REPORT

DURHAM YORK ENERGY CENTRE

COURTICE, ONTARIO

2021 Q2 AMBIENT AIR QUALITY MONITORING REPORT
RWDI #1803743
August 12, 2021

SUBMITTED TO:

The Director, Legislative Services-Regional Clerk or Designate

The Regional Municipality of Durham
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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:

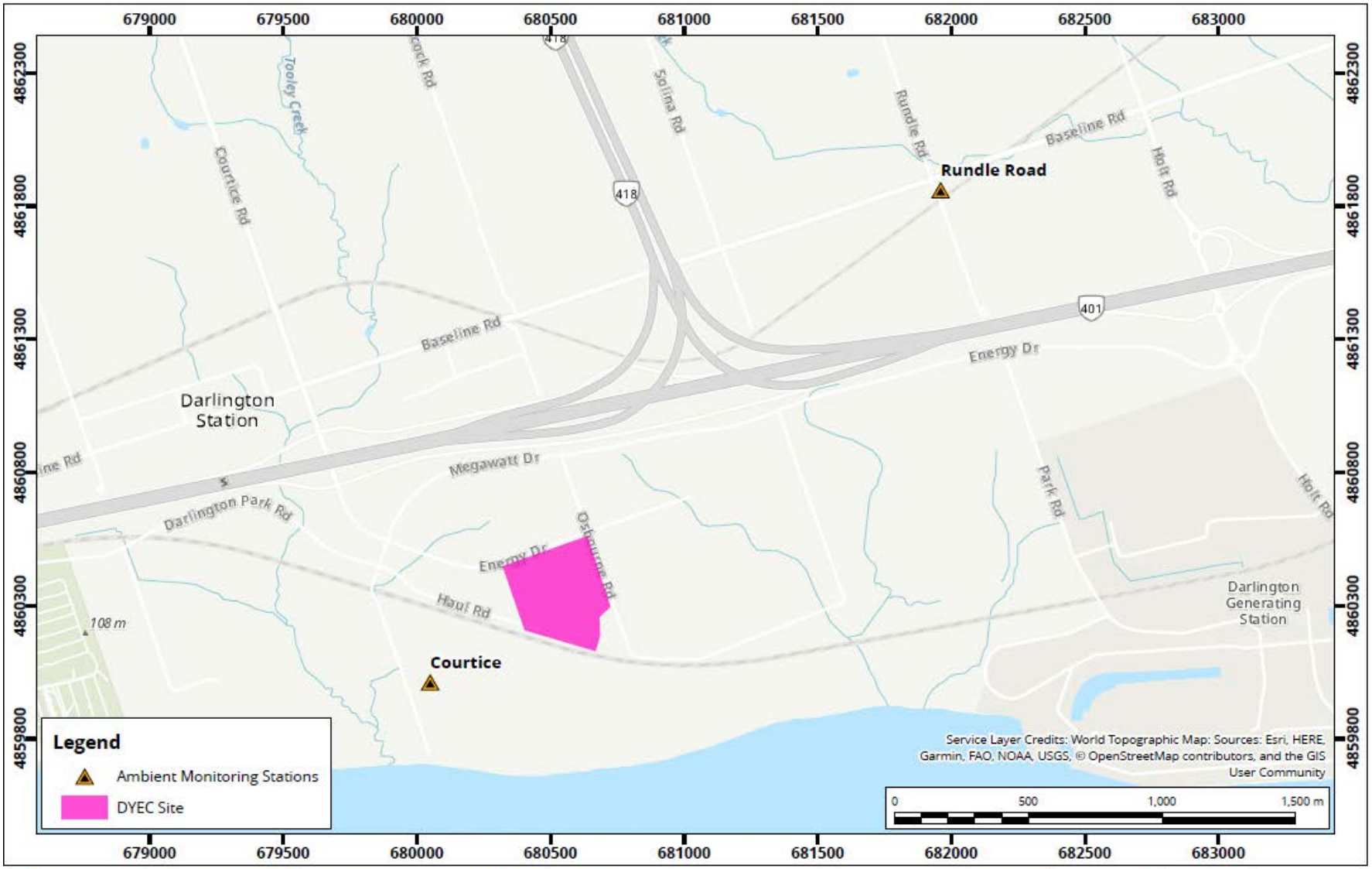
- Quantify any measurable ground level concentrations resulting from emissions from the DYEC cumulative to local air quality, including validating the predicted concentrations from the dispersion modelling conducted in the Environmental Assessment (2009a);
- Monitor concentration levels of EFW-related 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 meteorological tower there, is approximately 10 meters tall. The Courtice Station collects the following meteorological parameters: ambient temperature, ambient pressure, precipitation and relative humidity. For purposes of this report, wind speed and wind direction data for the Courtice Station have been obtained from the adjacent Courtice Water Pollution Control Plant (WPCP) meteorological tower, which is approximately 20 meters tall.

Throughout this monitoring period there was one (1) exceedance event of the rolling 10-minute SO_2 AAQC and one (1) exceedance event of the rolling 1-hour SO_2 AAQC at the Courtice station. There were seven (7) exceedance events of the rolling 10-minute SO_2 AAQC and three (3) exceedance events of the rolling 1-hour SO_2 AAQC at the Rundle Road station. Data recovery rates were acceptable and valid for all measured Q2 parameters.



DYEC Site and Ambient Monitoring Station Locations

True North

Drawn by: DJH | Figure: 1

Approx. Scale: 1:20,000

Date Revised: Apr 17, 2020

Map Projection: NAD 1983 UTM Zone 17N

DYEC - Region of Durham, Ontario

Project #: 1803743

1.1 Sampling Locations

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

Figure 2. Rundle Road Station

Figure 3. Courtice Station

2 SAMPLING METHODOLOGY

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

2.1 Nitrogen Oxide Analyzers

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

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

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

2.2 Sulphur Dioxide Analyzers

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

The SO_2 analyzers were zero and span checked daily using the IZS system and calibrated once a month using either EPA protocol span gases and a dilution system or an ESA permeation tube calibrator. Automatic IZS checks were performed on a daily basis commencing at approximately 1:45 and ending at 02:15. The checks consisted of a 10-minute zero check, a 10-minute span check and a 10-minute purge. These checks provide a way to monitor daily performance of the analyzer using an external charcoal and purafil zeroing cartridge for the zero, and an internal permeation oven with a permeation tube for the span. These IZS checks are not for calibration purposes but are merely a diagnostic tool to identify instrument drift.

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

2.3 SHARP 5030 $PM_{2.5}$ Analyzers

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

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

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

2.4 TSP High Volume Air Samplers

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

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

2.5 Polyurethane Foam Samplers

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

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

2.6 Meteorological Towers

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

3 AIR QUALITY CRITERIA AND STANDARDS

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

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

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

Parameter	Averaging Time	Year Applied		Statistical Form
		2020	2025	
Fine Particulate Matter ($PM_{2.5}$)	24-hour	27		The 3-year average of the annual 98th percentile of the daily 24-hour average concentrations
		µg/m³		
	Annual	8.8		The 3-year average of the annual average of all 1-hour concentrations
		µg/m³		
Sulphur Dioxide (SO_2)	1-hour	70	65	The 3-year average of the annual 99th percentile of the SO_2 daily maximum 1-hour average concentrations
		ppb	ppb	
	Annual	5	4	The average over a single calendar year of all 1-hour average SO_2 concentrations
		ppb	ppb	
Nitrogen Dioxide (NO_2)	1-hour	60	42	The 3-year average of the annual 98th percentile of the daily maximum 1-hour average concentrations
		ppb	ppb	
	Annual	17	12	The average over a single calendar year of all 1-hour average concentrations
		ppb	ppb	

(CCME,2019)

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

4 MECP AUDITS

There was no MECP audit during Q2.

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 April to June 2021 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: relative humidity, ambient temperature, ambient pressure and precipitation. For purposes of this report, wind speed and wind direction data for the Courtice Station have been obtained from the adjacent Courtice Water Pollution Control Plant (WPCP) meteorological tower, which is approximately 20 meters tall. The Courtice Station maintained a minimum 95.0% of data collection for all of the parameters measured during Q2. Missing data was due to a power outage at the WPCP wind monitor. A new wind monitor was installed at the Courtice station on June 30th, 2021 and will be used to collect data beginning in Q3. Hourly statistics from the meteorological station are presented in **Table 2**. A wind rose showing trends in wind speed and wind direction during Q2 is provided in **Figure 4**.

Figure 4. Wind Roses of Hourly Wind Speed and Wind Direction – April to June 2021

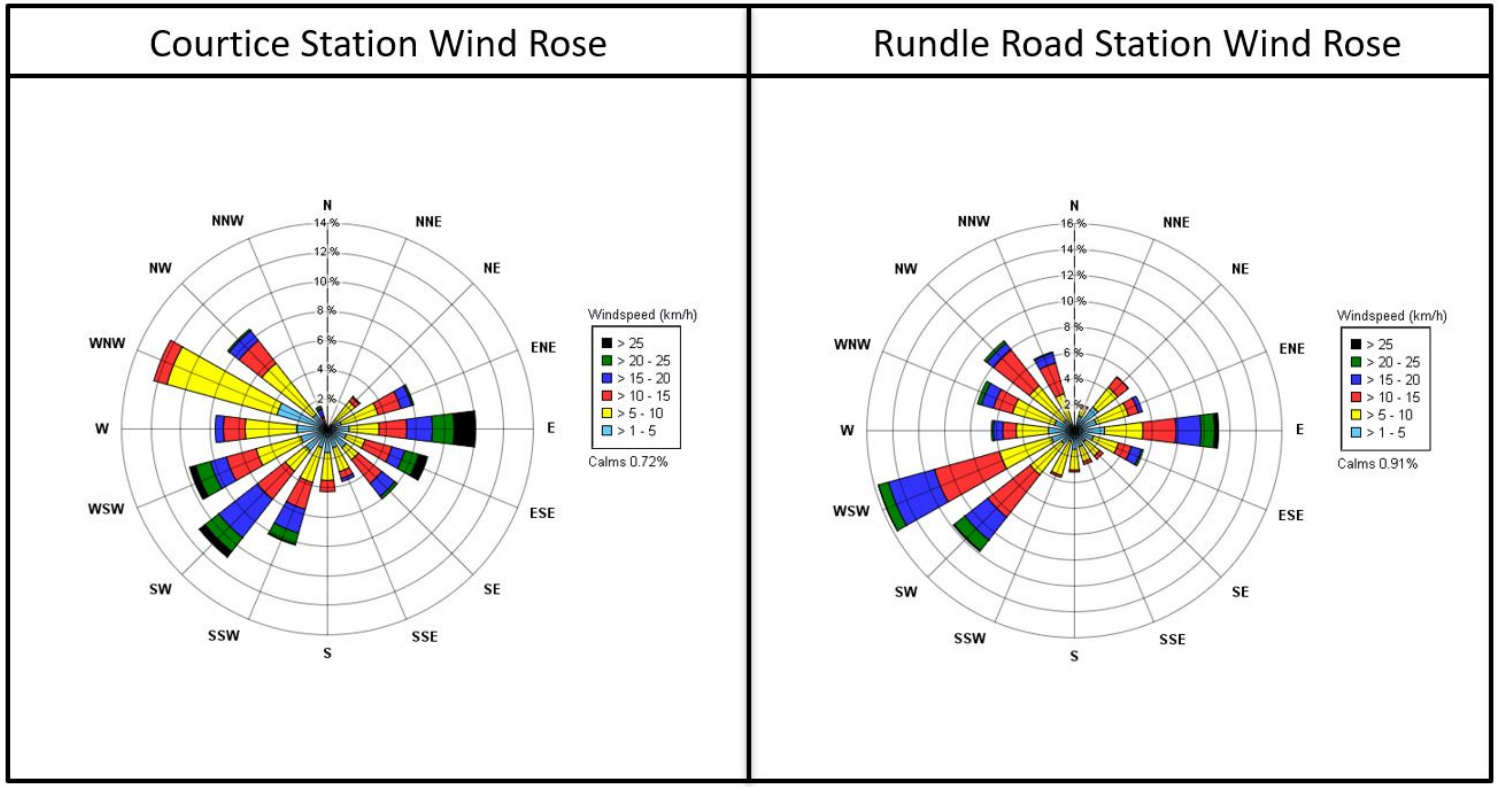


Table 2: Hourly Statistics from the Courtice Station and WPCP (WS and WD) Meteorological Station

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	Rain
Units	(km/hr)	(°C)	(%)	Hg	mm	(km/hr)	(°C)	(%)	Hg	mm	(km/hr)	(°C)	(%)	Hg	mm	mm	(%)					
April	36.1	20.2	98.1	30.1	5.5	1.1	-4.9	22.1	29.2	0.0	13.5	6.9	66.8	29.6	0.1	104.6	100.0	100.0	100.0	100.0	100.0	100.0
May	30.0	24.9	98.5	30.1	2.6	0.7	0.9	25.7	29.3	0.0	9.5	11.8	63	29.8	0.0	24.4	85.3	85.3	100.0	100.0	100.0	100.0
June	24.1	25.9	99.5	29.9	2.0	0.1	8.1	26.2	29.1	0.0	8.1	18.2	72	29.6	0.0	20.4	100.0	100.0	99.9	99.9	99.9	100.0
Q2 Arithmetic Mean											10.3	12.3	67	29.7	0.1	149.4	95.0	95.0	100.0	100.0	100.0	100.0

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 95.6% data collection for all of the meteorological parameters measured during Q2. Hourly statistics from the meteorological station is presented in **Table 3**. A wind rose showing trends in wind speed and wind direction during Q2 is provided in **Figure 4**.

