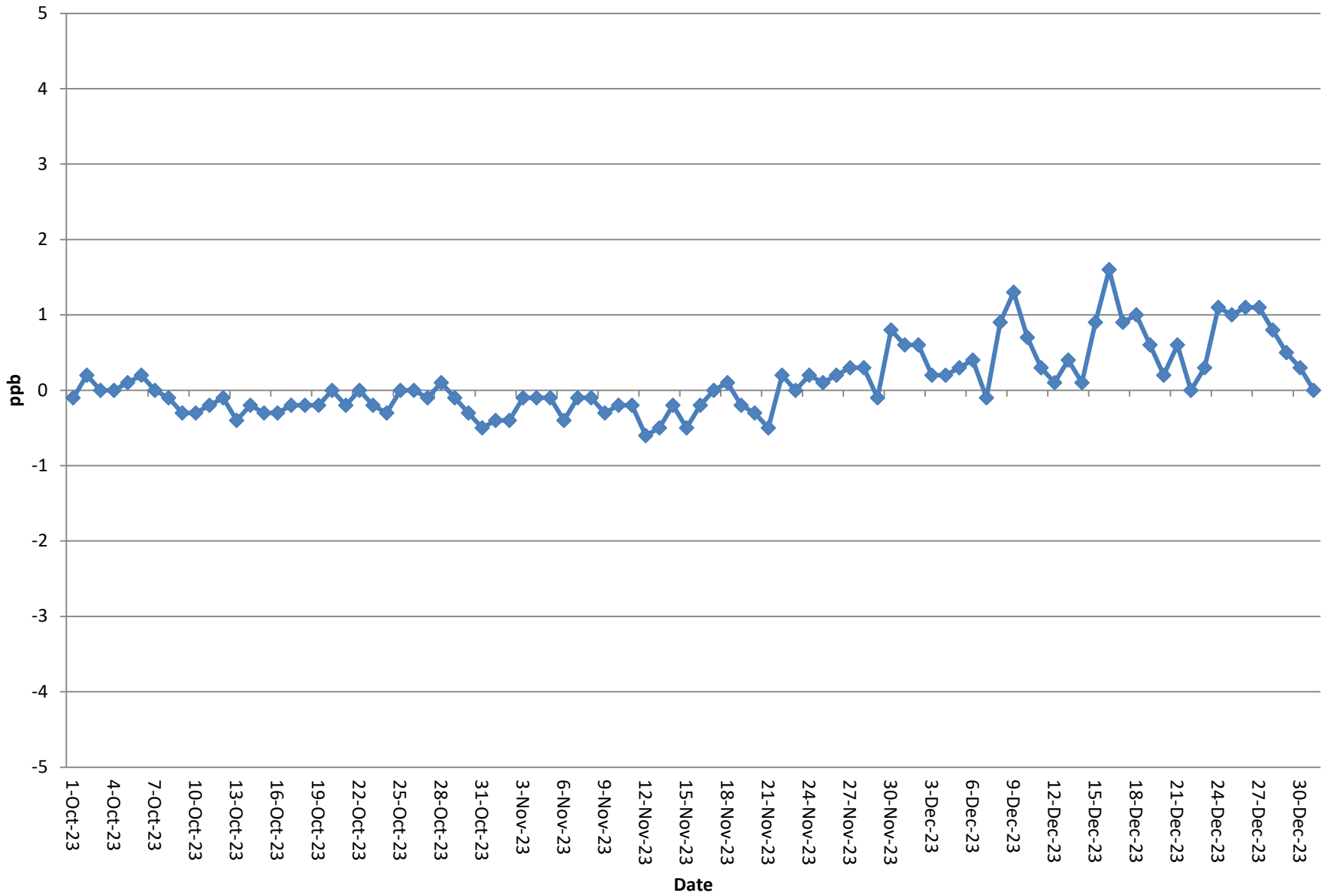
# NO<sub>x</sub> Zeros (Courtice Monitoring Station)



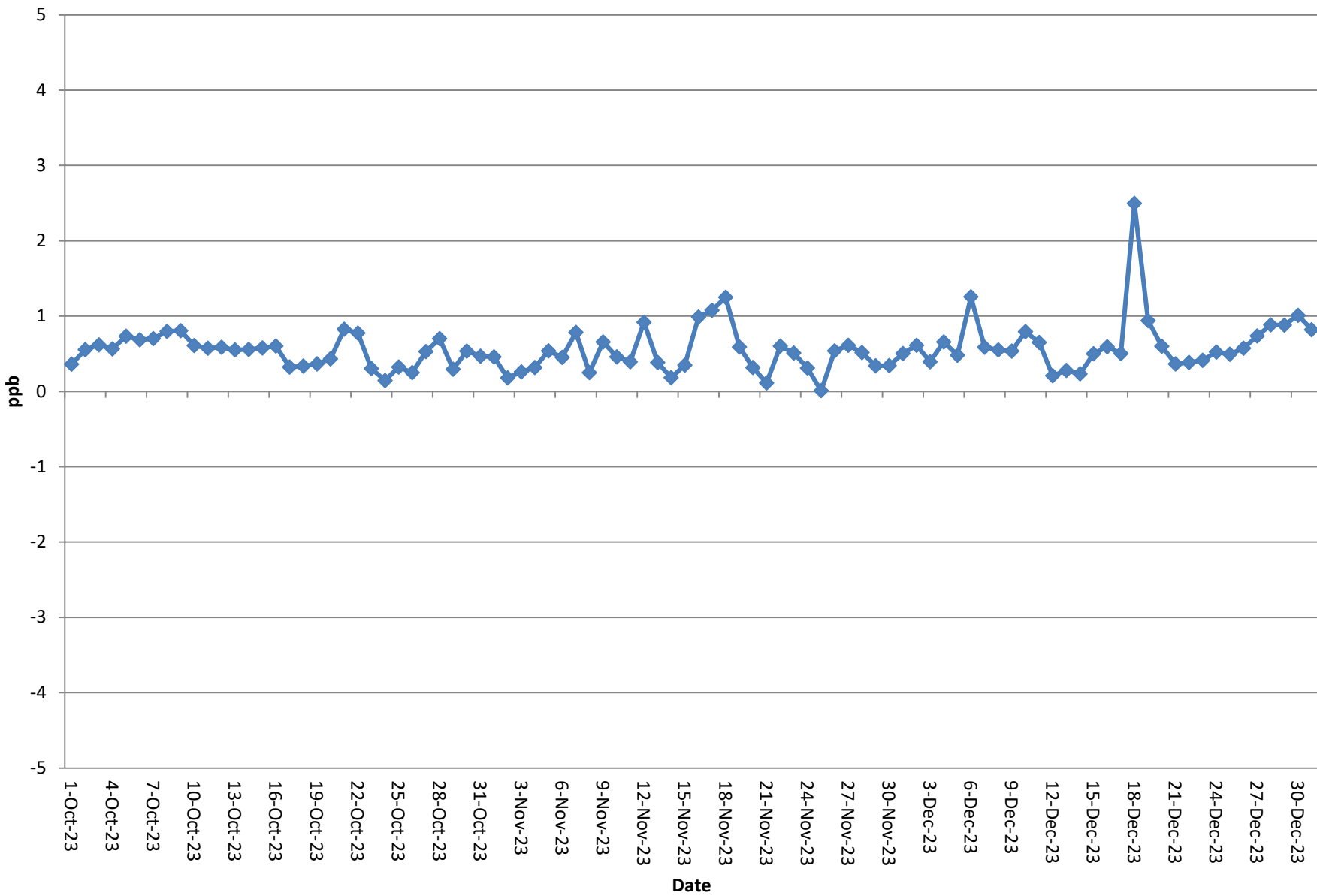
# NO Zeros (Courtice Monitoring Station)



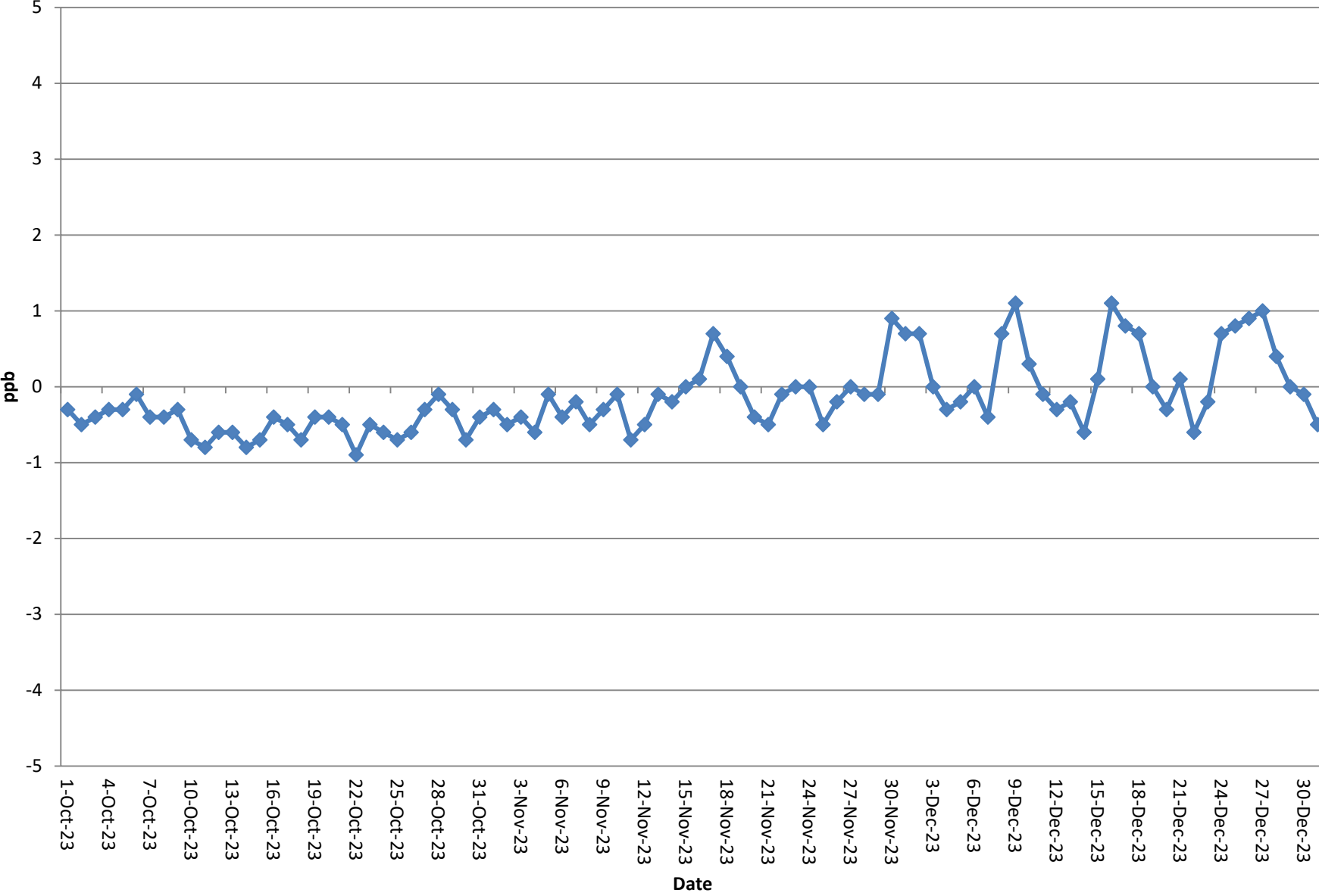
# NO<sub>2</sub> Zeros (Courtice Monitoring Station)



# SO<sub>2</sub> Zeros (Courtice Monitoring Station)

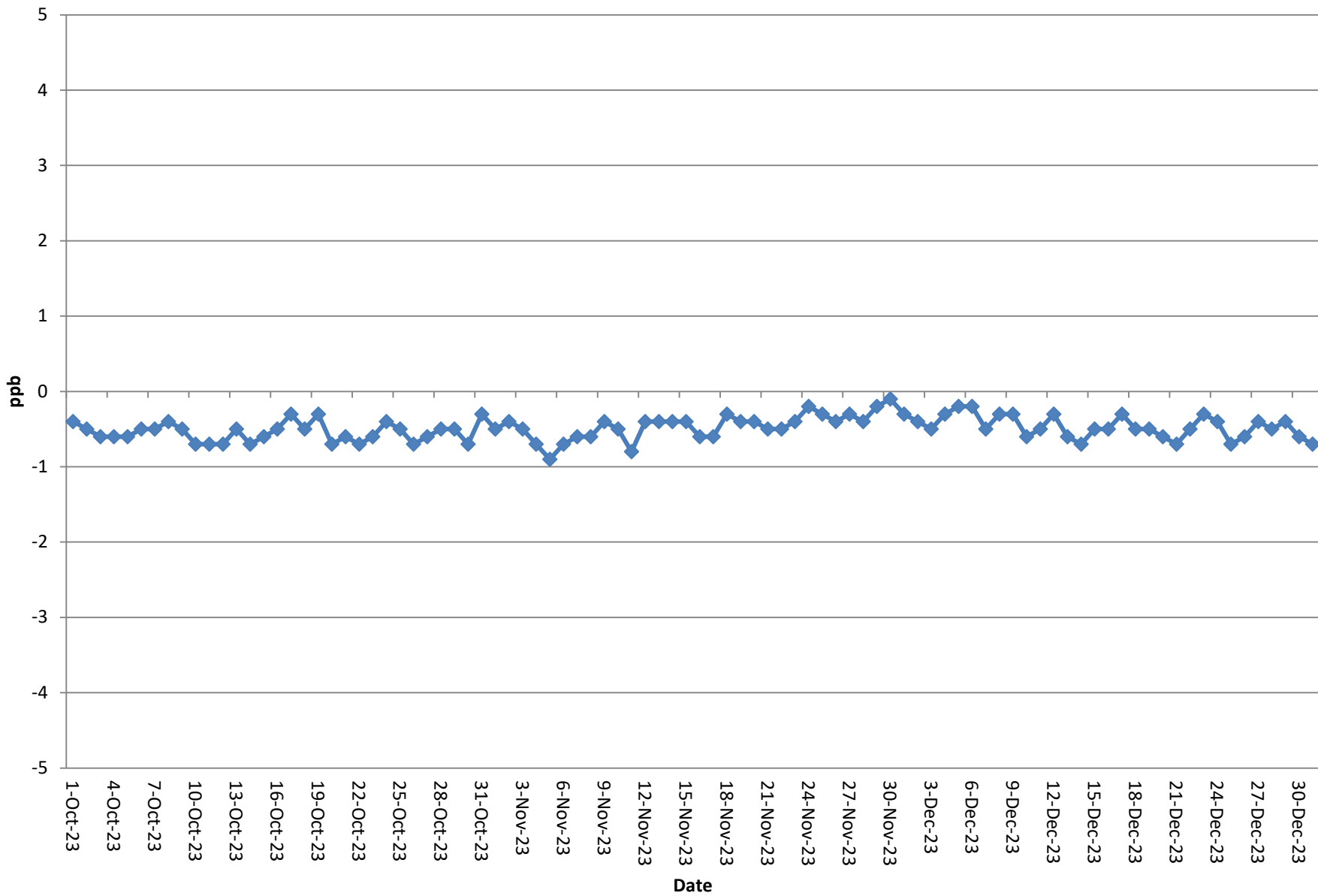


# NO<sub>x</sub> Zeros (Rundle Monitoring Station)

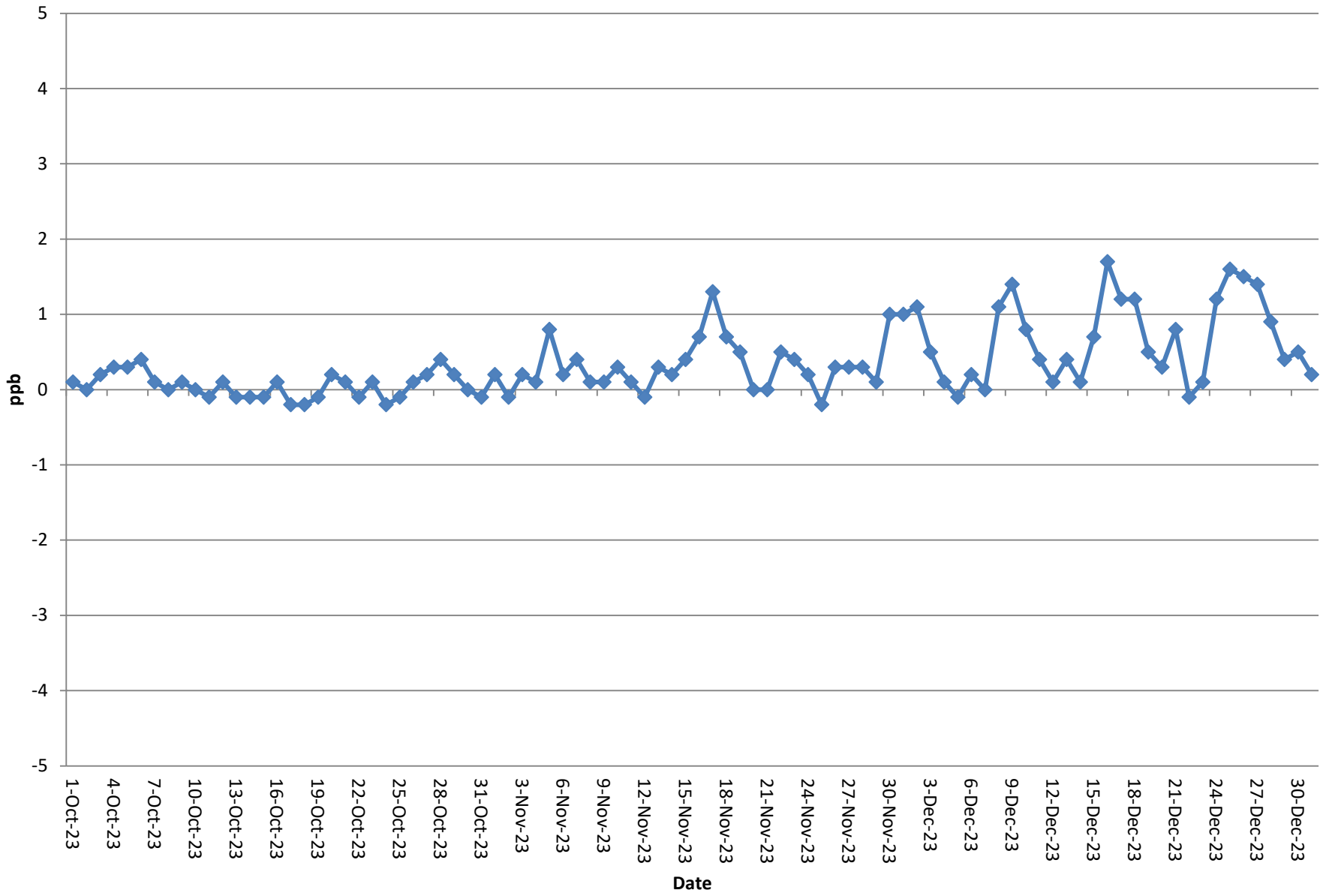




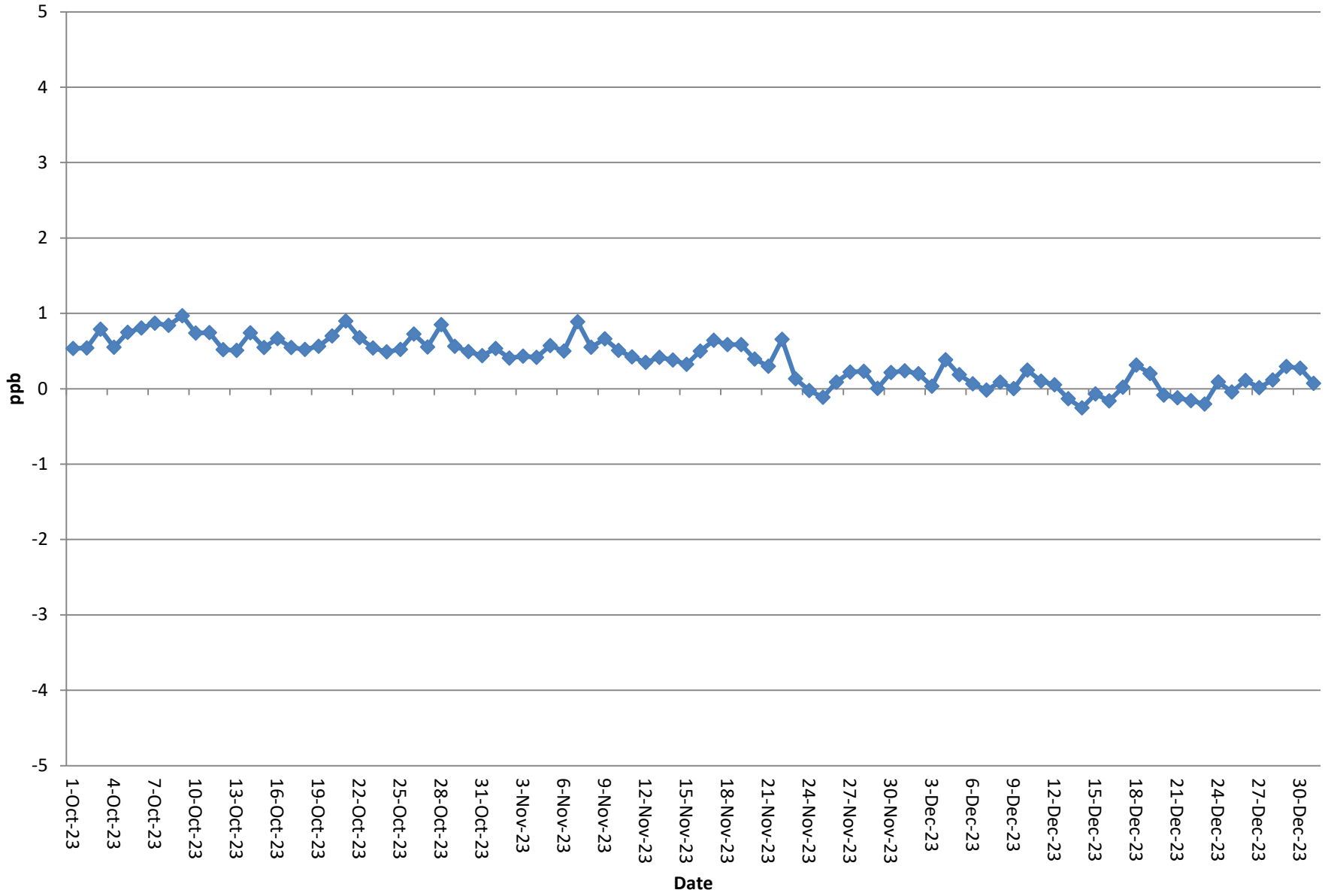
# NO Zeros (Rundle Monitoring Station)



# NO<sub>2</sub> Zeros (Rundle Monitoring Station)



# SO<sub>2</sub> Zeros (Rundle Monitoring Station)



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# APPENDIX D

**Table D1: Q4 Edit Log for PM<sub>2.5</sub> at Courtice Station**

<b>Emitter's Name:</b> Durham York Energy Centre										
<b>Contact</b>	<b>Name:</b> Ms. Lyndsay Waller		<b>Phone:</b> (905) 404 0888 ext 4107			<b>Email:</b> Lyndsay.Waller@Durham.ca				
<b>Station Number:</b> 45201				<b>Station Name:</b> Courtice Station						
<b>Station Address:</b> 100 Osbourne Road				<b>Emitter Address:</b> The Region of Durham, 605 Rossland Road, Whitby, ON						
<b>Pollutants or Parameter:</b> PM <sub>2.5</sub>			<b>Instrument Make &amp; Model:</b> Thermo Scientific Model 5030 SHARP Monitor				<b>s/n:</b> E 1563			
<b>Data Edit Period</b>		<b>Start Date:</b> October 1, 2023			<b>End Date:</b> December 31, 2023			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor's Name	Edit Action	Starting		Ending		Duration Deleted Hours	Reason	
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)			
1	25/10/2023	DAJH	Deleted Hours	25/10/2023	12:00	25/10/2023	13:00	1	Power Failure	
2	26/10/2023	SRS	Deleted Hours	26/10/2023	13:00	26/10/2023	15:00	2	Monthly Calibration	
3	09/11/2023	DAJH	Zero Corrections	01/10/2023	00:00	01/11/2023	00:00	-	Correcting Values <0 to 0	
4	21/11/2023	SRS	Deleted Hours	21/11/2023	11:00	21/11/2023	14:00	3	Power Failure	
5	22/11/2023	SRS	Deleted Hours	22/11/2023	09:00	22/11/2023	11:00	2	Monthly Calibration	
6	22/11/2023	SRS	Deleted Hours	22/11/2023	13:00	22/11/2023	14:00	1	Power Failure	
7	07/12/2023	SRS	Deleted Hours	07/12/2023	10:00	07/12/2023	12:00	2	MECP Audit	

**Table D2: Q4 Edit Log for PM<sub>2.5</sub> at Rundle Road Station**

<b>Emitter s Name:</b> Durham York Energy Centre										
<b>Contact</b>	<b>Name:</b> Ms. Lyndsay Waller			<b>Phone:</b> (905) 404 0888 ext 4107			<b>Email:</b> Lyndsay.Waller@Durham.ca			
<b>Station Number:</b> 45200				<b>Station Name:</b> Rundle Road Station						
<b>Station Address:</b> Rundle Road				<b>Emitter Address:</b> The Region of Durham, 605 Rossland Road, Whitby, ON						
<b>Pollutants or Parameter:</b> PM <sub>2.5</sub>			<b>Instrument Make &amp; Model:</b> Thermo Scientific Model 5030 SHARP Monitor				<b>s/n:</b> E 1569			
<b>Data Edit Period</b>		<b>Start Date:</b> October 1, 2023			<b>End Date:</b> December 31, 2023			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration Deleted Hours	Reason	
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)			
1	27/10/2023	SRS	Deleted Hours	27/10/2023	13:00	27/10/2023	14:00	1	Monthly Calibration	
2	09/11/2023	DAJH	Zero Corrections	01/10/2023	00:00	01/11/2023	00:00	-	Correcting Values <0 to 0	
3	22/11/2023	SRS	Deleted Hours	22/11/2023	13:00	22/11/2023	14:00	1	Monthly Calibration	
4	07/12/2023	SRS	Deleted Hours	07/12/2023	12:00	07/12/2023	13:00	1	MECP Audit	
5	07/12/2023	SRS	Deleted Hours	07/12/2023	14:00	07/12/2023	15:00	1	Monthly Calibration	

**Table D3: Q4 Edit Log for NO<sub>x</sub> at Courtice Station**

<b>Emitter s Name:</b> Durham York Energy Centre										
<b>Contact</b>	<b>Name:</b> Ms. Lyndsay Waller			<b>Phone:</b> (905) 404 0888 ext 4107			<b>Email:</b> Lyndsay.Waller@Durham.ca			
<b>Station Number:</b> 45201				<b>Station Name:</b> Courtice Station						
<b>Station Address:</b> 100 Osbourne Road				<b>Emitter Address:</b> The Region of Durham, 605 Rossland Road, Whitby, ON						
<b>Pollutants or Parameter:</b> NOx			<b>Instrument Make &amp; Model:</b> Teledyne Nitrogen Oxide Analyzer Model T200				<b>s/n:</b> 675			
<b>Data Edit Period</b>		<b>Start Date:</b> October 1, 2023			<b>End Date:</b> December 31, 2023			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration Deleted Hours	Reason	
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)			
1	25/10/2023	DAJH	Deleted Hours	25/10/2023	12:00	25/10/2023	13:00	1	Power Failure	
2	26/10/2023	SRS	Deleted Hours	26/10/2023	12:00	26/10/2023	14:00	2	Monthly Calibration	
3	09/11/2023	DAJH	Zero Corrections	01/10/2023	00:00	01/11/2023	00:00	-	Correcting Values <0 to 0	
4	21/11/2023	SRS	Deleted Hours	21/11/2023	11:00	21/11/2023	14:00	3	Power Failure	
5	21/11/2023	SRS	Deleted Hours	21/11/2023	14:00	21/11/2023	18:00	4	Annual Maintenance & Monthly Calibration	
6	22/11/2023	SRS	Deleted Hours	22/11/2023	09:00	22/11/2023	11:00	2	Re-Calibration After Maintenance	
8	23/11/2023	DAJH	Deleted Hours	23/11/2023	11:00	23/11/2023	12:00	1	Power Failure	
9	13/12/2023	DAJH	Zero Corrections	01/11/2023	00:00	01/12/2023	00:00	-	Correcting Values <0 to 0	
10	07/12/2023	SRS	Deleted Hours	07/12/2023	10:00	07/12/2023	12:00	2	MECP Audit	
11	13/12/2023	SRS	Deleted Hours	13/12/2023	10:00	13/12/2023	13:00	3	Monthly Calibration	
12	21/12/2023	DAJH	Zero Corrections	01/12/2023	00:00	01/01/2024	00:00	-	Correcting Values <0 to 0	

**Table D4: Q4 Edit Log for NO<sub>x</sub> at Rundle Road Station**

<b>Emitter s Name:</b> Durham York Energy Centre										
<b>Contact</b>	<b>Name:</b> Ms. Lyndsay Waller			<b>Phone:</b> (905) 404 0888 ext 4107			<b>Email:</b> Lyndsay.Waller@Durham.ca			
<b>Station Number:</b> 45200				<b>Station Name:</b> Rundle Road Station						
<b>Station Address:</b> Rundle Road				<b>Emitter Address:</b> The Region of Durham, 605 Rossland Road, Whitby, ON						
<b>Pollutants or Parameter:</b> NOx			<b>Instrument Make &amp; Model:</b> Teledyne Nitrogen Oxide Analyzer Model T200				<b>s/n:</b> 676			
<b>Data Edit Period</b>		<b>Start Date:</b> October 1, 2023			<b>End Date:</b> December 31, 2023			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration Deleted Hours	Reason	
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)			
1	27/10/2023	SRS	Deleted Hours	27/10/2023	12:00	27/10/2023	14:00	2	Monthly Calibration	
2	09/11/2023	DAJH	Zero Corrections	01/10/2023	00:00	01/11/2023	00:00	-	Correcting Values <0 to 0	
3	22/11/2023	SRS	Deleted Hours	22/11/2023	11:00	22/11/2023	14:00	3	Monthly Calibration	
4	13/12/2023	DAJH	Zero Corrections	01/11/2023	00:00	01/12/2023	00:00	-	Correcting Values <0 to 0	
5	07/12/2023	SRS	Deleted Hours	07/12/2023	12:00	07/12/2023	13:00	1	MECP Audit	
6	07/12/2023	SRS	Deleted Hours	07/12/2023	13:00	07/12/2023	16:00	3	Monthly Calibration	
7	21/12/2023	DAJH	Zero Corrections	01/12/2023	00:00	01/01/2024	00:00	-	Correcting Values <0 to 0	



**Table D5: Q4 Edit Log for SO<sub>2</sub> at Courtice Station**

<b>Emitter s Name:</b> Durham York Energy Centre										
<b>Contact</b>	<b>Name:</b> Ms. Lyndsay Waller			<b>Phone:</b> (905) 404 0888 ext 4107			<b>Email:</b> Lyndsay.Waller@Durham.ca			
<b>Station Number:</b> 45201				<b>Station Name:</b> Courtice Station						
<b>Station Address:</b> 100 Osbourne Road				<b>Emitter Address:</b> The Region of Durham, 605 Rossland Road, Whitby, ON						
<b>Pollutants or Parameter:</b> SO <sub>2</sub>			<b>Instrument Make &amp; Model:</b> Teledyne Sulfur Dioxide Analyzer Model T100				<b>s/n:</b> 565			
<b>Data Edit Period</b>		<b>Start Date:</b> October 1, 2023			<b>End Date:</b> December 31, 2023			All testing done in EST		
Edit #	Edit Date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration Deleted Hours	Reason	
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)			
1	25/10/2023	DAJH	Deleted Hours	25/10/2023	12:00	25/10/2023	13:00	1	Power Failure	
2	26/10/2023	SRS	Deleted Hours	26/10/2023	10:00	26/10/2023	13:00	3	Monthly Calibration	
3	21/11/2023	SRS	Deleted Hours	21/11/2023	11:00	21/11/2023	14:00	3	Power Failure	
4	21/11/2023	SRS	Deleted Hours	21/11/2023	15:00	21/11/2023	17:00	2	Monthly Calibration	
5	22/11/2023	SRS	Deleted Hours	22/11/2023	13:00	22/11/2023	14:00	1	Power Failure	
6	23/11/2023	SRS	Deleted Hours	23/11/2023	11:00	23/11/2023	12:00	1	Power Failure	
7	13/12/2023	DAJH	Zero Corrections	01/11/2023	00:00	01/12/2023	00:00	-	Correcting Values <0 to 0	
8	07/12/2023	SRS	Deleted Hours	07/12/2023	10:00	07/12/2023	12:00	2	MECP Audit	
9	13/12/2023	SRS	Deleted Hours	13/12/2023	12:00	13/12/2023	13:00	2	Monthly Calibration	
10	18/12/2023	DAJH	Zero Corrections	01/12/2023	00:00	01/01/2024	00:00	-	Correcting Values <0 to 0	