Table 3: Hourly Statistics from the Rundle Road Meteorological Station

Rundle Road Station MET Statistics	Maximum 1 hr Mean				Minimum 1 hr Mean				Monthly Mean				Total	% Valid Hours				
Parameter	WS	Temp	RH	Rain	WS	Temp	RH	Rain	WS	Temp	RH	Rain	Rain	WS	WD	Temp	RH	Rain
Units	(km/hr)	(°C)	(%)	mm	(km/hr)	(°C)	(%)	mm	(km/hr)	(°C)	(%)	mm	mm	(%)				
April	27.6	20.8	100.0	8.1	0.4	-6.7	23.3	0.0	10.8	6.8	67.1	0.2	133.5	100.0	97.8	100.0	100.0	100.0
May	23.2	27.8	100.0	2.9	0.5	0.2	24.0	0.0	8.4	12.4	60.8	0.0	33.4	99.3	94.1	99.3	99.3	99.5
June	26.1	27.9	100.0	10.1	0.4	6.9	26.8	0.0	8.3	18.9	69.6	0.1	99.0	100.0	95.0	100.0	100.0	100.0
Q2 Arithmetic Mean									9.1	12.7	65.8	0.1	265.9	99.8	95.6	99.8	99.8	99.8

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

Table 4 provides a summary of Maximum 1-hour Rolling Means, Maximum 24-hour Rolling Means, Monthly Means, Quarterly Means and Percent valid data for the Courtice Station. **Table 5** provides a summary of Maximum 1-hour Means, Maximum 24-hour Means, Monthly Means, Quarterly Means and Percent valid data for the Rundle Road Station. **Table 6** provides a summary of exceedance statistics for both Courtice and Rundle Road Stations. At the Courtice Station, there was one (1) exceedance event of the rolling 10-minute SO_2 AAQC and one (1) exceedance event of the 1-hour SO_2 AAQC in Q2. At the Rundle Road Station, there were seven (7) exceedance events of the rolling 10-minute SO_2 AAQC and three (3) exceedance events of the 1-hour SO_2 AAQC in Q2.

Table 4: Summary of Courtice Station Continuous Data Statistics

Courtice Monitoring Station Data Statistics	Maximum Rolling 10 min Mean	Maximum Rolling 1 hr Mean					Maximum 24 hr Rolling Mean					Monthly Mean					% Valid Hours				
Compound	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2
Units	ppb	($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				(%)				
AAQC/CAAQS	67				200	40	27[A]			100											
April	46.3	31.3	72.7	47.4	37.6	31.4	16.4	20.2	8.4	13.7	5.4	6.2	6.9	1.3	6.0	1.1	99.9	99.7	99.7	99.7	99.7
May	39.2	68.3	63.4	39.7	30.5	19.5	31.1	16.0	5.2	11.6	5.3	8.4	5.6	0.9	5.0	1.8	98.5	99.6	99.6	99.6	99.6
June	83.9	63.2	30.7	19.3	21.4	46.2	13.5	12.4	4.8	7.7	5.3	6.8	4.1	0.5	3.8	1.6	99.9	99.6	99.6	99.6	99.3
Q2 Arithmetic Mean												7.1	5.6	0.9	4.9	1.5	99.4	99.6	99.6	99.6	99.5

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

Table 5: Summary of Rundle Road Station Continuous Data Statistics

Rundle Road Monitoring Station Data Statistics	Maximum Rolling 10 min Mean	Maximum Rolling 1 hr Mean					Maximum 24 hr Rolling Mean					Monthly Mean					% Valid Hours				
Compound	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2
Units	ppb	($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				(%)				
AAQC/CAAQS	67				200	40	27[A]			100											
April	46.3	27.3	38.8	19.3	20.6	20.8	15.5	12.4	3.3	9.3	1.8	5.7	4.9	1.3	3.7	0.7	99.9	99.7	99.7	99.7	99.9
May	39.2	40.4	30.5	14.3	19.1	22.0	16.4	9.8	2.6	7.1	1.6	6.2	4.5	1.0	3.6	0.8	99.2	98.7	98.7	98.7	98.7
June	96.7	62.1	70.5	30.1	24.2	70.5	11.7	12.3	3.8	9.5	7.8	6.2	5.3	1.1	4.3	0.6	99.7	99.6	99.6	99.6	99.7
Q2 Arithmetic Mean												6.0	4.9	1.1	3.9	0.7	99.6	99.3	99.3	99.3	99.4

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

Table 6: Summary of Exceedance Statistics

Event Statistics	Rolling Mean > 10 min AAQC for Courtice	Rolling Mean > 10 min AAQC for Rundle Road	Mean > 1 hr AAQC for Courtice Monitoring Station			Mean > 1 hr AAQC for Rundle Road Monitoring Station			Rolling Mean > 24 hr AAQC for Courtice Monitoring Station			Rolling Mean > 24 hr AAQC for Rundle Road Monitoring Station		
Compound	SO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2
Units	No.	No.	No.			No.			No.			No.		
April	0	0		0	0		0	0	N/A	0		N/A	0	
May	0	0		0	0		0	0	N/A	0		N/A	0	
June	1	7		0	1		0	3	N/A	0		N/A	0	
Q2 Total	1	7		0	1		0	3	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 (99.6% valid data). Monitoring results were compared to the AAQC for NO_2 only, as it is the only parameter that has AAQC values for 1-hour and 24-hour averaging periods (there are no AAQC's for NO or NO_x). There were no exceedances above the AAQC values for the entirety of the sampling period for rolling 1-hour and 24-hour averaged data. The highest NO_2 value seen among the 1-hour rolling averages was 37.6 ppb, which is 18.8% of the AAQC. The highest NO_2 value seen among the rolling 24-hour averages was 13.7 ppb, which is 13.7% of the AAQC. The measurements are summarized in **Table 4** above. A pollution rose is presented in **Figure 5** for the Courtice Station during Q2 composed of hourly average NO_2 concentrations. A pollution rose indicates the percentage of time that the wind originates from a given direction coupled with the pollutant measurement for that time in either ppb or micrograms per meter cubed. In order to show where possible major sources of pollutants are coming from, levels below 5 ppb were omitted from the graphic wind rose representation.

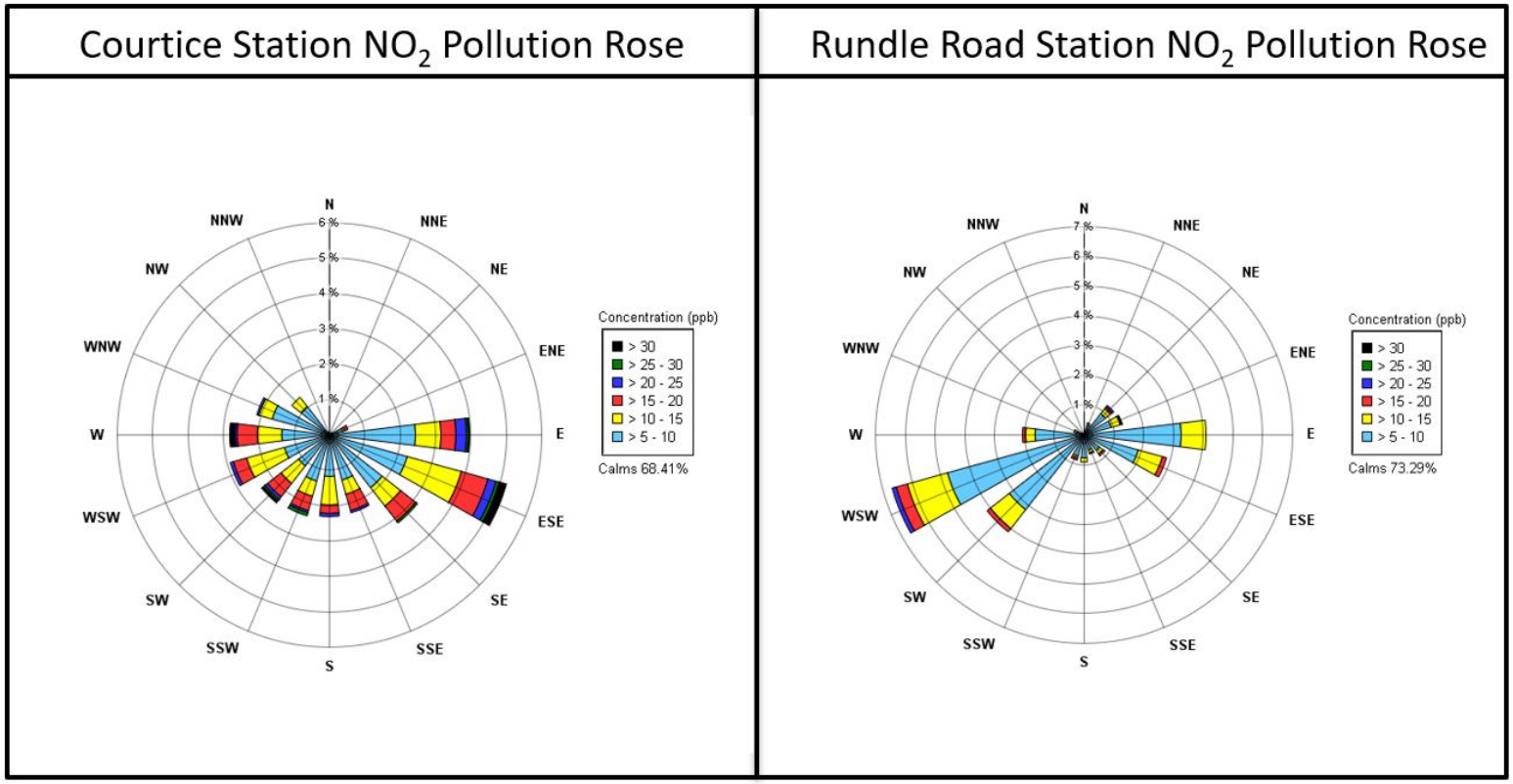
The Courtice Station pollution rose in **Figure 5** shows the majority of the NO_2 impacts were largely from the south between the east-southeast and west directions. The Station would be downwind of the DYEC if winds were from the northeast and east-northeast components, which happened to be very minimal, therefore it is unlikely that any significant impact came from the DYEC. There are larger impacts from the west which indicates likely impacts from the surrounding industry along the lakeshore, and from the east to southwest which is likely from long range transport across the lake.

5.3.2 Rundle Road Station Results

Data recovery levels were high for oxides of nitrogen (99.3% valid data). There were no exceedances above the AAQC values for the entirety of the sampling period for rolling 1-hour and 24-hour averaged data. The highest NO_2 value seen among the 1-hour rolling averages was 24.2 ppb, which is 12.1% of the AAQC. The highest NO_2 value seen among the rolling 24-hour averages was 9.5 ppb, which is 9.5% 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 Q2 composed of hourly average NO_2 concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 ppb were omitted from the graphic wind rose representation.

The Rundle Road Station pollution rose in **Figure 5** shows that the majority of elevated NO_2 events at the Rundle Road Station occurred when winds were from the west-southwest and the east, which is in line with high traffic areas and urban background. It is unlikely that the DYEC was a major contributor to NO_2 levels at the station.

Figure 5. Pollution Roses of Hourly Average NO_2 Concentrations – April to June 2021



5.4 Sulphur Dioxide Results

5.4.1 Courtice Station Results

Data recovery levels were high for sulphur dioxide (99.5% valid data). Monitoring results were compared to the AAQC for 10-minute and 1-hour rolling average periods. In 2021, there have been more frequent SO_2 concentrations elevated above the AAQC's than in previous years due to the new limits imposed at the start of 2020. The highest SO_2 value seen among the 10-min rolling averages was 83.9 ppb, which is 125.2% of the AAQC. The highest SO_2 value seen among the 1-hour rolling averages was 46.2 ppb, which is 115.5% of the AAQC. There was one (1) exceedance event of the rolling 10-minute AAQC and one (1) exceedance event of the rolling 1-hour AAQC. A table outlining the interpretation of the exceedance period can be found in **Appendix E.**

The SO_2 statistical results are summarized in **Table 4** above. A pollution rose is presented in **Figure 6** for the Courtice Station during Q2 composed of hourly average SO_2 concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 ppb were omitted from the graphic wind rose representation. A pollution rose is presented in **Figure 7** for the Courtice Station during Q2 composed of 5-minute average SO_2 concentrations with levels below 67 ppb omitted to illustrate directionality of exceedance concentrations.

The Courtice Station pollution rose in **Figure 6** shows that the majority of elevated SO_2 events at Courtice occurred from the east to south directions. The events were possibly a result of emissions from long range transport across the lake and a contribution from the east-southeast direction which would possibly originate from industrial sources along the lakeshore. It is unlikely that any significant contribution of measured SO_2 came from the DYEC. The Courtice Station pollution rose in **Figure 7** shows that <0.01% of the 5-min SO_2 events which are elevated >67 ppb occurred from the east-southeast and west-southwest directions. The conclusion about the sources is the same as **Figure 6**, and it is unlikely that any significant contribution of measured SO_2 came from the DYEC.

Durham Region staff have provided a Technical Memorandum summarizing the DYEC SO_2 continuous emissions monitoring system (CEMS) data during the exceedance events recorded at the Courtice and Rundle Road Ambient Monitoring Stations for Q2, which is included in **Appendix F**. The Memorandum indicates that based on the in-stack concentration levels measured by the CEMS, that there were no unusual levels in SO_2 emissions during the ambient Station exceedance events and that the facility's contribution to 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 (99.4% valid data). Monitoring results were compared to the AAQC for 10-minute and 1-hour rolling average periods. The highest SO_2 value seen among the 10-min rolling averages was 96.7 ppb, which is 144.3% of the AAQC. The highest SO_2 value seen among the 1-hour rolling averages was 70.5 ppb, which is 176.3% of the AAQC. There were seven (7) exceedance events of the rolling 10-minute AAQC and three (3) exceedance events of the rolling 1-hour AAQC.

The SO_2 statistical results are summarized in **Table 5** above. A pollution rose is presented in **Figure 6** for the Rundle Road Station during Q2 composed of hourly average SO_2 concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 ppb were omitted from the graphic wind rose representation. A pollution rose is presented in **Figure 7** for the Rundle Road Station during Q2 composed of 5-minute average SO_2 concentrations with levels below 67 ppb omitted to illustrate directionality of exceedance concentrations.

The Rundle Road Station pollution rose in **Figure 6** shows that the majority of elevated SO_2 events at the Rundle Road Station occurred when winds were from the east-southeast. The pollution rose indicates that the DYEC was a not major contributor to SO_2 levels at the station and that the levels may be related to other industrial activity. The Rundle Road Station pollution rose in **Figure 7** shows that <0.01% of the 5-min SO_2 events which are elevated >67 ppb occurred from the east-southeast and east directions. The conclusion about the sources is the same as **Figure 6** and it is unlikely that any significant contribution of measured SO_2 came from the DYEC.

Figure 6. Pollution Roses of Hourly Average SO_2 Concentrations – April to June 2021

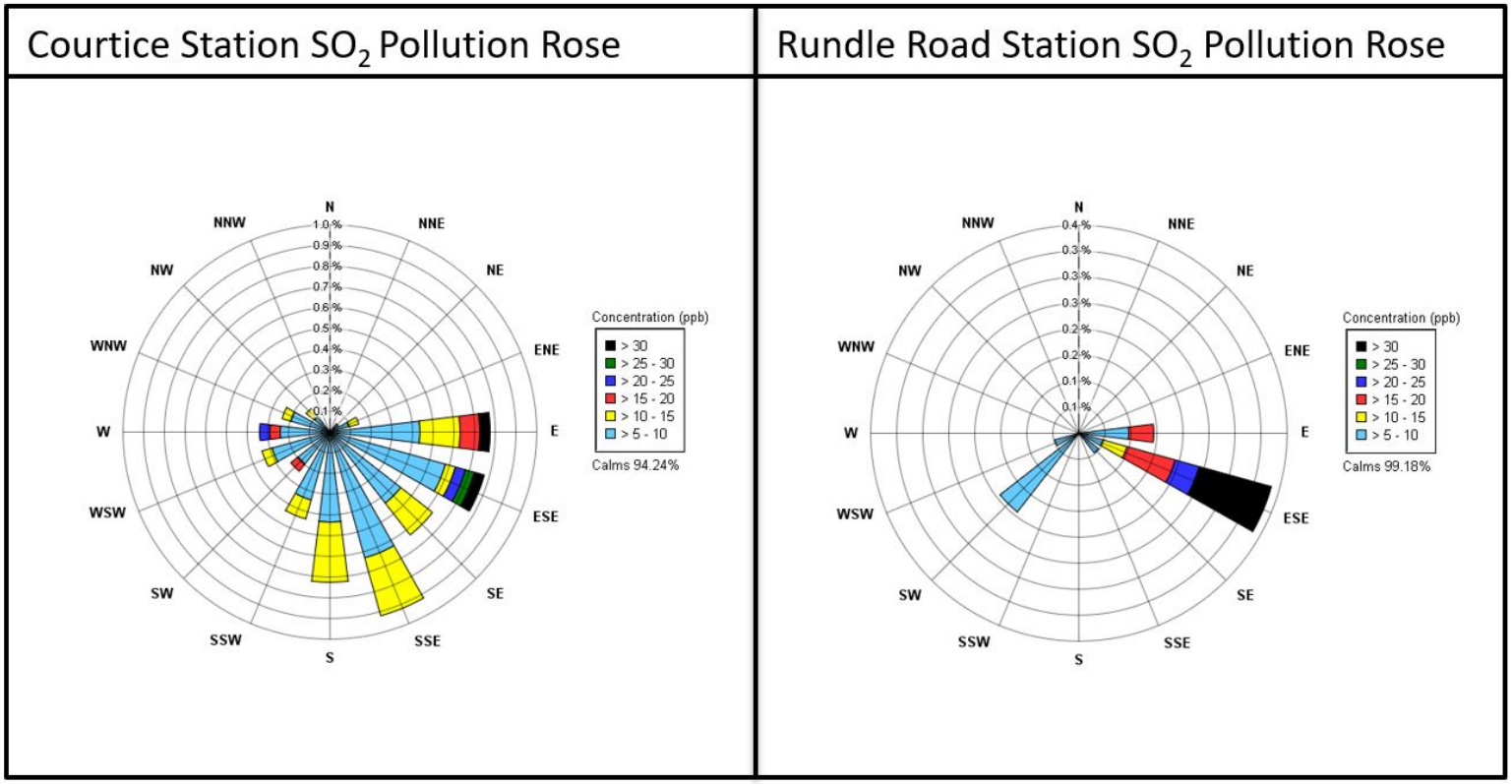
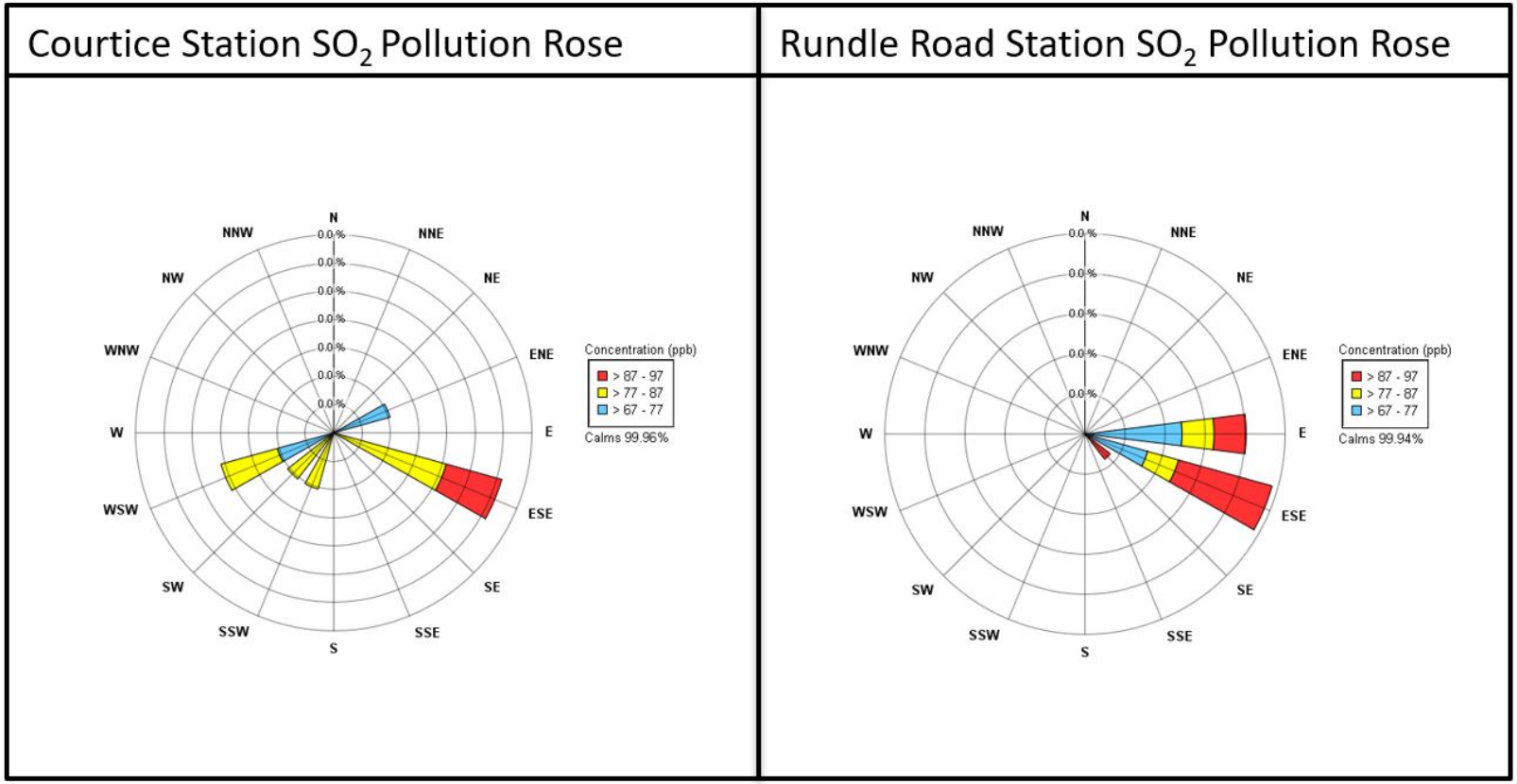


Figure 7. Pollution Roses of 5-minute Average SO_2 Concentrations >67 ppb – April to June 2021



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

5.5.1 Courtice Station Results

Data recovery levels were high for particulate matter less than 2.5 microns (99.4% valid data). There is no 1-hour AAQC or standard for $PM_{2.5}$, but there is a 24-hour CAAQS of 27 µg/m^3 for the 3-year average of the annual 98th percentile 24-hour concentrations, and 8.8 µg/m^3 for the 3-year average of the annual average concentrations (in effect as of 2020). Note that since the reported data is only quarterly and the CAAQS is applicable to the 3-year average, the CAAQS' for $PM_{2.5}$ was not applicable to the data. The highest $PM_{2.5}$ value seen among the 1-hour rolling averages was 68.3 µg/m^3 and the highest value seen among the 24-hour rolling averages was 31.1 µg/m^3. The results are summarized in **Table 4** above. A pollution rose is presented in **Figure 8** for the Courtice Station during Q2 composed of hourly average $PM_{2.5}$ concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 µg/m^3 were omitted from the graphic wind rose representation.

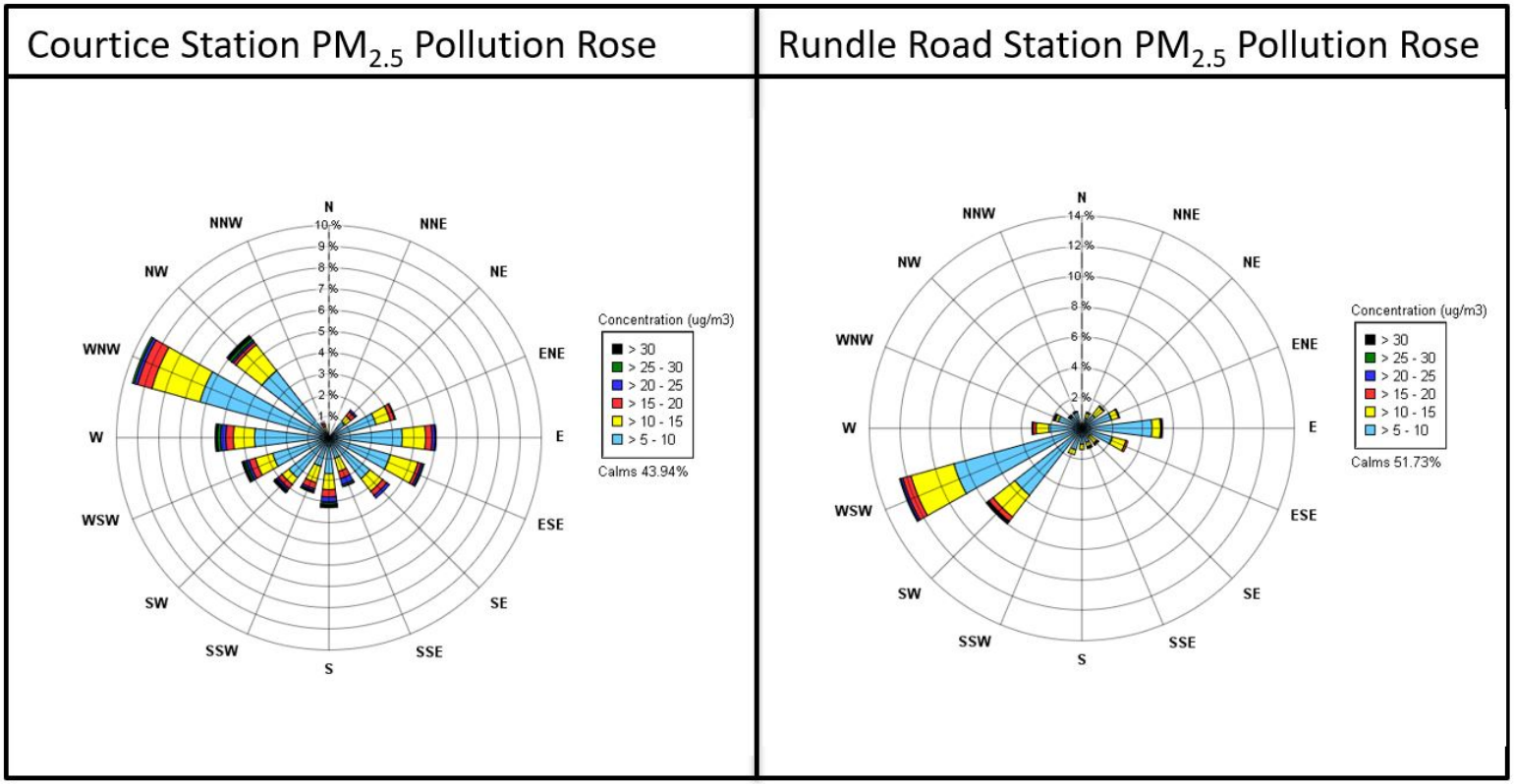
The Courtice Station pollution rose in **Figure 8** shows that the majority of elevated $PM_{2.5}$ events at Courtice were largely from the west-northwest. Elevated $PM_{2.5}$ measurements were likely related to urban background, roadway emissions and other nearby industrial sources.