**Table D6: Q4 Edit Log for SO<sub>2</sub> at Rundle Road Station**

<b>Emitter s Name:</b> Durham York Energy Centre										
<b>Contact</b>	<b>Name:</b> Ms. Lyndsay Waller			<b>Phone:</b> (905) 404 0888 ext 4107			<b>Email:</b> Lyndsay.Waller@Durham.ca			
<b>Station Number:</b> 45200				<b>Station Name:</b> Rundle Road Station						
<b>Station Address:</b> Rundle Road				<b>Emitter Address:</b> The Region of Durham, 605 Rossland Road, Whitby, ON						
<b>Pollutants or Parameter:</b> SO <sub>2</sub>			<b>Instrument Make &amp; Model:</b> Teledyne Sulfur Dioxide Analyzer Model T100				<b>s/n:</b> 566			
<b>Data Edit Period</b>		<b>Start Date:</b> October 1, 2023			<b>End Date:</b> December 31, 2023			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration Deleted Hours	Reason	
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)			
1	27/10/2023	SRS	Deleted Hours	27/10/2023	09:00	27/10/2023	13:00	4	Monthly Calibration	
2	09/11/2023	DAJH	Zero Corrections	01/10/2023	00:00	01/11/2023	00:00	-	Correcting Values <0 to 0	
3	22/11/2023	SRS	Deleted Hours	22/11/2023	13:00	22/11/2023	15:00	2	Monthly Calibration	
4	13/12/2023	DAJH	Zero Corrections	01/11/2023	00:00	01/12/2023	00:00	-	Correcting Values <0 to 0	
5	07/12/2023	SRS	Deleted Hours	07/12/2023	12:00	07/12/2023	13:00	1	MECP Audit	
6	07/12/2023	SRS	Deleted Hours	07/12/2023	15:00	07/12/2023	17:00	2	Monthly Calibration	
7	21/12/2023	DAJH	Zero Corrections	01/12/2023	00:00	01/01/2024	00:00	-	Correcting Values <0 to 0	

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

<b>Emitter s Name:</b> Durham York Energy Centre										
<b>Contact</b>	<b>Name:</b> Ms. Lyndsay Waller			<b>Phone:</b> (905) 404 0888 ext 4107			<b>Email:</b> Lyndsay.Waller@Durham.ca			
<b>Station Number:</b> 45201				<b>Station Name:</b> Courtice Station						
<b>Station Address:</b> 100 Osbourne Road				<b>Emitter Address:</b> The Region of Durham, 605 Rossland Road, Whitby, ON						
<b>Pollutants or Parameter:</b> WS, WD, Ambient T, P, RH and Rain			<b>Instrument Make &amp; Model:</b> Miscellaneous Meterological Instrumentation				<b>s/n:</b> N/A			
<b>Data Edit Period</b>		<b>Start Date:</b> October 1, 2023			<b>End Date:</b> December 31, 2023			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	08/11/2023	DAJH	Deleted Hours	01/10/2023	00:00	11/10/2023	20:00	260	Instrument Malfunction - Rain	
2	25/10/2023	DAJH	Deleted Hours	25/10/2023	12:00	25/10/2023	13:00	1	Power Failure - All Parameters	
3	21/11/2023	DAJH	Deleted Hours	21/11/2023	11:00	21/11/2023	14:00	3	Power Failure - All Parameters	
4	13/12/2023	DAJH	Deleted Hours	13/12/2023	12:00	13/12/2023	13:00	1	Instrument Calibration - Rain	

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

<b>Emitter s Name:</b> Durham York Energy Centre										
<b>Contact</b>	<b>Name:</b> Ms. Lyndsay Waller			<b>Phone:</b> (905) 404 0888 ext 4107			<b>Email:</b> Lyndsay.Waller@Durham.ca			
<b>Station Number:</b> 45200				<b>Station Name:</b> Rundle Station						
<b>Station Address:</b> Rundle Road				<b>Emitter Address:</b> The Region of Durham, 605 Rossland Road, Whitby, ON						
<b>Pollutants or Parameter:</b> WS, WD, Ambient T, P, RH and Rain				<b>Instrument Make &amp; Model:</b> Miscellaneous Meterological Instrumentation				<b>s/n:</b> N/A		
<b>Data Edit Period</b>		<b>Start Date:</b> October 1, 2023			<b>End Date:</b> December 31, 2023			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	07/12/2023	SRS	Deleted Hours	07/12/2023	14:00	07/12/2023	16:00	2	Instrument Calibration - Rain	

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

<b>Emitter's Name:</b> Durham York Energy Center									
<b>Contact</b>	<b>Name:</b> Ms. Lyndsay Waller		<b>Phone:</b> (905) 404 0888 ext 4107			<b>Email:</b> Lyndsay.Waller@Durham.ca			
<b>Station Number:</b> 45201					<b>Station Name:</b> Courtice Station				
<b>Station Address:</b> 100 Osbourne Road					<b>Emitter Address:</b> The Region of Durham, 605 Rossland Road, Whitby, ON				
<b>Pollutants or Parameter:</b> N/A			<b>Instrument Make &amp; Model:</b> N/A				<b>s/n:</b>		
<b>Data Edit Period</b>		<b>Start Date:</b> October 1, 2023		<b>End Date:</b> December 31, 2023			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	03/10/2023	DAJH	Deleted Hours	03/10/2023	00:00	03/10/2023	23:00	24	TSP - Equipment Malfunction

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

<b>Emitter s Name:</b> Durham York Energy Center									
<b>Contact</b>		<b>Name:</b> Ms. Lyndsay Waller		<b>Phone:</b> (905) 404 0888 ext 4107			<b>Email:</b> Lyndsay.Waller@Durham.ca		
<b>Station Number:</b> 45200				<b>Station Name:</b> Rundle Station					
<b>Station Address:</b> Rundle Rd				<b>Emitter Address:</b> The Region of Durham, 605 Rossland Road, Whitby, ON					
<b>Pollutants or Parameter:</b> N/A			<b>Instrument Make &amp; Model:</b> N/A				<b>s/n:</b>		
<b>Data Edit Period</b>		<b>Start Date:</b> October 1, 2023		<b>End Date:</b> December 31, 2023			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	27/10/2023	DAJH	Deleted Hours	27/10/2023	00:00	28/10/2023	00:00	24	TSP - Equipment Malfunction
2	08/11/2023	DAJH	Deleted Hours	08/11/2023	00:00	09/11/2023	00:00	24	D&F and PAH - Equipment Malfunction

The background features a large, light beige curved shape on the right side, and a blue curved shape on the left side, separated by a white gap. The text 'APPENDIX E' is centered within the beige area.

# APPENDIX E

**SO2 Exceedance Report**

**Table E1**

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

Date (dd/mm/yyyy)	Time (EST)	SO <sub>2</sub>	SO <sub>2</sub>
		5-min Avg. (ppb)	10-minute Running Avg. (ppb)
03/10/2023	3:10	1	1
03/10/2023	3:15	6	3
03/10/2023	3:20	43	25
03/10/2023	3:25	135	<u>89</u>
03/10/2023	3:30	34	<u>85</u>
03/10/2023	3:35	64	49
03/10/2023	3:40	20	42
Hidden cells with no values exceeding limit.			
03/10/2023	22:10	33	25
03/10/2023	22:15	31	32
03/10/2023	22:20	83	57
03/10/2023	22:25	59	<u>71</u>
03/10/2023	22:30	22	<u>41</u>
03/10/2023	22:35	14	18
03/10/2023	22:40	9	11
Hidden cells with no values exceeding limit.			
11/10/2023	22:55	4	3
11/10/2023	23:00	8	6
11/10/2023	23:05	83	46
11/10/2023	23:10	113	<u>98</u>
11/10/2023	23:15	99	<u>106</u>
11/10/2023	23:20	78	<u>89</u>
11/10/2023	23:25	19	<u>49</u>
11/10/2023	23:30	11	15
11/10/2023	23:35	9	10
Hidden cells with no values exceeding limit.			
12/10/2023	0:50	7	8
12/10/2023	0:55	16	11
12/10/2023	1:00	66	41
12/10/2023	1:05	94	<u>80</u>
12/10/2023	1:10	22	<u>58</u>
12/10/2023	1:15	13	18
12/10/2023	1:20	9	11
Hidden cells with no values exceeding limit.			
12/10/2023	2:10	-	-
12/10/2023	2:15	2	2
12/10/2023	2:20	11	7
12/10/2023	2:25	310	<u>161</u>
12/10/2023	2:30	82	<u>196</u>
12/10/2023	2:35	35	59
12/10/2023	2:40	20	28
Hidden cells with no values exceeding limit.			
12/10/2023	19:20	6	9
12/10/2023	19:25	4	5
12/10/2023	19:30	98	51
12/10/2023	19:35	90	<u>94</u>
12/10/2023	19:40	43	<u>67</u>
12/10/2023	19:45	46	44
12/10/2023	19:50	46	46
Hidden cells with no values exceeding limit.			
12/10/2023	20:25	14	14
12/10/2023	20:30	30	22
12/10/2023	20:35	55	42
12/10/2023	20:40	104	<u>79</u>
12/10/2023	20:45	91	<u>97</u>
12/10/2023	20:50	41	66
12/10/2023	20:55	15	28
Hidden cells with no values exceeding limit.			
12/10/2023	22:50	4	6
12/10/2023	22:55	6	5
12/10/2023	23:00	9	8
12/10/2023	23:05	149	<u>79</u>
12/10/2023	23:10	324	<u>237</u>



12/10/2023	23:15	162	<u>243</u>
12/10/2023	23:20	35	<u>98</u>
12/10/2023	23:25	69	52
12/10/2023	23:30	218	<u>144</u>
12/10/2023	23:35	199	<u>209</u>
12/10/2023	23:40	124	<u>162</u>
12/10/2023	23:45	34	<u>79</u>
12/10/2023	23:50	22	28
12/10/2023	23:55	15	19
13/10/2023	0:00	105	60
13/10/2023	0:05	21	63
13/10/2023	0:10	33	27
13/10/2023	0:15	197	<u>115</u>
13/10/2023	0:20	115	<u>156</u>
13/10/2023	0:25	33	<u>74</u>
13/10/2023	0:30	21	<u>27</u>
13/10/2023	0:35	16	19
13/10/2023	0:40	14	15
Hidden cells with no values exceeding limit.			
13/10/2023	18:45	7	4
13/10/2023	18:50	2	5
13/10/2023	18:55	113	57
13/10/2023	19:00	163	<u>138</u>
13/10/2023	19:05	70	<u>116</u>
13/10/2023	19:10	17	44
13/10/2023	19:15	11	14
Hidden cells with no values exceeding limit.			
13/10/2023	22:00	34	55
13/10/2023	22:05	20	27
13/10/2023	22:10	85	53
13/10/2023	22:15	131	<u>108</u>
13/10/2023	22:20	138	<u>134</u>
13/10/2023	22:25	196	<u>167</u>
13/10/2023	22:30	42	<u>119</u>
13/10/2023	22:35	23	33
13/10/2023	22:40	112	<u>68</u>
13/10/2023	22:45	144	<u>128</u>
13/10/2023	22:50	43	<u>94</u>
13/10/2023	22:55	71	<u>57</u>
13/10/2023	23:00	51	61
13/10/2023	23:05	70	61
Hidden cells with no values exceeding limit.			
13/10/2023	23:15	40	48
13/10/2023	23:20	20	30
13/10/2023	23:25	91	55
13/10/2023	23:30	108	<u>99</u>
13/10/2023	23:35	80	<u>94</u>
13/10/2023	23:40	74	<u>77</u>
13/10/2023	23:45	99	<u>86</u>
13/10/2023	23:50	87	<u>93</u>
13/10/2023	23:55	76	<u>82</u>
14/10/2023	0:00	33	55
14/10/2023	0:05	19	26
14/10/2023	0:10	14	16
14/10/2023	0:15	66	40
14/10/2023	0:20	73	<u>69</u>
14/10/2023	0:25	65	<u>69</u>
14/10/2023	0:30	43	54
14/10/2023	0:35	41	42
Hidden cells with no values exceeding limit.			
14/10/2023	17:15	10	11
14/10/2023	17:20	4	7
14/10/2023	17:25	42	23
14/10/2023	17:30	121	<u>82</u>
14/10/2023	17:35	118	<u>120</u>
14/10/2023	17:40	95	<u>107</u>
14/10/2023	17:45	84	<u>90</u>
14/10/2023	17:50	16	50
14/10/2023	17:55	9	13
Hidden cells with no values exceeding limit.			
18/10/2023	2:55	41	23
18/10/2023	3:00	13	27
18/10/2023	3:05	18	16
18/10/2023	3:10	128	<u>73</u>

18/10/2023	3:15	107	<u>118</u>
18/10/2023	3:20	20	64
18/10/2023	3:25	13	17
Hidden cells with no values exceeding limit.			
18/10/2023	6:50	4	4
18/10/2023	6:55	2	3
18/10/2023	7:00	7	4
18/10/2023	7:05	593	<u>300</u>
18/10/2023	7:10	342	<u>467</u>
18/10/2023	7:15	195	<u>268</u>
18/10/2023	7:20	52	<u>124</u>
18/10/2023	7:25	31	41
18/10/2023	7:30	19	25
Hidden cells with no values exceeding limit.			
24/10/2023	21:05	1	1
24/10/2023	21:10	1	1
24/10/2023	21:15	1	1
24/10/2023	21:20	240	<u>121</u>
24/10/2023	21:25	310	<u>275</u>
24/10/2023	21:30	161	<u>235</u>
24/10/2023	21:35	61	<u>111</u>
24/10/2023	21:40	22	42
24/10/2023	21:45	21	21
Hidden cells with no values exceeding limit.			
25/10/2023	0:25	37	20
25/10/2023	0:30	43	40
25/10/2023	0:35	29	36
25/10/2023	0:40	130	<u>80</u>
25/10/2023	0:45	38	<u>84</u>
25/10/2023	0:50	44	41
25/10/2023	0:55	43	44
Hidden cells with no values exceeding limit.			
28/10/2023	20:45	0	0
28/10/2023	20:50	7	4
28/10/2023	20:55	110	59
28/10/2023	21:00	46	<u>78</u>
28/10/2023	21:05	28	<u>37</u>
28/10/2023	21:10	9	19
28/10/2023	21:15	22	15

**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 Exceedence Value Reporte
<u>Max</u>	- Maximum of the Range
<u>Min</u>	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO<sub>2</sub> = 67 ppb for 10-minute running average

Total Number of Reportable Exceedances:

**32**

**SO2 Exceedance Report**

**Table E2**

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

Date (dd/mm/yyyy)	Time (EST)	SO <sub>2</sub>	SO <sub>2</sub>
		5-min Avg. (ppb)	10-minute Running Avg. (ppb)
01/11/2023	20:10	0	0
01/11/2023	20:15	1	0
01/11/2023	20:20	29	15
01/11/2023	20:25	151	<u>90</u>
01/11/2023	20:30	112	<u>132</u>
01/11/2023	20:35	58	<u>85</u>
01/11/2023	20:40	11	<u>35</u>
01/11/2023	20:45	7	9
01/11/2023	20:50	62	35
Hidden cells with no values exceeding limit.			
01/11/2023	21:35	2	2
01/11/2023	21:40	2	2
01/11/2023	21:45	40	21
01/11/2023	21:50	104	<u>72</u>
01/11/2023	21:55	23	<u>63</u>
01/11/2023	22:00	99	61
01/11/2023	22:05	85	<u>92</u>
01/11/2023	22:10	16	<u>51</u>
01/11/2023	22:15	10	13
01/11/2023	22:20	7	8
Hidden cells with no values exceeding limit.			
04/11/2023	17:20	1	1
04/11/2023	17:25	1	1
04/11/2023	17:30	57	29
04/11/2023	17:35	120	<u>88</u>
04/11/2023	17:40	66	<u>93</u>
04/11/2023	17:45	90	<u>78</u>
04/11/2023	17:50	79	<u>84</u>
04/11/2023	17:55	101	<u>90</u>
04/11/2023	18:00	45	<u>73</u>
04/11/2023	18:05	17	31
04/11/2023	18:10	11	14
04/11/2023	18:15	8	10
04/11/2023	18:20	19	14
04/11/2023	18:25	85	52
04/11/2023	18:30	60	<u>73</u>
04/11/2023	18:35	70	<u>65</u>
04/11/2023	18:40	23	46
04/11/2023	18:45	15	19
Hidden cells with no values exceeding limit.			
04/11/2023	21:35	2	2
04/11/2023	21:40	2	2
04/11/2023	21:45	109	55
04/11/2023	21:50	85	<u>97</u>
04/11/2023	21:55	67	<u>76</u>
04/11/2023	22:00	29	48
04/11/2023	22:05	13	21
Hidden cells with no values exceeding limit.			
05/11/2023	6:20	7	4
05/11/2023	6:25	30	19
05/11/2023	6:30	79	54
05/11/2023	6:35	89	<u>84</u>
05/11/2023	6:40	22	<u>55</u>
05/11/2023	6:45	54	38
05/11/2023	6:50	79	67
05/11/2023	6:55	50	64
05/11/2023	7:00	15	32
05/11/2023	7:05	9	12
05/11/2023	7:10	197	<u>103</u>
05/11/2023	7:15	113	<u>155</u>
05/11/2023	7:20	23	<u>68</u>
05/11/2023	7:25	14	<u>19</u>
05/11/2023	7:30	11	13

05/11/2023	7:35	9	10
Hidden cells with no values exceeding limit.			
05/11/2023	18:35	15	10
05/11/2023	18:40	3	9
05/11/2023	18:45	25	14
05/11/2023	18:50	115	<u>70</u>
05/11/2023	18:55	85	<u>100</u>
05/11/2023	19:00	36	60
05/11/2023	19:05	17	27
Hidden cells with no values exceeding limit.			
05/11/2023	21:05	101	52
05/11/2023	21:10	25	63
05/11/2023	21:15	48	37
05/11/2023	21:20	98	<u>73</u>
05/11/2023	21:25	23	<u>60</u>
05/11/2023	21:30	11	17
05/11/2023	21:35	9	10
Hidden cells with no values exceeding limit.			
08/11/2023	3:50	2	3
08/11/2023	3:55	1	2
08/11/2023	4:00	1	1
08/11/2023	4:05	134	<u>68</u>
08/11/2023	4:10	67	<u>100</u>
08/11/2023	4:15	15	41
08/11/2023	4:20	11	13
Hidden cells with no values exceeding limit.			
08/11/2023	5:10	17	38
08/11/2023	5:15	63	40
08/11/2023	5:20	49	56
08/11/2023	5:25	126	<u>88</u>
08/11/2023	5:30	42	<u>84</u>
08/11/2023	5:35	15	28
08/11/2023	5:40	9	12
08/11/2023	5:45	7	8
08/11/2023	5:50	6	6
08/11/2023	5:55	62	34
08/11/2023	6:00	216	<u>139</u>
08/11/2023	6:05	107	<u>162</u>
08/11/2023	6:10	58	<u>82</u>
08/11/2023	6:15	79	<u>68</u>
08/11/2023	6:20	26	52
08/11/2023	6:25	76	51
Hidden cells with no values exceeding limit.			
08/11/2023	6:35	11	16
08/11/2023	6:40	6	9
08/11/2023	6:45	22	14
08/11/2023	6:50	116	<u>69</u>
08/11/2023	6:55	52	<u>84</u>
08/11/2023	7:00	32	42
08/11/2023	7:05	17	24
Hidden cells with no values exceeding limit.			
11/11/2023	2:20	1	1
11/11/2023	2:25	27	14
11/11/2023	2:30	58	43
11/11/2023	2:35	83	<u>70</u>
11/11/2023	2:40	153	<u>118</u>
11/11/2023	2:45	21	<u>87</u>
11/11/2023	2:50	11	<u>16</u>
11/11/2023	2:55	8	10
11/11/2023	3:00	6	7
Hidden cells with no values exceeding limit.			
11/11/2023	6:55	5	6
11/11/2023	7:00	9	7
11/11/2023	7:05	65	37
11/11/2023	7:10	144	<u>104</u>
11/11/2023	7:15	140	<u>142</u>
11/11/2023	7:20	87	<u>114</u>
11/11/2023	7:25	20	<u>54</u>
11/11/2023	7:30	13	17
11/11/2023	7:35	9	11
11/11/2023	7:40	8	8
11/11/2023	7:45	31	20
11/11/2023	7:50	156	<u>94</u>
11/11/2023	7:55	50	<u>103</u>

11/11/2023	8:00	23	37
11/11/2023	8:05	11	17
Hidden cells with no values exceeding limit.			
11/11/2023	20:30	2	2
11/11/2023	20:35	2	2
11/11/2023	20:40	51	27
11/11/2023	20:45	197	<u>124</u>
11/11/2023	20:50	130	<u>163</u>
11/11/2023	20:55	137	<u>133</u>
11/11/2023	21:00	22	<u>80</u>
11/11/2023	21:05	14	18
11/11/2023	21:10	177	<u>95</u>
11/11/2023	21:15	338	<u>258</u>
11/11/2023	21:20	200	<u>269</u>
11/11/2023	21:25	158	<u>179</u>
11/11/2023	21:30	46	<u>102</u>
11/11/2023	21:35	20	<u>33</u>
11/11/2023	21:40	14	17
11/11/2023	21:45	10	12
11/11/2023	21:50	10	10
11/11/2023	21:55	186	<u>98</u>
11/11/2023	22:00	188	<u>187</u>
11/11/2023	22:05	80	<u>134</u>
11/11/2023	22:10	108	<u>94</u>
11/11/2023	22:15	177	<u>143</u>
11/11/2023	22:20	162	<u>170</u>
11/11/2023	22:25	143	<u>152</u>
11/11/2023	22:30	49	<u>96</u>
11/11/2023	22:35	24	36
11/11/2023	22:40	152	<u>88</u>
11/11/2023	22:45	94	<u>123</u>
11/11/2023	22:50	141	<u>117</u>
11/11/2023	22:55	172	<u>156</u>
11/11/2023	23:00	185	<u>178</u>
11/11/2023	23:05	195	<u>190</u>
11/11/2023	23:10	119	<u>157</u>
11/11/2023	23:15	140	<u>130</u>
11/11/2023	23:20	35	<u>88</u>
11/11/2023	23:25	30	<u>33</u>
11/11/2023	23:30	25	28
11/11/2023	23:35	79	52
11/11/2023	23:40	102	<u>90</u>
11/11/2023	23:45	115	<u>109</u>
11/11/2023	23:50	66	<u>91</u>
11/11/2023	23:55	131	<u>99</u>
12/11/2023	0:00	112	<u>121</u>
12/11/2023	0:05	28	<u>70</u>
12/11/2023	0:10	18	23
12/11/2023	0:15	23	20
12/11/2023	0:20	54	38
12/11/2023	0:25	74	64
12/11/2023	0:30	62	<u>68</u>
12/11/2023	0:35	32	<u>47</u>
12/11/2023	0:40	51	41
12/11/2023	0:45	68	59
Hidden cells with no values exceeding limit.			
12/11/2023	1:05	39	45
12/11/2023	1:10	39	39
12/11/2023	1:15	91	65
12/11/2023	1:20	84	<u>87</u>
12/11/2023	1:25	93	<u>88</u>
12/11/2023	1:30	95	<u>94</u>
12/11/2023	1:35	53	<u>74</u>
12/11/2023	1:40	21	37
12/11/2023	1:45	-	21
Hidden cells with no values exceeding limit.			
12/11/2023	2:25	16	31
12/11/2023	2:30	25	21
12/11/2023	2:35	97	61
12/11/2023	2:40	82	<u>90</u>
12/11/2023	2:45	76	<u>79</u>
12/11/2023	2:50	62	<u>69</u>
12/11/2023	2:55	48	<u>55</u>
12/11/2023	3:00	41	45

12/11/2023	3:05	56	49
Hidden cells with no values exceeding limit.			
12/11/2023	3:20	90	52
12/11/2023	3:25	44	67
12/11/2023	3:30	64	54
12/11/2023	3:35	72	68
12/11/2023	3:40	89	80
12/11/2023	3:45	42	66
12/11/2023	3:50	27	34
Hidden cells with no values exceeding limit.			
12/11/2023	5:25	7	9
12/11/2023	5:30	5	6
12/11/2023	5:35	33	19
12/11/2023	5:40	118	75
12/11/2023	5:45	80	99
12/11/2023	5:50	28	54
12/11/2023	5:55	14	21
12/11/2023	6:00	14	14
12/11/2023	6:05	88	51
12/11/2023	6:10	84	86
12/11/2023	6:15	20	52
12/11/2023	6:20	30	25
12/11/2023	6:25	193	111
12/11/2023	6:30	122	158
12/11/2023	6:35	100	111
12/11/2023	6:40	104	102
12/11/2023	6:45	123	113
12/11/2023	6:50	124	123
12/11/2023	6:55	68	96
12/11/2023	7:00	24	46
12/11/2023	7:05	24	24
12/11/2023	7:10	109	67
12/11/2023	7:15	117	113
12/11/2023	7:20	112	115
12/11/2023	7:25	95	104
12/11/2023	7:30	81	88
12/11/2023	7:35	59	70
12/11/2023	7:40	63	61
12/11/2023	7:45	23	43
12/11/2023	7:50	17	20
Hidden cells with no values exceeding limit.			
12/11/2023	17:55	1	1
12/11/2023	18:00	26	13
12/11/2023	18:05	23	24
12/11/2023	18:10	131	77
12/11/2023	18:15	139	135
12/11/2023	18:20	137	138
12/11/2023	18:25	50	94
12/11/2023	18:30	87	69
12/11/2023	18:35	19	53
12/11/2023	18:40	11	15
12/11/2023	18:45	177	94
12/11/2023	18:50	125	151
12/11/2023	18:55	66	96
12/11/2023	19:00	46	56
12/11/2023	19:05	70	58
12/11/2023	19:10	83	76
12/11/2023	19:15	68	76
12/11/2023	19:20	29	49
12/11/2023	19:25	15	22
Hidden cells with no values exceeding limit.			
12/11/2023	23:15	40	23
12/11/2023	23:20	58	49
12/11/2023	23:25	61	59
12/11/2023	23:30	100	81
12/11/2023	23:35	87	94
12/11/2023	23:40	70	78
12/11/2023	23:45	41	55
12/11/2023	23:50	18	29
12/11/2023	23:55	11	14
Hidden cells with no values exceeding limit.			
14/11/2023	18:50	2	5
14/11/2023	18:55	2	2
14/11/2023	19:00	125	64

14/11/2023	19:05	199	<u>162</u>
14/11/2023	19:10	71	<u>135</u>
14/11/2023	19:15	23	47
14/11/2023	19:20	14	19
Hidden cells with no values exceeding limit.			
14/11/2023	19:35	14	34
14/11/2023	19:40	7	11
14/11/2023	19:45	23	15
14/11/2023	19:50	212	<u>118</u>
14/11/2023	19:55	228	<u>220</u>
14/11/2023	20:00	112	<u>170</u>
14/11/2023	20:05	117	<u>114</u>
14/11/2023	20:10	96	<u>107</u>
14/11/2023	20:15	82	<u>89</u>
14/11/2023	20:20	43	63
14/11/2023	20:25	17	30
Hidden cells with no values exceeding limit.			
15/11/2023	6:55	32	56
15/11/2023	7:00	12	22
15/11/2023	7:05	66	39
15/11/2023	7:10	89	<u>78</u>
15/11/2023	7:15	42	<u>65</u>
15/11/2023	7:20	22	32
15/11/2023	7:25	12	17
15/11/2023	7:30	8	10
15/11/2023	7:35	7	8
15/11/2023	7:40	19	13
15/11/2023	7:45	220	<u>120</u>
15/11/2023	7:50	180	<u>200</u>
15/11/2023	7:55	67	<u>123</u>
15/11/2023	8:00	45	<u>56</u>
15/11/2023	8:05	27	36
15/11/2023	8:10	28	28
Hidden cells with no values exceeding limit.			
15/11/2023	23:45	10	11
15/11/2023	23:50	5	7
15/11/2023	23:55	4	4
16/11/2023	0:00	157	<u>80</u>
16/11/2023	0:05	72	<u>114</u>
16/11/2023	0:10	109	<u>91</u>
16/11/2023	0:15	26	<u>68</u>
16/11/2023	0:20	16	21
16/11/2023	0:25	37	27
16/11/2023	0:30	135	<u>86</u>
16/11/2023	0:35	25	<u>80</u>
16/11/2023	0:40	16	21
16/11/2023	0:45	158	<u>87</u>
16/11/2023	0:50	485	<u>322</u>
16/11/2023	0:55	53	<u>269</u>
16/11/2023	1:00	29	<u>41</u>
16/11/2023	1:05	21	25
16/11/2023	1:10	23	22
Hidden cells with no values exceeding limit.			
16/11/2023	2:10	-	-
16/11/2023	2:15	187	-
16/11/2023	2:20	108	<u>148</u>
16/11/2023	2:25	48	<u>78</u>
16/11/2023	2:30	22	35
16/11/2023	2:35	24	23
16/11/2023	2:40	18	21
Hidden cells with no values exceeding limit.			
16/11/2023	2:55	7	8
16/11/2023	3:00	8	8
16/11/2023	3:05	112	60
16/11/2023	3:10	271	<u>191</u>
16/11/2023	3:15	153	<u>212</u>
16/11/2023	3:20	107	<u>130</u>
16/11/2023	3:25	51	<u>79</u>
16/11/2023	3:30	79	65
16/11/2023	3:35	135	<u>107</u>
16/11/2023	3:40	48	<u>91</u>
16/11/2023	3:45	24	36
16/11/2023	3:50	16	20
16/11/2023	3:55	12	14

16/11/2023	4:00	10	11
16/11/2023	4:05	8	9
16/11/2023	4:10	148	<u>78</u>
16/11/2023	4:15	117	<u>133</u>
16/11/2023	4:20	82	<u>100</u>
16/11/2023	4:25	68	<u>75</u>
16/11/2023	4:30	30	49
16/11/2023	4:35	72	51
Hidden cells with no values exceeding limit.			
16/11/2023	4:45	19	28
16/11/2023	4:50	14	16
16/11/2023	4:55	11	12
16/11/2023	5:00	236	<u>123</u>
16/11/2023	5:05	177	<u>207</u>
16/11/2023	5:10	64	<u>121</u>
16/11/2023	5:15	34	<u>49</u>
16/11/2023	5:20	68	51
16/11/2023	5:25	105	<u>86</u>
16/11/2023	5:30	69	<u>87</u>
16/11/2023	5:35	40	55
16/11/2023	5:40	22	31
Hidden cells with no values exceeding limit.			
16/11/2023	6:05	12	13
16/11/2023	6:10	49	31
16/11/2023	6:15	39	44
16/11/2023	6:20	123	<u>81</u>
16/11/2023	6:25	25	<u>74</u>
16/11/2023	6:30	16	20
16/11/2023	6:35	39	27
Hidden cells with no values exceeding limit.			
16/11/2023	6:50	12	13
16/11/2023	6:55	10	11
16/11/2023	7:00	35	22
16/11/2023	7:05	127	<u>81</u>
16/11/2023	7:10	71	<u>99</u>
16/11/2023	7:15	71	<u>71</u>
16/11/2023	7:20	40	<u>55</u>
16/11/2023	7:25	39	40
16/11/2023	7:30	21	30
Hidden cells with no values exceeding limit.			
16/11/2023	8:10	70	48
16/11/2023	8:15	53	61
16/11/2023	8:20	46	50
16/11/2023	8:25	92	<u>69</u>
16/11/2023	8:30	77	<u>84</u>
16/11/2023	8:35	26	51
16/11/2023	8:40	20	23
Hidden cells with no values exceeding limit.			
17/11/2023	0:40	4	4
17/11/2023	0:45	6	5
17/11/2023	0:50	110	58
17/11/2023	0:55	85	<u>98</u>
17/11/2023	1:00	19	<u>52</u>
17/11/2023	1:05	11	15
17/11/2023	1:10	8	10
Hidden cells with no values exceeding limit.			
17/11/2023	1:20	7	7
17/11/2023	1:25	7	7
17/11/2023	1:30	50	28
17/11/2023	1:35	186	<u>118</u>
17/11/2023	1:40	35	<u>111</u>
17/11/2023	1:45	-	35
17/11/2023	1:50	-	-
Hidden cells with no values exceeding limit.			
17/11/2023	21:55	1	2
17/11/2023	22:00	1	1
17/11/2023	22:05	84	42
17/11/2023	22:10	185	<u>134</u>
17/11/2023	22:15	120	<u>153</u>
17/11/2023	22:20	25	<u>72</u>
17/11/2023	22:25	13	<u>19</u>
17/11/2023	22:30	12	12
17/11/2023	22:35	7	9
Hidden cells with no values exceeding limit.			