5.5.2 Rundle Road Station Results

Data recovery levels were high for particulate matter less than 2.5 microns (99.6% valid data). The highest $PM_{2.5}$ value seen among the 1-hour rolling averages was 62.1 µg/m^3 and the highest value seen among the 24-hour rolling averages was 16.4 µg/m^3. The results are summarized in **Table 5** above. A pollution rose is presented in **Figure 8** for the Rundle Road Station during Q2 composed of hourly average $PM_{2.5}$ concentrations. In order to show where possible major sources of pollutants are coming from, levels below 5 µg/m^3 were omitted from the graphic wind rose representation.

The Rundle Road pollution rose in **Figure 8** shows that the majority of elevated $PM_{2.5}$ events at the Rundle Road Station occurred when winds were from the west-southwest, which is in line with high traffic areas and urban background, with a possible contribution from the DYEC.

Figure 8. Pollution Roses of Hourly Average $PM_{2.5}$ Concentrations – April to June 2021



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 Q2 with the sample days being: April 4, 10, 16, 22, 28, May 4, 10, 16, 22, 28 and June 3, 9, 15, 21 and 27, 2021.

5.6.1 Courtice Station Results

Data recovery levels were high for the TSP sampler at the Courtice Station (100% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria for TSP, mercury or metals during Q2. **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	Q2 Minimum Concentration	Q2 Maximum Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	µg/m^3	*120*	*120*	0	25.25	32.64	4.49	101.00	70.34	101.00	41.61	15	100
Total Mercury (Hg)	µg/m^3	*2*	*2*	0	1.25E-05	1.89E-05	2.95E-06	8.80E-05	3.13E-05	8.80E-05	2.11E-05	15	100
Aluminum (Al)	µg/m^3	*4.8*	-	0	1.68E-01	2.56E-01	2.85E-02	1.07E+00	6.91E-01	1.07E+00	2.07E-01	15	100
Antimony (Sb)	µg/m^3	*25*	*25*	0	5.27E-04	6.12E-04	1.95E-04	1.67E-03	6.79E-04	1.67E-03	7.99E-04	15	100
Arsenic (As)	µg/m^3	*0.3*	*0.3*	0	1.07E-03	1.73E-03	8.65E-04	1.35E-02	9.17E-04	1.35E-02	9.15E-04	15	100
Barium (Ba)	µg/m^3	*10*	*10*	0	5.28E-03	6.41E-03	1.95E-03	1.73E-02	7.40E-03	1.73E-02	8.05E-03	15	100
Beryllium (Be)	µg/m^3	*0.01*	*0.01*	0	1.69E-05	1.80E-05	1.44E-05	4.55E-05	3.12E-05	4.55E-05	1.53E-05	15	100
Bismuth (Bi)	µg/m^3	-	-	-	5.76E-04	6.05E-04	5.19E-04	1.57E-03	5.50E-04	1.57E-03	5.49E-04	15	100
Boron (B)	µg/m^3	*120*	-	0	4.47E-03	4.48E-03	4.32E-03	4.59E-03	4.59E-03	4.52E-03	4.58E-03	15	100
Cadmium (Cd)	µg/m^3	*0.025*	*0.025*	0	1.22E-04	1.40E-04	4.72E-05	3.59E-04	1.89E-04	3.59E-04	1.26E-04	15	100
Chromium (Cr)	µg/m^3	*0.5*	-	0	1.55E-03	1.83E-03	9.80E-04	4.49E-03	3.67E-03	4.49E-03	2.62E-03	15	100
Cobalt (Co)	µg/m^3	*0.1*	*0.1*	0	1.17E-04	1.45E-04	3.80E-05	5.10E-04	2.34E-04	5.10E-04	1.43E-04	15	100
Copper (Cu)	µg/m^3	*50*	-	0	1.17E-02	1.40E-02	4.52E-03	2.98E-02	2.48E-02	2.98E-02	2.91E-02	15	100
Iron (Fe)	µg/m^3	*4*	-	0	3.59E-01	4.67E-01	1.04E-01	1.68E+00	1.02E+00	1.68E+00	4.78E-01	15	100
Lead (Pb)	µg/m^3	*0.5*	*0.5*	0	2.40E-03	2.83E-03	7.20E-04	7.97E-03	5.04E-03	7.97E-03	2.99E-03	15	100
Magnesium (Mg)	µg/m^3	-	-	-	2.08E-01	2.72E-01	5.19E-02	9.57E-01	5.17E-01	9.57E-01	2.71E-01	15	100
Manganese (Mn)	µg/m^3	*0.4*	-	0	1.09E-02	1.43E-02	2.14E-03	4.97E-02	2.10E-02	4.97E-02	1.56E-02	15	100
Molybdenum (Mo)	µg/m^3	*120*	-	0	5.91E-04	6.52E-04	2.36E-04	1.17E-03	6.73E-04	9.92E-04	1.17E-03	15	100
Nickel (Ni)	µg/m^3	*0.2*	-	0	9.49E-04	1.01E-03	5.37E-04	2.08E-03	1.55E-03	2.08E-03	1.21E-03	15	100
Phosphorus (P)	µg/m^3	-	-	-	2.24E-01	2.24E-01	2.16E-01	2.29E-01	2.29E-01	2.26E-01	2.29E-01	15	100
Selenium (Se)	µg/m^3	*10*	*10*	0	4.99E-04	5.51E-04	3.75E-04	1.08E-03	9.43E-04	1.08E-03	9.65E-04	15	100
Silver (Ag)	µg/m^3	*1*	*1*	0	3.20E-05	3.46E-05	2.59E-05	7.34E-05	7.34E-05	2.71E-05	5.67E-05	15	100
Strontium (Sr)	µg/m^3	*120*	-	0	4.72E-03	7.12E-03	8.85E-04	2.34E-02	2.26E-02	2.34E-02	5.86E-03	15	100
Thallium (Tl)	µg/m^3	-	-	-	2.94E-05	3.22E-05	2.59E-05	1.08E-04	1.08E-04	2.71E-05	2.75E-05	15	100
Tin (Sn)	µg/m^3	*10*	*10*	0	5.34E-04	6.37E-04	1.77E-04	1.40E-03	7.19E-04	1.40E-03	8.66E-04	15	100
Titanium (Ti)	µg/m^3	*120*	-	0	8.35E-03	1.20E-02	3.24E-03	4.25E-02	3.61E-02	4.25E-02	1.22E-02	15	100
Uranium (Ur)	µg/m^3	*1.5*	-	0	1.75E-05	2.77E-05	1.77E-06	9.63E-05	8.44E-05	9.63E-05	1.99E-05	15	100
Vanadium (V)	µg/m^3	*2*	*1*	0	1.56E-03	1.59E-03	1.44E-03	2.95E-03	1.53E-03	2.95E-03	1.53E-03	15	100
Zinc (Zn)	µg/m^3	*120*	-	0	3.00E-02	3.21E-02	1.48E-02	4.89E-02	4.40E-02	4.89E-02	4.34E-02	15	100
Zirconium (Zr)	µg/m^3	*20*	-	0	5.97E-04	5.97E-04	5.76E-04	6.12E-04	6.12E-04	6.02E-04	6.10E-04	15	100

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

5.6.2 Rundle Road Station Results

Data recovery levels were high for the TSP sampler at the Rundle Road Station (87% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria for TSP, mercury or metals during Q2. **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	Q2 Minimum Concentration	Q2 Maximum Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	µg/m³	*120*	*120*	0	25.8	31.0	5.4	75.6	43.1	75.6	47.2	13	87
Total Mercury (Hg)	µg/m³	*2*	*2*	0	1.27E-05	3.23E-05	2.92E-06	1.87E-04	4.04E-05	1.87E-04	8.69E-06	13	87
Aluminum (Al)	µg/m³	*4.8*	-	0	1.84E-01	2.57E-01	3.86E-02	9.25E-01	4.44E-01	9.25E-01	2.74E-01	13	87
Antimony (Sb)	µg/m³	*25*	*25*	0	4.26E-04	5.54E-04	7.39E-05	1.35E-03	6.12E-04	1.35E-03	6.94E-04	13	87
Arsenic (As)	µg/m³	*0.3*	*0.3*	0	1.23E-03	2.91E-03	8.56E-04	2.61E-02	9.18E-04	2.61E-02	9.31E-04	13	87
Barium (Ba)	µg/m³	*10*	*10*	0	5.62E-03	6.81E-03	2.59E-03	2.14E-02	7.22E-03	2.14E-02	7.32E-03	13	87
Beryllium (Be)	µg/m³	*0.01*	*0.01*	0	1.75E-05	1.90E-05	1.43E-05	4.15E-05	4.15E-05	4.11E-05	1.55E-05	13	87
Bismuth (Bi)	µg/m³	-	-	-	5.88E-04	6.25E-04	5.13E-04	1.65E-03	5.51E-04	1.65E-03	5.59E-04	13	87
Boron (B)	µg/m³	*120*	-	0	4.49E-03	4.49E-03	4.28E-03	4.66E-03	4.59E-03	4.53E-03	4.66E-03	13	87
Cadmium (Cd)	µg/m³	*0.025*	*0.025*	0	1.32E-04	1.58E-04	5.32E-05	3.89E-04	3.81E-04	3.89E-04	1.19E-04	13	87
Chromium (Cr)	µg/m³	*0.5*	-	0	1.46E-03	1.77E-03	9.70E-04	4.78E-03	2.69E-03	4.78E-03	2.42E-03	13	87
Cobalt (Co)	µg/m³	*0.1*	*0.1*	0	1.27E-04	1.65E-04	4.37E-05	6.17E-04	2.14E-04	6.17E-04	1.68E-04	13	87
Copper (Cu)	µg/m³	*50*	-	0	1.35E-02	2.06E-02	3.78E-03	7.25E-02	1.06E-02	7.25E-02	4.38E-02	13	87
Iron (Fe)	µg/m³	*4*	-	0	3.64E-01	4.93E-01	8.45E-02	1.73E+00	8.26E-01	1.73E+00	5.51E-01	13	87
Lead (Pb)	µg/m³	*0.5*	*0.5*	0	2.19E-03	2.86E-03	5.32E-04	7.56E-03	6.84E-03	7.56E-03	2.63E-03	13	87
Magnesium (Mg)	µg/m³	-	-	-	2.07E-01	2.66E-01	6.26E-02	9.01E-01	3.78E-01	9.01E-01	3.10E-01	13	87
Manganese (Mn)	µg/m³	*0.4*	-	0	1.04E-02	1.39E-02	2.23E-03	4.35E-02	1.77E-02	4.35E-02	1.60E-02	13	87
Molybdenum (Mo)	µg/m³	*120*	-	0	4.82E-04	6.28E-04	1.06E-04	1.49E-03	4.35E-04	1.49E-03	1.25E-03	13	87
Nickel (Ni)	µg/m³	*0.2*	-	0	9.29E-04	1.04E-03	5.02E-04	2.59E-03	1.38E-03	2.59E-03	1.10E-03	13	87
Phosphorus (P)	µg/m³	-	-	-	2.25E-01	2.25E-01	2.14E-01	2.33E-01	2.29E-01	2.27E-01	2.33E-01	13	87
Selenium (Se)	µg/m³	*10*	*10*	0	4.81E-04	5.26E-04	3.71E-04	1.09E-03	3.98E-04	1.09E-03	8.60E-04	13	87
Silver (Ag)	µg/m³	*1*	*1*	0	3.59E-05	4.00E-05	2.57E-05	8.42E-05	8.42E-05	7.07E-05	5.46E-05	13	87
Strontium (Sr)	µg/m³	*120*	-	0	4.87E-03	6.40E-03	8.87E-04	1.87E-02	1.32E-02	1.87E-02	7.08E-03	13	87
Thallium (Tl)	µg/m³	-	-	-	2.69E-05	2.70E-05	2.57E-05	2.79E-05	2.75E-05	2.72E-05	2.79E-05	13	87
Tin (Sn)	µg/m³	*10*	*10*	0	5.15E-04	6.76E-04	1.71E-04	1.80E-03	7.65E-04	1.80E-03	9.04E-04	13	87
Titanium (Ti)	µg/m³	*120*	-	0	7.20E-03	1.04E-02	3.21E-03	3.51E-02	1.77E-02	3.51E-02	1.49E-02	13	87
Uranium (Ur)	µg/m³	*1.5*	-	0	1.83E-05	2.77E-05	1.77E-06	7.80E-05	6.98E-05	7.80E-05	2.30E-05	13	87
Vanadium (V)	µg/m³	*2*	*1*	0	1.50E-03	1.50E-03	1.43E-03	1.55E-03	1.53E-03	1.51E-03	1.55E-03	13	87
Zinc (Zn)	µg/m³	*120*	-	0	2.98E-02	3.30E-02	1.27E-02	5.84E-02	5.84E-02	5.39E-02	4.72E-02	13	87
Zirconium (Zr)	µg/m³	*20*	-	0	5.99E-04	5.99E-04	5.70E-04	6.21E-04	6.12E-04	6.05E-04	6.21E-04	13	87

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 Q2 with the sample days being: April 4, 16, 28, May 10, 22 and June 3, 15 and 27, 2021.