18/11/2023	1:15	11	7
18/11/2023	1:20	37	24
18/11/2023	1:25	82	60
18/11/2023	1:30	67	<u>75</u>
18/11/2023	1:35	119	<u>93</u>
18/11/2023	1:40	39	<u>79</u>
18/11/2023	1:45	-	<u>39</u>
18/11/2023	1:50	-	-
18/11/2023	1:55	-	-
Hidden cells with no values exceeding limit.			
18/11/2023	2:05	-	-
18/11/2023	2:10	-	-
18/11/2023	2:15	7	7
18/11/2023	2:20	281	<u>144</u>
18/11/2023	2:25	261	<u>271</u>
18/11/2023	2:30	75	<u>168</u>
18/11/2023	2:35	30	<u>52</u>
18/11/2023	2:40	18	24
18/11/2023	2:45	13	15
Hidden cells with no values exceeding limit.			
18/11/2023	5:20	4	3
18/11/2023	5:25	3	3
18/11/2023	5:30	28	16
18/11/2023	5:35	160	<u>94</u>
18/11/2023	5:40	69	<u>114</u>
18/11/2023	5:45	163	<u>116</u>
18/11/2023	5:50	143	<u>153</u>
18/11/2023	5:55	52	<u>97</u>
18/11/2023	6:00	23	<u>37</u>
18/11/2023	6:05	14	18
18/11/2023	6:10	10	12
Hidden cells with no values exceeding limit.			
19/11/2023	22:35	58	31
19/11/2023	22:40	47	52
19/11/2023	22:45	61	54
19/11/2023	22:50	95	<u>78</u>
19/11/2023	22:55	77	<u>86</u>
19/11/2023	23:00	110	<u>94</u>
19/11/2023	23:05	74	<u>92</u>
19/11/2023	23:10	18	46
19/11/2023	23:15	9	14
19/11/2023	23:20	64	37
19/11/2023	23:25	127	<u>96</u>
19/11/2023	23:30	76	<u>102</u>
19/11/2023	23:35	57	67
19/11/2023	23:40	38	47
Hidden cells with no values exceeding limit.			
20/11/2023	0:00	12	33
20/11/2023	0:05	7	10
20/11/2023	0:10	88	47
20/11/2023	0:15	92	<u>90</u>
20/11/2023	0:20	63	<u>78</u>
20/11/2023	0:25	28	46
20/11/2023	0:30	37	33
Hidden cells with no values exceeding limit.			
20/11/2023	2:25	2	2
20/11/2023	2:30	1	1
20/11/2023	2:35	15	8
20/11/2023	2:40	124	<u>69</u>
20/11/2023	2:45	49	<u>86</u>
20/11/2023	2:50	13	31
20/11/2023	2:55	8	10
Hidden cells with no values exceeding limit.			
20/11/2023	3:10	5	9
20/11/2023	3:15	4	4
20/11/2023	3:20	108	56
20/11/2023	3:25	110	<u>109</u>
20/11/2023	3:30	29	<u>70</u>
20/11/2023	3:35	27	28
20/11/2023	3:40	19	23
Hidden cells with no values exceeding limit.			
20/11/2023	4:15	29	25
20/11/2023	4:20	12	20
20/11/2023	4:25	69	40

20/11/2023	4:30	100	<u>84</u>
20/11/2023	4:35	94	<u>97</u>
20/11/2023	4:40	24	59
20/11/2023	4:45	14	19
20/11/2023	4:50	9	11
20/11/2023	4:55	80	44
20/11/2023	5:00	120	<u>100</u>
20/11/2023	5:05	118	<u>119</u>
20/11/2023	5:10	90	<u>104</u>
20/11/2023	5:15	105	<u>97</u>
20/11/2023	5:20	105	<u>105</u>
20/11/2023	5:25	115	<u>110</u>
20/11/2023	5:30	30	<u>72</u>
20/11/2023	5:35	18	<u>24</u>
20/11/2023	5:40	121	<u>69</u>
20/11/2023	5:45	181	<u>151</u>
20/11/2023	5:50	152	<u>166</u>
20/11/2023	5:55	124	<u>138</u>
20/11/2023	6:00	111	<u>118</u>
20/11/2023	6:05	106	<u>109</u>
20/11/2023	6:10	110	<u>108</u>
20/11/2023	6:15	51	<u>81</u>
20/11/2023	6:20	20	35
20/11/2023	6:25	16	18
20/11/2023	6:30	75	45
20/11/2023	6:35	92	<u>84</u>
20/11/2023	6:40	60	<u>76</u>
20/11/2023	6:45	45	52
20/11/2023	6:50	76	60
20/11/2023	6:55	74	<u>75</u>
20/11/2023	7:00	58	<u>66</u>
20/11/2023	7:05	19	38
20/11/2023	7:10	13	16
Hidden cells with no values exceeding limit.			
26/11/2023	2:25	56	65
26/11/2023	2:30	36	46
26/11/2023	2:35	85	60
26/11/2023	2:40	55	<u>70</u>
26/11/2023	2:45	41	<u>48</u>
26/11/2023	2:50	43	42
26/11/2023	2:55	13	28
26/11/2023	3:00	8	10
26/11/2023	3:05	13	10
26/11/2023	3:10	81	47
26/11/2023	3:15	72	<u>77</u>
26/11/2023	3:20	55	<u>63</u>
26/11/2023	3:25	86	<u>71</u>
26/11/2023	3:30	64	<u>75</u>
26/11/2023	3:35	36	50
26/11/2023	3:40	19	28
Hidden cells with no values exceeding limit.			
26/11/2023	3:55	6	6
26/11/2023	4:00	21	13
26/11/2023	4:05	71	46
26/11/2023	4:10	85	<u>78</u>
26/11/2023	4:15	87	<u>86</u>
26/11/2023	4:20	31	59
26/11/2023	4:25	15	23
Hidden cells with no values exceeding limit.			
26/11/2023	4:50	26	48
26/11/2023	4:55	22	24
26/11/2023	5:00	68	45
26/11/2023	5:05	103	<u>85</u>
26/11/2023	5:10	50	<u>76</u>
26/11/2023	5:15	17	33
26/11/2023	5:20	12	14

**Notes:**

D, T & V	- Date, Time & Exceedance Value Reported
Faded Values	- Not used to calculate the number of reportable exceedances
	- Range of 5-minute measurements that contribute to the Exceedance Value Reporte
<u>Max</u>	- Maximum of the Range
<u>Min</u>	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO<sub>2</sub> = 67 ppb for 10-minute running average

Total Number of Reportable Exceedances:

**122**

**SO2 Exceedance Report**

**Table E3**

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

Date (dd/mm/yyyy)	Time (EST)	SO <sub>2</sub>	SO <sub>2</sub>
		5-min Avg. (ppb)	10-minute Running Avg. (ppb)
05/12/2023	5:45	40	25
05/12/2023	5:50	33	36
05/12/2023	5:55	77	55
05/12/2023	6:00	72	<u>74</u>
05/12/2023	6:05	27	<u>49</u>
05/12/2023	6:10	11	19
05/12/2023	6:15	8	10
Hidden cells with no values exceeding limit.			
05/12/2023	17:00	8	16
05/12/2023	17:05	6	7
05/12/2023	17:10	72	39
05/12/2023	17:15	76	<u>74</u>
05/12/2023	17:20	57	<u>67</u>
05/12/2023	17:25	90	<u>73</u>
05/12/2023	17:30	35	<u>63</u>
05/12/2023	17:35	27	31
05/12/2023	17:40	26	27
Hidden cells with no values exceeding limit.			
05/12/2023	18:05	5	5
05/12/2023	18:10	7	6
05/12/2023	18:15	64	36
05/12/2023	18:20	81	<u>73</u>
05/12/2023	18:25	72	<u>77</u>
05/12/2023	18:30	68	<u>70</u>
05/12/2023	18:35	25	<u>46</u>
05/12/2023	18:40	13	19
05/12/2023	18:45	11	12
Hidden cells with no values exceeding limit.			
06/12/2023	0:30	12	17
06/12/2023	0:35	29	21
06/12/2023	0:40	90	59
06/12/2023	0:45	50	<u>70</u>
06/12/2023	0:50	19	<u>35</u>
06/12/2023	0:55	13	16
06/12/2023	1:00	32	22
Hidden cells with no values exceeding limit.			
06/12/2023	1:20	11	13
06/12/2023	1:25	39	25
06/12/2023	1:30	61	50
06/12/2023	1:35	74	<u>68</u>
06/12/2023	1:40	63	<u>69</u>
06/12/2023	1:45		63
06/12/2023	1:50		-
Hidden cells with no values exceeding limit.			
06/12/2023	2:55	11	20
06/12/2023	3:00	6	9
06/12/2023	3:05	89	47
06/12/2023	3:10	235	<u>162</u>
06/12/2023	3:15	76	<u>155</u>
06/12/2023	3:20	30	53
06/12/2023	3:25	20	25
Hidden cells with no values exceeding limit.			
06/12/2023	21:05	1	1
06/12/2023	21:10	0	0
06/12/2023	21:15	62	31
06/12/2023	21:20	109	<u>85</u>
06/12/2023	21:25	140	<u>124</u>
06/12/2023	21:30	45	<u>92</u>
06/12/2023	21:35	142	<u>93</u>
06/12/2023	21:40	49	<u>95</u>
06/12/2023	21:45	32	<u>41</u>
06/12/2023	21:50	16	24

06/12/2023	21:55	10	13
Hidden cells with no values exceeding limit.			
06/12/2023	22:15	25	15
06/12/2023	22:20	93	59
06/12/2023	22:25	30	61
06/12/2023	22:30	104	<u>67</u>
06/12/2023	22:35	38	<u>71</u>
06/12/2023	22:40	31	35
06/12/2023	22:45	15	23
06/12/2023	22:50	9	12
06/12/2023	22:55	51	30
06/12/2023	23:00	120	<u>85</u>
06/12/2023	23:05	62	<u>91</u>
06/12/2023	23:10	76	<u>69</u>
06/12/2023	23:15	57	<u>67</u>
06/12/2023	23:20	20	39
06/12/2023	23:25	13	17
Hidden cells with no values exceeding limit.			
08/12/2023	0:05	5	4
08/12/2023	0:10	21	13
08/12/2023	0:15	45	33
08/12/2023	0:20	100	<u>72</u>
08/12/2023	0:25	67	<u>84</u>
08/12/2023	0:30	36	52
08/12/2023	0:35	26	31
08/12/2023	0:40	12	19
08/12/2023	0:45	12	12
08/12/2023	0:50	121	67
08/12/2023	0:55	81	<u>101</u>
08/12/2023	1:00	103	<u>92</u>
08/12/2023	1:05	94	<u>99</u>
08/12/2023	1:10	81	<u>88</u>
08/12/2023	1:15	29	55
08/12/2023	1:20	27	28
Hidden cells with no values exceeding limit.			
16/12/2023	2:40	51	28
16/12/2023	2:45	22	37
16/12/2023	2:50	95	59
16/12/2023	2:55	67	<u>81</u>
16/12/2023	3:00	15	<u>41</u>
16/12/2023	3:05	14	15
16/12/2023	3:10	8	11
Hidden cells with no values exceeding limit.			
16/12/2023	3:40	54	33
16/12/2023	3:45	18	36
16/12/2023	3:50	62	40
16/12/2023	3:55	160	<u>111</u>
16/12/2023	4:00	66	<u>113</u>
16/12/2023	4:05	45	55
16/12/2023	4:10	24	34
Hidden cells with no values exceeding limit.			
16/12/2023	4:40	10	9
16/12/2023	4:45	21	16
16/12/2023	4:50	91	56
16/12/2023	4:55	51	<u>71</u>
16/12/2023	5:00	74	<u>62</u>
16/12/2023	5:05	52	63
16/12/2023	5:10	54	53
Hidden cells with no values exceeding limit.			
16/12/2023	7:40	14	19
16/12/2023	7:45	14	14
16/12/2023	7:50	72	43
16/12/2023	7:55	152	<u>112</u>
16/12/2023	8:00	71	<u>112</u>
16/12/2023	8:05	28	50
16/12/2023	8:10	46	37
Hidden cells with no values exceeding limit.			
19/12/2023	17:50	3	3
19/12/2023	17:55	0	2
19/12/2023	18:00	7	4
19/12/2023	18:05	252	<u>130</u>
19/12/2023	18:10	176	<u>214</u>
19/12/2023	18:15	137	<u>156</u>

19/12/2023	18:20	132	<u>135</u>
19/12/2023	18:25	123	<u>128</u>
19/12/2023	18:30	88	<u>105</u>
19/12/2023	18:35	27	57
19/12/2023	18:40	13	20
19/12/2023	18:45	136	<u>75</u>
19/12/2023	18:50	262	<u>199</u>
19/12/2023	18:55	178	<u>220</u>
19/12/2023	19:00	43	<u>111</u>
19/12/2023	19:05	46	45
19/12/2023	19:10	72	59
Hidden cells with no values exceeding limit.			
20/12/2023	16:50	1	1
20/12/2023	16:55	1	1
20/12/2023	17:00	1	1
20/12/2023	17:05	139	<u>70</u>
20/12/2023	17:10	78	<u>108</u>
20/12/2023	17:15	11	44
20/12/2023	17:20	11	11
20/12/2023	17:25	105	58
20/12/2023	17:30	91	<u>98</u>
20/12/2023	17:35	143	<u>117</u>
20/12/2023	17:40	88	<u>115</u>
20/12/2023	17:45	24	<u>56</u>
20/12/2023	17:50	14	19
20/12/2023	17:55	10	12
20/12/2023	18:00	46	28
20/12/2023	18:05	39	43
20/12/2023	18:10	34	37
20/12/2023	18:15	110	<u>72</u>
20/12/2023	18:20	92	<u>101</u>
20/12/2023	18:25	38	65
20/12/2023	18:30	17	27
20/12/2023	18:35	12	14
20/12/2023	18:40	18	15
20/12/2023	18:45	102	60
20/12/2023	18:50	218	<u>160</u>
20/12/2023	18:55	57	<u>138</u>
20/12/2023	19:00	45	51
20/12/2023	19:05	91	<u>68</u>
20/12/2023	19:10	112	<u>101</u>
20/12/2023	19:15	40	<u>76</u>
20/12/2023	19:20	21	<u>30</u>
20/12/2023	19:25	20	21
20/12/2023	19:30	20	20
Hidden cells with no values exceeding limit.			
31/12/2023	6:05	8	24
31/12/2023	6:10	4	6
31/12/2023	6:15	32	18
31/12/2023	6:20	132	<u>82</u>
31/12/2023	6:25	68	<u>100</u>
31/12/2023	6:30	91	<u>80</u>
31/12/2023	6:35	53	<u>72</u>
31/12/2023	6:40	25	39
31/12/2023	6:45	14	20

**Notes:**

<b>D, T &amp; V</b>	- 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 Exceedence Value Reported
<u>Max</u>	- Maximum of the Range
<u>Min</u>	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO<sub>2</sub> = 67 ppb for 10-minute running average

Total Number of Reportable Exceedences:

**35**

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

Date (mm/dd/yyyy)	Time (EST)	SO <sub>2</sub>	SO <sub>2</sub>
		5-min Avg. (ppb)	1-hr Running Avg. (ppb)
11/10/2023	22:50	2	1
11/10/2023	22:55	4	2
11/10/2023	23:00	8	2
11/10/2023	23:05	83	9
11/10/2023	23:10	113	18
11/10/2023	23:15	99	27
11/10/2023	23:20	78	33
11/10/2023	23:25	19	34
11/10/2023	23:30	11	35
11/10/2023	23:35	9	36
11/10/2023	23:40	6	36
11/10/2023	23:45	25	38
11/10/2023	23:50	20	40
11/10/2023	23:55	9	<u>40</u>
12/10/2023	0:00	6	40
12/10/2023	0:05	5	33
12/10/2023	0:10	50	28
12/10/2023	0:15	39	23
12/10/2023	0:20	35	19
12/10/2023	0:25	13	19
12/10/2023	0:30	9	19
12/10/2023	0:35	6	19
12/10/2023	0:40	19	20
12/10/2023	0:45	10	18
12/10/2023	0:50	7	<u>17</u>
12/10/2023	0:55	16	18
12/10/2023	1:00	66	23
Hidden cells with no values exceeding limit.			
12/10/2023	1:55		25
12/10/2023	2:00		20
12/10/2023	2:05		9
12/10/2023	2:10		7
12/10/2023	2:15	2	5
12/10/2023	2:20	11	6
12/10/2023	2:25	310	56
12/10/2023	2:30	82	69
12/10/2023	2:35	35	74
12/10/2023	2:40	20	77
12/10/2023	2:45	13	68
12/10/2023	2:50	9	61
12/10/2023	2:55	8	<u>55</u>
12/10/2023	3:00	9	50
12/10/2023	3:05	6	46
12/10/2023	3:10	5	43
12/10/2023	3:15	5	43
12/10/2023	3:20	15	43
12/10/2023	3:25	9	18
12/10/2023	3:30	6	12
12/10/2023	3:35	5	9
12/10/2023	3:40	4	8
12/10/2023	3:45	4	7
12/10/2023	3:50	4	7
12/10/2023	3:55	3	<u>6</u>
12/10/2023	4:00	15	7
12/10/2023	4:05	76	13
Hidden cells with no values exceeding limit.			
12/10/2023	22:05	27	23
12/10/2023	22:10	13	23
12/10/2023	22:15	9	23
12/10/2023	22:20	7	23
12/10/2023	22:25	5	23
12/10/2023	22:30	5	20
12/10/2023	22:35	4	19
12/10/2023	22:40	7	16
12/10/2023	22:45	7	16
12/10/2023	22:50	4	15

12/10/2023	22:55	6	15
12/10/2023	23:00	9	9
12/10/2023	23:05	149	19
12/10/2023	23:10	324	<u>45</u>
12/10/2023	23:15	162	57
12/10/2023	23:20	35	60
12/10/2023	23:25	69	65
12/10/2023	23:30	218	83
12/10/2023	23:35	199	99
12/10/2023	23:40	124	109
12/10/2023	23:45	34	111
12/10/2023	23:50	22	113
12/10/2023	23:55	15	113
13/10/2023	0:00	105	<u>121</u>
13/10/2023	0:05	21	111
13/10/2023	0:10	33	<b>87</b>
13/10/2023	0:15	197	89
13/10/2023	0:20	115	<u>96</u>
13/10/2023	0:25	33	93
13/10/2023	0:30	21	77
13/10/2023	0:35	16	61
13/10/2023	0:40	14	52
13/10/2023	0:45	11	50
13/10/2023	0:50	10	49
13/10/2023	0:55	9	49
13/10/2023	1:00	8	41
13/10/2023	1:05	7	<u>39</u>
13/10/2023	1:10	7	37
13/10/2023	1:15	7	21
Hidden cells with no values exceeding limit.			
13/10/2023	21:15	2	2
13/10/2023	21:20	1	1
13/10/2023	21:25	1	1
13/10/2023	21:30	2	2
13/10/2023	21:35	4	2
13/10/2023	21:40	3	2
13/10/2023	21:45	2	2
13/10/2023	21:50	4	2
13/10/2023	21:55	77	8
13/10/2023	22:00	34	11
13/10/2023	22:05	20	13
13/10/2023	22:10	85	20
13/10/2023	22:15	131	30
13/10/2023	22:20	138	<u>42</u>
13/10/2023	22:25	196	58
13/10/2023	22:30	42	61
13/10/2023	22:35	23	63
13/10/2023	22:40	112	72
13/10/2023	22:45	144	84
13/10/2023	22:50	43	87
13/10/2023	22:55	71	87
13/10/2023	23:00	51	88
13/10/2023	23:05	70	<u>92</u>
13/10/2023	23:10	56	90
13/10/2023	23:15	40	82
13/10/2023	23:20	20	<b>72</b>
13/10/2023	23:25	91	64
13/10/2023	23:30	108	69
13/10/2023	23:35	80	<u>74</u>
13/10/2023	23:40	74	71
13/10/2023	23:45	99	67
13/10/2023	23:50	87	70
13/10/2023	23:55	76	71
14/10/2023	0:00	33	69
14/10/2023	0:05	19	65
14/10/2023	0:10	14	<u>62</u>
14/10/2023	0:15	66	64
14/10/2023	0:20	73	<u>68</u>
14/10/2023	0:25	65	66
14/10/2023	0:30	43	61
14/10/2023	0:35	41	57
14/10/2023	0:40	29	54
14/10/2023	0:45	22	47
14/10/2023	0:50	14	41
14/10/2023	0:55	10	36
14/10/2023	1:00	8	34



14/10/2023	1:05	8	33
14/10/2023	1:10	7	32
14/10/2023	1:15	10	<u>28</u>
14/10/2023	1:20	30	24
14/10/2023	1:25	19	20
Hidden cells with no values exceeding limit.			
14/10/2023	16:35	2	6
14/10/2023	16:40	31	8
14/10/2023	16:45	30	9
14/10/2023	16:50	39	12
14/10/2023	16:55	25	13
14/10/2023	17:00	14	13
14/10/2023	17:05	14	14
14/10/2023	17:10	13	15
14/10/2023	17:15	10	15
14/10/2023	17:20	4	15
14/10/2023	17:25	42	19
14/10/2023	17:30	121	29
14/10/2023	17:35	118	38
14/10/2023	17:40	95	44
14/10/2023	17:45	84	<u>48</u>
14/10/2023	17:50	16	46
14/10/2023	17:55	9	45
14/10/2023	18:00	6	44
14/10/2023	18:05	5	44
14/10/2023	18:10	4	43
14/10/2023	18:15	3	42
14/10/2023	18:20	3	42
14/10/2023	18:25	3	39
14/10/2023	18:30	3	29
14/10/2023	18:35	2	<u>19</u>
14/10/2023	18:40	2	12
14/10/2023	18:45	2	5
Hidden cells with no values exceeding limit.			
18/10/2023	6:00	2	2
18/10/2023	6:05	32	5
18/10/2023	6:10	10	5
18/10/2023	6:15	5	6
18/10/2023	6:20	14	7
18/10/2023	6:25	5	7
18/10/2023	6:30	16	8
18/10/2023	6:35	8	9
18/10/2023	6:40	5	9
18/10/2023	6:45	4	9
18/10/2023	6:50	4	9
18/10/2023	6:55	2	9
18/10/2023	7:00	7	9
18/10/2023	7:05	593	<u>56</u>
18/10/2023	7:10	342	84
18/10/2023	7:15	195	100
18/10/2023	7:20	52	103
18/10/2023	7:25	31	105
18/10/2023	7:30	19	105
18/10/2023	7:35	16	106
18/10/2023	7:40	13	106
18/10/2023	7:45	11	107
18/10/2023	7:50	10	108
18/10/2023	7:55	8	108
18/10/2023	8:00	7	<u>108</u>
18/10/2023	8:05	6	<u>59</u>
18/10/2023	8:10	6	31
18/10/2023	8:15	5	15
18/10/2023	8:20	5	11
18/10/2023	8:25	5	9
18/10/2023	8:30	5	8
18/10/2023	8:35	5	7
18/10/2023	8:40	4	6
18/10/2023	8:45	4	6
18/10/2023	8:50	4	5
18/10/2023	8:55	4	5
18/10/2023	9:00	4	<u>5</u>
18/10/2023	9:05	3	4
18/10/2023	9:10	3	4
Hidden cells with no values exceeding limit.			
24/10/2023	20:20	1	1
24/10/2023	20:25	1	1

24/10/2023	20:30	1	1
24/10/2023	20:35	1	1
24/10/2023	20:40	1	1
24/10/2023	20:45	1	1
24/10/2023	20:50	1	1
24/10/2023	20:55	1	1
24/10/2023	21:00	1	1
24/10/2023	21:05	1	1
24/10/2023	21:10	1	1
24/10/2023	21:15	1	1
24/10/2023	21:20	240	21
24/10/2023	21:25	310	<u>46</u>
24/10/2023	21:30	161	60
24/10/2023	21:35	61	65
24/10/2023	21:40	22	67
24/10/2023	21:45	21	68
24/10/2023	21:50	13	69
24/10/2023	21:55	10	70
24/10/2023	22:00	8	71
24/10/2023	22:05	7	71
24/10/2023	22:10	24	73
24/10/2023	22:15	44	<u>77</u>
24/10/2023	22:20	16	58
24/10/2023	22:25	10	33
24/10/2023	22:30	7	20

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 Exceedence Value Reported
<u>Max</u>	- Maximum of the Range
<u>Min</u>	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO<sub>2</sub> = 40 ppb for 1-hour running average

Total Number of Reportable Exceedences: 11

**SO2 Exceedance Report Table E5**

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

Date (dd/mm/yyyy)	Time (EST)	SO <sub>2</sub>	SO <sub>2</sub>
		5-min Avg. (ppb)	1-hr Running Avg. (ppb)
01/11/2023	20:05	0	0
01/11/2023	20:10	0	0
01/11/2023	20:15	1	0
01/11/2023	20:20	29	2
01/11/2023	20:25	151	15
01/11/2023	20:30	112	24
01/11/2023	20:35	58	29
01/11/2023	20:40	11	30
01/11/2023	20:45	7	31
01/11/2023	20:50	62	36
01/11/2023	20:55	12	37
01/11/2023	21:00	7	37
01/11/2023	21:05	13	39
01/11/2023	21:10	44	42
01/11/2023	21:15	6	43
01/11/2023	21:20	3	41
01/11/2023	21:25	3	28
01/11/2023	21:30	2	19
01/11/2023	21:35	2	14
01/11/2023	21:40	2	14
01/11/2023	21:45	40	16
01/11/2023	21:50	104	20
01/11/2023	21:55	23	21
01/11/2023	22:00	99	28
01/11/2023	22:05	85	34
01/11/2023	22:10	16	32
01/11/2023	22:15	10	32
Hidden cells with no values exceeding limit.			
04/11/2023	16:50	1	1
04/11/2023	16:55	1	1
04/11/2023	17:00	1	1
04/11/2023	17:05	1	1
04/11/2023	17:10	1	1
04/11/2023	17:15	1	1
04/11/2023	17:20	1	1
04/11/2023	17:25	1	1
04/11/2023	17:30	57	5
04/11/2023	17:35	120	15
04/11/2023	17:40	66	21
04/11/2023	17:45	90	28
04/11/2023	17:50	79	35
04/11/2023	17:55	101	43
04/11/2023	18:00	45	47
04/11/2023	18:05	17	48
04/11/2023	18:10	11	49
04/11/2023	18:15	8	50
04/11/2023	18:20	19	51
04/11/2023	18:25	85	58
04/11/2023	18:30	60	59
04/11/2023	18:35	70	54
04/11/2023	18:40	23	51
04/11/2023	18:45	15	44
04/11/2023	18:50	9	39
04/11/2023	18:55	8	31
04/11/2023	19:00	6	28
Hidden cells with no values exceeding limit.			
05/11/2023	6:05	1	2
05/11/2023	6:10	1	2
05/11/2023	6:15	1	2
05/11/2023	6:20	7	3
05/11/2023	6:25	30	5
05/11/2023	6:30	79	12
05/11/2023	6:35	89	19
05/11/2023	6:40	22	20
05/11/2023	6:45	54	24
05/11/2023	6:50	79	31
05/11/2023	6:55	50	35
05/11/2023	7:00	15	36
05/11/2023	7:05	9	36
05/11/2023	7:10	197	53
05/11/2023	7:15	113	62
05/11/2023	7:20	23	63
05/11/2023	7:25	14	62
05/11/2023	7:30	11	56
05/11/2023	7:35	9	50
05/11/2023	7:40	8	49
05/11/2023	7:45	7	45
05/11/2023	7:50	6	39
05/11/2023	7:55	6	35
05/11/2023	8:00	6	34
05/11/2023	8:05	5	34
05/11/2023	8:10	5	18
05/11/2023	8:15	5	9
Hidden cells with no values exceeding limit.			
08/11/2023	4:50	3	29
08/11/2023	4:55	10	30
08/11/2023	5:00	49	34
08/11/2023	5:05	60	28
08/11/2023	5:10	17	24
08/11/2023	5:15	63	28
08/11/2023	5:20	49	31
08/11/2023	5:25	126	34
08/11/2023	5:30	42	36
08/11/2023	5:35	15	37
08/11/2023	5:40	9	37

08/11/2023	5:45	7	38
08/11/2023	5:50	6	38
08/11/2023	5:55	62	42
08/11/2023	6:00	216	56
08/11/2023	6:05	107	60
08/11/2023	6:10	58	63
08/11/2023	6:15	79	65
08/11/2023	6:20	26	63
08/11/2023	6:25	76	58
08/11/2023	6:30	21	57
08/11/2023	6:35	11	56
08/11/2023	6:40	6	56
08/11/2023	6:45	22	57
08/11/2023	6:50	116	67
08/11/2023	6:55	52	66
08/11/2023	7:00	32	50
08/11/2023	7:05	17	43
08/11/2023	7:10	9	39
08/11/2023	7:15	8	33
08/11/2023	7:20	9	32
08/11/2023	7:25	8	26
08/11/2023	7:30	6	25
08/11/2023	7:35	5	24
08/11/2023	7:40	5	24
08/11/2023	7:45	5	23
08/11/2023	7:50	5	13
08/11/2023	7:55	4	9
08/11/2023	8:00	4	7
Hidden cells with no values exceeding limit.			
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11/11/2023	2:30	58	-
11/11/2023	2:35	83	-
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11/11/2023	3:15	4	32
11/11/2023	3:20	3	32
11/11/2023	3:25	3	30
11/11/2023	3:30	6	25
11/11/2023	3:35	4	19
11/11/2023	3:40	3	6
11/11/2023	3:45	2	5
11/11/2023	3:50	2	4
11/11/2023	3:55	2	4
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11/11/2023	6:35	40	12
11/11/2023	6:40	13	13
11/11/2023	6:45	13	14
11/11/2023	6:50	8	15
11/11/2023	6:55	5	15
11/11/2023	7:00	9	16
11/11/2023	7:05	65	21
11/11/2023	7:10	144	32
11/11/2023	7:15	140	43
11/11/2023	7:20	87	50
11/11/2023	7:25	20	49
11/11/2023	7:30	13	46
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11/11/2023	8:10	8	46
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11/11/2023	8:20	5	29
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11/11/2023	20:15	3	9
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11/11/2023	20:25	2	8
11/11/2023	20:30	2	8
11/11/2023	20:35	2	8
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11/11/2023	20:50	130	38
11/11/2023	20:55	137	48
11/11/2023	21:00	22	46
11/11/2023	21:05	14	47
11/11/2023	21:10	177	61
11/11/2023	21:15	338	89
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11/11/2023	21:25	158	119
11/11/2023	21:30	46	123

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11/11/2023	21:40	14	121
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11/11/2023	21:50	10	96
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11/11/2023	23:15	140	131
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12/11/2023	0:10	18	73
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12/11/2023	0:30	62	72
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12/11/2023	2:00	-	64
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12/11/2023	3:05	56	54
12/11/2023	3:10	30	52
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12/11/2023	3:35	72	57
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12/11/2023	5:05	6	12
12/11/2023	5:10	6	12
12/11/2023	5:15	13	12
12/11/2023	5:20	11	10
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12/11/2023	5:30	5	8
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12/11/2023	6:00	14	28
12/11/2023	6:05	88	35
12/11/2023	6:10	84	41
12/11/2023	6:15	20	42
12/11/2023	6:20	30	43

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12/11/2023	6:30	122	69
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12/11/2023	6:45	123	77
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12/11/2023	18:00	26	3
12/11/2023	18:05	23	5
12/11/2023	18:10	131	16
12/11/2023	18:15	139	27
12/11/2023	18:20	137	38
12/11/2023	18:25	50	43
12/11/2023	18:30	87	50
12/11/2023	18:35	19	51
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12/11/2023	21:50	4	10
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12/11/2023	23:15	40	6
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12/11/2023	23:30	100	23
12/11/2023	23:35	87	30
12/11/2023	23:40	70	36

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12/11/2023	23:50	18	41
12/11/2023	23:55	11	41
13/11/2023	0:00	8	42
13/11/2023	0:05	7	42
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13/11/2023	0:45	4	7
13/11/2023	0:50	5	6
13/11/2023	0:55	5	6
Hidden cells with no values exceeding limit.			
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14/11/2023	18:35	0	0
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14/11/2023	19:05	199	28
14/11/2023	19:10	71	34
14/11/2023	19:15	23	36
14/11/2023	19:20	14	37
14/11/2023	19:25	10	38
14/11/2023	19:30	53	42
14/11/2023	19:35	14	44
14/11/2023	19:40	7	44
14/11/2023	19:45	23	45
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14/11/2023	20:05	117	74
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14/11/2023	20:50	8	62
14/11/2023	20:55	7	44
14/11/2023	21:00	6	35
14/11/2023	21:05	5	25
14/11/2023	21:10	4	18
14/11/2023	21:15	4	11
14/11/2023	21:20	4	8
14/11/2023	21:25	3	7
14/11/2023	21:30	3	6
14/11/2023	21:35	3	5
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15/11/2023	6:50	80	11
15/11/2023	6:55	32	13
15/11/2023	7:00	12	14
15/11/2023	7:05	66	20
15/11/2023	7:10	89	27
15/11/2023	7:15	42	30
15/11/2023	7:20	22	32
15/11/2023	7:25	12	33
15/11/2023	7:30	8	34
15/11/2023	7:35	7	34
15/11/2023	7:40	19	36
15/11/2023	7:45	220	51
15/11/2023	7:50	180	59
15/11/2023	7:55	67	62
15/11/2023	8:00	45	65
15/11/2023	8:05	27	61
15/11/2023	8:10	28	56
15/11/2023	8:15	21	55
15/11/2023	8:20	12	54
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15/11/2023	8:40	7	53
15/11/2023	8:45	6	35
15/11/2023	8:50	6	20
Hidden cells with no values exceeding limit.			
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15/11/2023	23:20	3	12
15/11/2023	23:25	18	13
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15/11/2023	23:45	10	20
15/11/2023	23:50	5	13
15/11/2023	23:55	4	12
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16/11/2023	0:05	72	30
16/11/2023	0:10	109	39
16/11/2023	0:15	26	41
16/11/2023	0:20	16	42
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16/11/2023	0:45	158	63
16/11/2023	0:50	485	103
16/11/2023	0:55	53	108

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16/11/2023	1:05	21	93
16/11/2023	1:10	23	85
16/11/2023	1:15	27	86
16/11/2023	1:20	85	91
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16/11/2023	1:50	-	31
16/11/2023	1:55	-	28
16/11/2023	2:00	-	28
16/11/2023	2:05	-	29
16/11/2023	2:10	-	30
16/11/2023	2:15	187	57
16/11/2023	2:20	108	61
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16/11/2023	3:55	12	85
16/11/2023	4:00	10	85
16/11/2023	4:05	8	76
16/11/2023	4:10	148	66
16/11/2023	4:15	117	63
16/11/2023	4:20	82	61
16/11/2023	4:25	68	62
16/11/2023	4:30	30	58
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16/11/2023	5:05	177	84
16/11/2023	5:10	64	77
16/11/2023	5:15	34	70
16/11/2023	5:20	68	69
16/11/2023	5:25	105	72
16/11/2023	5:30	69	76
16/11/2023	5:35	40	73
16/11/2023	5:40	22	72
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16/11/2023	9:10	14	34
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16/11/2023	9:20	10	28
16/11/2023	9:25	9	21
16/11/2023	9:30	8	15
16/11/2023	9:35	8	13
16/11/2023	9:40	7	12
16/11/2023	9:45	6	12



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17/11/2023	0:40	4	13
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17/11/2023	0:55	85	24
17/11/2023	1:00	19	23
17/11/2023	1:05	11	22
17/11/2023	1:10	8	22
17/11/2023	1:15	8	23
17/11/2023	1:20	7	23
17/11/2023	1:25	7	23
17/11/2023	1:30	50	27
17/11/2023	1:35	186	42
17/11/2023	1:40	35	44
17/11/2023	1:45	-	48
17/11/2023	1:50	-	42
17/11/2023	1:55	-	37
17/11/2023	2:00	-	39
17/11/2023	2:05	-	43
17/11/2023	2:10	-	49
17/11/2023	2:15	10	49
17/11/2023	2:20	8	49
17/11/2023	2:25	7	49
17/11/2023	2:30	7	42
17/11/2023	2:35	6	12
17/11/2023	2:40	11	8
Hidden cells with no values exceeding limit.			
18/11/2023	0:50	2	3
18/11/2023	0:55	2	3
18/11/2023	1:00	2	3
18/11/2023	1:05	2	3
18/11/2023	1:10	2	3
18/11/2023	1:15	11	3
18/11/2023	1:20	37	6
18/11/2023	1:25	82	13
18/11/2023	1:30	67	18
18/11/2023	1:35	119	28
18/11/2023	1:40	39	31
18/11/2023	1:45	-	33
18/11/2023	1:50	-	36
18/11/2023	1:55	-	40
18/11/2023	2:00	-	45
18/11/2023	2:05	-	51
18/11/2023	2:10	-	59
18/11/2023	2:15	7	59
18/11/2023	2:20	281	99
18/11/2023	2:25	261	129
18/11/2023	2:30	75	130
18/11/2023	2:35	30	115
18/11/2023	2:40	18	112
18/11/2023	2:45	13	98
18/11/2023	2:50	12	87
18/11/2023	2:55	9	78
18/11/2023	3:00	7	71
18/11/2023	3:05	7	65
18/11/2023	3:10	6	60
18/11/2023	3:15	5	60
18/11/2023	3:20	5	37
18/11/2023	3:25	4	16
18/11/2023	3:30	4	10
18/11/2023	3:35	4	8
18/11/2023	3:40	4	7
18/11/2023	3:45	4	6
18/11/2023	3:50	3	5
18/11/2023	3:55	3	5
18/11/2023	4:00	3	4
Hidden cells with no values exceeding limit.			
18/11/2023	4:40	3	5
18/11/2023	4:45	3	5
18/11/2023	4:50	34	7
18/11/2023	4:55	12	8
18/11/2023	5:00	5	8
18/11/2023	5:05	4	8
18/11/2023	5:10	3	8
18/11/2023	5:15	3	8
18/11/2023	5:20	4	8
18/11/2023	5:25	3	8
18/11/2023	5:30	28	9
18/11/2023	5:35	160	22
18/11/2023	5:40	69	27
18/11/2023	5:45	163	41
18/11/2023	5:50	143	50
18/11/2023	5:55	52	53
18/11/2023	6:00	23	55
18/11/2023	6:05	14	55
18/11/2023	6:10	10	56
18/11/2023	6:15	8	56
18/11/2023	6:20	7	57
18/11/2023	6:25	7	57
18/11/2023	6:30	5	55
18/11/2023	6:35	5	42
18/11/2023	6:40	4	37
18/11/2023	6:45	4	23
18/11/2023	6:50	33	14
Hidden cells with no values exceeding limit.			
19/11/2023	21:40	3	14
19/11/2023	21:45	20	15
19/11/2023	21:50	32	18
19/11/2023	21:55	56	22
19/11/2023	22:00	72	28
19/11/2023	22:05	60	32

19/11/2023	22:10	68	36
19/11/2023	22:15	26	36
19/11/2023	22:20	12	36
19/11/2023	22:25	6	34
19/11/2023	22:30	4	31
19/11/2023	22:35	58	35
19/11/2023	22:40	47	38
19/11/2023	22:45	61	42
19/11/2023	22:50	95	47
19/11/2023	22:55	77	49
19/11/2023	23:00	110	52
19/11/2023	23:05	74	53
19/11/2023	23:10	18	49
19/11/2023	23:15	9	48
19/11/2023	23:20	64	52
19/11/2023	23:25	127	62
19/11/2023	23:30	76	68
19/11/2023	23:35	57	68
19/11/2023	23:40	38	67
19/11/2023	23:45	31	65
19/11/2023	23:50	40	60
19/11/2023	23:55	53	58
20/11/2023	0:00	12	50
20/11/2023	0:05	7	44
20/11/2023	0:10	88	50
20/11/2023	0:15	92	57
20/11/2023	0:20	63	57
20/11/2023	0:25	28	49
20/11/2023	0:30	37	46
20/11/2023	0:35	60	46
20/11/2023	0:40	48	47
20/11/2023	0:45	17	46
20/11/2023	0:50	9	43
20/11/2023	0:55	6	39
20/11/2023	1:00	5	39
20/11/2023	1:05	6	38
20/11/2023	1:10	41	35
20/11/2023	1:15	53	31
20/11/2023	1:20	18	27
20/11/2023	1:25	7	26
20/11/2023	1:30	15	24
20/11/2023	1:35	6	19
20/11/2023	1:40	4	16
20/11/2023	1:45	-	16
20/11/2023	1:50	-	16
Hidden cells with no values exceeding limit.			
20/11/2023	2:25	2	5
20/11/2023	2:30	1	3
20/11/2023	2:35	15	4
20/11/2023	2:40	124	24
20/11/2023	2:45	49	28
20/11/2023	2:50	13	26
20/11/2023	2:55	8	24
20/11/2023	3:00	31	25
20/11/2023	3:05	13	24
20/11/2023	3:10	5	22
20/11/2023	3:15	4	22
20/11/2023	3:20	108	31
20/11/2023	3:25	110	40
20/11/2023	3:30	29	42
20/11/2023	3:35	27	43
20/11/2023	3:40	19	35
20/11/2023	3:45	38	34
20/11/2023	3:50	22	34
20/11/2023	3:55	9	35
20/11/2023	4:00	6	32
20/11/2023	4:05	5	32
20/11/2023	4:10	20	33
20/11/2023	4:15	29	35
20/11/2023	4:20	12	27
20/11/2023	4:25	69	24
20/11/2023	4:30	100	30
20/11/2023	4:35	94	35
20/11/2023	4:40	24	36
20/11/2023	4:45	14	34
20/11/2023	4:50	9	33
20/11/2023	4:55	80	38
20/11/2023	5:00	120	48
20/11/2023	5:05	118	57
20/11/2023	5:10	90	63
20/11/2023	5:15	105	70
20/11/2023	5:20	105	77
20/11/2023	5:25	115	81
20/11/2023	5:30	30	75
20/11/2023	5:35	18	69
20/11/2023	5:40	121	77
20/11/2023	5:45	181	91
20/11/2023	5:50	152	103
20/11/2023	5:55	124	106
20/11/2023	6:00	111	106
20/11/2023	6:05	106	105
20/11/2023	6:10	110	106
20/11/2023	6:15	51	102
20/11/2023	6:20	20	95
20/11/2023	6:25	16	87
20/11/2023	6:30	75	90
20/11/2023	6:35	92	97
20/11/2023	6:40	60	92
20/11/2023	6:45	45	80
20/11/2023	6:50	76	74
20/11/2023	6:55	74	70
20/11/2023	7:00	58	65
20/11/2023	7:05	19	58
20/11/2023	7:10	13	50
20/11/2023	7:15	62	51
20/11/2023	7:20	67	55

20/11/2023	7:25	51	58
20/11/2023	7:30	39	55
20/11/2023	7:35	52	51
20/11/2023	7:40	53	51
20/11/2023	7:45	35	50
20/11/2023	7:50	26	46
20/11/2023	7:55	12	41
20/11/2023	8:00	9	37
20/11/2023	8:05	38	38
20/11/2023	8:10	48	41
20/11/2023	8:15	33	39
20/11/2023	8:20	28	35
20/11/2023	8:25	24	33
20/11/2023	8:30	14	31
20/11/2023	8:35	12	28
20/11/2023	8:40	9	24
20/11/2023	8:45	6	22
20/11/2023	8:50	5	20
20/11/2023	8:55	5	19
20/11/2023	9:00	5	19
20/11/2023	9:05	4	16
20/11/2023	9:10	4	12
20/11/2023	9:15	5	10
Hidden cells with no values exceeding limit.			
26/11/2023	1:50	-	10
26/11/2023	1:55	-	11
26/11/2023	2:00	-	-
26/11/2023	2:05	-	-
26/11/2023	2:10	-	-
26/11/2023	2:15	11	-
26/11/2023	2:20	74	-
26/11/2023	2:25	56	-
26/11/2023	2:30	36	-
26/11/2023	2:35	85	-
26/11/2023	2:40	55	-
26/11/2023	2:45	41	-
26/11/2023	2:50	43	-
26/11/2023	2:55	13	46
26/11/2023	3:00	8	42
26/11/2023	3:05	13	39
26/11/2023	3:10	81	43
26/11/2023	3:15	72	48
26/11/2023	3:20	55	46
26/11/2023	3:25	86	49
26/11/2023	3:30	64	51
26/11/2023	3:35	36	47
26/11/2023	3:40	19	44
26/11/2023	3:45	11	42
26/11/2023	3:50	7	39
26/11/2023	3:55	6	38
26/11/2023	4:00	21	39
26/11/2023	4:05	71	44
26/11/2023	4:10	85	44
26/11/2023	4:15	87	46
26/11/2023	4:20	31	44
26/11/2023	4:25	15	38
26/11/2023	4:30	9	33
26/11/2023	4:35	21	32
26/11/2023	4:40	59	35
26/11/2023	4:45	70	40
26/11/2023	4:50	26	42
26/11/2023	4:55	22	43
26/11/2023	5:00	68	47
26/11/2023	5:05	103	50
26/11/2023	5:10	50	47
26/11/2023	5:15	17	41
26/11/2023	5:20	12	39
26/11/2023	5:25	35	41
26/11/2023	5:30	50	44
26/11/2023	5:35	42	46
26/11/2023	5:40	48	45
26/11/2023	5:45	42	43
26/11/2023	5:50	63	46
26/11/2023	5:55	46	48
26/11/2023	6:00	40	46
26/11/2023	6:05	13	38
26/11/2023	6:10	29	36
26/11/2023	6:15	51	39
26/11/2023	6:20	43	42
26/11/2023	6:25	28	41
26/11/2023	6:30	21	39
26/11/2023	6:35	22	37
26/11/2023	6:40	44	37
26/11/2023	6:45	19	35
26/11/2023	6:50	11	31
26/11/2023	6:55	8	27
26/11/2023	7:00	11	25
26/11/2023	7:05	7	25
26/11/2023	7:10	7	23
26/11/2023	7:15	6	19
26/11/2023	7:20	5	16
26/11/2023	7:25	5	14

**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 Exceedence Value Reported
Max	- Maximum of the Range
Min	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO<sub>2</sub> = 40 ppb for 1-hour running average

Total Number of Reportable Exceedences:

49

**SO2 Exceedance Report      Table E6**

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

Date (dd/mm/yyyy)	Time (EST)	SO <sub>2</sub>	SO <sub>2</sub>
		5-min Avg. (ppb)	1-hr Running Avg. (ppb)
05/12/2023	23:35	16	33
05/12/2023	23:40	9	31
05/12/2023	23:45	7	30
05/12/2023	23:50	60	34
05/12/2023	23:55	37	37
06/12/2023	0:00	61	38
06/12/2023	0:05	47	38
06/12/2023	0:10	52	38
06/12/2023	0:15	65	39
06/12/2023	0:20	56	40
06/12/2023	0:25	21	38
06/12/2023	0:30	12	37
06/12/2023	0:35	29	38
06/12/2023	0:40	90	45
06/12/2023	0:45	50	48
06/12/2023	0:50	19	45
06/12/2023	0:55	13	43
06/12/2023	1:00	32	41
06/12/2023	1:05	69	42
06/12/2023	1:10	47	42
06/12/2023	1:15	16	38
06/12/2023	1:20	11	34
06/12/2023	1:25	39	36
06/12/2023	1:30	61	40
06/12/2023	1:35	74	43
06/12/2023	1:40	63	41
06/12/2023	1:45	-	40
06/12/2023	1:50	-	43
06/12/2023	1:55	-	46
06/12/2023	2:00	-	48
06/12/2023	2:05	-	45
06/12/2023	2:10	-	44
06/12/2023	2:15	7	43
06/12/2023	2:20	6	42
06/12/2023	2:25	5	36
06/12/2023	2:30	4	27
06/12/2023	2:35	4	15
06/12/2023	2:40	4	5
06/12/2023	2:45	10	6
06/12/2023	2:50	28	8
06/12/2023	2:55	11	9
06/12/2023	3:00	6	8
06/12/2023	3:05	89	16
06/12/2023	3:10	235	34
06/12/2023	3:15	76	40
06/12/2023	3:20	30	42
06/12/2023	3:25	20	43
06/12/2023	3:30	16	44
06/12/2023	3:35	12	45
06/12/2023	3:40	10	45
06/12/2023	3:45	7	45
06/12/2023	3:50	6	43
06/12/2023	3:55	32	45
06/12/2023	4:00	61	49
06/12/2023	4:05	48	46
06/12/2023	4:10	14	28
06/12/2023	4:15	10	22
06/12/2023	4:20	21	21
06/12/2023	4:25	18	21
Hidden cells with no values exceeding limit.			
06/12/2023	20:30	0	0
06/12/2023	20:35	1	0
06/12/2023	20:40	0	0
06/12/2023	20:45	0	0
06/12/2023	20:50	0	0

06/12/2023	20:55	1	0
06/12/2023	21:00	1	0
06/12/2023	21:05	1	0
06/12/2023	21:10	0	0
06/12/2023	21:15	62	6
06/12/2023	21:20	109	15
06/12/2023	21:25	140	26
06/12/2023	21:30	45	30
06/12/2023	21:35	142	42
06/12/2023	21:40	49	46
06/12/2023	21:45	32	48
06/12/2023	21:50	16	50
06/12/2023	21:55	10	50
06/12/2023	22:00	7	51
06/12/2023	22:05	6	51
06/12/2023	22:10	5	<u>52</u>
06/12/2023	22:15	25	49
06/12/2023	22:20	93	47
06/12/2023	22:25	30	<u>38</u>
06/12/2023	22:30	104	43
06/12/2023	22:35	38	35
06/12/2023	22:40	31	33
06/12/2023	22:45	15	32
06/12/2023	22:50	9	31
06/12/2023	22:55	51	34
06/12/2023	23:00	120	44
06/12/2023	23:05	62	49
06/12/2023	23:10	76	54
06/12/2023	23:15	57	<u>57</u>
06/12/2023	23:20	20	51
06/12/2023	23:25	13	50
06/12/2023	23:30	10	42
06/12/2023	23:35	7	39
06/12/2023	23:40	7	37
06/12/2023	23:45	7	37
06/12/2023	23:50	6	36
06/12/2023	23:55	5	<u>33</u>
Hidden cells with no values exceeding limit.			
08/12/2023	0:00	3	10
08/12/2023	0:05	5	10
08/12/2023	0:10	21	12
08/12/2023	0:15	45	15
08/12/2023	0:20	100	21
08/12/2023	0:25	67	25
08/12/2023	0:30	36	27
08/12/2023	0:35	26	29
08/12/2023	0:40	12	29
08/12/2023	0:45	12	28
08/12/2023	0:50	121	38
08/12/2023	0:55	81	<u>44</u>
08/12/2023	1:00	103	52
08/12/2023	1:05	94	60
08/12/2023	1:10	81	<u>65</u>
08/12/2023	1:15	29	64
08/12/2023	1:20	27	58
08/12/2023	1:25	18	53
08/12/2023	1:30	11	51
08/12/2023	1:35	9	50
08/12/2023	1:40	8	49
08/12/2023	1:45	-	53
08/12/2023	1:50	-	46
08/12/2023	1:55	-	<u>42</u>
08/12/2023	2:00	-	35
08/12/2023	2:05	-	26
08/12/2023	2:10	-	17
08/12/2023	2:15	5	13
08/12/2023	2:20	4	9
08/12/2023	2:25	4	7
08/12/2023	2:30	6	6
08/12/2023	2:35	4	<u>5</u>
08/12/2023	2:40	4	5
08/12/2023	2:45	5	5
08/12/2023	2:50	4	5
08/12/2023	2:55	5	5
08/12/2023	3:00	5	5

Hidden cells with no values exceeding limit.			
16/12/2023	3:10	8	25
16/12/2023	3:15	5	26
16/12/2023	3:20	5	26
16/12/2023	3:25	4	26
16/12/2023	3:30	7	25
16/12/2023	3:35	11	25
16/12/2023	3:40	54	26
16/12/2023	3:45	18	25
16/12/2023	3:50	62	22
16/12/2023	3:55	160	30
16/12/2023	4:00	66	35
16/12/2023	4:05	45	37
16/12/2023	4:10	24	38
16/12/2023	4:15	52	42
16/12/2023	4:20	20	44
16/12/2023	4:25	13	44
16/12/2023	4:30	9	44
16/12/2023	4:35	8	44
16/12/2023	4:40	10	41
16/12/2023	4:45	21	41
16/12/2023	4:50	91	43
16/12/2023	4:55	51	34
16/12/2023	5:00	74	35
16/12/2023	5:05	52	35
16/12/2023	5:10	54	38
16/12/2023	5:15	36	37
16/12/2023	5:20	16	36
16/12/2023	5:25	45	39
16/12/2023	5:30	45	42
16/12/2023	5:35	47	45
16/12/2023	5:40	43	48
16/12/2023	5:45	53	51
16/12/2023	5:50	57	48
16/12/2023	5:55	50	48
16/12/2023	6:00	38	45
16/12/2023	6:05	16	42
16/12/2023	6:10	21	39
16/12/2023	6:15	44	40
16/12/2023	6:20	32	41
16/12/2023	6:25	39	41
16/12/2023	6:30	48	41
16/12/2023	6:35	50	41
16/12/2023	6:40	66	43
16/12/2023	6:45	22	40
16/12/2023	6:50	15	37
16/12/2023	6:55	10	33
16/12/2023	7:00	8	31
16/12/2023	7:05	7	30
16/12/2023	7:10	8	29
16/12/2023	7:15	6	26
16/12/2023	7:20	5	24
16/12/2023	7:25	12	21
16/12/2023	7:30	88	25
16/12/2023	7:35	24	23
16/12/2023	7:40	14	18
16/12/2023	7:45	14	18
16/12/2023	7:50	72	22
16/12/2023	7:55	152	34
16/12/2023	8:00	71	39
16/12/2023	8:05	28	41
16/12/2023	8:10	46	44
16/12/2023	8:15	64	49
16/12/2023	8:20	38	52
16/12/2023	8:25	19	52
16/12/2023	8:30	15	46
16/12/2023	8:35	13	45
16/12/2023	8:40	11	45
16/12/2023	8:45	9	45
16/12/2023	8:50	9	40
16/12/2023	8:55	8	27
16/12/2023	9:00	7	22
16/12/2023	9:05	6	20
16/12/2023	9:10	6	17
Hidden cells with no values exceeding limit.			

19/12/2023	17:10	0	0
19/12/2023	17:15	0	0
19/12/2023	17:20	0	0
19/12/2023	17:25	0	0
19/12/2023	17:30	0	0
19/12/2023	17:35	0	0
19/12/2023	17:40	1	0
19/12/2023	17:45	4	1
19/12/2023	17:50	3	1
19/12/2023	17:55	0	1
19/12/2023	18:00	7	1
19/12/2023	18:05	252	22
19/12/2023	18:10	176	37
19/12/2023	18:15	137	<u>48</u>
19/12/2023	18:20	132	59
19/12/2023	18:25	123	70
19/12/2023	18:30	88	77
19/12/2023	18:35	27	79
19/12/2023	18:40	13	80
19/12/2023	18:45	136	91
19/12/2023	18:50	262	113
19/12/2023	18:55	178	128
19/12/2023	19:00	43	<u>131</u>
19/12/2023	19:05	46	113
19/12/2023	19:10	72	105
19/12/2023	19:15	49	<u>98</u>
19/12/2023	19:20	56	91
19/12/2023	19:25	20	83
19/12/2023	19:30	17	77
19/12/2023	19:35	55	79
19/12/2023	19:40	25	80
19/12/2023	19:45	14	70
19/12/2023	19:50	8	49
19/12/2023	19:55	6	34
19/12/2023	20:00	5	31
19/12/2023	20:05	4	28
19/12/2023	20:10	4	<u>22</u>
19/12/2023	20:15	3	18
19/12/2023	20:20	3	14
Hidden cells with no values exceeding limit.			
20/12/2023	16:30	1	1
20/12/2023	16:35	1	1
20/12/2023	16:40	1	1
20/12/2023	16:45	1	1
20/12/2023	16:50	1	1
20/12/2023	16:55	1	1
20/12/2023	17:00	1	1
20/12/2023	17:05	139	12
20/12/2023	17:10	78	19
20/12/2023	17:15	11	19
20/12/2023	17:20	11	20
20/12/2023	17:25	105	29
20/12/2023	17:30	91	36
20/12/2023	17:35	143	<u>48</u>
20/12/2023	17:40	88	56
20/12/2023	17:45	24	58
20/12/2023	17:50	14	59
20/12/2023	17:55	10	59
20/12/2023	18:00	46	63
20/12/2023	18:05	39	55
20/12/2023	18:10	34	51
20/12/2023	18:15	110	60
20/12/2023	18:20	92	<u>66</u>
20/12/2023	18:25	38	61
20/12/2023	18:30	17	55
20/12/2023	18:35	12	<u>44</u>
20/12/2023	18:40	18	<u>38</u>
20/12/2023	18:45	102	44
20/12/2023	18:50	218	61
20/12/2023	18:55	57	65

20/12/2023	19:00	45	65
20/12/2023	19:05	91	69
20/12/2023	19:10	112	<u>76</u>
20/12/2023	19:15	40	70
20/12/2023	19:20	21	64
20/12/2023	19:25	20	63
20/12/2023	19:30	20	63
20/12/2023	19:35	15	<u>63</u>
20/12/2023	19:40	12	63
20/12/2023	19:45	11	55
20/12/2023	19:50	39	40
20/12/2023	19:55	56	40
20/12/2023	20:00	21	38
20/12/2023	20:05	13	32
20/12/2023	20:10	10	23
20/12/2023	20:15	27	<u>22</u>
20/12/2023	20:20	44	24
20/12/2023	20:25	68	28
20/12/2023	20:30	60	31
20/12/2023	20:35	55	35
20/12/2023	20:40	67	39
20/12/2023	20:45	50	<u>42</u>
20/12/2023	20:50	18	41
20/12/2023	20:55	13	37
20/12/2023	21:00	41	39
20/12/2023	21:05	78	44
20/12/2023	21:10	47	47
20/12/2023	21:15	54	<u>50</u>
20/12/2023	21:20	32	49
20/12/2023	21:25	21	45
20/12/2023	21:30	14	41
20/12/2023	21:35	13	37
20/12/2023	21:40	9	<u>33</u>
20/12/2023	21:45	8	29
20/12/2023	21:50	15	29
Hidden cells with no values exceeding limit.			
31/12/2023	5:45	1	2
31/12/2023	5:50	1	1
31/12/2023	5:55	6	2
31/12/2023	6:00	39	5
31/12/2023	6:05	8	6
31/12/2023	6:10	4	6
31/12/2023	6:15	32	8
31/12/2023	6:20	132	19
31/12/2023	6:25	68	25
31/12/2023	6:30	91	32
31/12/2023	6:35	53	36
31/12/2023	6:40	25	38
31/12/2023	6:45	14	40
31/12/2023	6:50	13	<u>41</u>
31/12/2023	6:55	8	41
31/12/2023	7:00	6	38
31/12/2023	7:05	17	39
31/12/2023	7:10	35	41
31/12/2023	7:15	39	<u>42</u>
31/12/2023	7:20	28	33
31/12/2023	7:25	10	28
31/12/2023	7:30	7	21
31/12/2023	7:35	5	17
31/12/2023	7:40	20	17
31/12/2023	7:45	8	<u>16</u>
31/12/2023	7:50	5	16
31/12/2023	7:55	23	17

**Notes:**

<b>D, T &amp; V</b>	- 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 Exceedence Value Reported
<u>Max</u>	- Maximum of the Range
<u>Min</u>	- Minimum of the Range

Ambient Air Quality Criteria (AAQC) for SO<sub>2</sub> = 40 ppb for 1-hour running average

Total Number of Reportable Exceedances: 18



The background features a large, light grey circle on the right side and a blue triangle on the left side, both partially overlapping a white background.

# 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

<b>DATE:</b>	2023-11-14	<b>RWDI Reference No.:</b> 2400035
<b>TO:</b>	Lipika Saha	<b>EMAIL:</b> <a href="mailto:Lipika.Saha@Durham.ca">Lipika.Saha@Durham.ca</a>
<b>CC:</b>	Andrew Evans	<b>EMAIL:</b> <a href="mailto:Andrew.Evans@Durham.ca">Andrew.Evans@Durham.ca</a>
<b>CC:</b>	Lyndsay Waller	<b>EMAIL:</b> <a href="mailto:Lyndsay.Waller@Durham.ca">Lyndsay.Waller@Durham.ca</a>
<b>FROM:</b>	Maja Bokara	<b>EMAIL:</b> <a href="mailto:Maja.Bokara@rwdi.com">Maja.Bokara@rwdi.com</a>
<b>RE:</b>	<b>Exceedance Report – Benzo(a)Pyrene October 3, 2023 Region of Durham, DYEC</b>	

On November 6, 2023, the results from ALS Environmental were received regarding the PAH results from the October 3, 2023, sampling event. On November 6, 2023, the results were entered and assessed. It was noted that on October 3, 2023, the Courtice and Rundle Road Station Benzo(a)Pyrene (BaP) concentrations were in excess of the 24-hour AAQC as measured by the onsite PUF PS-1 samplers. 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 October 3 sampling date:

1. The guideline concentration for BaP is 0.05 ng/m<sup>3</sup>. The measured concentration at the Courtice sampler was 0.079 ng/m<sup>3</sup> and the Rundle Road sampler was 0.059 ng/m<sup>3</sup>.
2. During the sampling day the wind was predominantly from the SW and the NE as recorded at the Courtice Meteorological Tower. One-hour average wind speeds at Courtice Meteorological Tower ranged from 0.9 km/h to 8.2 km/h.
3. During the sampling day the wind was predominantly from the SW as recorded at the Rundle Road Meteorological Tower. One-hour average wind speeds at Rundle Road Meteorological Tower ranged from 0.2 km/h to 12.4 km/h.
4. 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 boilers 1 and 2 were operating normally during the time reviewed.
5. 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.
6. At the time of the data review, MECP monitoring station data for BaP was not available.



Lipika Saha  
Durham York Energy Centre  
RWDI#2400035  
November 14, 2023

7. The Courtice meteorological data suggests that the Courtice Station was primarily upwind of the DYEC during the sampling period. Given the wind conditions, it is unlikely that the measured BaP exceedance is attributable to the Energy Centre operations.
8. The Rundle Road meteorological data suggests that the Rundle Road Station was primarily downwind of the DYEC during the sampling period. Given the wind conditions, it is possible that the Energy Centre operations contributed to the measured BaP exceedance. However, due to the elevated upwind concentrations measured at the Courtice Station on this date, it is likely that there were significant contributions from surrounding industry sources.

At the Courtice Station, the NO<sub>2</sub> rolling mean for hourly values were less than 21% of the criteria for the same period. The PM<sub>2.5</sub> 24-hour average value was 15.1 micrograms per cubic metre at the Courtice Station.

At the Rundle Road Station, the NO<sub>2</sub> rolling mean for hourly values were less than 11% of the criteria for the same period. The PM<sub>2.5</sub> 24-hour average value was 11.5 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.**

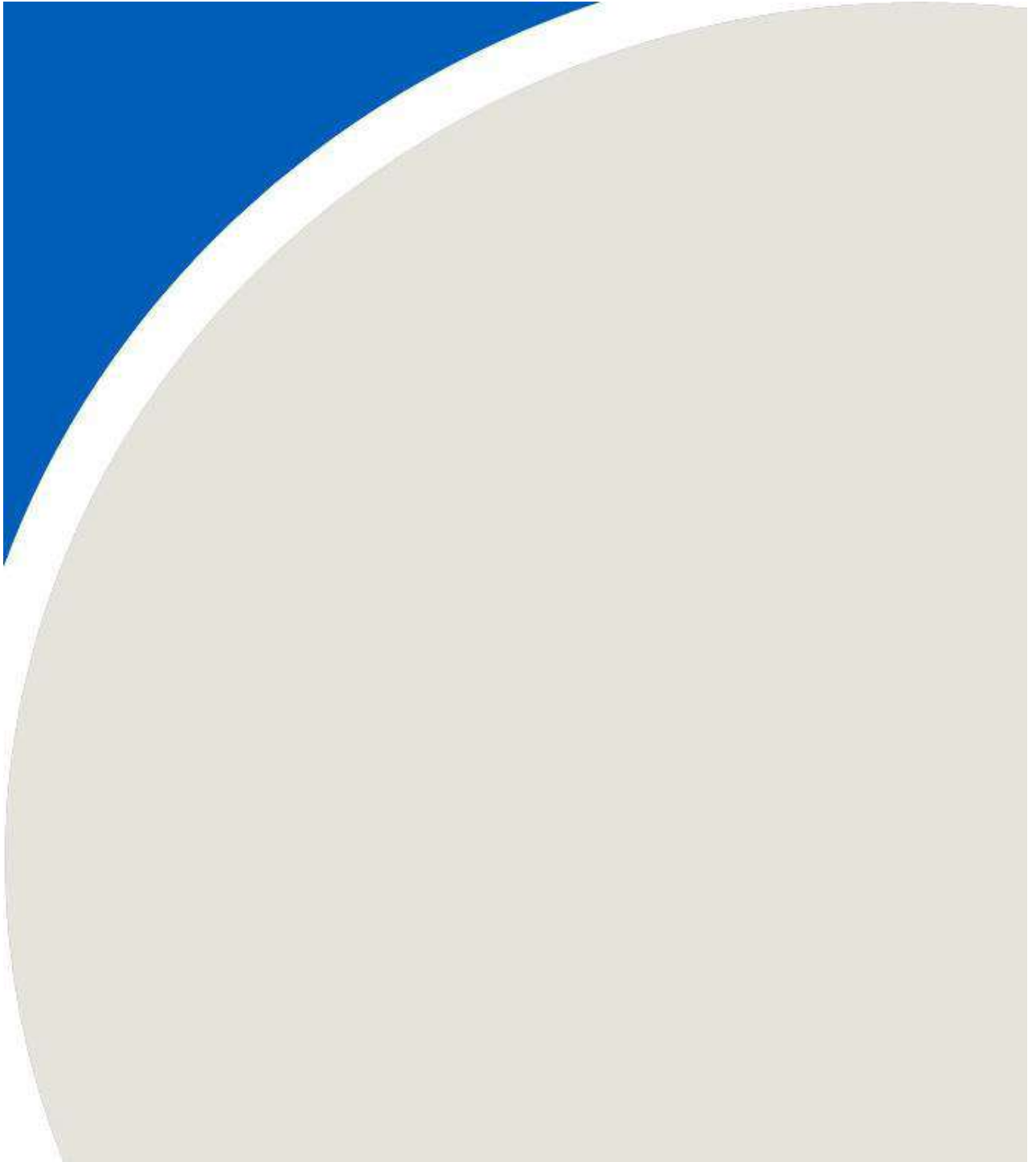
A handwritten signature in black ink that reads 'M. Bokara' with a stylized flourish at the end.

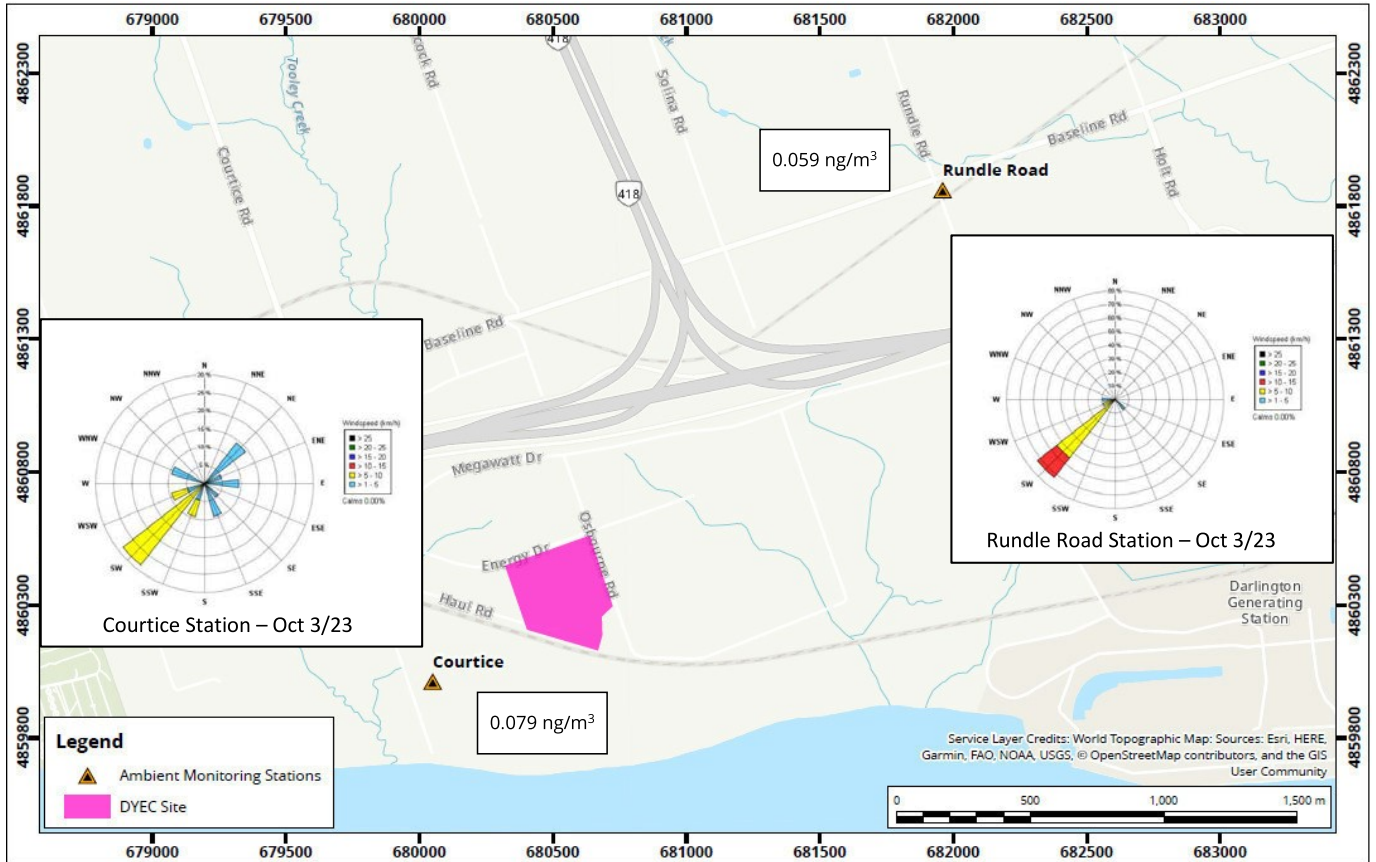
Maja Bokara, PGCert, EP  
Project Manager

MB/vit

Attach.