5.7.1 Courtice Station Results

Data recovery levels were high for the PAH results at the Courtice Station (100% valid data). There were no other exceedances of any of the AAQC's or HHRA Criteria. **Table 9** outlines the statistics summary for this station.

Table 9: Statistics Summary of PAH Results for Courtice Station

Contaminant	Units	MECP Criteria (µg/m³)	No. > Criteria	Arithmetic Mean	Minimum Q2 Concentration	Maximum Q2 Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m³	12000	0	1.15E+01	1.52E+00	3.41E+01	3.80E+00	2.64E+01	3.41E+01	8	100
2-Methylnaphthalene	ng/m³	10000	0	2.43E+01	2.20E+00	7.70E+01	6.61E+00	5.69E+01	7.70E+01	8	100
Acenaphthene	ng/m³	-	-	1.01E+01	3.52E-01	3.79E+01	1.36E+00	2.78E+01	3.79E+01	8	100
Acenaphthylene	ng/m³	3500	0	2.02E-01	6.02E-02	3.95E-01	1.36E-01	3.95E-01	3.51E-01	8	100
Anthracene	ng/m³	200	0	2.11E-01	2.98E-02	6.48E-01	9.06E-02	3.26E-01	6.48E-01	8	100
Benzo(a)Anthracene	ng/m³	-	-	1.05E-02	3.49E-03	2.44E-02	1.25E-02	2.44E-02	1.07E-02	8	100
Benzo(a)fluorene	ng/m³	-	-	3.01E-02	1.31E-02	4.44E-02	3.72E-02	4.44E-02	3.69E-02	8	100
Benzo(a)Pyrene (Historically High)	ng/m³	0.05	0	1.12E-02	3.62E-04	2.39E-02	2.39E-02	2.32E-02	1.09E-02	8	100
Benzo(b)Fluoranthene	ng/m³	-	-	2.48E-02	5.00E-03	5.18E-02	5.18E-02	4.18E-02	1.77E-02	8	100
Benzo(b)fluorene	ng/m³	-	-	1.76E-02	7.37E-03	2.76E-02	2.51E-02	2.76E-02	2.52E-02	8	100
Benzo(e)Pyrene	ng/m³	-	-	2.17E-02	4.15E-03	4.05E-02	3.42E-02	4.05E-02	2.71E-02	8	100
Benzo(g,h,i)Perylene	ng/m³	-	-	1.73E-02	4.37E-03	3.37E-02	3.37E-02	2.96E-02	9.37E-03	8	100
Benzo(k)Fluoranthene	ng/m³	-	-	2.30E-02	4.30E-03	4.53E-02	4.53E-02	4.18E-02	1.30E-02	8	100
Biphenyl	ng/m³	-	-	5.22E+00	7.51E-01	1.60E+01	2.16E+00	1.12E+01	1.60E+01	8	100
Chrysene	ng/m³	-	-	4.72E-02	2.48E-02	8.36E-02	7.30E-02	8.36E-02	4.26E-02	8	100
Dibenzo(a,h)Anthracene	ng/m³	-	-	4.77E-03	3.52E-04	1.93E-02	1.93E-02	5.26E-03	1.48E-03	8	100
Fluoranthene	ng/m³	-	-	6.49E-01	2.21E-01	1.75E+00	4.82E-01	9.64E-01	1.75E+00	8	100
Fluorene	ng/m³	-	-	5.69E+00	5.29E-01	2.13E+01	1.28E+00	1.42E+01	2.13E+01	8	100
Indeno(1,2,3-cd)Pyrene	ng/m³	-	-	1.90E-02	2.89E-03	3.94E-02	3.94E-02	2.80E-02	1.18E-02	8	100
Naphthalene	ng/m³	22500	0	4.58E+01	7.65E+00	1.19E+02	1.64E+01	1.15E+02	1.19E+02	8	100
o-Terphenyl	ng/m³	-	-	1.14E-02	4.88E-03	1.91E-02	1.91E-02	1.64E-02	1.41E-02	8	100
Perylene	ng/m³	-	-	3.42E-03	3.52E-04	1.46E-02	2.74E-03	4.97E-03	1.46E-02	8	100
Phenanthrene	ng/m³	-	-	6.32E+00	1.21E+00	2.20E+01	2.82E+00	1.22E+01	2.20E+01	8	100
Pyrene	ng/m³	-	-	2.69E-01	1.22E-01	6.12E-01	2.08E-01	4.05E-01	6.12E-01	8	100
Tetralin	ng/m³	-	-	2.37E+00	9.13E-01	5.22E+00	5.22E+00	3.68E+00	2.30E+00	8	100
Total PAH	ng/m³	-	-	1.13E+02	1.71E+01	3.33E+02	3.87E+01	2.70E+02	3.33E+02	8	100

Note: 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 (100% valid data). **Table 10** outlines the statistics summary for this station.

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

Contaminant	Units	MECP Criteria (µg/m³)	No. > Criteria	Arithmetic Mean	Minimum Q2 Concentration	Maximum Q2 Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m³	*12000*	0	7.37E+00	1.13E+00	2.21E+01	4.34E+00	2.21E+01	1.47E+01	8	100
2-Methylnaphthalene	ng/m³	*10000*	0	1.39E+01	1.76E+00	4.30E+01	7.31E+00	4.30E+01	2.92E+01	8	100
Acenaphthene	ng/m³	-	-	5.83E+00	1.97E-01	1.75E+01	2.92E+00	1.75E+01	1.47E+01	8	100
Acenaphthylene	ng/m³	*3500*	0	1.40E-01	2.32E-02	3.10E-01	1.16E-01	3.10E-01	2.34E-01	8	100
Anthracene	ng/m³	*200*	0	2.07E-01	3.41E-02	4.84E-01	1.65E-01	4.30E-01	4.84E-01	8	100
Benzo(a)Anthracene	ng/m³	-	-	1.00E-02	2.68E-03	2.01E-02	1.53E-02	2.01E-02	1.08E-02	8	100
Benzo(a)fluorene	ng/m³	-	-	3.51E-02	1.03E-02	6.35E-02	4.61E-02	6.35E-02	4.42E-02	8	100
Benzo(a)Pyrene (Historically High)	ng/m³	*0.05*	0	1.19E-02	3.37E-04	2.77E-02	2.77E-02	2.32E-02	7.55E-03	8	100
Benzo(b)Fluoranthene	ng/m³	-	-	2.28E-02	4.84E-03	5.22E-02	5.22E-02	3.90E-02	1.42E-02	8	100
Benzo(b)fluorene	ng/m³	-	-	2.03E-02	5.64E-03	3.72E-02	2.88E-02	3.72E-02	2.21E-02	8	100
Benzo(e)Pyrene	ng/m³	-	-	1.77E-02	3.37E-04	3.67E-02	3.67E-02	3.55E-02	1.58E-02	8	100
Benzo(g,h,i)Perylene	ng/m³	-	-	1.67E-02	1.55E-03	4.01E-02	4.01E-02	3.16E-02	1.21E-02	8	100
Benzo(k)Fluoranthene	ng/m³	-	-	2.22E-02	3.37E-04	5.25E-02	5.25E-02	4.30E-02	1.75E-02	8	100
Biphenyl	ng/m³	-	-	3.58E+00	5.27E-01	9.94E+00	2.36E+00	9.94E+00	7.26E+00	8	100
Chrysene	ng/m³	-	-	5.22E-02	1.51E-02	9.16E-02	8.05E-02	9.16E-02	5.51E-02	8	100
Dibenzo(a,h)Anthracene	ng/m³	-	-	5.09E-03	6.41E-04	1.25E-02	9.60E-03	1.25E-02	3.50E-03	8	100
Fluoranthene	ng/m³	-	-	1.09E+00	2.05E-01	2.26E+00	1.02E+00	2.26E+00	2.16E+00	8	100
Fluorene	ng/m³	-	-	4.21E+00	3.34E-01	1.22E+01	2.32E+00	1.22E+01	1.01E+01	8	100
Indeno(1,2,3-cd)Pyrene	ng/m³	-	-	1.60E-02	3.37E-04	4.11E-02	4.11E-02	2.96E-02	8.92E-03	8	100
Naphthalene	ng/m³	*22500*	0	2.55E+01	5.25E+00	8.11E+01	1.64E+01	8.11E+01	4.40E+01	8	100
o-Terphenyl	ng/m³	-	-	1.04E-02	4.14E-03	1.90E-02	1.90E-02	1.42E-02	1.11E-02	8	100
Perylene	ng/m³	-	-	3.10E-03	2.53E-04	7.01E-03	4.98E-03	5.11E-03	7.01E-03	8	100
Phenanthrene	ng/m³	-	-	6.49E+00	8.71E-01	1.62E+01	5.12E+00	1.62E+01	1.47E+01	8	100
Pyrene	ng/m³	-	-	4.21E-01	8.47E-02	7.96E-01	3.94E-01	7.96E-01	7.38E-01	8	100
Tetralin	ng/m³	-	-	2.80E+00	6.47E-01	9.94E+00	3.47E+00	9.94E+00	2.03E+00	8	100
Total PAH	ng/m³	-	-	7.18E+01	1.17E+01	2.16E+02	4.24E+01	2.16E+02	1.40E+02	8	100

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

5.8 Dioxin and Furan Results

All of the PUF Hi-Vols operated on a discrete schedule every 24 days for D&F's according to the NAPS schedule during Q2 with the sample days being: April 16, May 10, June 3 and 27, 2021.

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 Q2. **Table 11** is a summary of the statistics for this station.

Table 11: Courtice Station Q2 Monitoring Results for Dioxins and Furans

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	No. > Criteria	Arithmetic Mean	Q2 Minimum Concentration	Q2 Maximum Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg/m^3	-	-	-	1.37E-03	3.81E-04	2.37E-03	3.81E-04	1.59E-03	2.37E-03	4	100
1,2,3,7,8-PeCDD	pg/m^3	-	-	-	2.46E-03	5.88E-04	7.57E-03	5.88E-04	7.66E-04	7.57E-03	4	100
1,2,3,4,7,8-HxCDD	pg/m^3	-	-	-	2.07E-04	3.11E-05	5.21E-04	3.11E-05	9.97E-05	5.21E-04	4	100
1,2,3,6,7,8-HxCDD	pg/m^3	-	-	-	2.07E-04	6.57E-05	5.05E-04	6.57E-05	9.54E-05	5.05E-04	4	100
1,2,3,7,8,9-HxCDD	pg/m^3	-	-	-	2.14E-04	6.65E-05	5.21E-04	9.34E-05	6.65E-05	5.21E-04	4	100
1,2,3,4,6,7,8-HpCDD	pg/m^3	-	-	-	2.95E-04	1.42E-04	4.51E-04	3.37E-04	4.51E-04	2.49E-04	4	100
OCDD	pg/m^3	-	-	-	3.05E-05	1.55E-05	4.06E-05	3.07E-05	3.51E-05	4.06E-05	4	100
2,3,7,8-TCDF	pg/m^3	-	-	-	2.22E-04	5.71E-05	5.68E-04	5.71E-05	1.17E-04	5.68E-04	4	100
1,2,3,7,8-PeCDF	pg/m^3	-	-	-	6.17E-05	1.71E-05	1.37E-04	1.71E-05	5.71E-05	1.37E-04	4	100
2,3,4,7,8-PeCDF	pg/m^3	-	-	-	5.73E-04	2.60E-04	1.32E-03	3.22E-04	2.60E-04	1.32E-03	4	100
1,2,3,4,7,8-HxCDF	pg/m^3	-	-	-	1.57E-04	4.84E-05	3.63E-04	4.84E-05	9.25E-05	3.63E-04	4	100
1,2,3,6,7,8-HxCDF	pg/m^3	-	-	-	1.39E-04	5.02E-05	3.31E-04	5.02E-05	5.20E-05	3.31E-04	4	100
2,3,4,6,7,8-HxCDF	pg/m^3	-	-	-	1.66E-04	4.84E-05	3.63E-04	4.84E-05	5.92E-05	3.63E-04	4	100
1,2,3,7,8,9-HxCDF	pg/m^3	-	-	-	2.12E-04	8.65E-05	4.57E-04	8.65E-05	1.29E-04	4.57E-04	4	100
1,2,3,4,6,7,8-HpCDF	pg/m^3	-	-	-	5.13E-05	3.06E-05	7.10E-05	3.06E-05	6.27E-05	7.10E-05	4	100
1,2,3,4,7,8,9-HpCDF	pg/m^3	-	-	-	1.57E-05	4.48E-06	3.15E-05	1.08E-05	4.48E-06	3.15E-05	4	100
OCDF	pg/m^3	-	-	-	2.20E-06	8.30E-07	3.09E-06	8.30E-07	2.19E-06	3.09E-06	4	100
Total Toxic Equivalency	pg TEQ/m^3	*0.1* *1*[1]	-	0	6.39E-03	2.20E-03	1.53E-02	2.20E-03	3.94E-03	1.53E-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

5.8.2 Rundle Road Station Results

Data recovery levels were high for the D&F results at the Rundle Road 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 Q2. **Table 12** is a summary of the statistics for this station.