## ATTACHMENTS





### DYEC Site and Ambient Monitoring Station Locations

Map Projection: NAD 1983 UTM Zone 17N  
 DYEC - Region of Durham, Ontario



Drawn by: DAJH Figure: 1  
 Approx. Scale: 1:20,000  
 Date Revised: Nov 6, 2023  
 Project #: 2400035





L2752977-COFC

Report To		Report Format / Distribution				Service Request																																																					
Company: RWDI AIR INC. (Guelph)		<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Other:				<input checked="" type="checkbox"/> Regular Service - 10day TAT																																																					
Contact: Khalid Hussein		<input checked="" type="checkbox"/> PDF <input type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax				<input type="checkbox"/> Rush Service (with prior consultation) - surcharge applies																																																					
Address: 600 Southgate Drive, Guelph, ON N1G 4P6		Email 1: Khalid.Hussein@rwdi.com, Steve.Sanderson@rwdi.com				<input type="checkbox"/> Other - Please contact ALS																																																					
Phone: 519-823-1311 Fax:		Email 2: John.DeVoe@rwdi.com, John.Green@rwdi.com				<table border="1"> <thead> <tr> <th colspan="10">Analysis Request</th> </tr> <tr> <th>TSP, Hg, ICP</th> <th>PAH</th> <th>DX</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Hazardous? Provide Details</th> <th>Highly Contaminated?</th> <th>Number of Containers</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					Analysis Request										TSP, Hg, ICP	PAH	DX								Hazardous? Provide Details	Highly Contaminated?	Number of Containers																										
Analysis Request																																																											
TSP, Hg, ICP	PAH	DX													Hazardous? Provide Details	Highly Contaminated?	Number of Containers																																										
Invoice To Same as Report? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Email 3: Dan.Hartigan@rwdi.com, Meja.Bokara@rwdi.com																																																									
Email 1: accounts payable@rwdi.com		Email 4: Victoria.Letam@rwdi.com, Emma.Nicholls@rwdi.com																																																									
Email 2: Khalid.Hussein@rwdi.com		Location: DYEC																																																									
Quote <b>Q69531</b>		ALS Contact: Claire Kocharakkal																																																									
Sample #	Sample Identification (This description will appear on the report)	Date (dd-mm-yy)	Air Volume (m <sup>3</sup> )	Sample Type	TSP, Hg, ICP	PAH	DX																																																				
1	L2752788-3-Rundie	03-Oct-23	275	Air									1																																														
2	744198	03-Oct-23	1619	Air									1																																														
3	744196	27-Sep-23	N/A	Air									1																																														
4	L2752788-2-Courtice	03-Oct-23	295	Air									1																																														
5	744199	03-Oct-23	INVALID	Air									1																																														
6	744197	27-Sep-23	1678	Air									1																																														
7				Air									1																																														
8				Air									1																																														
Special Instructions / Regulations / Hazardous Details																																																											
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided by ALS																																																											
Released by:	Date (dd-mm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes (No) If Yes add SIF																																																	
<i>M. Hussein</i>	05-Oct-23	15:30	<i>Nina Burton</i>	6-Oct-2023	9:45	3.3 14.9 °C																																																					



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  
**ALS Project ID:** 23601  
**ALS WO#:** L2752977  
**Date of Report:** 6-Nov-23  
**Date of Sample Receipt:** 6-Oct-23

**Client Name:** RWDI Air Inc  
**Client Address:** 600 Southgate Dr.  
Guelph, ON N1G 4P6  
Canada  
**Client Contact:** Maja Bokara  
**Client Project ID:** DYEC

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

A handwritten signature in black ink, appearing to read "Jin", is written over a horizontal line.

Certified by: \_\_\_\_\_  
Sabrina Jin  
Technical Specialist

Results in this certificate relate only to the samples as submitted to the laboratory.  
This report shall not be reproduced, except in full, without the written permission of ALS Canada Ltd.

# ALS Life Sciences

## Sample Analysis Summary Report

Sample Name	Method Blank	Method Blank	RUNDLE-PAH- OCT03	COURTICE-PAH- OCT03	Laboratory Control Sample
ALS Sample ID	WG3787140-1	WG3787140-4	L2752977-1	L2752977-2	WG3787140-2
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	3-Oct-23	3-Oct-23	n/a
Extraction Date	10-Oct-23	10-Oct-23	10-Oct-23	10-Oct-23	10-Oct-23
<b>Target Analytes</b>	<b>ng/sample</b>	<b>ng/sample</b>	<b>ng/sample</b>	<b>ng/sample</b>	<b>%</b>
Naphthalene	25.3	4.04	6000	11500	103.0
2-Methylnaphthalene	2.55	1.22	4450	9840	83.8
1-Methylnaphthalene	1.59	<1.0 U	2650	5400	83.2
Acenaphthylene	<1.0 U	<1.0 U	115	193	76.9
Acenaphthene	<1.0 U	<1.0 U	2170	5940	75.4
Fluorene	<1.0 U	<1.0 U	1790	4250	76.5
Phenanthrene	1.58	<1.0 U	3390	7040	83.0
Anthracene	<1.0 U	<1.0 U	185	288	77.1
Fluoranthene	<1.0 U	<1.0 U	886	1130	83.8
Pyrene	<1.0 U	<1.0 U	403	464	80.0
Benzo(a)Anthracene	<1.0 U	<1.0 U	10.6	16.0	109.0
Chrysene	<1.0 U	<1.0 U	69.1	85.3	77.2
Benzo(b)Fluoranthene	<1.0 U	<1.0 U	34.5 M	47.1 M	72.1
Benzo(k)Fluoranthene	<1.0 U	<1.0 U	25.6 M	33.5 M	81.7
Benzo(e)Pyrene	<1.0 U	<1.0 U	29.9	82.0	82.4
Benzo(a)Pyrene	<1.0 U	<1.0 U	16.3 M	23.3 M	93.0
Perylene	<1.0 U	<1.0 U	2.45	3.53	73.9
Indeno(1,2,3-cd)Pyrene	<1.0 U	<1.0 U	22.2	28.3	88.6
Dibenzo(a,h)Anthracene	<1.0 U	<1.0 U	2.72	2.98 M	82.4
Benzo(g,h,i)Perylene	<1.0 U	<1.0 U	27.1	35.1	90.4
<b>Additional Analytes</b>					
Tetralin	26.6	<1.0 U	477	640	NS
Biphenyl	1.24	<1.0 U	1270	2800	NS
o-Terphenyl	<1.0 U	<1.0 U	8.23	10.2	NS
Benzo(a)fluorene	<1.0 U	<1.0 U	36.5	41.5	NS
Benzo(b)fluorene	<1.0 U	<1.0 U	4.52	6.23	NS
<b>Field Sampling Standards</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>
1-Methylnaphthalene-D10	NS	NS	50.3	50.8	NS
Fluorene D10	NS	NS	38.5	36.8	NS
Terphenyl D14(Surr.)	NS	NS	81.1	81.9	NS
<b>Extraction Standards</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>
Naphthalene D8	84.6	62.5	43.4	39.4	72.3
2-Methylnaphthalene-D10	77.7	61.7	45.7	40.1	72.9
Acenaphthylene D8	64.4	54.0	52.1	48.5	68.1
Phenanthrene D10	92.9	84.2	87.0	88.4	88.4
Anthracene-D10	72.6	60.2	73.3	76.9	81.3
Fluoranthene D10	87.9	79.6	82.9	84.0	86.8
Benzo(a)Anthracene-D12	60.4	50.5	86.0	92.8	76.2
Chrysene D12	86.6	79.7	84.1	87.3	96.8
Benzo(b)Fluoranthene-D12	102.8	91.0	92.6	103.0	110.7
Benzo(k)Fluoranthene-D12	90.0	87.3	82.3	83.2	107.0
Benzo(a)Pyrene D12	68.2	61.4	70.7	79.3	82.7
Perylene D12	85.9	58.8	76.5	81.4	104.5
Indeno(1,2,3,cd)Pyrene-D12	62.7	61.3	82.4	96.5	78.2
Dibenzo(a,h)Anthracene-D14	63.3	64.9	83.7	97.3	91.1
Benzo(g,h,i)Perylene D12	67.2	70.7	73.3	79.9	77.5
U	Indicates that this compound was not detected above the LOD.				
M	Indicates that a peak has been manually integrated.				
NS	Indicates that this compound was not spiked.				



# ALS Life Sciences

## Laboratory Method Blank Analysis Report

<b>Sample Name</b>	Method Blank	Sampling Date	n/a
ALS Sample ID	WG3787140-1	Extraction Date	10-Oct-23
Analysis Method	PAH by CARB 429		
Analysis Type	blank		
Sample Matrix	MEDIA		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787140

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 03-Nov-2023

<b>Run Information</b>	<b>Run 1</b>
Filename	23110130.D
Run Date	11/2/2023 23:59
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	Ret. Time	Concentration ng/sample	Flags
Naphthalene	2.87	25.3	
2-Methylnaphthalene	3.41	2.55	
1-Methylnaphthalene	3.52	1.59	
Acenaphthylene	4.47	<1.0	U
Acenaphthene	4.74	<1.0	U
Fluorene	5.61	<1.0	U
Phenanthrene	7.72	1.58	
Anthracene	7.84	<1.0	U
Fluoranthene	11.04	<1.0	U
Pyrene	11.67	<1.0	U
Benzo(a)Anthracene	15.55	<1.0	U
Chrysene	15.67	<1.0	U
Benzo(b)Fluoranthene	18.94	<1.0	U
Benzo(k)Fluoranthene	18.94	<1.0	U
Benzo(e)Pyrene	19.69	<1.0	U
Benzo(a)Pyrene	19.69	<1.0	U
Perylene	20.05	<1.0	U
Indeno(1,2,3-cd)Pyrene	23.01	<1.0	U
Dibenzo(a,h)Anthracene	23.32	<1.0	U
Benzo(g,h,i)Perylene	23.86	<1.0	U

Additional Analytes	Ret. Time	Concentration ng/sample	Flags
Tetralin	2.74	26.6	
Biphenyl	3.90	1.24	
o-Terphenyl	8.98	<1.0	U
Benzo(a)fluorene	12.85	<1.0	U
Benzo(b)fluorene	13.04	<1.0	U

Field Sampling Standards	ng spiked	% Rec
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards	% Rec	Limits
Naphthalene D8	84.6	50-150
2-Methylnaphthalene-D10	77.7	50-150
Acenaphthylene D8	64.4	50-150
Phenanthrene D10	92.9	50-150
Anthracene-D10	72.6	50-150
Fluoranthene D10	87.9	50-150
Benzo(a)Anthracene-D12	60.4	50-150
Chrysene D12	86.6	50-150
Benzo(b)Fluoranthene-D12	102.8	50-150
Benzo(k)Fluoranthene-D12	90.0	50-150
Benzo(a)Pyrene D12	68.2	50-150
Perylene D12	85.9	50-150
Indeno(1,2,3,cd)Pyrene-D12	62.7	50-150
Dibenz(a,h)Anthracene-D14	63.3	50-150
Benzo(g,h,i)Perylene D12	67.2	50-150

U Indicates that this compound was not detected above the MDL.

NS Indicates that this compound was not spiked.

# ALS Life Sciences

## Sample Analysis Report

<b>Sample Name</b>	Method Blank	Sampling Date	n/a
ALS Sample ID	WG3787140-4	Extraction Date	10-Oct-23
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	REAGENT		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787140

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 03-Nov-2023

<b>Run Information</b>	<b>Run 1</b>
Filename	23110131.D
Run Date	11/3/2023 0:41
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	Ret. Time	Concentration ng/sample	Flags
Naphthalene	2.87	4.04	
2-Methylnaphthalene	3.41	1.22	
1-Methylnaphthalene	3.52	<1.0	U
Acenaphthylene	4.46	<1.0	U
Acenaphthene	4.73	<1.0	U
Fluorene	5.61	<1.0	U
Phenanthrene	7.72	<1.0	U
Anthracene	7.83	<1.0	U
Fluoranthene	11.04	<1.0	U
Pyrene	11.67	<1.0	U
Benzo(a)Anthracene	15.59	<1.0	U
Chrysene	15.67	<1.0	U
Benzo(b)Fluoranthene	18.91	<1.0	U
Benzo(k)Fluoranthene	18.91	<1.0	U
Benzo(e)Pyrene	19.69	<1.0	U
Benzo(a)Pyrene	19.75	<1.0	U
Perylene	19.93	<1.0	U
Indeno(1,2,3-cd)Pyrene	23.16	<1.0	U
Dibenzo(a,h)Anthracene	23.25	<1.0	U
Benzo(g,h,i)Perylene	23.89	<1.0	U

Additional Analytes	Ret. Time	Concentration ng/sample	Flags
Tetralin	NotFnd	<1.0	U
Biphenyl	NotFnd	<1.0	U
o-Terphenyl	8.98	<1.0	U
Benzo(a)fluorene	12.85	<1.0	U
Benzo(b)fluorene	13.04	<1.0	U

Field Sampling Standards	ng spiked	% Rec
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards	% Rec	Limits
Naphthalene D8	62.5	50-150
2-Methylnaphthalene-D10	61.7	50-150
Acenaphthylene D8	54.0	50-150
Phenanthrene D10	84.2	50-150
Anthracene-D10	60.2	50-150
Fluoranthene D10	79.6	50-150
Benzo(a)Anthracene-D12	50.5	50-150
Chrysene D12	79.7	50-150
Benzo(b)Fluoranthene-D12	91.0	50-150
Benzo(k)Fluoranthene-D12	87.3	50-150
Benzo(a)Pyrene D12	61.4	50-150
Perylene D12	58.8	50-150
Indeno(1,2,3,cd)Pyrene-D12	61.3	50-150
Dibenzo(a,h)Anthracene-D14	64.9	50-150
Benzo(g,h,i)Perylene D12	70.7	50-150

U Indicates that this compound was not detected above the MDL.

NS Indicates that this compound was not spiked.

# ALS Life Sciences

## Sample Analysis Report

<b>Sample Name</b>	RUNBLE-PAH-OCT03	Sampling Date	03-Oct-23 00:00
ALS Sample ID	L2752977-1	Extraction Date	10-Oct-23
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	PUF		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787140

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 03-Nov-2023

Run Information	Run 1	Run 2
Filename	23110136.D	23110134.D
Run Date	11/3/2023 4:09	11/3/2023 2:46
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 US2579041H	HP-5MS US3388814H

Target Analytes	Ret. Time	Concentration ng/sample	Flags	Ret. Time	Concentration ng/sample	Flags
Naphthalene				2.87	6000	
2-Methylnaphthalene				3.41	4450	
1-Methylnaphthalene				3.51	2650	
Acenaphthylene	4.47	115				
Acenaphthene				4.74	2170	
Fluorene				5.61	1790	
Phenanthrene				7.72	3390	
Anthracene	7.83	185				
Fluoranthene	11.05	886				
Pyrene	11.68	403				
Benzo(a)Anthracene	15.56	10.6				
Chrysene	15.67	69.1				
Benzo(b)Fluoranthene	18.88	34.5 M				
Benzo(k)Fluoranthene	18.94	25.6 M				
Benzo(e)Pyrene	19.62	29.9				
Benzo(a)Pyrene	19.75	16.3 M				
Perylene	19.99	2.45				
Indeno(1,2,3-cd)Pyrene	23.11	22.2				
Dibenzo(a,h)Anthracene	23.29	2.72				
Benzo(g,h,i)Perylene	23.97	27.1				

**Additional Analytes**

Tetralin	2.74	477			
Biphenyl			3.89	1270	
o-Terphenyl	8.98	8.23			
Benzo(a)fluorene	12.84	36.5			
Benzo(b)fluorene	13.04	4.52			

**Field Sampling Standards**

	ng spiked	% Rec
1-Methylnaphthalene-D10	300 3.49	50.3
Fluorene D10	300 5.57	38.5
Terphenyl D14(Surr.)	300 12.50	81.1

**Extraction Standards**

	% Rec	Limits	% Rec
Naphthalene D8	100	50-150	2.86 43.4
2-Methylnaphthalene-D10	100	50-150	3.38 45.7
Acenaphthylene D8	100 4.45	50-150	
Phenanthrene D10	100	50-150	7.66 87.0
Anthracene-D10	100 7.79	50-150	
Fluoranthene D10	100 11.00	50-150	
Benzo(a)Anthracene-D12	100 15.49	50-150	
Chrysene D12	100 15.60	50-150	
Benzo(b)Fluoranthene-D12	100 18.81	50-150	
Benzo(k)Fluoranthene-D12	100 18.90	50-150	
Benzo(a)Pyrene D12	100 19.69	50-150	
Perylene D12	100 19.93	50-150	
Indeno(1,2,3,cd)Pyrene-D12	100 23.02	50-150	
Dibenzo(a,h)Anthracene-D14	100 23.20	50-150	
Benzo(g,h,i)Perylene D12	100 23.88	50-150	

M Indicates that a peak has been manually integrated.

# ALS Life Sciences

## Sample Analysis Report

<b>Sample Name</b>	COURTICE-PAH-OCT03	Sampling Date	03-Oct-23 00:00
ALS Sample ID	L2752977-2	Extraction Date	10-Oct-23
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	PUF		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787140

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 03-Nov-2023

Run Information	Run 1	Run 2
Filename	23110137.D	23110135.D
Run Date	11/3/2023 4:51	11/3/2023 3:28
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 US2579041H	HP-5MS US3388814H

Target Analytes	Ret. Time	Concentration ng/sample	Flags	Ret. Time	Concentration ng/sample	Flags
Naphthalene				2.87	11500	
2-Methylnaphthalene				3.41	9840	
1-Methylnaphthalene				3.51	5400	
Acenaphthylene	4.48	193				
Acenaphthene				4.74	5940	
Fluorene				5.61	4250	
Phenanthrene				7.72	7040	
Anthracene	7.83	288				
Fluoranthene	11.05	1130				
Pyrene	11.68	464				
Benzo(a)Anthracene	15.55	16.0				
Chrysene	15.67	85.3				
Benzo(b)Fluoranthene	18.88	47.1 M				
Benzo(k)Fluoranthene	18.94	33.5 M				
Benzo(e)Pyrene	19.62	82.0				
Benzo(a)Pyrene	19.75	23.3 M				
Perylene	19.99	3.53				
Indeno(1,2,3-cd)Pyrene	23.11	28.3				
Dibenzo(a,h)Anthracene	23.27	2.98 M				
Benzo(g,h,i)Perylene	23.96	35.1				

Additional Analytes						
Tetralin	2.74	640				
Biphenyl				3.89	2800	
o-Terphenyl	8.98	10.2				
Benzo(a)fluorene	12.84	41.5				
Benzo(b)fluorene	13.04	6.23				

Field Sampling Standards	ng spiked		% Rec
1-Methylnaphthalene-D10	300	3.49	50.8
Fluorene D10	300	5.57	36.8
Terphenyl D14(Surr.)	300	12.50	81.9

Extraction Standards			% Rec	Limits	% Rec	
Naphthalene D8	100			50-150	2.87	39.4
2-Methylnaphthalene-D10	100			50-150	3.38	40.1
Acenaphthylene D8	100	4.46	48.5	50-150		
Phenanthrene D10	100			50-150	7.66	88.4
Anthracene-D10	100	7.79	76.9	50-150		
Fluoranthene D10	100	11.00	84.0	50-150		
Benz(a)Anthracene-D12	100	15.49	92.8	50-150		
Chrysene D12	100	15.60	87.3	50-150		
Benzo(b)Fluoranthene-D12	100	18.81	103.0	50-150		
Benzo(k)Fluoranthene-D12	100	18.90	83.2	50-150		
Benzo(a)Pyrene D12	100	19.69	79.3	50-150		
Perylene D12	100	19.93	81.4	50-150		
Indeno(1,2,3-cd)Pyrene-D12	100	23.02	96.5	50-150		
Dibenz(a,h)Anthracene-D14	100	23.20	97.3	50-150		
Benzo(g,h,i)Perylene D12	100	23.87	79.9	50-150		

M Indicates that a peak has been manually integrated.

# ALS Life Sciences

## Sample Analysis Report

<b>Sample Name</b>	<b>Laboratory Control Sample</b>	Sampling Date	n/a
ALS Sample ID	WG3787140-2	Extraction Date	10-Oct-23
Analysis Method	PAH by CARB 429		
Analysis Type	sample		
Sample Matrix	MEDIA		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787140

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 03-Nov-2023

<b>Run Information</b>	<b>Run 1</b>
Filename	23110127.D
Run Date	11/2/2023 21:53
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	Ret. Time	Recovery %	Flags
Naphthalene	2.88	103.0	
2-Methylnaphthalene	3.42	83.8	
1-Methylnaphthalene	3.52	83.2	
Acenaphthylene	4.47	76.9	
Acenaphthene	4.74	75.4	
Fluorene	5.61	76.5	
Phenanthrene	7.72	83.0	
Anthracene	7.83	77.1	
Fluoranthene	11.04	83.8	
Pyrene	11.68	80.0	
Benzo(a)Anthracene	15.56	109.0	
Chrysene	15.68	77.2	
Benzo(b)Fluoranthene	18.88	72.1	
Benzo(k)Fluoranthene	18.96	81.7	
Benzo(e)Pyrene	19.62	82.4	
Benzo(a)Pyrene	19.76	93.0	
Perylene	19.99	73.9	
Indeno(1,2,3-cd)Pyrene	23.10	88.6	
Dibenzo(a,h)Anthracene	23.30	82.4	
Benzo(g,h,i)Perylene	23.97	90.4	

Additional Analytes	ng spiked	% Rec
Tetralin	0	NS
Biphenyl	0	NS
o-Terphenyl	0	NS
Benzo(a)fluorene	0	NS
Benzo(b)fluorene	0	NS

Field Sampling Standards	ng spiked	% Rec
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards		% Rec	Limits
Naphthalene D8	100 2.87	72.3	50-150
2-Methylnaphthalene-D10	100 3.39	72.9	50-150
Acenaphthylene D8	100 4.45	68.1	50-150
Phenanthrene D10	100 7.67	88.4	50-150
Anthracene-D10	100 7.79	81.3	50-150
Fluoranthene D10	100 11.00	86.8	50-150
Benz(a)Anthracene-D12	100 15.49	76.2	50-150
Chrysene D12	100 15.60	96.8	50-150
Benzo(b)Fluoranthene-D12	100 18.82	110.7	50-150
Benzo(k)Fluoranthene-D12	100 18.90	107.0	50-150
Benzo(a)Pyrene D12	100 19.70	82.7	50-150
Perylene D12	100 19.93	104.5	50-150
Indeno(1,2,3,cd)Pyrene-D12	100 23.03	78.2	50-150
Dibenz(a,h)Anthracene-D14	100 23.21	91.1	50-150
Benzo(g,h,i)Perylene D12	100 23.89	77.5	50-150

U            Indicates that this compound was not detected above the MDL.

NS           Indicates that this compound was not spiked.

**Table B5: 2023 Courtice Station Q4 Monitoring Results for PAHs**

Contaminant	Units	MECP Criteria	3-Oct-23	No. > Criteria
1-Methylnaphthalene	ng/m <sup>3</sup>	12000	1.83E+01	0
2-Methylnaphthalene	ng/m <sup>3</sup>	10000	3.34E+01	0
Acenaphthene	ng/m <sup>3</sup>	-	2.01E+01	-
Acenaphthylene	ng/m <sup>3</sup>	3500	6.54E-01	0
Anthracene	ng/m <sup>3</sup>	200	9.76E-01	0
Benzo(a)Anthracene	ng/m <sup>3</sup>	-	5.42E-02	-
Benzo(a)fluorene	ng/m <sup>3</sup>	-	1.41E-01	-
Benzo(a)Pyrene (Historically High)	ng/m <sup>3</sup>	0.05 <sup>[1]</sup> 5 <sup>[2]</sup> 1.1 <sup>[3]</sup>	7.90E-02	1
Benzo(b)Fluoranthene	ng/m <sup>3</sup>	-	1.60E-01	-
Benzo(b)fluorene	ng/m <sup>3</sup>	-	2.11E-02	-
Benzo(e)Pyrene	ng/m <sup>3</sup>	-	2.78E-01	-
Benzo(g,h,i)Perylene	ng/m <sup>3</sup>	-	1.19E-01	-
Benzo(k)Fluoranthene	ng/m <sup>3</sup>	-	1.14E-01	-
Biphenyl	ng/m <sup>3</sup>	-	9.49E+00	-
Chrysene	ng/m <sup>3</sup>	-	2.89E-01	-
Dibenzo(a,h)Anthracene	ng/m <sup>3</sup>	-	1.01E-02	-
Fluoranthene	ng/m <sup>3</sup>	-	3.83E+00	-
Fluorene	ng/m <sup>3</sup>	-	1.44E+01	-
Indeno(1,2,3-cd)Pyrene	ng/m <sup>3</sup>	-	9.59E-02	-
Naphthalene	ng/m <sup>3</sup>	22500	3.90E+01	0
o-Terphenyl	ng/m <sup>3</sup>	-	3.46E-02	-
Perylene	ng/m <sup>3</sup>	-	1.20E-02	-
Phenanthrene	ng/m <sup>3</sup>	-	2.39E+01	-
Pyrene	ng/m <sup>3</sup>	-	1.57E+00	-
Tetralin	ng/m <sup>3</sup>	-	2.17E+00	-
Total PAH <sup>[4]</sup>	ng/m <sup>3</sup>	-	169.15	-

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: 2023 Rundle Road Station Q4 Monitoring Results for PAHs**

Contaminant	Units	MECP Criteria	3-Oct-23	No. > Criteria
1-Methylnaphthalene	ng/m <sup>3</sup>	12000	9.60E+00	0
2-Methylnaphthalene	ng/m <sup>3</sup>	10000	1.61E+01	0
Acenaphthene	ng/m <sup>3</sup>	-	7.86E+00	-
Acenaphthylene	ng/m <sup>3</sup>	3500	4.17E-01	0
Anthracene	ng/m <sup>3</sup>	200	6.70E-01	0
Benzo(a)Anthracene	ng/m <sup>3</sup>	-	3.84E-02	-
Benzo(a)fluorene	ng/m <sup>3</sup>	-	1.32E-01	-
Benzo(a)Pyrene (Historically High)	ng/m <sup>3</sup>	0.05 <sup>[1]</sup> 5 <sup>[2]</sup> 1.1 <sup>[3]</sup>	5.91E-02	1
Benzo(b)Fluoranthene	ng/m <sup>3</sup>	-	1.25E-01	-
Benzo(b)fluorene	ng/m <sup>3</sup>	-	1.64E-02	-
Benzo(e)Pyrene	ng/m <sup>3</sup>	-	1.08E-01	-
Benzo(g,h,i)Perylene	ng/m <sup>3</sup>	-	9.82E-02	-
Benzo(k)Fluoranthene	ng/m <sup>3</sup>	-	9.28E-02	-
Biphenyl	ng/m <sup>3</sup>	-	4.60E+00	-
Chrysene	ng/m <sup>3</sup>	-	2.50E-01	-
Dibenzo(a,h)Anthracene	ng/m <sup>3</sup>	-	9.86E-03	-
Fluoranthene	ng/m <sup>3</sup>	-	3.21E+00	-
Fluorene	ng/m <sup>3</sup>	-	6.49E+00	-
Indeno(1,2,3-cd)Pyrene	ng/m <sup>3</sup>	-	8.04E-02	-
Naphthalene	ng/m <sup>3</sup>	22500	2.17E+01	0
o-Terphenyl	ng/m <sup>3</sup>	-	2.98E-02	-
Perylene	ng/m <sup>3</sup>	-	8.88E-03	-
Phenanthrene	ng/m <sup>3</sup>	-	1.23E+01	-
Pyrene	ng/m <sup>3</sup>	-	1.46E+00	-
Tetralin	ng/m <sup>3</sup>	-	1.73E+00	-
Total PAH <sup>[4]</sup>	ng/m <sup>3</sup>	-	87.23	-

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 Courtice Daily: 03/10/2023 Type: AVG 1 Hr. [5 Mins.]

Date & Time	PM2.5 ug/m3	NO ppb	NO2 ppb	NOX ppb	SO2 ppb	WS km/hr km/hr	ET C°	WD Deg	Tr_Temp C°	RH AVG %	BP in HG	Rain total mm	Hi-Vol Pressure in H2O	PUF Pressure in H2O	BP kPa	ET K	Hivol Flow cfm	PUF Flow cfm
03/10/2023 00:00	12.7	0.1	13	13.1	1.559	4.08	16.168	41	21.6	90.1	29.86	InVld	3.96	39.35	101.11	289.318	41.97	7.41
03/10/2023 01:00	12	2.1	16.4	18.6	1.064	3.3	15.652	156	21.4	91.7	29.86	InVld	4.06	39.7	101.11	288.802	42.58	7.44
03/10/2023 02:00	12	5	15.1	20.1	0.891	2.89	15.2	292	21.6	94.6	29.86	InVld	4.07	39.63	101.11	288.35	42.69	7.44
03/10/2023 03:00	13.8	2.4	14.2	16.6	29.99	3.89	15.111	71	21.3	100	29.87	InVld	4.06	39.41	101.14	288.261	42.65	7.43
03/10/2023 04:00	14.7	4.4	16.9	21.3	11.65	3.16	15.216	80	21.6	100	29.87	InVld	4.05	39.43	101.16	288.366	42.58	7.43
03/10/2023 05:00	15.7	29.5	17	46.6	4.236	3.79	15.013	292	21.3	100	29.88	InVld	4.07	39.75	101.19	288.163	42.73	7.46
03/10/2023 06:00	14.4	29.1	16.5	45.6	14.975	1.59	15.188	79	21.6	100	29.89	InVld	4.05	39.76	101.21	288.338	42.61	7.46
03/10/2023 07:00	12.9	31.3	18.8	50.1	4.438	1.1	18.048	<Samp	21.7	87.1	29.9	InVld	3.8	38.97	101.24	291.198	40.78	7.36
03/10/2023 08:00	14.3	11.2	17.6	28.9	3.383	5.2	20.678	244	21.7	76.7	29.9	InVld	0.01	38.24	101.24	293.828	0.08	7.27
03/10/2023 09:00	17	8.2	15.9	24	2.479	6.79	20.785	209	21.9	78.3	29.9	InVld	0.01	37.92	101.25	293.935	-0.02	7.24
03/10/2023 10:00	19.4	2.7	7.9	10.6	1.713	7.64	21.283	218	21.9	81	29.9	InVld	0.02	37.84	101.25	294.433	0.17	7.23
03/10/2023 11:00	17.2	0.6	4.4	5	1.847	7.83	21.888	216	22.1	77.2	29.89	InVld	0.01	37.89	101.23	295.038	0.09	7.23
03/10/2023 12:00	15.6	0.2	5.1	5.3	1.793	7.95	22.475	219	22	71.7	29.88	InVld	0.01	37.64	101.19	295.625	0.08	7.2
03/10/2023 13:00	16.7	0.5	5.9	6.3	1.854	6.42	22.881	219	22.2	70.1	29.86	InVld	0.01	37.43	101.12	296.031	-0.2	7.18
03/10/2023 14:00	19.8	0.4	6.9	7.4	2.216	8.2	22.835	224	22	69.6	29.84	InVld	0.01	37.23	101.06	295.985	-0.07	7.16
03/10/2023 15:00	17.4	0.1	5.6	5.6	2.972	5.32	23.568	231	21.9	63.8	29.84	InVld	0.01	37.07	101.05	296.718	-0.26	7.13
03/10/2023 16:00	13.9	0	4.4	4.2	3.471	3.04	24.621	241	21.9	54.8	29.83	InVld	0.01	36.94	101.02	297.77	-0.41	7.11
03/10/2023 17:00	11.3	0.8	8.2	8.8	3.234	0.93	24.578	<Samp	21.6	53.5	29.83	InVld	0.18	38.15	101.01	297.728	1.89	7.21
03/10/2023 18:00	11.4	2.5	28.8	31.1	2.444	1.17	21.715	<Samp	21.7	62.7	29.82	InVld	3.99	38.72	101	294.865	41.69	7.29
03/10/2023 19:00	15.2	6.9	39.3	46.2	1.624	2.86	20.267	212	21.7	69.4	29.84	InVld	4.01	38.56	101.03	293.417	41.94	7.29
03/10/2023 20:00	17.6	0.7	34	34.5	8.23	2.45	19.347	152	21.7	74	29.84	InVld	4.04	39.27	101.05	292.497	42.16	7.36
03/10/2023 21:00	17.7	0.8	33.9	34.4	5.001	2.29	19.015	52	21.6	74.7	29.84	InVld	4.03	39.48	101.04	292.165	42.17	7.39
03/10/2023 22:00	15.5	1	27.6	28.3	24.387	3.32	17.898	42	21.6	79.6	29.84	InVld	4.02	39.29	101.04	291.048	42.19	7.38
03/10/2023 23:00	15.1	1	20.9	21.6	3.197	3.4	17.171	127	21.5	83.5	29.83	InVld	4.05	39.45	101.02	290.321	42.38	7.4
Minimum	11.3	0	4.4	4.2	0.891	0.93	15.013	41	21.3	53.5	29.82	No Data	0.01	36.94	101	288.163	-0.41	7.11
MinDate	17:00	16:00	11:00	16:00	02:00	17:00	05:00	00:00	03:00	17:00	18:00	00:00	08:00	16:00	18:00	05:00	16:00	16:00
Maximum	19.8	31.3	39.3	50.1	29.99	8.2	24.621	292	22.2	100	29.9	No Data	4.07	39.76	101.25	297.77	42.73	7.46
MaxDate	14:00	07:00	19:00	07:00	03:00	14:00	16:00	02:00	13:00	03:00	07:00	00:00	02:00	06:00	09:00	16:00	05:00	05:00
Avg	15.1	5.9	16.4	22.3	5.777	4.11	19.442	172	21.7	79.3	29.86	No Data	2.36	38.63	101.12	292.592	24.69	7.31
Num	24	24	24	24	24	24	24	21	24	24	24	0	24	24	24	24	24	24
Data[%]	100	100	100	100	100	100	100	87.5	100	100	100	0	100	100	100	100	100	100
STD	2.4	9.5	9.9	14.5	7.3	2.2	3.2	80.1	0.2	13.7	0	No Data	2	0.9	0.1	3.2	20.8	0.1



Station: RofD Rundle Daily: 03/10/2023 Type: AVG 1 Hr. [5 Mins.]

Date & Time	PM2.5 ug/m3	NO ppb	NO2 ppb	NOX ppb	SO2 ppb	Precip Volts	ET C°	Rain mm	Tr_Temp C°	RH AVG %	Rain total mm	WS km/hr km/hr	WD Deg	Hi-Vol Pressure in H2O	PUF Pressure in H2O	ET K	Hivol Flow cfm	PUF Flow cfm
03/10/2023 00:00	13.2	1.4	4.5	5.6	0.553	13	15.1	0	22.8	100	0	1.91	125	3.24	42.39	288.245	36.66	7.14
03/10/2023 01:00	10.8	0	1.8	1.3	0.478	13	14.4	0	23	100	0	0.57	<Samp	3.22	41.69	287.543	36.62	7.1
03/10/2023 02:00	10.7	1	2.7	3.5	0.593	13	14	0	23	100	0	0.96	<Samp	3.23	41.08	287.139	36.68	7.05
03/10/2023 03:00	10.5	0	1.4	1.1	0.488	13	13.6	0	23.1	100	0	0.86	<Samp	3.23	40.69	286.735	36.69	7.03
03/10/2023 04:00	12.2	0.9	2.1	2.9	0.478	13	13.3	0	23.2	100	0	0.23	<Samp	3.24	40.41	286.453	36.77	7.01
03/10/2023 05:00	14.4	2.8	1.4	4.2	0.519	13	13.3	0	22.9	100	0	0.32	<Samp	3.23	39.78	286.411	36.75	6.96
03/10/2023 06:00	14.3	5	1.8	6.9	0.517	13	13.4	0	23	100	0	0.39	<Samp	3.24	39.13	286.52	36.79	6.91
03/10/2023 07:00	16.2	9.4	6	15.4	0.574	13	16.8	0	23	96.6	0	1.42	<Samp	3.2	38.13	289.934	36.35	6.79
03/10/2023 08:00	18.5	11.2	19.7	31	0.622	13.1	20.6	0	22.9	82.4	0	5.91	254	3.19	37.24	293.762	36.08	6.68
03/10/2023 09:00	14.5	9.5	20	29.5	0.57	13.1	22.5	0	22.7	69.8	0	7.19	234	3.18	36.23	295.677	35.88	6.58
03/10/2023 10:00	15.6	4.9	14.7	19.6	0.592	13.1	22.6	0	22.6	71.6	0	9.3	228	3.21	36.02	295.733	36.02	6.56
03/10/2023 11:00	10.5	0.9	6.7	7.6	0.542	13.1	23.7	0	22.8	65.2	0	10.59	227	3.21	35.71	296.824	35.96	6.52
03/10/2023 12:00	8.8	0.9	7.1	8	0.575	13.1	24.2	0	22.8	59.9	0	12.38	230	3.2	35.16	297.374	35.86	6.48
03/10/2023 13:00	7.7	0.5	6.5	7	0.661	13.1	25.1	0	22.6	55.5	0	9.87	225	3.19	34.69	298.197	35.79	6.43
03/10/2023 14:00	8.3	0.1	5.7	5.8	0.847	13.1	25.4	0	22.6	53.5	0	9.26	222	3.18	34.33	298.575	35.69	6.39
03/10/2023 15:00	9.7	0.3	7.1	7.2	0.96	13.1	25.3	0	22.7	53.6	0	7.19	222	3.19	34.31	298.421	35.75	6.39
03/10/2023 16:00	7.9	0	7	6.9	1.23	13.1	25.2	0	22.8	50.7	0	5.65	226	3.2	34.33	298.358	35.81	6.4
03/10/2023 17:00	7.2	0	6.8	6.3	1.053	13.1	23.8	0	22.6	60.9	0	2.66	264	3.18	35.81	296.924	35.82	6.53
03/10/2023 18:00	9.4	0.1	7.6	7.5	0.88	13.1	19.6	0	22.9	79.6	0	0.35	<Samp	3.22	36.6	292.772	36.29	6.64
03/10/2023 19:00	9.7	4.9	5.7	10.3	0.808	13.1	17.9	0	22.9	86.2	0	1.33	<Samp	3.25	36.27	291.085	36.56	6.63
03/10/2023 20:00	11.1	0.5	6.1	6.4	0.609	13.1	17	0	22.9	92	0	0.54	<Samp	3.27	37.07	290.103	36.73	6.7
03/10/2023 21:00	11.9	1.4	5.5	6.6	0.664	13	16.3	0	23.1	96.6	0	1.14	<Samp	3.28	37.67	289.474	36.81	6.76
03/10/2023 22:00	11.3	0.2	3.5	3.3	0.622	13	15.8	0	22.8	99	0	1.42	<Samp	3.28	37.82	288.984	36.88	6.78
03/10/2023 23:00	10.7	0	2.2	1.6	0.633	13	15.4	0	23	100	0	1.07	<Samp	3.28	38.22	288.596	36.86	6.81
Minimum	7.2	0	1.4	1.1	0.478	13	13.3	0	22.6	50.7	0	0.23	125	3.18	34.31	286.411	35.69	6.39
MinDate	17:00	01:00	03:00	03:00	01:00	00:00	04:00	00:00	10:00	16:00	00:00	04:00	00:00	09:00	15:00	05:00	14:00	14:00
Maximum	18.5	11.2	20	31	1.23	13.1	25.4	0	23.2	100	0	12.38	264	3.28	42.39	298.575	36.88	7.14
MaxDate	08:00	08:00	09:00	08:00	16:00	08:00	14:00	00:00	04:00	00:00	00:00	12:00	17:00	21:00	00:00	14:00	22:00	00:00
Avg	11.5	2.3	6.4	8.6	0.669	13.1	18.9	0	22.9	82.2	0	3.85	223	3.22	37.53	292.077	36.34	6.72
Num	24	24	24	24	24	24	24	24	24	24	24	24	11	24	24	24	24	24
Data[%]	100	100	100	100	100	100	100	100	100	100	100	100	45.83	100	100	100	100	100
STD	2.8	3.3	5	7.7	0.2	0	4.5	0	0.2	18.5	0	3.9	33.7	0	2.4	4.5	0.4	0.2



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E-mail: solutions@rwdi.com

## MEMORANDUM

<b>DATE:</b>	2023-12-18	<b>RWDI Reference No.:</b> 2400035
<b>TO:</b>	Lipika Saha	<b>EMAIL:</b> <a href="mailto:Lipika.Saha@Durham.ca">Lipika.Saha@Durham.ca</a>
<b>CC:</b>	Andrew Evans	<b>EMAIL:</b> <a href="mailto:Andrew.Evans@Durham.ca">Andrew.Evans@Durham.ca</a>
<b>CC:</b>	Lyndsay Waller	<b>EMAIL:</b> <a href="mailto:Lyndsay.Waller@Durham.ca">Lyndsay.Waller@Durham.ca</a>
<b>FROM:</b>	Maja Bokara	<b>EMAIL:</b> <a href="mailto:Maja.Bokara@rwdi.com">Maja.Bokara@rwdi.com</a>
<b>RE:</b>	<b>Exceedance Report – Benzo(a)Pyrene November 20, 2023 Region of Durham, DYEC</b>	

On December 8, 2023, the results from ALS Environmental were received regarding the PAH results from the November 20, 2023, sampling event. On December 8, 2023, the results were entered and assessed. It was noted that on November 20, 2023, the Rundle Road Station Benzo(a)Pyrene (BaP) concentration was in excess of the 24-hour AAQC as 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 concentration and onsite conditions during the November 20 sampling date:

1. The guideline concentration for BaP is 0.05 ng/m<sup>3</sup>. The measured concentration at the Rundle Road sampler was 0.053 ng/m<sup>3</sup>.
2. During the sampling day the wind was predominantly from the NNW to E as recorded at the Rundle Road Meteorological Tower. One-hour average wind speeds at Rundle Road Meteorological Tower ranged from 2.45 km/h to 9.52 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 boilers 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 upwind of the DYEC during the sampling period. Given the wind conditions, it is unlikely that the Energy Centre operations contributed to the measured BaP exceedance.



Lipika Saha  
Durham York Energy Centre  
RWDI#2400035  
December 18, 2023

At the Rundle Road Station, the NO<sub>2</sub> rolling mean for hourly values were less than 5% of the criteria for the same period. The PM<sub>2.5</sub> 24-hour average value was 2.4 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.**

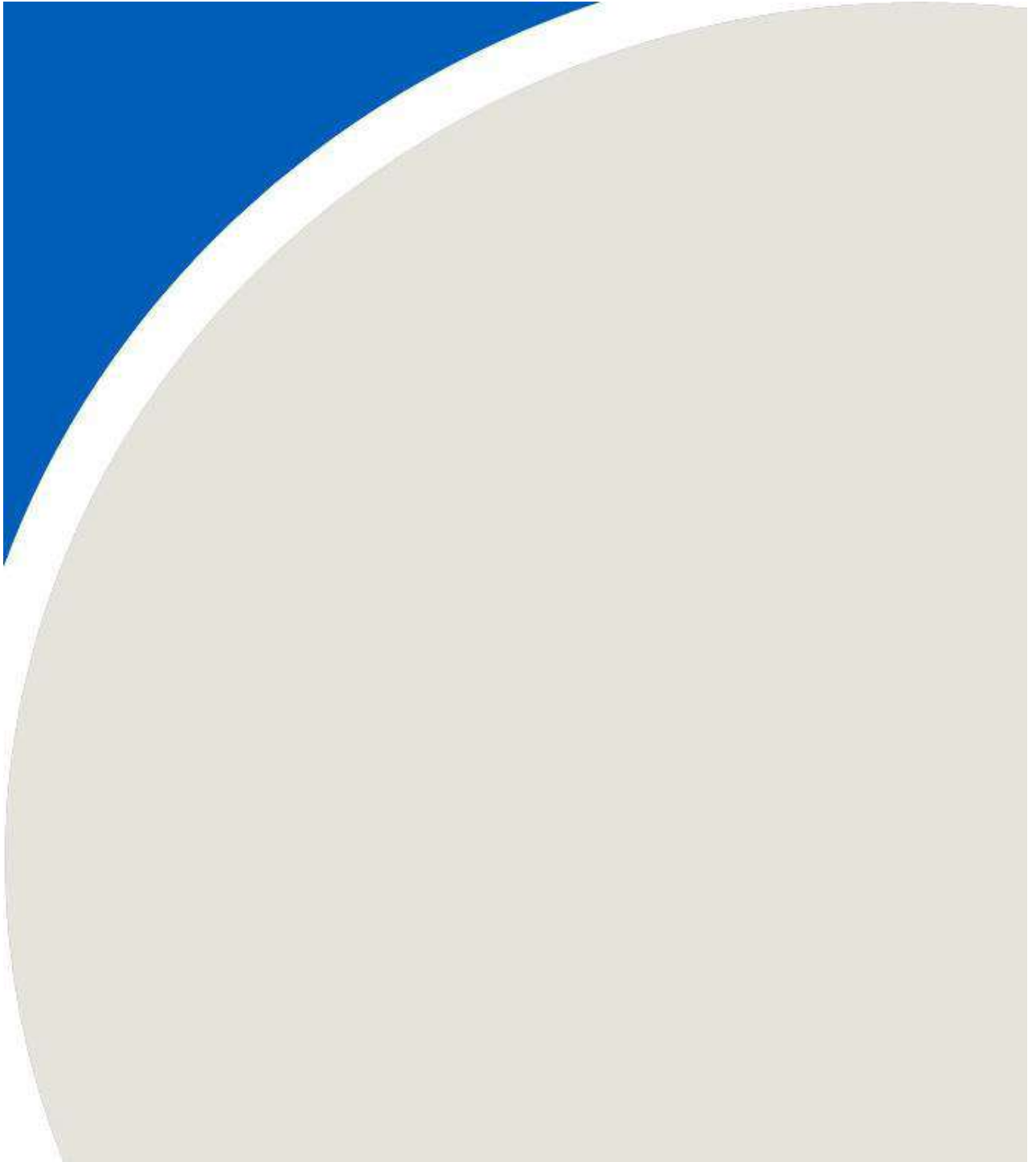
A handwritten signature in black ink, appearing to read 'M. Bokara', with a long, sweeping flourish extending to the right.

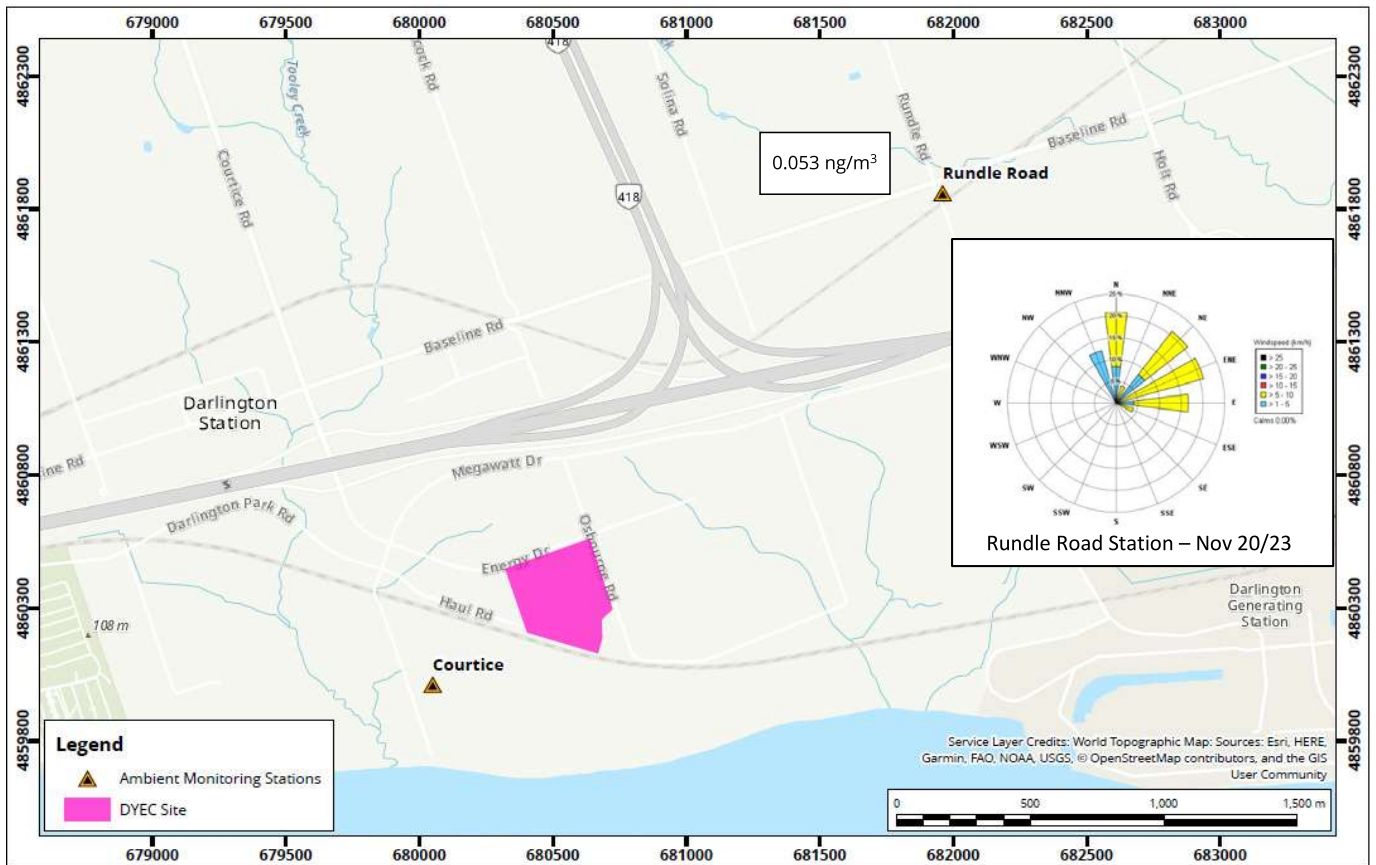
Maja Bokara, PGCert, EP  
Project Manager

MB/vit

Attach.

## ATTACHMENTS





**DYEC Site and Ambient Monitoring Station Locations**

Map Projection: NAD 1983 UTM Zone 17N  
 DYEC - Region of Durham, Ontario

True North 

Drawn by: DAJH	Figure: 1
Approx. Scale: 1:20,000	
Date Revised: Dec 18, 2023	

Project #: 2400035





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  
**ALS Project ID:** 23601  
**ALS WO#:** L2753742  
**Date of Report:** 8-Dec-23  
**Date of Sample Receipt:** 24-Nov-23

**Client Name:** RWDI Air Inc  
**Client Address:** 600 Southgate Dr.  
Guelph, ON N1G 4P6  
Canada  
**Client Contact:** Maja Bokara  
**Client Project ID:** DYEC

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

For the reagent blank, the recoveries of some of the labelled standards were marginally below the method control limits.  
No impact to overall data quality is expected as a result.

Certified by: \_\_\_\_\_

  
Sabrina Jin  
Technical Specialist

Results in this certificate relate only to the samples as submitted to the laboratory.

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ALS Life Sciences

Sample Analysis Summary Report

Sample Name	Method Blank	Method Blank	RUNDLE-PAH-NOV20	COURTICE-PAH-NOV20	Laboratory Control Sample
ALS Sample ID	WG3787709-1	WG3787709-4	L2753742-1	L2753742-2	WG3787709-2
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	20-Nov-23	20-Nov-23	n/a
Extraction Date	27-Nov-23	27-Nov-23	27-Nov-23	27-Nov-23	27-Nov-23

Target Analytes	ng/sample	ng/sample	ng/sample	ng/sample	%
Naphthalene	16.6	2.20 M	1970	2280	82.9
2-Methylnaphthalene	1.51	<1.0 U	886	927	81.7
1-Methylnaphthalene	<1.0 U	<1.0 U	517	516	77.8
Acenaphthylene	<1.0 U	<1.0 U	74.0	74.7	83.3
Acenaphthene	<1.0 U	<1.0 U	183	306	104.3
Fluorene	<1.0 U	<1.0 U	177	220	93.3
Phenanthrene	1.09	<1.0 U	295	327	83.7
Anthracene	<1.0 U	<1.0 U	9.95	11.6 M	78.2
Fluoranthene	<1.0 U	<1.0 U	75.3	81.2	75.6
Pyrene	<1.0 U	<1.0 U	50.4	54.5	72.8
Benzo(a)Anthracene	<1.0 U	<1.0 U	12.9	8.86	91.9
Chrysene	<1.0 U	<1.0 U	36.9	35.1	82.0
Benzo(b)Fluoranthene	<1.0 U	<1.0 U	20.8	14.9 M	67.6
Benzo(k)Fluoranthene	<1.0 U	<1.0 U	27.3 M	24.8 M	91.6
Benzo(e)Pyrene	<1.0 U	<1.0 U	16.4	14.7	185.6
Benzo(a)Pyrene	<1.0 U	<1.0 U	15.8 M	7.71 M	83.3
Perylene	<1.0 U	<1.0 U	2.73	2.14 M	79.5
Indeno(1,2,3-cd)Pyrene	<1.0 U	<1.0 U	16.8	14.0	79.0
Dibenzo(a,h)Anthracene	<1.0 U	<1.0 U	2.30 M	1.50 M	88.6
Benzo(g,h,i)Perylene	<1.0 U	<1.0 U	18.5	16.4	79.4
<b>Additional Analytes</b>					
Tetralin	9.81	<1.0 U	166	152	NS
Biphenyl	<1.0 U	<1.0 U	345	339	NS
o-Terphenyl	<1.0 U	<1.0 U	1.58	1.55	NS
Benzo(a)fluorene	<1.0 U	<1.0 U	8.46 M	3.79 M	NS
Benzo(b)fluorene	<1.0 U	<1.0 U	1.17	<1.0 U	NS
<b>Field Sampling Standards</b>					
	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>
1-Methylnaphthalene-D10	NS	NS	80.3	69.9	NS
Fluorene D10	NS	NS	108.7	108.1	NS
Terphenyl D14(Surr.)	NS	NS	118.9	101.3	NS
<b>Extraction Standards</b>					
	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>
Naphthalene D8	97.9	72.0	73.1	77.3	123.1
2-Methylnaphthalene-D10	87.2	65.2	93.3	93.7	111.2
Acenaphthylene D8	71.8	66.0	77.3	77.8	89.0
Phenanthrene D10	87.0	86.5	93.0	100.5	94.6
Anthracene-D10	72.1	55.9	87.6	88.9	85.4
Fluoranthene D10	89.7	79.6	89.8	94.8	91.4
Benzo(a)Anthracene-D12	79.1	44.7	77.7	67.0	77.1
Chrysene D12	94.4	77.6	88.1	86.8	100.8
Benzo(b)Fluoranthene-D12	104.7	61.7	116.8	103.8	104.8
Benzo(k)Fluoranthene-D12	90.1	70.8	85.4	85.0	96.5
Benzo(a)Pyrene D12	78.7	45.1	68.5	61.7	94.4
Perylene D12	93.0	30.6	86.2	83.5	103.0
Indeno(1,2,3,cd)Pyrene-D12	69.3	47.4	77.5	72.6	69.7
Dibenz(a,h)Anthracene-D14	50.3	45.6 M	68.1	54.4	82.7 M
Benzo(g,h,i)Perylene D12	80.9	67.4	82.5	85.4	79.2

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

# ALS Life Sciences

## Laboratory Method Blank Analysis Report

<b>Sample Name</b>	Method Blank	Sampling Date	n/a
ALS Sample ID	WG3787709-1	Extraction Date	27-Nov-23
Analysis Method	PAH by CARB 429		
Analysis Type	Blank		
Sample Matrix	MEDIA		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787709

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 08-Dec-2023

<b>Run Information</b>	<b>Run 1</b>
Filename	23120128.D
Run Date	12/2/2023 3:31
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	Ret. Time	Concentration ng/sample	Flags
Naphthalene	2.90	16.6	
2-Methylnaphthalene	3.45	1.51	
1-Methylnaphthalene	3.56	<1.0	U
Acenaphthylene	4.52	<1.0	U
Acenaphthene	4.80	<1.0	U
Fluorene	5.68	<1.0	U
Phenanthrene	7.80	1.09	
Anthracene	7.91	<1.0	U
Fluoranthene	11.12	<1.0	U
Pyrene	11.76	<1.0	U
Benzo(a)Anthracene	15.64	<1.0	U
Chrysene	15.76	<1.0	U
Benzo(b)Fluoranthene	18.96	<1.0	U
Benzo(k)Fluoranthene	19.04	<1.0	U
Benzo(e)Pyrene	19.79	<1.0	U
Benzo(a)Pyrene	NotFnd	<1.0	U
Perylene	20.04	<1.0	U
Indeno(1,2,3-cd)Pyrene	23.19	<1.0	U
Dibenzo(a,h)Anthracene	23.51	<1.0	U
Benzo(g,h,i)Perylene	24.09	<1.0	U

Additional Analytes	Ret. Time	Concentration ng/sample	Flags
Tetralin	2.77	9.81	
Biphenyl	3.95	<1.0	U
o-Terphenyl	9.05	<1.0	U
Benzo(a)fluorene	12.93	<1.0	U
Benzo(b)fluorene	13.13	<1.0	U

Field Sampling Standards	ng spiked	% Rec
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards	% Rec	Limits
Naphthalene D8	100 2.90	97.9 50-150
2-Methylnaphthalene-D10	100 3.43	87.2 50-150
Acenaphthylene D8	100 4.51	71.8 50-150
Phenanthrene D10	100 7.75	87.0 50-150
Anthracene-D10	100 7.87	72.1 50-150
Fluoranthene D10	100 11.08	89.7 50-150
Benz(a)Anthracene-D12	100 15.59	79.1 50-150
Chrysene D12	100 15.71	94.4 50-150
Benzo(b)Fluoranthene-D12	100 18.90	104.7 50-150
Benzo(k)Fluoranthene-D12	100 19.00	90.1 50-150
Benzo(a)Pyrene D12	100 19.80	78.7 50-150
Perylene D12	100 20.03	93.0 50-150
Indeno(1,2,3,cd)Pyrene-D12	100 23.17	69.3 50-150
Dibenz(a,h)Anthracene-D14	100 23.37	50.3 50-150
Benzo(g,h,i)Perylene D12	100 24.02	80.9 50-150

U Indicates that this compound was not detected above the MDL.

NS Indicates that this compound was not spiked.



# ALS Life Sciences

## Laboratory Method Blank Analysis Report

<b>Sample Name</b>	Method Blank	Sampling Date	n/a
ALS Sample ID	WG3787709-4	Extraction Date	27-Nov-23
Analysis Method	PAH by CARB 429		
Analysis Type	Blank		
Sample Matrix	REAGENT		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787709

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 08-Dec-2023

<b>Run Information</b>	<b>Run 1</b>
Filename	23120129.D
Run Date	12/2/2023 4:13
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	Ret. Time	Concentration ng/sample	Flags
Naphthalene	2.91	2.20 M	B
2-Methylnaphthalene	3.45	<1.0	U
1-Methylnaphthalene	3.56	<1.0	U
Acenaphthylene	4.52	<1.0	U
Acenaphthene	4.80	<1.0	U
Fluorene	5.68	<1.0	U
Phenanthrene	7.81	<1.0	U
Anthracene	7.92	<1.0	U
Fluoranthene	11.14	<1.0	U
Pyrene	11.77	<1.0	U
Benzo(a)Anthracene	NotFnd	<1.0	U
Chrysene	15.79	<1.0	U
Benzo(b)Fluoranthene	19.00	<1.0	U
Benzo(k)Fluoranthene	19.00	<1.0	U
Benzo(e)Pyrene	19.79	<1.0	U
Benzo(a)Pyrene	19.86	<1.0	U
Perylene	20.09	<1.0	U
Indeno(1,2,3-cd)Pyrene	23.23	<1.0	U
Dibenzo(a,h)Anthracene	23.55	<1.0	U
Benzo(g,h,i)Perylene	24.20	<1.0	U

<b>Additional Analytes</b>			
Tetralin	2.77	<1.0	U
Biphenyl	3.95	<1.0	U
o-Terphenyl	9.05	<1.0	U
Benzo(a)fluorene	12.97	<1.0	U
Benzo(b)fluorene	13.15	<1.0	U

<b>Field Sampling Standards</b>	<b>ng spiked</b>	<b>% Rec</b>
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards		% Rec	Limits
Naphthalene D8	100 2.90	72.0	50-150
2-Methylnaphthalene-D10	100 3.43	65.2	50-150
Acenaphthylene D8	100 4.50	66.0	50-150
Phenanthrene D10	100 7.75	86.5	50-150
Anthracene-D10	100 7.88	55.9	50-150
Fluoranthene D10	100 11.09	79.6	50-150
Benz(a)Anthracene-D12	100 15.62	44.7	50-150
Chrysene D12	100 15.74	77.6	50-150
Benzo(b)Fluoranthene-D12	100 18.93	61.7	50-150
Benzo(k)Fluoranthene-D12	100 19.03	70.8	50-150
Benzo(a)Pyrene D12	100 19.82	45.1	50-150
Perylene D12	100 20.05	30.6	50-150
Indeno(1,2,3,cd)Pyrene-D12	100 23.22	47.4	50-150
Dibenz(a,h)Anthracene-D14	100 23.49	45.6 M	50-150
Benzo(g,h,i)Perylene D12	100 24.04	67.4	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.

# ALS Life Sciences

## Sample Analysis Report

<b>Sample Name</b> RUNBLE-PAH-NOV20	Sampling Date	20-Nov-23 00:00
ALS Sample ID L2753742-1	Extraction Date	27-Nov-23
Analysis Method PAH by CARB 429		
Analysis Type Sample		
Sample Matrix PUF		
Sample Size 1 Sample		
Percent Moisture n/a		
Split Ratio 5	Workgroup	WG3787709

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 08-Dec-2023

Run Information	Run 1	Run 2
Filename	23120132.D	23120130.D
Run Date	12/2/2023 6:18	12/2/2023 4:55
Final Volume	0,1 mL	0,1 mL
Dilution Factor	1	20
Analysis Units	ng/sample	ng/sample
Instrument	MSD-5	MSD-5
Column	HP-5MS US2579041H	HP-5MS US2579041H

Target Analytes	Ret. Time	Concentration ng/sample	Flags	Ret. Time.	Concentration ng/sample	Flags
Naphthalene				2.90	1970	
2-Methylnaphthalene	3.46	886				
1-Methylnaphthalene	3.56	517				
Acenaphthylene	4.52	74.0				
Acenaphthene	4.80	183				
Fluorene	5.67	177				
Phenanthrene	7.79	295				
Anthracene	7.90	9.95				
Fluoranthene	11.13	75.3				
Pyrene	11.76	50.4				
Benzo(a)Anthracene	15.65	12.9				
Chrysene	15.76	36.9				
Benzo(b)Fluoranthene	18.96	20.8				
Benzo(k)Fluoranthene	19.03	27.3 M				
Benzo(e)Pyrene	19.71	16.4				
Benzo(a)Pyrene	19.84	15.8 M				
Perylene	20.08	2.73				
Indeno(1,2,3-cd)Pyrene	23.24	16.8				
Dibenzo(a,h)Anthracene	23.40	2.30 M				
Benzo(g,h,i)Perylene	24.10	18.5				

**Additional Analytes**

Tetralin	2.77	166
Biphenyl	3.94	345
o-Terphenyl	9.05	1.58
Benzo(a)fluorene	12.92	8.46 M
Benzo(b)fluorene	13.15	1.17

**Field Sampling Standards**

	ng spiked	% Rec
1-Methylnaphthalene-D10	200 3.53	80.3
Fluorene D10	200 5.62	108.7
Terphenyl D14(Surr.)	200 12.59	118.9

**Extraction Standards**

	% Rec	Limits	% Rec
Naphthalene D8	100	50-150	2.89 73.1
2-Methylnaphthalene-D10	100 3.43	93.3	50-150
Acenaphthylene D8	100 4.50	77.3	50-150
Phenanthrene D10	100 7.74	93.0	50-150
Anthracene-D10	100 7.86	87.6	50-150
Fluoranthene D10	100 11.08	89.8	50-150
Benzo(a)Anthracene-D12	100 15.58	77.7	50-150
Chrysene D12	100 15.70	88.1	50-150
Benzo(b)Fluoranthene-D12	100 18.90	116.8	50-150
Benzo(k)Fluoranthene-D12	100 19.00	85.4	50-150
Benzo(a)Pyrene D12	100 19.79	68.5	50-150
Perylene D12	100 20.02	86.2	50-150
Indeno(1,2,3,cd)Pyrene-D12	100 23.15	77.5	50-150
Dibenzo(a,h)Anthracene-D14	100 23.34	68.1	50-150
Benzo(g,h,i)Perylene D12	100 24.01	82.5	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

<b>Sample Name</b> COURTICE-PAH-NOV20	Sampling Date	20-Nov-23 00:00
ALS Sample ID L2753742-2	Extraction Date	27-Nov-23
Analysis Method PAH by CARB 429		
Analysis Type Sample		
Sample Matrix PUF		
Sample Size 1 Sample		
Percent Moisture n/a		
Split Ratio 5	Workgroup	WG3787709

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 08-Dec-2023

Run Information	Run 1	Run 2
Filename	23120133.D	23120131.D
Run Date	12/2/2023 7:00	12/2/2023 5:36
Final Volume	0.1 mL	0.1 mL
Dilution Factor	1	20
Analysis Units	ng/sample	ng/sample
Instrument	MSD-5	MSD-5
Column	HP-5MS US2579041H	HP-5MS US2579041H

Target Analytes	Ret. Time	Concentration ng/sample	Flags	Ret. Time.	Concentration ng/sample	Flags
Naphthalene				2.90	2280	
2-Methylnaphthalene	3.46	927				
1-Methylnaphthalene	3.56	516				
Acenaphthylene	4.52	74.7				
Acenaphthene	4.80	306				
Fluorene	5.68	220				
Phenanthrene	7.80	327				
Anthracene	7.90	11.64 M				
Fluoranthene	11.13	81.2				
Pyrene	11.76	54.5				
Benzo(a)Anthracene	15.65	8.86				
Chrysene	15.77	35.1				
Benzo(b)Fluoranthene	18.97	14.9 M				
Benzo(k)Fluoranthene	19.04	24.8 M				
Benzo(e)Pyrene	19.71	14.7				
Benzo(a)Pyrene	19.85	7.71 M				
Perylene	20.08	2.14 M				
Indeno(1,2,3-cd)Pyrene	23.26	14.0				
Dibenzo(a,h)Anthracene	23.41	1.50 M				
Benzo(g,h,i)Perylene	24.11	16.4				

**Additional Analytes**

Tetralin	2.77	152	
Biphenyl	3.95	339	
o-Terphenyl	9.05	1.55	
Benzo(a)fluorene	12.92	3.79 M	
Benzo(b)fluorene	13.16	<1.0	U

**Field Sampling Standards**

	ng spiked	% Rec
1-Methylnaphthalene-D10	200 3.53	69.9
Fluorene D10	200 5.62	108.1
Terphenyl D14(Surr.)	200 12.60	101.3

**Extraction Standards**

	% Rec	Limits	% Rec
Naphthalene D8	100	50-150	2.89 77.3
2-Methylnaphthalene-D10	100 3.43	93.7	50-150
Acenaphthylene D8	100 4.50	77.8	50-150
Phenanthrene D10	100 7.74	100.5	50-150
Anthracene-D10	100 7.86	88.9	50-150
Fluoranthene D10	100 11.08	94.8	50-150
Benzo(a)Anthracene-D12	100 15.60	67.0	50-150
Chrysene D12	100 15.71	86.8	50-150
Benzo(b)Fluoranthene-D12	100 18.90	103.8	50-150
Benzo(k)Fluoranthene-D12	100 19.01	85.0	50-150
Benzo(a)Pyrene D12	100 19.80	61.7	50-150
Perylene D12	100 20.03	83.5	50-150
Indeno(1,2,3,cd)Pyrene-D12	100 23.17	72.6	50-150
Dibenzo(a,h)Anthracene-D14	100 23.37	54.4	50-150
Benzo(g,h,i)Perylene D12	100 24.02	85.4	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

## Laboratory Control Sample Analysis Report

<b>Sample Name</b>	<b>Laboratory Control Sample</b>	Sampling Date	n/a
ALS Sample ID	WG3787709-2	Extraction Date	27-Nov-23
Analysis Method	PAH by CARB 429		
Analysis Type	LCS		
Sample Matrix	MEDIA		
Sample Size	1 n/a		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787709

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 08-Dec-2023

<b>Run Information</b>	<b>Run 1</b>
Filename	23120125.D
Run Date	12/2/2023 1:26
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	ug spiked	Ret. Time	%	Flags	Limits
Naphthalene	100	2.90	82.9		50-150
2-Methylnaphthalene	100	3.45	81.7		50-150
1-Methylnaphthalene	100	3.56	77.8		50-150
Acenaphthylene	100	4.52	83.3		50-150
Acenaphthene	100	4.80	104.3		50-150
Fluorene	100	5.68	93.3		50-150
Phenanthrene	100	7.80	83.7		50-150
Anthracene	100	7.91	78.2		50-150
Fluoranthene	100	11.13	75.6		50-150
Pyrene	100	11.76	72.8		50-150
Benzo(a)Anthracene	100	15.66	91.9		50-150
Chrysene	100	15.78	82		50-150
Benzo(b)Fluoranthene	100	18.97	67.6		50-150
Benzo(k)Fluoranthene	100	19.06	91.6		50-150
Benzo(e)Pyrene	100	19.71	185.6		50-150
Benzo(a)Pyrene	100	19.86	83.3		50-150
Perylene	100	20.09	79.5		50-150
Indeno(1,2,3-cd)Pyrene	100	23.25	79		50-150
Dibenzo(a,h)Anthracene	100	23.49	88.6		50-150
Benzo(g,h,i)Perylene	100	24.11	79.4		50-150

<b>Additional Analytes</b>		
Tetralin	0	NS
Biphenyl	0	NS
o-Terphenyl	0	NS
Benzo(a)fluorene	0	NS
Benzo(b)fluorene	0	NS

<b>Field Sampling Standards</b>	<b>ng spiked</b>	<b>% Rec</b>
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards	ug spiked	Ret. Time	%	Limits
Naphthalene D8	100	2.89	123.1	30-150
2-Methylnaphthalene-D10	100	3.42	111.2	30-150
Acenaphthylene D8	100	4.50	89.0	30-150
Phenanthrene D10	100	7.75	94.6	50-150
Anthracene-D10	100	7.87	85.4	50-150
Fluoranthene D10	100	11.08	91.4	50-150
Benzo(a)Anthracene-D12	100	15.60	77.1	50-150
Chrysene D12	100	15.71	100.8	50-150
Benzo(b)Fluoranthene-D12	100	18.90	104.8	50-150
Benzo(k)Fluoranthene-D12	100	19.01	96.5	50-150
Benzo(a)Pyrene D12	100	19.80	94.4	30-150
Perylene D12	100	20.03	103.0	50-150
Indeno(1,2,3,cd)Pyrene-D12	100	23.17	69.7	50-150
Dibenz(a,h)Anthracene-D14	100	23.45	82.7 M	50-150
Benzo(g,h,i)Perylene D12	100	24.02	79.2	50-150

M Indicates that a peak has been manually integrated.