Table 12: Rundle Road Station Q2 Monitoring Results for Dioxins and Furans

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	No. > Criteria	Arithmetic Mean	Q2 Minimum Concentration	Q2 Maximum Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg/m^3	-	-	-	1.21E-03	5.21E-04	1.90E-03	5.21E-04	1.72E-03	1.90E-03	4	100
1,2,3,7,8-PeCDD	pg/m^3	-	-	-	2.63E-03	3.63E-04	8.75E-03	3.63E-04	9.38E-04	8.75E-03	4	100
1,2,3,4,7,8-HxCDD	pg/m^3	-	-	-	1.52E-04	5.05E-05	2.77E-04	5.05E-05	1.43E-04	2.77E-04	4	100
1,2,3,6,7,8-HxCDD	pg/m^3	-	-	-	1.54E-04	1.01E-04	2.77E-04	1.01E-04	1.13E-04	2.77E-04	4	100
1,2,3,7,8,9-HxCDD	pg/m^3	-	-	-	2.29E-04	1.07E-04	4.04E-04	4.04E-04	1.07E-04	2.77E-04	4	100
1,2,3,4,6,7,8-HpCDD	pg/m^3	-	-	-	3.81E-04	1.50E-04	5.25E-04	3.53E-04	4.96E-04	5.25E-04	4	100
OCDD	pg/m^3	-	-	-	3.59E-05	1.85E-05	5.32E-05	2.78E-05	5.32E-05	4.43E-05	4	100
2,3,7,8-TCDF	pg/m^3	-	-	-	1.82E-04	4.73E-05	4.23E-04	4.73E-05	1.66E-04	4.23E-04	4	100
1,2,3,7,8-PeCDF	pg/m^3	-	-	-	4.58E-05	2.03E-05	1.01E-04	2.03E-05	3.63E-05	1.01E-04	4	100
2,3,4,7,8-PeCDF	pg/m^3	-	-	-	3.87E-04	1.18E-04	9.62E-04	1.18E-04	2.64E-04	9.62E-04	4	100
1,2,3,4,7,8-HxCDF	pg/m^3	-	-	-	1.28E-04	6.69E-05	2.48E-04	1.18E-04	7.81E-05	2.48E-04	4	100
1,2,3,6,7,8-HxCDF	pg/m^3	-	-	-	9.81E-05	2.84E-05	2.33E-04	2.84E-05	6.64E-05	2.33E-04	4	100
2,3,4,6,7,8-HxCDF	pg/m^3	-	-	-	1.43E-04	7.07E-05	2.62E-04	1.65E-04	7.42E-05	2.62E-04	4	100
1,2,3,7,8,9-HxCDF	pg/m^3	-	-	-	1.59E-04	5.99E-05	3.06E-04	5.99E-05	1.78E-04	3.06E-04	4	100
1,2,3,4,6,7,8-HpCDF	pg/m^3	-	-	-	5.20E-05	1.89E-05	1.01E-04	1.89E-05	6.80E-05	1.01E-04	4	100
1,2,3,4,7,8,9-HpCDF	pg/m^3	-	-	-	1.60E-05	7.03E-06	2.77E-05	1.79E-05	7.03E-06	2.77E-05	4	100
OCDF	pg/m^3	-	-	-	2.34E-06	8.04E-07	3.27E-06	8.04E-07	2.81E-06	3.27E-06	4	100
Total Toxic Equivalency	pg TEQ/m^3	*0.1* *1*[1]	-	0	6.01E-03	2.41E-03	1.47E-02	2.41E-03	4.51E-03	1.47E-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

6 DATA REQUESTS

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

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

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

6.1 Continuous Monitoring

On April 30th, 2021 it was noted that the SO_2 analyzer at the Rundle Road Station failed the overnight internal span check. All diagnostic data from the analyzer was within acceptable ranges and so it was suspected that the internal permeation tube was depleted and expected that the data is still valid. An RWDI technician visited the station on May 13th, 2021 and confirmed that the data was still valid by completing a calibration which confirmed that the failed span checks were due to a depleted permeation tube. A new permeation tube was also installed at this time.

Beginning May 20th, 2021 at 11:00 am, a power outage affected the Courtice wind monitor and resulted in no data being collected until midnight of May 24th, 2021.

6.2 Discrete Monitoring

The May 10th and June 21st, 2021 TSP samples from the Rundle Road station did not run in full due to power failures.

7 CONCLUSIONS

This Q2 report provides a summary of the ambient air quality data collected at the Courtice and Rundle Road Stations. There was one (1) exceedance event of the rolling 10-minute SO_2 AAQC and one (1) exceedance event of the 1-hour SO_2 AAQC at the Courtice Station. There were seven (7) exceedance events of the rolling 10-minute SO_2 AAQC and three (3) exceedance events of the 1-hour SO_2 AAQC at the Rundle Road Station. Data recovery rates were acceptable and valid for all measured Q2 continuous parameters and all 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 1593 978-1-77202-050-2 PDF

3. Ontario Ministry of the Environment and Climate Change, 2018. [Technical Assessment and Standards Development Branch] Ontario Air Standards for Sulphur Dioxide (SO_2). [Online]

4. Ontario Ministry of the Environment and Climate Change, 2012. [Standards Development Branch] Ontario's Ambient Air Quality Criteria (Sorted by Contaminant Name). PIBS #6570e01

APPENDIX A

Table A1: 2021 Summary Statistics for Q2

Courtice Monitoring Station Data Statistics	Maximum 10 min Rolling Mean	Maximum 1 hr Rolling Mean					Maximum 24 hr Rolling Mean					Monthly Mean					Valid Data				
Compound	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2
Units	ppb	($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				(%)				
AAQC/CAAQS	67				200	40	27[A]			100											
April	46.3	31.3	72.7	47.4	37.6	31.4	16.4	20.2	8.4	13.7	5.4	6.2	6.9	1.3	6.0	1.1	99.9	99.7	99.7	99.7	99.7
May	39.2	68.3	63.4	39.7	30.5	19.5	31.1	16.0	5.2	11.6	5.3	8.4	5.6	0.9	5.0	1.8	98.5	99.6	99.6	99.6	99.6
June	83.9	63.2	30.7	19.3	21.4	46.2	13.5	12.4	4.8	7.7	5.3	6.8	4.1	0.5	3.8	1.6	99.9	99.6	99.6	99.6	99.3
Q2 Arithmetic Mean												7.1	5.6	0.9	4.9	1.5	99.4	99.6	99.6	99.6	99.5

Rundle Monitoring Station Data Statistics	Maximum 10 min Rolling Mean	Maximum 1 hr Rolling Mean					Maximum 24 hr Rolling Mean					Monthly Mean					Valid Data				
Compound	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2	$PM_{2.5}$	NO_x	NO	NO_2	SO_2
Units	ppb	($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				($\mu g/m^3$)	ppb				(%)				
AAQC/CAAQS	67				200	40	27[A]			100											
April	46.3	27.3	38.8	19.3	20.6	20.8	15.5	12.4	3.3	9.3	1.8	5.7	4.9	1.3	3.7	0.7	99.9	99.7	99.7	99.7	99.9
May	39.2	40.4	30.5	14.3	19.1	22.0	16.4	9.8	2.6	7.1	1.6	6.2	4.5	1.0	3.6	0.8	99.2	98.7	98.7	98.7	98.7
June	96.7	62.1	70.5	30.1	24.2	70.5	11.7	12.3	3.8	9.5	7.8	6.2	5.3	1.1	4.3	0.6	99.7	99.6	99.6	99.6	99.7
Q2 Arithmetic Mean												6.0	4.9	1.1	3.9	0.7	99.6	99.3	99.3	99.3	99.4

Event Statistics	Rolling Mean > 10 min AAQC for Courtice	Rolling Mean > 10 min AAQC for Rundle	Rolling Mean > 1 hr AAQC for Courtice			Rolling Mean > 1 hr AAQC for Rundle			Rolling Mean > 24 hr AAQC for Courtice Monitoring Station			Rolling Mean > 24 hr AAQC for Rundle Monitoring Station		
Compound	SO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2	$PM_{2.5}$	NO_2	SO_2
Units	No.	No.	No.			No.			No.			No.		
April	0	0		0	0		0	0	N/A	0		N/A	0	
May	0	0		0	0		0	0	N/A	0		N/A	0	
June	1	7		0	1		0	3	N/A	0		N/A	0	
Q2 Arithmetic Mean	1	7		0	1		0	3	N/A	0		N/A	0	

Courtice Station MET Statistics	Maximum 1 hr Mean					Minimum 1 hr Mean					Monthly Mean					Total	Valid Data						
Parameter	WS	Temp	RH	Pres	Rain	WS	Temp	RH	Pres	Rain	WS	Temp	RH	Pres	Rain	Rain	WS	WD	Temp	RH	Pres	Rain	
Units	(km/hr)	(°C)	(%)	"Hg	mm	(km/hr)	(°C)	(%)	"Hg	mm	(km/hr)	(°C)	(%)	"Hg	mm	mm	(%)						
April	36.1	20.2	98.1	30.1	5.5	1.1	-4.9	22.1	29.2	0.0	13.5	6.9	66.8	29.6	0.1	104.6	100.0	100.0	100.0	100.0	100.0	100.0	
May	30.0	24.9	98.5	30.1	2.6	0.7	0.9	25.7	29.3	0.0	9.5	11.8	63	29.8	0.0	24.4	85.3	85.3	100.0	100.0	100.0	100.0	
June	24.1	25.9	99.5	29.9	2.0	0.1	8.1	26.2	29.1	0.0	8.1	18.2	72	29.6	0.0	20.4	100.0	100.0	99.9	99.9	99.9	100.0	
Q2 Arithmetic Mean											10.3	12.3	67	29.7	0.1	149.4	95.0	95.0	100.0	100.0	100.0	100.0	

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	Rain
Units	(km/hr)	(°C)	(%)	mm	(km/hr)	(°C)	(%)	mm	(km/hr)	(°C)	(%)	mm	mm	(%)				
April	27.6	20.8	100.0	8.1	0.4	-6.7	23.3	0.0	10.8	6.8	67.1	0.2	133.5	100.0	97.8	100.0	100.0	100.0
May	23.2	27.8	100.0	2.9	0.5	0.2	24.0	0.0	8.4	12.4	60.8	0.0	33.4	99.3	94.1	99.3	99.3	99.5
June	26.1	27.9	100.0	10.1	0.4	6.9	26.8	0.0	8.3	18.9	69.6	0.1	99.0	100.0	95.0	100.0	100.0	100.0
Q2 Arithmetic Mean									9.1	12.7	65.8	0.1	265.9	99.8	95.6	99.8	99.8	99.8

Table A2: 2021 Q2 Station Courtice Monitoring Results for PM2.5

Data Statistics	Rolling Mean > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$
	No.	(ug/m^3)	(ug/m^3)	(ug/m^3)	No.	%
April	N/A	6.2	31.3	16.4	719	99.9
May	N/A	8.4	68.3	31.1	733	98.5
June	N/A	6.8	63.2	13.5	719	99.9

Table A3: 2021 Q2 Station Rundle Monitoring Results for PM2.5

Data Statistics	Rolling Mean > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$	$PM_{2.5}$
	No.	(ug/m^3)	(ug/m^3)	(ug/m^3)	No.	%
April	N/A	5.7	27.3	15.5	719	99.9
May	N/A	6.2	40.4	16.4	738	99.2
June	N/A	6.2	62.1	11.7	718	99.7

Table A4: 2021 Q2 Station Courtice Monitoring Results for NOx

Data Statistics	Events > 1 hr AAQC	Events > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	NO_x	NO_x	NO_x	NO_x	NO_x	NO_x	NO_x
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
April	N/A	N/A	6.9	72.7	20.2	718	99.7
May	N/A	N/A	5.6	63.4	16.0	741	99.6
June	N/A	N/A	4.1	30.7	12.4	717	99.6

Table A5: 2021 Q2 Station Rundle Monitoring Results for NOx

Data Statistics	Events > 1 hr AAQC	Events > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	NO_x	NO_x	NO_x	NO_x	NO_x	NO_x	NO_x
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
April	N/A	N/A	4.9	38.8	12.4	718	99.7
May	N/A	N/A	4.5	30.5	9.8	734	98.7
June	N/A	N/A	5.3	70.5	12.3	717	99.6

Table A6: 2021 Q2 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.	%
April	N/A	N/A	1.3	47.4	8.4	718	99.7
May	N/A	N/A	0.9	39.7	5.2	741	99.6
June	N/A	N/A	0.5	19.3	4.8	717	99.6

Table A7: 2021 Q2 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.	%
April	N/A	N/A	1.3	19.3	3.3	718	99.7
May	N/A	N/A	1.0	14.3	2.6	734	98.7
June	N/A	N/A	1.1	30.1	3.8	717	99.6

Table A8: 2021 Q2 Station Courtice Monitoring Results for NO2

Data Statistics	Events > 1 hr AAQC	Events > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	NO_2	NO_2	NO_2	NO_2	NO_2	NO_2	NO_2
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
April	0	0	6.0	37.6	13.7	718	99.7
May	0	0	5.0	30.5	11.6	741	99.6
June	0	0	3.8	21.4	7.7	717	99.6