NS Indicates that this compound was not spiked.

**Table B6: 2023 Rundle Road Station Q4 Monitoring Results for PAHs**

Contaminant	Units	MECP Criteria	20-Nov-23	No. > Criteria
1-Methylnaphthalene	ng/m <sup>3</sup>	12000	1.73E+00	0
2-Methylnaphthalene	ng/m <sup>3</sup>	10000	2.96E+00	0
Acenaphthene	ng/m <sup>3</sup>	-	6.12E-01	-
Acenaphthylene	ng/m <sup>3</sup>	3500	2.47E-01	0
Anthracene	ng/m <sup>3</sup>	200	3.33E-02	0
Benzo(a)Anthracene	ng/m <sup>3</sup>	-	4.31E-02	-
Benzo(a)fluorene	ng/m <sup>3</sup>	-	2.83E-02	-
Benzo(a)Pyrene (Historically High)	ng/m <sup>3</sup>	0.05 <sup>[1]</sup> 5 <sup>[2]</sup> 1.1 <sup>[3]</sup>	5.28E-02	1
Benzo(b)Fluoranthene	ng/m <sup>3</sup>	-	6.96E-02	-
Benzo(b)fluorene	ng/m <sup>3</sup>	-	3.91E-03	-
Benzo(e)Pyrene	ng/m <sup>3</sup>	-	5.48E-02	-
Benzo(g,h,i)Perylene	ng/m <sup>3</sup>	-	6.19E-02	-
Benzo(k)Fluoranthene	ng/m <sup>3</sup>	-	9.13E-02	-
Biphenyl	ng/m <sup>3</sup>	-	1.15E+00	-
Chrysene	ng/m <sup>3</sup>	-	1.23E-01	-
Dibenzo(a,h)Anthracene	ng/m <sup>3</sup>	-	7.69E-03	-
Fluoranthene	ng/m <sup>3</sup>	-	2.52E-01	-
Fluorene	ng/m <sup>3</sup>	-	5.92E-01	-
Indeno(1,2,3-cd)Pyrene	ng/m <sup>3</sup>	-	5.62E-02	-
Naphthalene	ng/m <sup>3</sup>	22500	6.59E+00	0
o-Terphenyl	ng/m <sup>3</sup>	-	5.28E-03	-
Perylene	ng/m <sup>3</sup>	-	9.13E-03	-
Phenanthrene	ng/m <sup>3</sup>	-	9.87E-01	-
Pyrene	ng/m <sup>3</sup>	-	1.69E-01	-
Tetralin	ng/m <sup>3</sup>	-	5.55E-01	-
Total PAH <sup>[4]</sup>	ng/m <sup>3</sup>	-	16.49	-

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: 20/11/2023

Date & Time	PM2.5 ug/m3	NO ppb	NO2 ppb	NOX ppb	SO2 ppb	Precip Volts	ET C°	Rain mm	Tr Temp C°	RH AVG %	Rain total mm	WS km/hr km/hr	WD Deg	Hi-Vol Pressure in H2O	PUF Pressure in H2O	ET K	Hivol Flow cfm	PUF Flow cfm
20/11/2023 00:00	2.9	0	0.4	0	0.294	13.1	-4.6	0	21.9	70.2	0	5.83	5	3.28	41.52	268.536	38.23	7.31
20/11/2023 01:00	1.6	0	0.4	0	0.288	13.1	-5.1	0	22	70.8	0	5.38	356	3.27	41.57	268.052	38.24	7.32
20/11/2023 02:00	2	0	0.8	0.4	0.272	13.1	-6.1	0	22	76.1	0	3.15	337	3.26	41.62	267.087	38.25	7.33
20/11/2023 03:00	2.6	0	0.9	0.6	0.253	13.1	-7	0	22	79.5	0	2.45	342	3.26	41.75	266.187	38.31	7.35
20/11/2023 04:00	2.6	0	1	0.7	0.201	13.1	-7.3	0	22	80.9	0	2.87	341	3.27	41.73	265.849	38.37	7.36
20/11/2023 05:00	2.5	0.2	1.5	1.4	0.159	13.1	-7.5	0	21.9	81.6	0	3.32	357	3.27	41.6	265.652	38.37	7.35
20/11/2023 06:00	2.8	0	1.1	0.7	0.228	13.1	-7.8	0	22	82.2	0	4.62	4	3.27	41.21	265.335	38.4	7.32
20/11/2023 07:00	2.2	0.3	2.9	3.1	0.219	13.1	-7.5	0	21.9	78.8	0	6.94	7	3.28	40.34	265.663	38.46	7.25
20/11/2023 08:00	1.5	0.1	2.2	2.3	0.136	13.1	-5	0	21.6	67.6	0	8.6	22	3.26	40.1	268.168	38.16	7.2
20/11/2023 09:00	1.1	0.1	1.4	1.4	0.165	13.1	-3.2	0	21.7	57.3	0	9.52	41	3.26	40.06	269.97	38.02	7.17
20/11/2023 10:00	1	0	0.7	0.6	0.227	13.1	-1.8	0	21.6	48.2	0	8.86	50	3.26	39.52	271.351	37.9	7.11
20/11/2023 11:00	1.1	0.1	0.9	0.9	0.238	13.1	-0.8	0	21.2	43.4	0	7.19	78	3.23	39.25	272.369	37.69	7.08
20/11/2023 12:00	1.3	0.3	1.8	2	0.273	13.1	-0.2	0	21.2	40.2	0	6.51	82	3.22	39.09	272.983	37.55	7.06
20/11/2023 13:00	1.6	4.2	5.7	10	0.511	13.1	0.5	0	21.3	40.3	0	5.11	99	3.18	39.05	273.621	37.32	7.05
20/11/2023 14:00	3.1	4.6	8.4	13.1	0.75	13.1	0.1	0	21.2	43.3	0	7.11	103	3.19	39.62	273.22	37.39	7.1
20/11/2023 15:00	3.2	1	5.2	6.1	0.514	13.1	-0.9	0	21.5	49.1	0	7.1	100	3.21	39.98	272.289	37.56	7.14
20/11/2023 16:00	3.2	0.1	6.1	6.1	0.302	13.1	-1.6	0	21.8	54.7	0	3.8	87	3.22	39.54	271.606	37.67	7.11
20/11/2023 17:00	3.8	0	7.8	7.4	0.287	13.1	-3	0	21.7	62.3	0	3.63	34	3.24	39.53	270.106	37.92	7.13
20/11/2023 18:00	4.1	0	6.9	6.8	0.289	13.1	-3	0	21.9	63.5	0	3.01	41	3.24	39.99	270.13	37.89	7.16
20/11/2023 19:00	4.3	0.1	3.9	3.7	0.206	13.1	-2.9	0	22	61.2	0	5.87	47	3.24	40.28	270.244	37.92	7.19
20/11/2023 20:00	3	6.5	6.8	13	0.349	13.1	-2.4	0	21.9	52.5	0	6.51	59	3.25	40.38	270.763	37.89	7.19
20/11/2023 21:00	2.2	0.3	2.8	2.6	0.289	13.1	-2.2	0	21.8	50.4	0	9.11	59	3.25	40.3	270.938	37.92	7.18
20/11/2023 22:00	2.6	12.5	7.1	19.3	0.377	13.1	-2.5	0	21.9	53.2	0	8.22	63	3.25	40.54	270.659	37.91	7.2
20/11/2023 23:00	2.2	0.7	3.8	4.1	0.206	13.1	-2.8	0	21.9	55.5	0	8.95	62	3.26	40.87	270.321	38.02	7.23
Minimum	1	0	0.4	0	0.136	13.1	-7.8	0	21.2	40.2	0	2.45	4	3.18	39.05	265.335	37.32	7.05
MinDate	10:00	00:00	00:00	00:00	08:00	00:00	06:00	00:00	11:00	12:00	00:00	03:00	6:00	13:00	13:00	06:00	13:00	13:00
Maximum	4.3	12.5	8.4	19.3	0.75	13.1	0.5	0	22	82.2	0	9.52	357	3.28	41.75	273.621	38.46	7.36
MaxDate	19:00	22:00	14:00	22:00	14:00	00:00	13:00	00:00	01:00	06:00	00:00	09:00	5:00	00:00	03:00	13:00	07:00	04:00
Avg	2.4	1.3	3.4	4.4	0.293	13.1	-3.5	0	21.7	61	0	5.99	115.7	3.25	40.39	269.629	37.97	7.2
Num	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Data[%]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
STD	0.9	2.9	2.6	4.9	0.1	No Data	2.5	0	0.3	13.7	0	2.2	121.7	0	0.9	2.5	0.3	0.1



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## MEMORANDUM

<b>DATE:</b>	2024-01-18	<b>RWDI Reference No.:</b> 2400035
<b>TO:</b>	Lipika Saha	<b>EMAIL:</b> <a href="mailto:Lipika.Saha@Durham.ca">Lipika.Saha@Durham.ca</a>
<b>CC:</b>	Andrew Evans	<b>EMAIL:</b> <a href="mailto:Andrew.Evans@Durham.ca">Andrew.Evans@Durham.ca</a>
<b>CC:</b>	Lyndsay Waller	<b>EMAIL:</b> <a href="mailto:Lyndsay.Waller@Durham.ca">Lyndsay.Waller@Durham.ca</a>
<b>FROM:</b>	Maja Bokara	<b>EMAIL:</b> <a href="mailto:Maja.Bokara@rwdi.com">Maja.Bokara@rwdi.com</a>
<b>RE:</b>	<b>Exceedance Report – Benzo(a)Pyrene December 14, 2023 Region of Durham, DYEC</b>	

On January 8, 2024, the results from ALS Environmental were received regarding the Polycyclic Aromatic Hydrocarbons (PAH) results from the December 14, 2023, sampling event. On January 8, 2024, the results were entered and assessed. It was noted that on December 14, 2023, the Courtice and Rundle Road Station Benzo(a)Pyrene (BaP) concentration was in excess of the 24-hour AAQC as 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 concentration and onsite conditions during the December 14 sampling date:

1. The guideline concentration for BaP is 0.05 ng/m<sup>3</sup>. The measured concentration at the Courtice sampler was 0.113 ng/m<sup>3</sup> and the Rundle Road sampler was 0.138 ng/m<sup>3</sup>.
2. During the sampling day the wind was predominantly from the WSW as recorded at the Courtice Meteorological Tower. One-hour average wind speeds at the Courtice Meteorological Tower ranged from 4 km/h to 30 km/h.
3. During the sampling day the wind was predominantly from the WSW as recorded at the Rundle Road Meteorological Tower. One-hour average wind speeds at the Rundle Road Meteorological Tower ranged from 2 km/h to 25 km/h.
4. 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 boilers 1 and 2 were operating normally during the time reviewed.
5. A review of the current ESDM data shows that BaP emissions from the DYEC for a 24-hour period are estimated to be less than 1% of the Ministry of the Environment, Conservation and Parks (MECP) limit.



Lipika Saha  
Durham York Energy Centre  
RWDI#2400035  
January 18, 2024

6. At the time of the data review, MECP monitoring station data for BaP was not available.
7. The Courtice meteorological data suggests that the Courtice Station was upwind of the DYEC during the sampling period. Given the wind conditions, it is unlikely that the Energy Centre operations contributed to the measured BaP exceedance.
8. The Rundle Road meteorological data suggests that the Rundle Road Station was neither upwind nor downwind of the DYEC during the sampling period. Given the wind conditions, it is unlikely that the Energy Centre operations contributed to the measured BaP exceedance.
9. Given that both stations measured elevated BaP concentrations on this day, it is likely that the area experienced elevated background concentrations from another source.

At the Courtice Station, the NO<sub>2</sub> rolling mean for hourly values were less than 16% of the criteria for the same period. The PM<sub>2.5</sub> 24-hour average value was 6.3 micrograms per cubic metre at the Courtice Road Station.

At the Rundle Road Station, the NO<sub>2</sub> rolling mean for hourly values were less than 13% of the criteria for the same period. The PM<sub>2.5</sub> 24-hour average value was 7.5 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.**

A handwritten signature in black ink, appearing to read 'M. Bokara', is written over a thin horizontal line.

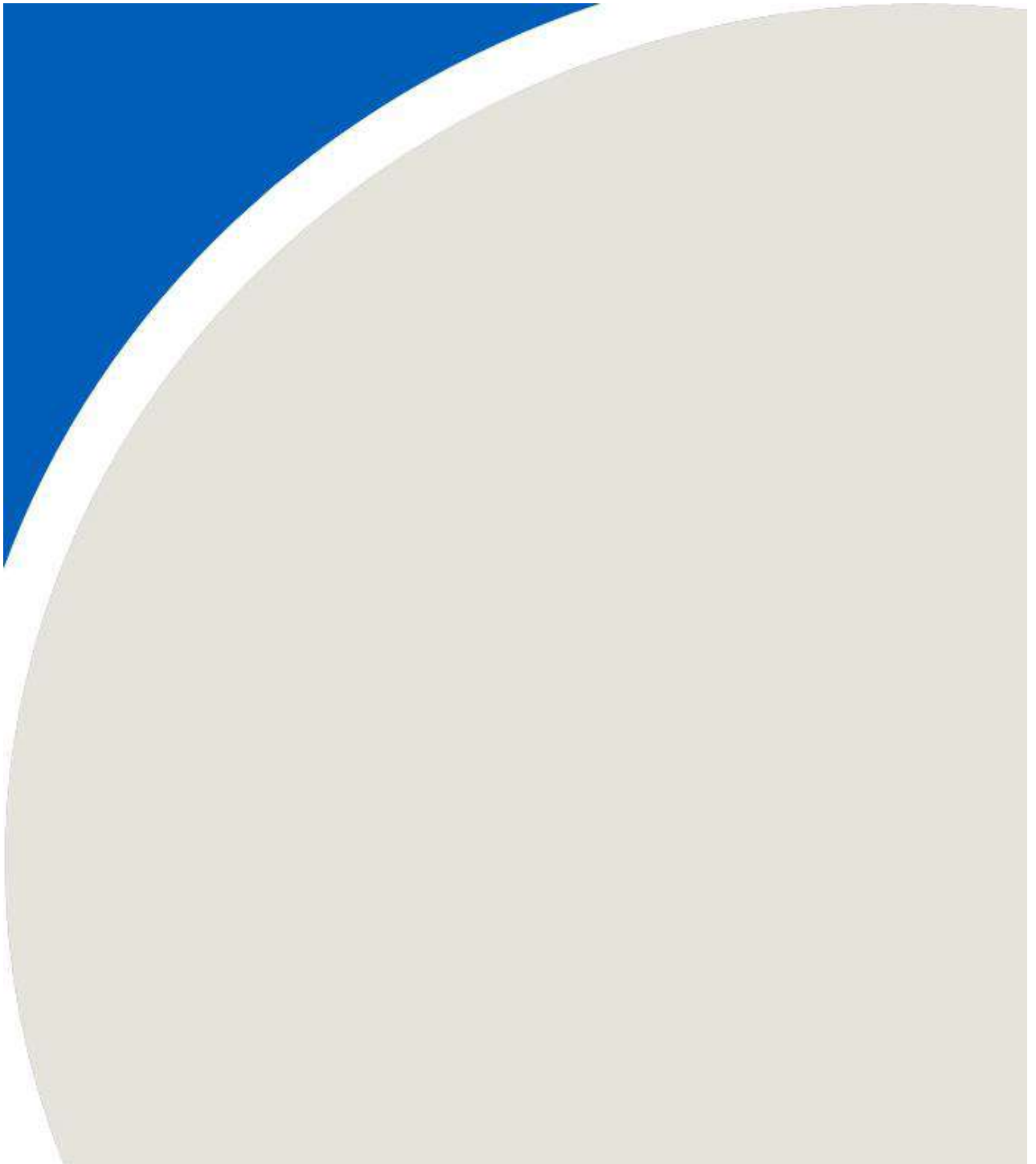
Maja Bokara, PGCert, EP  
Project Manager

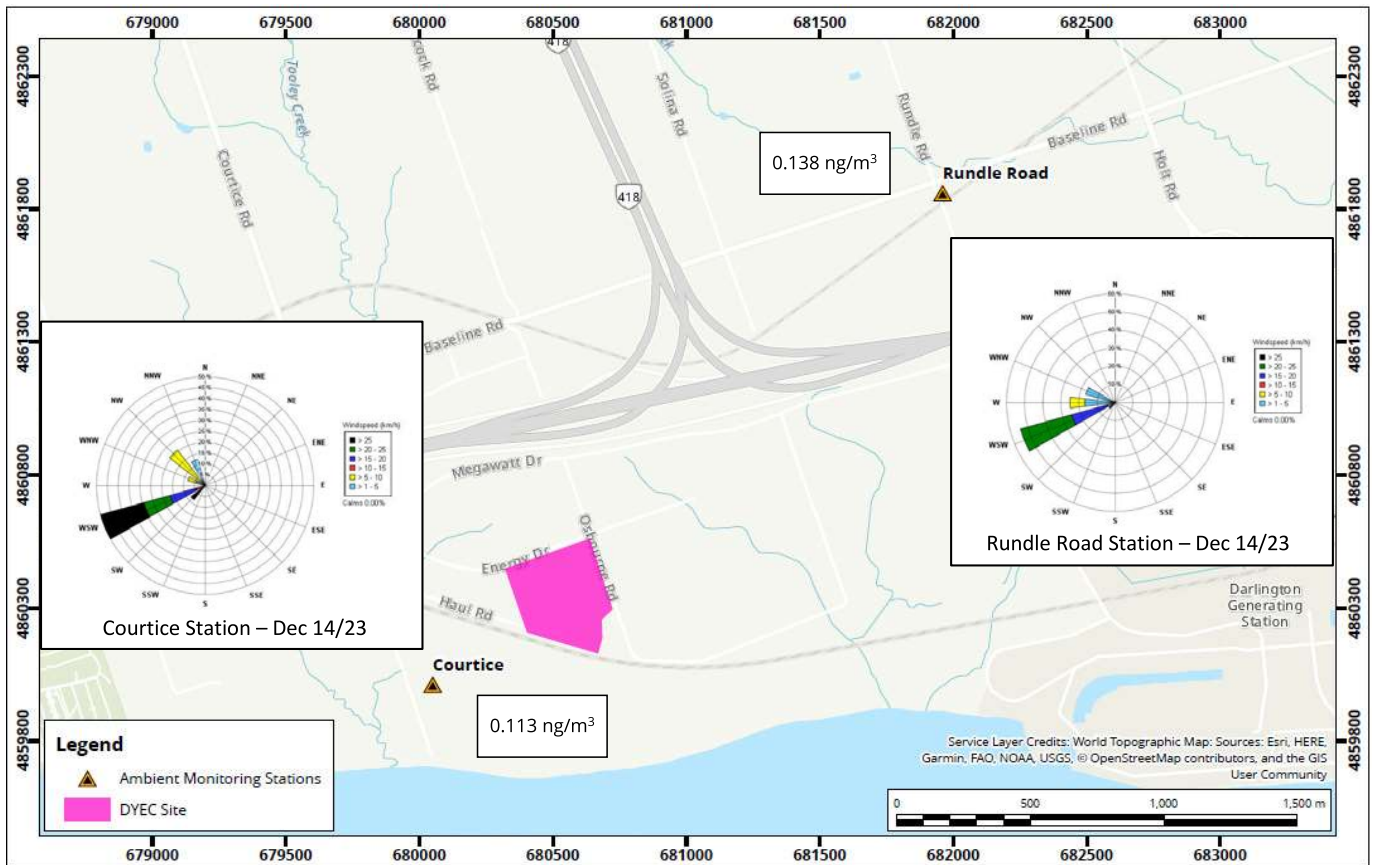
MB/vit

Attach.



## ATTACHMENTS





### DYEC Site and Ambient Monitoring Station Locations

Map Projection: NAD 1983 UTM Zone 17N  
 DYEC - Region of Durham, Ontario

True North   
 Drawn by: DAJH Figure: 1  
 Approx. Scale: 1:20,000  
 Date Revised: Jan 8, 2024  
 Project #: 2400035





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  
**ALS Project ID:** 23601  
**ALS WO#:** L2754014  
**Date of Report:** 8-Jan-24  
**Date of Sample Receipt:** 19-Dec-23

**Client Name:** RWDI Air Inc  
**Client Address:** 600 Southgate Dr.  
Guelph, ON N1G 4P6  
Canada  
**Client Contact:** Maja Bokara  
**Client Project ID:** DYEC

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

There were a number of early-eluting targets detected in both method blanks. As a result, the reported sample results for tetralin may be elevated. All other targets were detected at higher levels in the samples and not expected to be biased. In addition, the recovery of naphthalene in the laboratory control sample (LCS) is above the method control limit due to elevated sampling medium background.

For the samples, select target results have been reported from the analysis of diluted extracts due to elevated target concentrations.

Certified by:   
Steve Kennedy  
Technical Supervisor

Results in this certificate relate only to the samples as submitted to the laboratory.  
This report shall not be reproduced, except in full, without the written permission of ALS Canada Ltd.

# ALS Life Sciences

## Sample Analysis Summary Report

Sample Name	Method Blank	Method Blank	COURTICE-PAH-DEC14	RUNDLE-PAH-DEC14	Laboratory Control Sample
ALS Sample ID	WG3787926-1	WG3787926-4	L2754014-1	L2754014-2	WG3787926-2
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	QC	QC	Puf	Puf	QC
Sampling Date	n/a	n/a	14-Dec-23	14-Dec-23	n/a
Extraction Date	20-Dec-23	20-Dec-23	20-Dec-23	20-Dec-23	20-Dec-23
<b>Target Analytes</b>	<b>ng/sample</b>	<b>ng/sample</b>	<b>ng/sample</b>	<b>ng/sample</b>	<b>%</b>
Naphthalene	154	13.4	3540	3940	196.8 B
2-Methylnaphthalene	3.21	3.81	1570	1790	87.5
1-Methylnaphthalene	1.67	1.65	747	847	75.2
Acenaphthylene	1.04	1.13	131	162	94.0
Acenaphthene	1.29	<1.0 U	267	676	121.7
Fluorene	1.51	1.03 M	473	627	104.9
Phenanthrene	2.72	2.16	830	1260	99.6
Anthracene	3.11	<1.0 U	34.1	62.6	91.8
Fluoranthene	1.83	2.89	281	370	97.6
Pyrene	2.22	3.15	235	310	104.5
Benzo(a)Anthracene	<1.0 U	<1.0 U	27.7	35.5	100.7
Chrysene	<1.0 U	<1.0 U	119	130	90.4
Benzo(b)Fluoranthene	<1.0 U	<1.0 U	50.5 M	58.7	80.1
Benzo(k)Fluoranthene	<1.0 U	<1.0 U	79.1 M	85.2 M	96.7
Benzo(e)Pyrene	<1.0 U	<1.0 U	43.0	47.4	100.1
Benzo(a)Pyrene	<1.0 U	<1.0 U	36.7	45.6	81.1
Perylene	<1.0 U	<1.0 U	8.21	9.79	87.9
Indeno(1,2,3-cd)Pyrene	<1.0 U	<1.0 U	53.4	58.9	93.5
Dibenzo(a,h)Anthracene	<1.0 U	<1.0 U	8.40	9.51	88.3
Benzo(g,h,i)Perylene	<1.0 U	<1.0 U	65.5	72.5	91.1
<b>Additional Analytes</b>					
Tetralin	235 M	1.40	540 M,B	578 M,B	NS
Biphenyl	2.51	2.28	615	781	NS
o-Terphenyl	<1.0 U	<1.0 U	2.56	2.11	NS
Benzo(a)fluorene	<1.0 U	<1.0 U	69.0 M	74.6 M	NS
Benzo(b)fluorene	<1.0 U	<1.0 U	17.2	19.2	NS
<b>Field Sampling Standards</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>
1-Methylnaphthalene-D10	NS	NS	54.3	45.9	NS
Fluorene D10	NS	NS	66.4	61.3	NS
Terphenyl D14(Surr.)	NS	NS	98.0	76.5	NS
<b>Extraction Standards</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>	<b>% Rec</b>
Naphthalene D8	84.4	38.1	75.7	65.2	93.7
2-Methylnaphthalene-D10	80.0	41.3	79.6	60.5	90.5
Acenaphthylene D8	47.3	25.8	69.1	76.6	59.7
Phenanthrene D10	70.5	44.1	41.3	45.5	67.4
Anthracene-D10	42.5	19.9	53.2	61.5	53.7
Fluoranthene D10	59.5	37.3	52.2	56.8	69.5
Benzo(a)Anthracene-D12	20.7	9.8	52.2	55.3	44.1
Chrysene D12	36.5 M	15.2	40.7	42.4	68.5
Benzo(b)Fluoranthene-D12	43.8 M	21.1	69.9	73.0	82.4
Benzo(k)Fluoranthene-D12	36.2 M	17.1	44.1	45.1	67.8
Benzo(a)Pyrene D12	60.3 M	44.9 M	41.9	46.6	58.3
Perylene D12	42.1	15.8	52.1	56.2	67.6
Indeno(1,2,3,cd)Pyrene-D12	30.2	23.9 M	59.6	67.3	46.3
Dibenz(a,h)Anthracene-D14	21.3 M	12.6 M	45.4	50.7	40.7
Benzo(g,h,i)Perylene D12	41.3	23.0	50.1	54.8	59.0
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.				

# ALS Life Sciences

## Laboratory Method Blank Analysis Report

<b>Sample Name</b>	<b>Method Blank</b>	Sampling Date	n/a
ALS Sample ID	WG3787926-1	Extraction Date	20-Dec-23
Analysis Method	PAH by CARB 429		
Analysis Type	Blank		
Sample Matrix	MEDIA		
Sample Size	1	Sample	
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787926

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 05-Jan-2024

<b>Run Information</b>	<b>Run 1</b>
Filename	24010316.D
Run Date	1/3/2024 17:59
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	Ret. Time	Concentration ng/sample	Flags
Naphthalene	2.89	154	
2-Methylnaphthalene	3.44	3.21	
1-Methylnaphthalene	3.54	1.67	
Acenaphthylene	4.50	1.04	
Acenaphthene	4.77	1.29	
Fluorene	5.65	1.51	
Phenanthrene	7.77	2.72	
Anthracene	7.89	3.11	
Fluoranthene	11.11	1.83	
Pyrene	11.74	2.22	
Benzo(a)Anthracene	15.63	<1.0	U
Chrysene	15.75	<1.0	U
Benzo(b)Fluoranthene	18.94	<1.0	U
Benzo(k)Fluoranthene	NotFnd	<1.0	U
Benzo(e)Pyrene	19.82	<1.0	U
Benzo(a)Pyrene	19.82	<1.0	U
Perylene	20.07	<1.0	U
Indeno(1,2,3-cd)Pyrene	23.21	<1.0	U
Dibenzo(a,h)Anthracene	23.37	<1.0	U
Benzo(g,h,i)Perylene	24.14	<1.0	U

Additional Analytes	Ret. Time	Concentration ng/sample	Flags
Tetralin	2.77	235 M	
Biphenyl	3.93	2.51	
o-Terphenyl	9.03	<1.0	U
Benzo(a)fluorene	12.92	<1.0	U
Benzo(b)fluorene	13.13	<1.0	U

Field Sampling Standards	ng spiked	% Rec
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards	% Rec	Limits
Naphthalene D8	100 2.88	84.4 50-150
2-Methylnaphthalene-D10	100 3.41	80.0 50-150
Acenaphthylene D8	100 4.48	47.3 50-150
Phenanthrene D10	100 7.72	70.5 50-150
Anthracene-D10	100 7.84	42.5 50-150
Fluoranthene D10	100 11.06	59.5 50-150
Benz(a)Anthracene-D12	100 15.58	20.7 50-150
Chrysene D12	100 15.72	36.5 M 50-150
Benzo(b)Fluoranthene-D12	100 18.89	43.8 M 50-150
Benzo(k)Fluoranthene-D12	100 19.00	36.2 M 50-150
Benzo(a)Pyrene D12	100 19.77	60.3 M 50-150
Perylene D12	100 20.01	42.1 50-150
Indeno(1,2,3,cd)Pyrene-D12	100 23.16	30.2 50-150
Dibenz(a,h)Anthracene-D14	100 23.48	21.3 M 50-150
Benzo(g,h,i)Perylene D12	100 23.99	41.3 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.