Table A9: 2021 Q2 Station Rundle Monitoring Results for NO2

Data Statistics	Events > 1 hr AAQC	Events > 24 hr AAQC	Arithmetic Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	NO_2	NO_2	NO_2	NO_2	NO_2	NO_2	NO_2
	No.	No.	(ppb)	(ppb)	(ppb)	No.	%
April	0	0	3.7	20.6	9.3	718	99.7
May	0	0	3.6	19.1	7.1	734	98.7
June	0	0	4.3	24.2	9.5	717	99.6

Table A10: 2021 Q2 Station Courtice Monitoring Results for SO2

Data Statistics	Events > 10 min AAQC	Events > 1 hr AAQC	Arithmetic Mean	Maximum 10 min Rolling Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2
	No.	No.	(ppb)	(ppb)	(ppb)	(ppb)	No.	%
April	0	0	1.1	46.3	31.4	5.4	718	99.7
May	0	0	1.8	39.2	19.5	5.3	741	99.6
June	1	1	1.6	83.9	46.2	5.3	715	99.3

Table A11: 2021 Q2 Station Rundle Monitoring Results for SO2

Data Statistics	Events > 10 min AAQC	Events > 1 hr AAQC	Arithmetic Mean	Maximum 10 min Rolling Mean	Maximum 1 hr Rolling Mean	Maximum 24 hr Rolling Mean	Number of Valid Hours	Valid Data
Month	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2	SO_2
	No.	No.	(ppb)	(ppb)	(ppb)	(ppb)	No.	%
April	0	0	0.7	46.3	20.8	1.8	719	99.9
May	0	0	0.8	39.2	22.0	1.6	734	98.7
June	7	3	0.6	96.7	70.5	7.8	718	99.7

Table A12: 2021 Q2 Courtice Meterological Station Windspeed Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Wind Speed	Wind Speed	Wind Speed	Wind Speed
	(km/hr)	(km/hr)	(km/hr)	(%)
April	36.1	1.1	13.5	100.0
May	30.0	0.7	9.5	85.3
June	24.1	0.1	8.1	100.0

Table A13: 2021 Q2 Rundle Meterological Station Windspeed Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Hours
Month	Wind Speed	Wind Speed	Wind Speed	Wind Speed
	(km/hr)	(km/hr)	(km/hr)	(%)
April	27.6	0.4	10.8	100.0
May	23.2	0.5	8.4	99.3
June	26.1	0.4	8.3	100.0

Table A14: 2021 Q2 Courtice Meterological Station Wind Direction Data Summary

MET Statistics	Valid Data
Month	Wind Direction
	(%)
April	100.0
May	85.3
June	100.0

Table A15: 2021 Q2 Rundle Meterological Station Wind Direction Data Summary

MET Statistics	Valid Data
Month	Wind Direction
	(%)
April	97.8
May	94.1
June	95.0

Table A16: 2021 Q2 Courtice Meterological Station Temperature Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Temperature	Temperature	Temperature	Temperature
	(°C)	(°C)	(°C)	(%)
April	20.2	-4.9	6.9	100.0
May	24.9	0.9	11.8	100.0
June	25.9	8.1	18.2	99.9

Table A17: 2021 Q2 Rundle Meterological Station Temperature Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Temperature	Temperature	Temperature	Temperature
	(°C)	(°C)	(°C)	(%)
April	20.8	-6.7	6.8	100.0
May	27.8	0.2	12.4	99.3
June	27.9	6.9	18.9	100.0

Table A18: 2021 Q2 Courtice Meterological Station Relative Humidity Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Relative Humidity	Relative Humidity	Relative Humidity	Relative Humidity
	(%)	(%)	(%)	(%)
April	98.1	22.1	66.8	100.0
May	98.5	25.7	63.1	100.0
June	99.5	26.2	71.8	99.9

Table A19: 2021 Q2 Rundle Meterological Station Relative Humidity Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Relative Humidity	Relative Humidity	Relative Humidity	Relative Humidity
	(%)	(%)	(%)	(%)
April	100.0	23.3	67.1	100.0
May	100.0	24.0	60.8	99.3
June	100.0	26.8	69.6	100.0

Table A20: 2021 Q2 Courtice Meterological Station Precipitation Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Total	Valid Data
Month	Precipitation	Precipitation	Precipitation	Precipitation	Precipitation
	(mm)	(mm)	(mm)	(mm)	(mm)
April	5.5	0.0	0.1	104.6	100.0
May	2.6	0.0	0.0	24.4	100.0
June	2.0	0.0	0.0	20.4	100.0

Table A21: 2021 Q2 Rundle Meterological Station Precipitation Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Total	Valid Data
Month	Precipitation	Precipitation	Precipitation	Precipitation	Precipitation
	(mm)	(mm)	(mm)	(mm)	(mm)
April	8.1	0.0	0.2	133.5	100.0
May	2.9	0.0	0.0	33.4	99.5
June	10.1	0.0	0.1	99.0	100.0

Table A22: 2021 Q2 Courtice Meterological Station Pressure Data Summary

MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Valid Data
Month	Pressure	Pressure	Pressure	Pressure
	("Hg)	("Hg)	("Hg)	(%)
April	30.1	29.2	29.6	100.0
May	30.1	29.3	29.8	100.0
June	29.9	29.1	29.6	99.9

APPENDIX B

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

Sample Date	Courtice			Rundle		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)
April 16, 2021	L2574798-4	1440	289	L2574798-2	1440	317
May 10, 2021	L2587942-1	1440	346	L2587942-2	1335	256
June 3, 2021	L2597989-2	1440	317	L2597989-1	1440	343
June 27, 2021	L2608164-2	1440	310	L2608164-1	1440	396

Table B2: 2021 Courtice Station Q2 Monitoring Results for Dioxins & Furans

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	16-Apr-21	10-May-21	3-Jun-21	27-Jun-21	MECP Criteria (µg/m^3)	No. > Criteria	Arithmetic Mean	Q2 Minimum Concentration	Q2 Maximum Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg/m^3	-	-	3.81E-04	1.59E-03	2.37E-03	1.16E-03	-	-	1.37E-03	3.81E-04	2.37E-03	3.81E-04	1.59E-03	2.37E-03	4	100
1,2,3,7,8-PeCDD	pg/m^3	-	-	5.88E-04	7.66E-04	7.57E-03	9.03E-04	-	-	2.46E-03	5.88E-04	7.57E-03	5.88E-04	7.66E-04	7.57E-03	4	100
1,2,3,4,7,8-HxCDD	pg/m^3	-	-	3.11E-05	9.97E-05	5.21E-04	1.77E-04	-	-	2.07E-04	3.11E-05	5.21E-04	3.11E-05	9.97E-05	5.21E-04	4	100
1,2,3,6,7,8-HxCDD	pg/m^3	-	-	6.57E-05	9.54E-05	5.05E-04	1.61E-04	-	-	2.07E-04	6.57E-05	5.05E-04	6.57E-05	9.54E-05	5.05E-04	4	100
1,2,3,7,8,9-HxCDD	pg/m^3	-	-	9.34E-05	6.65E-05	5.21E-04	1.77E-04	-	-	2.14E-04	6.65E-05	5.21E-04	9.34E-05	6.65E-05	5.21E-04	4	100
1,2,3,4,6,7,8-HpCDD	pg/m^3	-	-	3.37E-04	4.51E-04	1.42E-04	2.49E-04	-	-	2.95E-04	1.42E-04	4.51E-04	3.37E-04	4.51E-04	2.49E-04	4	100
OCDD	pg/m^3	-	-	3.07E-05	3.51E-05	4.06E-05	1.55E-05	-	-	3.05E-05	1.55E-05	4.06E-05	3.07E-05	3.51E-05	4.06E-05	4	100
2,3,7,8-TCDF	pg/m^3	-	-	5.71E-05	1.17E-04	5.68E-04	1.45E-04	-	-	2.22E-04	5.71E-05	5.68E-04	5.71E-05	1.17E-04	5.68E-04	4	100
1,2,3,7,8-PeCDF	pg/m^3	-	-	1.71E-05	5.71E-05	1.37E-04	3.53E-05	-	-	6.17E-05	1.71E-05	1.37E-04	1.71E-05	5.71E-05	1.37E-04	4	100
2,3,4,7,8-PeCDF	pg/m^3	-	-	3.22E-04	2.60E-04	1.32E-03	3.87E-04	-	-	5.73E-04	2.60E-04	1.32E-03	3.22E-04	2.60E-04	1.32E-03	4	100
1,2,3,4,7,8-HxCDF	pg/m^3	-	-	4.84E-05	9.25E-05	3.63E-04	1.26E-04	-	-	1.57E-04	4.84E-05	3.63E-04	4.84E-05	9.25E-05	3.63E-04	4	100
1,2,3,6,7,8-HxCDF	pg/m^3	-	-	5.02E-05	5.20E-05	3.31E-04	1.21E-04	-	-	1.39E-04	5.02E-05	3.31E-04	5.02E-05	5.20E-05	3.31E-04	4	100
2,3,4,6,7,8-HxCDF	pg/m^3	-	-	4.84E-05	5.92E-05	3.63E-04	1.94E-04	-	-	1.66E-04	4.84E-05	3.63E-04	4.84E-05	5.92E-05	3.63E-04	4	100
1,2,3,7,8,9-HxCDF	pg/m^3	-	-	8.65E-05	1.29E-04	4.57E-04	1.77E-04	-	-	2.12E-04	8.65E-05	4.57E-04	8.65E-05	1.29E-04	4.57E-04	4	100
1,2,3,4,6,7,8-HpCDF	pg/m^3	-	-	3.06E-05	6.27E-05	4.10E-05	7.10E-05	-	-	5.13E-05	3.06E-05	7.10E-05	3.06E-05	6.27E-05	7.10E-05	4	100
1,2,3,4,7,8,9-HpCDF	pg/m^3	-	-	1.08E-05	4.48E-06	3.15E-05	1.58E-05	-	-	1.57E-05	4.48E-06	3.15E-05	1.08E-05	4.48E-06	3.15E-05	4	100
OCDF	pg/m^3	-	-	8.30E-07	2.19E-06	3.09E-06	2.71E-06	-	-	2.20E-06	8.30E-07	3.09E-06	8.30E-07	2.19E-06	3.09E-06	4	100
Total Toxic Equivalency	pg TEQ/m^3	*0.1 1* [1]	-	2.20E-03	3.94E-03	1.53E-02	4.12E-03	0.1	0	6.39E-03	2.20E-03	1.53E-02	2.20E-03	3.94E-03	1.53E-02	4	100

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

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

Table B3: 2021 Rundle Station Q2 Monitoring Results for Dioxins & Furans

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	16-Apr-21	10-May-21	3-Jun-21	27-Jun-21	MECP Criteria ($\mu g/m^3$)	No. > Criteria	Arithmetic Mean	Q2 Minimum Concentration	Q2 Maximum Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg/m^3	-	-	5.21E-04	1.72E-03	1.90E-03	7.07E-04	-	-	1.21E-03	5.21E-04	1.90E-03	5.21E-04	1.72E-03	1.90E-03	4	100
1,2,3,7,8-PeCDD	pg/m^3	-	-	3.63E-04	9.38E-04	8.75E-03	4.92E-04	-	-	2.63E-03	3.63E-04	8.75E-03	3.63E-04	9.38E-04	8.75E-03	4	100
1,2,3,4,7,8-HxCDD	pg/m^3	-	-	5.05E-05	1.43E-04	2.77E-04	1.39E-04	-	-	1.52E-04	5.05E-05	2.77E-04	5.05E-05	1.43E-04	2.77E-04	4	100
1,2,3,6,7,8-HxCDD	pg/m^3	-	-	1.01E-04	1.13E-04	2.77E-04	1.25E-04	-	-	1.54E-04	1.01E-04	2.77E-04	1.01E-04	1.13E-04	2.77E-04	4	100
1,2,3,7,8,9-HxCDD	pg/m^3	-	-	4.04E-04	1.07E-04	2.77E-04	1.26E-04	-	-	2.29E-04	1.07E-04	4.04E-04	4.04E-04	1.07E-04	2.77E-04	4	100
1,2,3,4,6,7,8-HpCDD	pg/m^3	-	-	3.53E-04	4.96E-04	5.25E-04	1.50E-04	-	-	3.81E-04	1.50E-04	5.25E-04	3.53E-04	4.96E-04	5.25E-04	4	100
OCDD	pg/m^3	-	-	2.78E-05	5.32E-05	4.43E-05	1.85E-05	-	-	3.59E-05	1.85E-05	5.32E-05	2.78E-05	5.32E-05	4.43E-05	4	100
2,3,7,8-TCDF	pg/m^3	-	-	4.73E-05	1.66E-04	4.23E-04	9.34E-05	-	-	1.82E-04	4.73E-05	4.23E-04	4.73E-05	1.66E-04	4.23E-04	4	100
1,2,3,7,8-PeCDF	pg/m^3	-	-	2.03E-05	3.63E-05	1.01E-04	2.58E-05	-	-	4.58E-05	2.03E-05	1.01E-04	2.03E-05	3.63E-05	1.01E-04	4	100
2,3,4,7,8-PeCDF	pg/m^3	-	-	1.18E-04	2.64E-04	9.62E-04	2.05E-04	-	-	3.87E-04	1.18E-04	9.62E-04	1.18E-04	2.64E-04	9.62E-04	4	100
1,2,3,4,7,8-HxCDF	pg/m^3	-	-	1.18E-04	7.81E-05	2.48E-04	6.69E-05	-	-	1.28E-04	6.69E-05	2.48E-04	1.18E-04	7.81E-05	2.48E-04	4	100
1,2,3,6,7,8-HxCDF	pg/m^3	-	-	2.84E-05	6.64E-05	2.33E-04	6.44E-05	-	-	9.81E-05	2.84E-05	2.33E-04	2.84E-05	6.64E-05	2.33E-04	4	100
2,3,4,6,7,8-HxCDF	pg/m^3	-	-	1.65E-04	7.42E-05	2.62E-04	7.07E-05	-	-	1.43E-04	7.07E-05	2.62E-04	1.65E-04	7.42E-05	2.62E-04	4	100
1,2,3,7,8,9-HxCDF	pg/m^3	-	-	5.99E-05	1.78E-04	3.06E-04	9.22E-05	-	-	1.59E-04	5.99E-05	3.06E-04	5.99E-05	1.78E-04	3.06E-04	4	100
1,2,3,4,6,7,8-HpCDF	pg/m^3	-	-	1.89E-05	6.80E-05	1.01E-04	2.02E-05	-	-	5.20E-05	1.89E-05	1.01E-04	1.89E-05	6.80E-05	1.01E-04	4	100
1,2,3,4,7,8,9-HpCDF	pg/m^3	-	-	1.79E-05	7.03E-06	2.77E-05	1.14E-05	-	-	1.60E-05	7.03E-06	2.77E-05	1.79E-05	7.03E-06	2.77E-05	4	100
OCDF	pg/m^3	-	-	8.04E-07	2.81E-06	3.27E-06	2.45E-06	-	-	2.34E-06	8.04E-07	3.27E-06	8.04E-07	2.81E-06	3.27E-06	4	100
Total Toxic Equivalency	$pg\ TEQ/m^3$	*0.1 1* [1]	-	2.41E-03	4.51E-03	1.47E-02	2.41E-03	0.1	0	6.01E-03	2.41E-03	1.47E-02	2.41E-03	4.51E-03	1.47E-02	4	100