# ALS Life Sciences

## Laboratory Method Blank Analysis Report

<b>Sample Name</b>	<b>Method Blank</b>	Sampling Date	n/a
ALS Sample ID	WG3787926-4	Extraction Date	20-Dec-23
Analysis Method	PAH by CARB 429		
Analysis Type	Blank		
Sample Matrix	QC		
Sample Size	1	Sample	
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787926

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 05-Jan-2024

<b>Run Information</b>	<b>Run 1</b>
Filename	24010317.D
Run Date	1/3/2024 18:41
Final Volume	0.1 mL
Dilution Factor	1
Analysis Units	ng/sample
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	Ret. Time	Concentration ng/sample	Flags
Naphthalene	2.90	13.4	
2-Methylnaphthalene	3.45	3.81	
1-Methylnaphthalene	3.55	1.65	
Acenaphthylene	4.51	1.13	
Acenaphthene	4.77	<1.0	U
Fluorene	5.66	1.03	M
Phenanthrene	7.78	2.16	
Anthracene	7.89	<1.0	U
Fluoranthene	11.12	2.89	
Pyrene	11.75	3.15	
Benzo(a)Anthracene	NotFnd	<1.0	U
Chrysene	15.76	<1.0	U
Benzo(b)Fluoranthene	NotFnd	<1.0	U
Benzo(k)Fluoranthene	NotFnd	<1.0	U
Benzo(e)Pyrene	19.69	<1.0	U
Benzo(a)Pyrene	19.82	<1.0	U
Perylene	20.09	<1.0	U
Indeno(1,2,3-cd)Pyrene	23.16	<1.0	U
Dibenzo(a,h)Anthracene	23.43	<1.0	U
Benzo(g,h,i)Perylene	24.06	<1.0	U

Additional Analytes	Ret. Time	Concentration ng/sample	Flags
Tetralin	2.77	1.40	
Biphenyl	3.94	2.28	
o-Terphenyl	9.03	<1.0	U
Benzo(a)fluorene	12.91	<1.0	U
Benzo(b)fluorene	13.13	<1.0	U

Field Sampling Standards	ng spiked	% Rec
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

Extraction Standards	% Rec	Limits
Naphthalene D8	100 2.89 38.1	50-150
2-Methylnaphthalene-D10	100 3.42 41.3	50-150
Acenaphthylene D8	100 4.49 25.8	50-150
Phenanthrene D10	100 7.73 44.1	50-150
Anthracene-D10	100 7.85 19.9	50-150
Fluoranthene D10	100 11.07 37.3	50-150
Benz(a)Anthracene-D12	100 15.59 9.8	50-150
Chrysene D12	100 15.72 15.2	50-150
Benzo(b)Fluoranthene-D12	100 18.90 21.1	50-150
Benzo(k)Fluoranthene-D12	100 19.01 17.1	50-150
Benzo(a)Pyrene D12	100 19.77 44.9	50-150
Perylene D12	100 20.02 15.8	50-150
Indeno(1,2,3,cd)Pyrene-D12	100 23.25 23.9	50-150
Dibenz(a,h)Anthracene-D14	100 23.52 12.6	50-150
Benzo(g,h,i)Perylene D12	100 24.01 23.0	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.

# ALS Life Sciences

## Sample Analysis Report

<b>Sample Name</b>	COURTICE-PAH-DEC14	Sampling Date	14-Dec-23 00:00
ALS Sample ID	L2754014-1	Extraction Date	20-Dec-23
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Puf		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787926

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 05-Jan-2024

Run Information	Run 1	Run 2
Filename	24010322.D	24010330.D
Run Date	1/3/2024 22:11	1/4/2024 10:12
Final Volume	0.1 mL	0.1 mL
Dilution Factor	1	20
Analysis Units	ng/sample	ng/sample
Instrument	MSD-5	MSD-5
Column	HP-5MS US2579041H	HP-5MS US2579041H

Target Analytes	Ret. Time	Concentration ng/sample	Flags	Ret. Time.	Concentration ng/sample	Flags
Naphthalene				2.89	3540	
2-Methylnaphthalene	3.44	1570				
1-Methylnaphthalene	3.54	747				
Acenaphthylene	4.50	131				
Acenaphthene	4.78	267				
Fluorene	5.65	473				
Phenanthrene	7.77	830				
Anthracene	7.88	34.1				
Fluoranthene	11.10	281				
Pyrene	11.73	235				
Benzo(a)Anthracene	15.62	27.7				
Chrysene	15.73	119				
Benzo(b)Fluoranthene	18.94	50.5 M				
Benzo(k)Fluoranthene	19.01	79.1 M				
Benzo(e)Pyrene	19.68	43.0				
Benzo(a)Pyrene	19.82	36.7				
Perylene	20.05	8.21				
Indeno(1,2,3-cd)Pyrene	23.20	53.4				
Dibenzo(a,h)Anthracene	23.38	8.40				
Benzo(g,h,i)Perylene	24.05	65.5				

Additional Analytes	Ret. Time	Concentration ng/sample	Flags
Tetralin	2.78	540 M	B
Biphenyl	3.93	615	
o-Terphenyl	9.03	2.56	
Benzo(a)fluorene	12.89	69.0 M	
Benzo(b)fluorene	13.12	17.2	

Field Sampling Standards	ng spiked	% Rec
1-Methylnaphthalene-D10	200 3.51	54.3
Fluorene D10	200 5.60	66.4
Terphenyl D14(Surr.)	200 12.56	98

Extraction Standards	% Rec	Limits	% Rec
Naphthalene D8	100	50-150	2.88 75.7
2-Methylnaphthalene-D10	100 3.41	50-150	
Acenaphthylene D8	100 4.48	50-150	
Phenanthrene D10	100 7.71	50-150	
Anthracene-D10	100 7.83	50-150	
Fluoranthene D10	100 11.05	50-150	
Benz(a)Anthracene-D12	100 15.56	50-150	
Chrysene D12	100 15.67	50-150	
Benzo(b)Fluoranthene-D12	100 18.87	50-150	
Benzo(k)Fluoranthene-D12	100 18.97	50-150	
Benzo(a)Pyrene D12	100 19.75	50-150	
Perylene D12	100 19.99	50-150	
Indeno(1,2,3,cd)Pyrene-D12	100 23.11	50-150	
Dibenz(a,h)Anthracene-D14	100 23.30	50-150	
Benzo(g,h,i)Perylene D12	100 23.96	50-150	

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.

# ALS Life Sciences

## Sample Analysis Report

<b>Sample Name</b>	RUNDLE-PAH-DEC14	Sampling Date	14-Dec-23 00:00
ALS Sample ID	L2754014-2	Extraction Date	20-Dec-23
Analysis Method	PAH by CARB 429		
Analysis Type	Sample		
Sample Matrix	Puf		
Sample Size	1 Sample		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787926

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 05-Jan-2024

Run Information	Run 1	Run 2
Filename	24010323.D	24010321.D
Run Date	1/3/2024 22:53	1/3/2024 21:29
Final Volume	0.1 mL	0.1 mL
Dilution Factor	1	20
Analysis Units	ng/sample	ng/sample
Instrument	MSD-5	MSD-5
Column	HP-5MS US2579041H	HP-5MS US2579041H

Target Analytes	Ret. Time	Concentration ng/sample	Flags	Ret. Time	Concentration ng/sample	Flags
Naphthalene				2.89	3940	
2-Methylnaphthalene				3.43	1790	
1-Methylnaphthalene	3.54	847				
Acenaphthylene	4.50	162				
Acenaphthene	4.78	676				
Fluorene	5.65	627				
Phenanthrene	7.77	1260				
Anthracene	7.87	62.6				
Fluoranthene	11.10	370				
Pyrene	11.73	310				
Benzo(a)Anthracene	15.62	35.5				
Chrysene	15.73	130				
Benzo(b)Fluoranthene	18.94	58.7				
Benzo(k)Fluoranthene	19.01	85.2 M				
Benzo(e)Pyrene	19.68	47.4				
Benzo(a)Pyrene	19.81	45.6				
Perylene	20.05	9.79				
Indeno(1,2,3-cd)Pyrene	23.19	58.9				
Dibenzo(a,h)Anthracene	23.38	9.51				
Benzo(g,h,i)Perylene	24.05	72.5				

Additional Analytes	Ret. Time	Concentration ng/sample	Flags
Tetralin	2.77	578 M	B
Biphenyl	3.93	781	
o-Terphenyl	9.03	2.11	
Benzo(a)fluorene	12.89	74.6 M	
Benzo(b)fluorene	13.12	19.2	

Field Sampling Standards	ng spiked	% Rec
1-Methylnaphthalene-D10	200 3.51	45.9
Fluorene D10	200 5.60	61.3
Terphenyl D14(Surr.)	200 12.56	76.5

Extraction Standards	% Rec	Limits	% Rec
Naphthalene D8	100	50-150	2.88 65.2
2-Methylnaphthalene-D10	100	50-150	3.40 60.5
Acenaphthylene D8	100 4.48	76.6	50-150
Phenanthrene D10	100 7.71	45.5	50-150
Anthracene-D10	100 7.83	61.5	50-150
Fluoranthene D10	100 11.05	56.8	50-150
Benz(a)Anthracene-D12	100 15.55	55.3	50-150
Chrysene D12	100 15.66	42.4	50-150
Benzo(b)Fluoranthene-D12	100 18.87	73.0	50-150
Benzo(k)Fluoranthene-D12	100 18.97	45.1	50-150
Benzo(a)Pyrene D12	100 19.75	46.6	50-150
Perylene D12	100 19.99	56.2	50-150
Indeno(1,2,3,cd)Pyrene-D12	100 23.10	67.3	50-150
Dibenz(a,h)Anthracene-D14	100 23.29	50.7	50-150
Benzo(g,h,i)Perylene D12	100 23.96	54.8	50-150

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.



# ALS Life Sciences

## Laboratory Control Sample Analysis Report

<b>Sample Name</b>	<b>Laboratory Control Sample</b>	Sampling Date	n/a
ALS Sample ID	WG3787926-2	Extraction Date	20-Dec-23
Analysis Method	PAH by CARB 429		
Analysis Type	LCS		
Sample Matrix	MEDIA		
Sample Size	1            n/a		
Percent Moisture	n/a		
Split Ratio	5	Workgroup	WG3787926

Approved:  
*Nick Schrobilgen*  
 --e-signature--  
 05-Jan-2024

<b>Run Information</b>	<b>Run 1</b>
Filename	24010313.D
Run Date	1/3/2024 15:54
Final Volume	0.1            mL
Dilution Factor	1
Analysis Units	%
Instrument	MSD-5
Column	HP-5MS US2579041H

Target Analytes	ug spiked	Ret. Time	%	Flags	Limits
Naphthalene	100	2.88	196.8	B	50-150
2-Methylnaphthalene	100	3.43	87.5		50-150
1-Methylnaphthalene	100	3.54	75.2		50-150
Acenaphthylene	100	4.50	94.0		50-150
Acenaphthene	100	4.77	121.7		50-150
Fluorene	100	5.65	104.9		50-150
Phenanthrene	100	7.77	99.6		50-150
Anthracene	100	7.88	91.8		50-150
Fluoranthene	100	11.11	97.6		50-150
Pyrene	100	11.74	104.5		50-150
Benzo(a)Anthracene	100	15.63	100.7		50-150
Chrysene	100	15.74	90.4		50-150
Benzo(b)Fluoranthene	100	18.94	80.1		50-150
Benzo(k)Fluoranthene	100	19.03	96.7		50-150
Benzo(e)Pyrene	100	19.69	100.1		50-150
Benzo(a)Pyrene	100	19.83	81.1		50-150
Perylene	100	20.06	87.9		50-150
Indeno(1,2,3-cd)Pyrene	100	23.20	93.5		50-150
Dibenzo(a,h)Anthracene	100	23.43	88.3		50-150
Benzo(g,h,i)Perylene	100	24.06	91.1		50-150

**Additional Analytes**

Tetralin	0	NS
Biphenyl	0	NS
o-Terphenyl	0	NS
Benzo(a)fluorene	0	NS
Benzo(b)fluorene	0	NS

**Field Sampling Standards**

	ng spiked	% Rec
1-Methylnaphthalene-D10	0	NS
Fluorene D10	0	NS
Terphenyl D14(Surr.)	0	NS

**Extraction Standards**

	ug spiked	Ret. Time	%	Flags	Limits
Naphthalene D8	100	2.88	93.7		30-150
2-Methylnaphthalene-D10	100	3.41	90.5		30-150
Acenaphthylene D8	100	4.48	59.7		30-150
Phenanthrene D10	100	7.72	67.4		50-150
Anthracene-D10	100	7.84	53.7		50-150
Fluoranthene D10	100	11.06	69.5		50-150
Benz(a)Anthracene-D12	100	15.56	44.1		50-150
Chrysene D12	100	15.68	68.5		50-150
Benzo(b)Fluoranthene-D12	100	18.88	82.4		50-150
Benzo(k)Fluoranthene-D12	100	18.98	67.8		50-150
Benzo(a)Pyrene D12	100	19.77	58.3		30-150
Perylene D12	100	20.00	67.6		50-150
Indeno(1,2,3,cd)Pyrene-D12	100	23.11	46.3		50-150
Dibenz(a,h)Anthracene-D14	100	23.32	40.7		50-150
Benzo(g,h,i)Perylene D12	100	23.98	59.0		50-150

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.

**Table B5: 2023 Courtice Station Q4 Monitoring Results for PAHs**

Contaminant	Units	MECP Criteria	14-Dec-23	No. > Criteria
1-Methylnaphthalene	ng/m <sup>3</sup>	12000	2.29E+00	0
2-Methylnaphthalene	ng/m <sup>3</sup>	10000	4.82E+00	0
Acenaphthene	ng/m <sup>3</sup>	-	8.19E-01	-
Acenaphthylene	ng/m <sup>3</sup>	3500	4.02E-01	0
Anthracene	ng/m <sup>3</sup>	200	1.05E-01	0
Benzo(a)Anthracene	ng/m <sup>3</sup>	-	8.50E-02	-
Benzo(a)fluorene	ng/m <sup>3</sup>	-	2.12E-01	-
Benzo(a)Pyrene (Historically High)	ng/m <sup>3</sup>	0.05 <sup>[1]</sup> 5 <sup>[2]</sup> 1.1 <sup>[3]</sup>	1.13E-01	1
Benzo(b)Fluoranthene	ng/m <sup>3</sup>	-	1.55E-01	-
Benzo(b)fluorene	ng/m <sup>3</sup>	-	5.28E-02	-
Benzo(e)Pyrene	ng/m <sup>3</sup>	-	1.32E-01	-
Benzo(g,h,i)Perylene	ng/m <sup>3</sup>	-	2.01E-01	-
Benzo(k)Fluoranthene	ng/m <sup>3</sup>	-	2.43E-01	-
Biphenyl	ng/m <sup>3</sup>	-	1.89E+00	-
Chrysene	ng/m <sup>3</sup>	-	3.65E-01	-
Dibenzo(a,h)Anthracene	ng/m <sup>3</sup>	-	2.58E-02	-
Fluoranthene	ng/m <sup>3</sup>	-	8.62E-01	-
Fluorene	ng/m <sup>3</sup>	-	1.45E+00	-
Indeno(1,2,3-cd)Pyrene	ng/m <sup>3</sup>	-	1.64E-01	-
Naphthalene	ng/m <sup>3</sup>	22500	1.09E+01	0
o-Terphenyl	ng/m <sup>3</sup>	-	7.85E-03	-
Perylene	ng/m <sup>3</sup>	-	2.52E-02	-
Phenanthrene	ng/m <sup>3</sup>	-	2.55E+00	-
Pyrene	ng/m <sup>3</sup>	-	7.21E-01	-
Tetralin	ng/m <sup>3</sup>	-	1.66E+00	-
Total PAH <sup>[4]</sup>	ng/m <sup>3</sup>	-	30.19	-

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: 2023 Rundle Road Station Q4 Monitoring Results for PAHs**

Contaminant	Units	MECP Criteria	14-Dec-23	No. > Criteria
1-Methylnaphthalene	ng/m <sup>3</sup>	12000	2.56E+00	0
2-Methylnaphthalene	ng/m <sup>3</sup>	10000	5.41E+00	0
Acenaphthene	ng/m <sup>3</sup>	-	2.04E+00	-
Acenaphthylene	ng/m <sup>3</sup>	3500	4.89E-01	0
Anthracene	ng/m <sup>3</sup>	200	1.89E-01	0
Benzo(a)Anthracene	ng/m <sup>3</sup>	-	1.07E-01	-
Benzo(a)fluorene	ng/m <sup>3</sup>	-	2.25E-01	-
Benzo(a)Pyrene (Historically High)	ng/m <sup>3</sup>	0.05 <sup>[1]</sup> 5 <sup>[2]</sup> 1.1 <sup>[3]</sup>	1.38E-01	1
Benzo(b)Fluoranthene	ng/m <sup>3</sup>	-	1.77E-01	-
Benzo(b)fluorene	ng/m <sup>3</sup>	-	5.80E-02	-
Benzo(e)Pyrene	ng/m <sup>3</sup>	-	1.43E-01	-
Benzo(g,h,i)Perylene	ng/m <sup>3</sup>	-	2.19E-01	-
Benzo(k)Fluoranthene	ng/m <sup>3</sup>	-	2.57E-01	-
Biphenyl	ng/m <sup>3</sup>	-	2.36E+00	-
Chrysene	ng/m <sup>3</sup>	-	3.93E-01	-
Dibenzo(a,h)Anthracene	ng/m <sup>3</sup>	-	2.87E-02	-
Fluoranthene	ng/m <sup>3</sup>	-	1.12E+00	-
Fluorene	ng/m <sup>3</sup>	-	1.89E+00	-
Indeno(1,2,3-cd)Pyrene	ng/m <sup>3</sup>	-	1.78E-01	-
Naphthalene	ng/m <sup>3</sup>	22500	1.19E+01	0
o-Terphenyl	ng/m <sup>3</sup>	-	6.37E-03	-
Perylene	ng/m <sup>3</sup>	-	2.96E-02	-
Phenanthrene	ng/m <sup>3</sup>	-	3.81E+00	-
Pyrene	ng/m <sup>3</sup>	-	9.37E-01	-
Tetralin	ng/m <sup>3</sup>	-	1.75E+00	-
Total PAH <sup>[4]</sup>	ng/m <sup>3</sup>	-	36.41	-

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 Courtice Daily: 14/12/2023 Type: AVG 1 Hr. [5 Mins.]

Date & Time	PM2.5 ug/m3	NO ppb	NO2 ppb	NOX ppb	SO2 ppb	WS km/hr km/hr	ET C°	WD Deg	Tr Temp C°	RH AVG %	BP in HG	Rain total mm	Hi-Vol Pressure in H2O	PUF Pressure in H2O	BP kPa	ET K	Hivol Flow cfm	PUF Flow cfm
14/12/2023 00:00	2.1	1.5	26.2	27.8	0.125	5.82	-1.798	306	19.9	66	30.32	0	3.79	47.37	102.69	271.352	42.83	8.34
14/12/2023 01:00	2.6	2	28.6	30.6	0.271	6.3	-1.896	302	19.9	63.9	30.32	0	3.83	47.83	102.66	271.254	43.03	8.38
14/12/2023 02:00	2.9	2	30.8	32.8	0.022	6.74	-2.055	311	20	62.6	30.32	0	3.84	47.77	102.68	271.095	43.08	8.37
14/12/2023 03:00	3.1	1.5	27.4	28.9	0.158	6.26	-2.594	325	20	66.5	30.31	0	3.85	47.93	102.64	270.556	43.19	8.39
14/12/2023 04:00	3.1	4.6	24.9	29.5	3.861	4.95	-2.787	330	20	68.3	30.3	0	3.85	47.78	102.6	270.363	43.24	8.38
14/12/2023 05:00	2.9	2.3	26.8	29	0.395	6.4	-2.362	306	19.9	65.9	30.29	0	3.85	47.52	102.56	270.788	43.19	8.35
14/12/2023 06:00	4	6.9	28.9	35.8	0.944	3.82	-1.712	329	19.7	65.5	30.28	0	3.85	47.21	102.55	271.438	43.13	8.32
14/12/2023 07:00	5.9	30.1	30.6	60.6	8.604	4.55	-2.047	333	20.1	67.6	30.28	0	3.85	45.88	102.54	271.103	43.15	8.22
14/12/2023 08:00	5.4	16.1	28	44.1	1.315	5.43	-1.295	310	20.2	62.6	30.28	0	3.85	45.39	102.54	271.855	43.1	8.17
14/12/2023 09:00	8	23	25.5	48.4	1.611	3.73	0.452	283	20.1	56.1	30.27	0	3.83	45.16	102.49	273.602	42.82	8.12
14/12/2023 10:00	5.4	11.7	19.5	31.2	1.583	10.26	1.941	244	19.8	57.9	30.25	0	3.85	45.38	102.43	275.091	42.76	8.12
14/12/2023 11:00	5.2	3.3	13	16.3	1.151	19	2.533	239	19.8	61.4	30.21	0	3.86	44.89	102.32	275.683	42.8	8.07
14/12/2023 12:00	7	2.9	12.9	15.8	0.894	21.92	2.687	237	19.7	63.8	30.18	0	3.88	44.89	102.21	275.837	42.86	8.07
14/12/2023 13:00	7.9	2.5	10	12.5	0.992	27.39	3.495	235	19.7	64.4	30.15	0	3.93	44.53	102.1	276.645	43.02	8.02
14/12/2023 14:00	7.1	2.3	9.6	11.9	1.016	27.36	4.192	238	19.8	61.7	30.12	0	3.96	44.33	102.01	277.342	43.12	7.99
14/12/2023 15:00	6.7	0.9	8.6	9.5	1.49	30.38	4.586	236	20	62.7	30.11	0	3.98	43.69	101.95	277.736	43.19	7.94
14/12/2023 16:00	5.3	0.1	8	8.1	1.574	27.82	4.762	237	19.8	64	30.09	0	3.97	43.38	101.9	277.912	43.12	7.9
14/12/2023 17:00	4.9	0	7.6	7.4	1.26	19.8	4.581	244	19.9	67.7	30.08	0	3.95	43.14	101.87	277.731	43.05	7.89
14/12/2023 18:00	6	0	7.8	7.6	0.89	19.85	4.543	247	19.8	67.5	30.07	0	3.96	43.13	101.82	277.693	43.06	7.88
14/12/2023 19:00	7	0	8.1	8	0.849	25.47	4.587	242	19.7	66.7	30.05	0	3.98	43.34	101.77	277.737	43.16	7.9
14/12/2023 20:00	8.5	0	8.5	8.4	0.748	26.92	4.362	241	19.9	71.6	30.04	0	3.98	43	101.74	277.512	43.19	7.87
14/12/2023 21:00	11.8	0	9.2	9	0.718	26.92	4.178	242	19.8	75	30.03	0	3.98	43.18	101.69	277.328	43.17	7.89
14/12/2023 22:00	13.3	0	10.3	10.1	0.777	24.49	4.197	241	19.6	74.1	30.02	0	3.97	43.66	101.66	277.347	43.16	7.93
14/12/2023 23:00	15.6	0	11.1	11	0.977	23.05	4.32	238	20.1	74.1	30.02	0	3.97	43.29	101.67	277.47	43.12	7.89
Minimum	2.1	0	7.6	7.4	0.022	3.73	-2.787	235	19.6	56.1	30.02	0	3.79	43	101.66	270.363	42.76	7.87
MinDate	00:00	17:00	17:00	17:00	02:00	09:00	04:00	13:00	22:00	09:00	22:00	00:00	00:00	20:00	22:00	04:00	10:00	20:00
Maximum	15.6	30.1	30.8	60.6	8.604	30.38	4.762	333	20.2	75	30.32	0	3.98	47.93	102.69	277.912	43.24	8.39
MaxDate	23:00	07:00	02:00	07:00	07:00	15:00	16:00	07:00	08:00	21:00	00:00	00:00	15:00	03:00	00:00	16:00	04:00	03:00
Avg	6.3	4.7	17.6	22.3	1.343	16.03	1.536	271	19.9	65.7	30.18	0	3.9	45.15	102.21	274.686	43.06	8.1
Num	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Data[%]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
STD	3.3	7.7	9	14.7	1.7	9.8	3	37.5	0.2	4.6	0.1	0	0.1	1.8	0.4	3	0.1	0.2

Station: RofD Rundle Daily: 14/12/2023 Type: AVG 1 Hr. [5 Mins.]

Date & Time	PM2.5 ug/m3	NO ppb	NO2 ppb	NOX ppb	SO2 ppb	Precip Volts	ET C°	Rain mm	Tr Temp C°	RH AVG %	Rain total mm	WS km/hr km/hr	WD Deg	Hi-Vol Pressure in H2O	PUF Pressure in H2O	ET K	Hivol Flow cfm	PUF Flow cfm
14/12/2023 00:00	2	1.4	9.2	10.5	0	13.1	-2.5	0	21.7	74.2	0	4.13	278	3.35	53.93	270.679	38.51	8.2
14/12/2023 01:00	2	2	9.4	11.3	0	13.1	-3.5	0	22	75.8	0	4.24	280	3.36	54.39	269.65	38.62	8.25
14/12/2023 02:00	2.6	2.6	20.3	22.9	0	13.1	-2.6	0	21.8	68	0	5.94	276	3.37	54.09	270.516	38.6	8.21
14/12/2023 03:00	3.2	0.2	20.3	20.5	0	13.1	-3.2	0	21.8	71	0	3.23	289	3.36	54.3	270.004	38.62	8.23
14/12/2023 04:00	3.7	0.3	17.3	17.6	0	13.1	-3.2	0	21.8	72.6	0	2.55	292	3.36	53.94	269.949	38.59	8.21
14/12/2023 05:00	4.2	0.4	18.3	18.7	0	13.1	-2.9	0	21.9	72.6	0	4.4	273	3.37	53.51	270.214	38.64	8.18
14/12/2023 06:00	4.6	1.8	20	21.7	0	13.1	-2.3	0	21.9	71.3	0	1.72	301	3.36	52.76	270.902	38.54	8.11
14/12/2023 07:00	5.4	6.2	24.5	30.8	0.028	13.1	-2.5	0	21.9	72.1	0	2.23	292	3.37	51.16	270.627	38.62	8.01
14/12/2023 08:00	7.3	14.4	25.1	39.5	0.174	13.1	-1.8	0	21.8	67.7	0	4.91	278	3.37	50.67	271.387	38.58	7.96
14/12/2023 09:00	14	18.8	24.1	42.9	0.718	13.1	-0.3	0	21.8	60.5	0	5.45	263	3.38	51.04	272.844	38.5	7.97
14/12/2023 10:00	7.1	19.6	23.4	43	0.749	13.1	1.5	0	21.7	60.5	0	9.76	241	3.39	50.85	274.674	38.45	7.93
14/12/2023 11:00	6.4	9.8	18.1	27.9	0.471	13.1	2.1	0	21.9	62.5	0	15.35	242	3.4	50.34	275.27	38.46	7.88
14/12/2023 12:00	7.7	8.5	16.9	25.4	0.248	13.1	2.4	0	21.6	64.8	0	16.69	239	3.42	50.26	275.508	38.54	7.88
14/12/2023 13:00	8.6	10.6	15.1	25.7	0.309	13.1	3.1	0	21.6	67	0	18.46	236	3.41	50.24	276.285	38.45	7.86
14/12/2023 14:00	8.2	7.5	13.3	20.8	0.397	13.1	3.9	0	21.6	62.2	0	22.74	238	3.42	50.21	277.025	38.43	7.85
14/12/2023 15:00	7.2	3.7	11.4	15	0.878	13.1	4.3	0	21.6	63.4	0	22.71	237	3.4	49.41	277.424	38.34	7.79
14/12/2023 16:00	7.3	1.5	10.5	11.9	0.989	13.1	4.5	0	21.6	63.3	0	22.45	238	3.41	49.2	277.669	38.33	7.77
14/12/2023 17:00	7.3	1.5	11.1	12.6	0.788	13.1	4.4	0	21.7	68.5	0	19.93	243	3.41	48.85	277.504	38.39	7.75
14/12/2023 18:00	8.4	2.2	12.4	14.5	0.342	13.1	4.4	0	21.6	67.9	0	19.99	244	3.42	48.89	277.541	38.39	7.75
14/12/2023 19:00	9	1	10.9	11.9	0.218	13.1	4.3	0	21.6	67.9	0	23.35	243	3.42	49.27	277.475	38.41	7.78
14/12/2023 20:00	10	2.3	11.3	13.6	0.216	13.1	4.1	0	21.7	72.4	0	24.8	241	3.43	49.52	277.252	38.47	7.8
14/12/2023 21:00	12.7	1	11.2	12.3	0.179	13.1	3.9	0	21.7	77.7	0	24.07	242	3.43	50.08	277.011	38.49	7.84
14/12/2023 22:00	14.9	1	12.1	13.1	0.188	13.1	3.8	0	21.7	77.3	0	21.58	242	3.43	51.15	276.964	38.5	7.92
14/12/2023 23:00	16.8	3.1	14	17	0.443	13.1	3.9	0	21.6	76.9	0	19.15	238	3.42	51.32	277.064	38.48	7.93
Minimum	2	0.2	9.2	10.5	0	13.1	-3.5	0	21.6	60.5	0	1.72	236	3.35	48.85	269.65	38.33	7.75
MinDate	00:00	03:00	00:00	00:00	00:00	00:00	01:00	00:00	12:00	09:00	00:00	06:00	13:00	00:00	17:00	01:00	16:00	17:00
Maximum	16.8	19.6	25.1	43	0.989	13.1	4.5	0	22	77.7	0	24.8	301	3.43	54.39	277.669	38.64	8.25
MaxDate	23:00	10:00	08:00	10:00	16:00	00:00	16:00	00:00	01:00	21:00	00:00	20:00	06:00	20:00	01:00	16:00	05:00	01:00
Avg	7.5	5.1	15.8	20.9	0.306	13.1	1.1	0	21.7	69.1	0	13.33	258	3.39	51.22	274.227	38.5	7.96
Num	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Data[%]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
STD	3.9	5.6	5.1	9.7	0.3	No Data	3.1	0	0.1	5.2	0	8.6	21.8	0	1.8	3.1	0.1	0.2

A large decorative graphic on the left side of the page, featuring a blue triangle at the top left corner and a large, light beige circular shape that overlaps the triangle and extends across the page.

# APPENDIX G



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January 29, 2024

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**Re: Durham York Energy Centre (DYEC)  
2023 Ambient Air Q4 Sulphur Dioxide Emissions  
RWDI Reference No. 2400035**

In support of the 2023, 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<sub>2</sub>) 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<sub>2</sub> concentrations at the maximum point of impingement (POI) for a facility operating at 110% maximum continuous rating (MCR) with in-stack SO<sub>2</sub> concentrations at the permit limit of 35 mg/m<sup>3</sup>. Under this conservative assumed facility operating condition, the predicted maximum 1-hour average concentration at the POI was 8.62 µg/m<sup>3</sup>, which represents 8.62% of the new ambient air standard of 100 µg/m<sup>3</sup>, which was implemented in 2020.

During Q4, there were one-hundred and eighty-nine (189) exceedance events above the rolling 10-minute SO<sub>2</sub> Ambient Air Quality Criteria (AAQC) and seventy-eight (78) exceedance events above the rolling 1-hour SO<sub>2</sub> AAQC recorded at the Courtice station. There were no exceedance events above the rolling 10-minute SO<sub>2</sub> Ambient Air Quality Criteria (AAQC) or rolling 1-hour SO<sub>2</sub> AAQC recorded at the Rundle Road station.

Each of the date and times of the SO<sub>2</sub> AAQC exceedances were compared against the wind direction recorded at the ambient air stations as well as the SO<sub>2</sub> concentrations measured at the DYEC by the continuous emissions monitoring system (CEMS).

As indicated by RWDI in the 2023 DYEC Ambient Air Q4 Report, the Courtice Station pollution rose in Figure 6 shows that the majority of elevated SO<sub>2</sub> events at Courtice occurred from the north-northeast to northeast directions. The events were likely 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 <1.25% of the 5-min SO<sub>2</sub> events are elevated >67 ppb and the majority occurred from the north to north-northeast directions. The pollution rose indicates that the DYEC was not a contributor to SO<sub>2</sub> 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 there were no elevated SO<sub>2</sub> events at Rundle Road. The Rundle Road station pollution rose in Figure 7 shows that there were no 5-min SO<sub>2</sub> events elevated >67 ppb.

During the times the SO<sub>2</sub> AAQC events occurred, both boilers CEMS concentrations, comprised of 24-hour rolling arithmetic average, were recorded between 0-13 mg/Rm<sup>3</sup>. The DYEC's CEMS concentrations for both boilers were below the DYEC regulatory compliance limit of 35 mg/Rm<sup>3</sup> and the facility was operating under normal conditions.



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February 9, 2024

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**Re: Durham York Energy Centre (DYEC)  
2023 Ambient Air Q4 Sulphur Dioxide Emissions  
RWDI Reference No. 2400035**

In support of the 2023, 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<sub>2</sub>) 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<sub>2</sub> concentrations at the maximum point of impingement (POI) for a facility operating at 110% maximum continuous rating (MCR) with in-stack SO<sub>2</sub> concentrations at the permit limit of 35 mg/m<sup>3</sup>. Under this conservative assumed facility operating condition, the predicted maximum 1-hour average concentration at the POI was 8.62 µg/m<sup>3</sup>, which represents 8.62% of the new ambient air standard of 100 µg/m<sup>3</sup>, which was implemented in 2020.

During Q4, there were one-hundred and eighty-nine (189) exceedance events above the rolling 10-minute SO<sub>2</sub> Ambient Air Quality Criteria (AAQC) and seventy-eight (78) exceedance events above the rolling 1-hour SO<sub>2</sub> AAQC recorded at the Courtice station. There were no exceedance events above the rolling 10-minute SO<sub>2</sub> Ambient Air Quality Criteria (AAQC) or rolling 1-hour SO<sub>2</sub> AAQC recorded at the Rundle Road station.

Each of the date and times of the SO<sub>2</sub> AAQC exceedances were compared against the wind direction recorded at the ambient air stations as well as the SO<sub>2</sub> concentrations measured at the DYEC by the continuous emissions monitoring system (CEMS).

As indicated by RWDI in the 2023 DYEC Ambient Air Q4 Report, the Courtice Station pollution rose in Figure 6 shows that the majority of elevated SO<sub>2</sub> events at Courtice occurred from the north-northeast to northeast directions. The events were likely 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 <1.25% of the 5-min SO<sub>2</sub> events are elevated >67 ppb and the majority occurred from the north to north-northeast directions. The pollution rose indicates that the DYEC maybe a potential contributor to SO<sub>2</sub> levels at the station along with other industrial activity nearby.

The Rundle Road Station pollution rose in Figure 6 shows that there were no elevated SO<sub>2</sub> events at Rundle Road. The Rundle Road station pollution rose in Figure 7 shows that there were no 5-min SO<sub>2</sub> events elevated >67 ppb.

During the times the SO<sub>2</sub> AAQC events occurred, both boilers CEMS concentrations, comprised of 24-hour rolling arithmetic average, were recorded between 0-13 mg/Rm3. The DYEC's CEMS concentrations for both boilers were below the DYEC regulatory compliance limit of 35 mg/Rm3 and the facility was operating under normal conditions.