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

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

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

Sample Date	Courtice			Rundle		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)
April 4, 2021	L2574888-2	1440	274	L2574888-1	1440	297
April 16, 2021	L2574798-4	1440	289	L2574798-2	1440	317
April 28, 2021	L2583941-1	1440	276	L2583941-2	1440	297
May 10, 2021	L2581068-2	1440	346	L2581068-3	1335	256
May 22, 2021	L2593488-1	1440	304	L2593488-2	1440	323
June 3, 2021	L2597989-2	1440	317	L2597989-1	1440	343
June 15, 2021	L2603137-1	1440	284	L2603137-2	1440	314
June 27, 2021	L2608164-2	1440	310	L2608164-1	1440	396

Table B5: 2021 Courtice Station Q2 Monitoring Results for PAHs

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	4 Apr-21	16 Apr-21	28 Apr-21	10 May 21	22 May 21	3 Jun 21	15 Jun 21	27 Jun 21	No. > Criteria	Arithmetic Mean	Minimum Q2 Concentration	Maximum Q2 Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m^3	*12000*	-	3.80	1.79	3.66	5.40	26.38	34.07	15.14	1.52	0	1.15E+01	1.52E+00	3.41E+01	3.80E+00	2.64E+01	3.41E+01	8	100
2-Methylnaphthalene	ng/m^3	*10000*	-	6.61	2.86	5.62	10.12	56.91	76.97	32.75	2.20	0	2.43E+01	2.20E+00	7.70E+01	6.61E+00	5.69E+01	7.70E+01	8	100
Acenaphthene	ng/m^3	-	-	1.34	0.54	1.36	2.72	27.83	37.85	9.01	0.35	-	1.01E+01	3.52E-01	3.79E+01	1.36E+00	2.78E+01	3.79E+01	8	100
Acenaphthylene	ng/m^3	*3500*	-	0.06	0.14	0.09	0.15	0.39	0.35	0.35	0.08	0	2.02E-01	6.02E-02	3.95E-01	1.36E-01	3.95E-01	3.51E-01	8	100
Anthracene	ng/m^3	*200*	-	0.03	0.05	0.09	0.03	0.33	0.43	0.65	0.07	0	2.11E-01	2.98E-02	6.48E-01	9.06E-02	3.26E-01	6.48E-01	8	100
Benzo(a)Anthracene	ng/m^3	-	-	0.01	0.01	0.01	0.01	0.02	0.01	0.00	0.01	-	1.05E-02	3.49E-03	2.44E-02	1.25E-02	2.44E-02	1.07E-02	8	100
Benzo(a)fluorene	ng/m^3	-	-	0.04	0.02	0.03	0.01	0.04	0.04	0.03	0.03	-	3.01E-02	1.31E-02	4.44E-02	3.72E-02	4.44E-02	3.69E-02	8	100
Benzo(a)Pyrene (Historically High)	ng/m^3	*0.05* [1] *5* [2] *1.1* [3]	*1*	0.02	0.01	0.00	0.02	0.02	0.01	0.00	0.01	0	1.12E-02	3.62E-04	2.39E-02	2.39E-02	2.32E-02	1.09E-02	8	100
Benzo(b)Fluoranthene	ng/m^3	-	-	0.05	0.01	0.02	0.03	0.04	0.01	0.01	0.02	-	2.48E-02	5.00E-03	5.18E-02	5.18E-02	4.18E-02	1.77E-02	8	100
Benzo(b)fluorene	ng/m^3	-	-	0.03	0.01	0.01	0.01	0.03	0.03	0.02	0.02	-	1.76E-02	7.37E-03	2.76E-02	2.51E-02	2.76E-02	2.52E-02	8	100
Benzo(e)Pyrene	ng/m^3	-	-	0.03	0.01	0.01	0.03	0.04	0.01	0.00	0.03	-	2.17E-02	4.15E-03	4.05E-02	3.42E-02	4.05E-02	2.71E-02	8	100
Benzo(g,h,i)Perylene	ng/m^3	-	-	0.03	0.01	0.02	0.03	0.03	0.01	0.00	0.01	-	1.73E-02	4.37E-03	3.37E-02	3.37E-02	2.96E-02	9.37E-03	8	100
Benzo(k)Fluoranthene	ng/m^3	-	-	0.05	0.01	0.02	0.03	0.04	0.01	0.00	0.01	-	2.30E-02	4.30E-03	4.53E-02	4.53E-02	4.18E-02	1.30E-02	8	100
Biphenyl	ng/m^3	-	-	1.79	0.75	2.16	2.21	11.22	15.96	6.41	1.27	-	5.22E+00	7.51E-01	1.60E+01	2.16E+00	1.12E+01	1.60E+01	8	100
Chrysene	ng/m^3	-	-	0.07	0.02	0.04	0.04	0.08	0.04	0.03	0.04	-	4.72E-02	2.48E-02	8.36E-02	7.30E-02	8.36E-02	4.26E-02	8	100
Dibenzo(a,h)Anthracene	ng/m^3	-	-	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	-	4.77E-03	3.52E-04	1.93E-02	1.93E-02	5.26E-03	1.48E-03	8	100
Fluoranthene	ng/m^3	-	-	0.30	0.28	0.48	0.22	0.96	1.75	0.82	0.37	-	6.49E-01	2.21E-01	1.75E+00	4.82E-01	9.64E-01	1.75E+00	8	100
Fluorene	ng/m^3	-	-	1.03	0.53	1.28	1.40	14.21	21.32	4.82	0.89	-	5.69E+00	5.29E-01	2.13E+01	1.28E+00	1.42E+01	2.13E+01	8	100
Indeno(1,2,3-cd)Pyrene	ng/m^3	-	-	0.04	0.01	0.02	0.03	0.03	0.01	0.00	0.01	-	1.90E-02	2.89E-03	3.94E-02	3.94E-02	2.80E-02	1.18E-02	8	100
Naphthalene	ng/m^3	*22500*	*22500*	16.40	7.65	11.74	21.30	114.80	119.24	67.61	7.74	0	4.58E+01	7.65E+00	1.19E+02	1.64E+01	1.15E+02	1.19E+02	8	100
o-Terphenyl	ng/m^3	-	-	0.01	0.00	0.02	0.01	0.02	0.01	0.01	0.01	-	1.14E-02	4.88E-03	1.91E-02	1.91E-02	1.64E-02	1.41E-02	8	100
Perylene	ng/m^3	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	-	3.42E-03	3.52E-04	1.46E-02	2.74E-03	4.97E-03	1.46E-02	8	100
Phenanthrene	ng/m^3	-	-	1.53	1.21	2.82	1.40	12.20	21.96	7.89	1.56	-	6.32E+00	1.21E+00	2.20E+01	2.82E+00	1.22E+01	2.20E+01	8	100
Pyrene	ng/m^3	-	-	0.17	0.16	0.21	0.12	0.40	0.61	0.32	0.17	-	2.69E-01	1.22E-01	6.12E-01	2.08E-01	4.05E-01	6.12E-01	8	100
Tetralin	ng/m^3	-	-	5.22	0.99	3.62	0.98	3.68	2.30	1.24	0.91	-	2.37E+00	9.13E-01	5.22E+00	5.22E+00	3.68E+00	2.30E+00	8	100
Total PAH [4]	ng/m^3	-	-	38.67	17.07	33.36	46.32	269.74	333.02	147.11	17.37	-	1.13E+02	1.71E+01	3.33E+02	3.87E+01	2.70E+02	3.33E+02	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: 2021 Rundle Station Q2 Monitoring Results for PAHs

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	4-Apr-21	16-Apr-21	28-Apr-21	10-May-21	22-May-21	3-Jun-21	15-Jun-21	27-Jun-21	No. > Criteria	Arithmetic Mean	Minimum Q2 Concentration	Maximum Q2 Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m^3	*12000*	-	4.11	1.13	4.34	5.51	22.07	14.72	1.35	5.71	0	7.37E+00	1.13E+00	2.21E+01	4.34E+00	2.21E+01	1.47E+01	8	100
2-Methylnaphthalene	ng/m^3	*10000*	-	7.10	1.76	7.31	9.84	43.03	29.15	2.42	10.76	0	1.39E+01	1.76E+00	4.30E+01	7.31E+00	4.30E+01	2.92E+01	8	100
Acenaphthene	ng/m^3	-	-	2.19	0.20	2.92	3.11	17.49	14.66	0.62	5.45	-	5.83E+00	1.97E-01	1.75E+01	2.92E+00	1.75E+01	1.47E+01	8	100
Acenaphthylene	ng/m^3	*3500*	-	0.08	0.12	0.10	0.14	0.31	0.23	0.02	0.13	0	1.40E-01	2.32E-02	3.10E-01	1.16E-01	3.10E-01	2.34E-01	8	100
Anthracene	ng/m^3	*200*	-	0.08	0.03	0.17	0.10	0.43	0.48	0.05	0.31	0	2.07E-01	3.41E-02	4.84E-01	1.65E-01	4.30E-01	4.84E-01	8	100
Benzo(a)Anthracene	ng/m^3	-	-	0.02	0.01	0.00	0.01	0.02	0.01	0.00	0.01	-	1.00E-02	2.68E-03	2.01E-02	1.53E-02	2.01E-02	1.08E-02	8	100
Benzo(a)fluorene	ng/m^3	-	-	0.05	0.02	0.04	0.02	0.06	0.04	0.01	0.04	-	3.51E-02	1.03E-02	6.35E-02	4.61E-02	6.35E-02	4.42E-02	8	100
Benzo(a)Pyrene (Historically High)	ng/m^3	*0.05* [1] *5* [2] *1.1* [3]	*1*	0.03	0.01	0.00	0.02	0.02	0.01	0.00	0.01	0	1.19E-02	3.37E-04	2.77E-02	2.77E-02	2.32E-02	7.55E-03	8	100
Benzo(b)Fluoranthene	ng/m^3	-	-	0.05	0.01	0.01	0.04	0.04	0.01	0.00	0.01	-	2.28E-02	4.84E-03	5.22E-02	5.22E-02	3.90E-02	1.42E-02	8	100
Benzo(b)fluorene	ng/m^3	-	-	0.03	0.01	0.02	0.01	0.04	0.02	0.01	0.02	-	2.03E-02	5.64E-03	3.72E-02	2.88E-02	3.72E-02	2.21E-02	8	100
Benzo(e)Pyrene	ng/m^3	-	-	0.04	0.01	0.00	0.04	0.03	0.02	0.00	0.01	-	1.77E-02	3.37E-04	3.67E-02	3.67E-02	3.55E-02	1.58E-02	8	100
Benzo(g,h,i)Perylene	ng/m^3	-	-	0.04	0.01	0.00	0.03	0.03	0.01	0.00	0.00	-	1.67E-02	1.55E-03	4.01E-02	4.01E-02	3.16E-02	1.21E-02	8	100
Benzo(k)Fluoranthene	ng/m^3	-	-	0.05	0.01	0.00	0.04	0.04	0.02	0.00	0.01	-	2.22E-02	3.37E-04	5.25E-02	5.25E-02	4.30E-02	1.75E-02	8	100
Biphenyl	ng/m^3	-	-	2.29	0.53	2.36	2.30	9.94	7.26	0.71	3.23	-	3.58E+00	5.27E-01	9.94E+00	2.36E+00	9.94E+00	7.26E+00	8	100
Chrysene	ng/m^3	-	-	0.08	0.03	0.04	0.06	0.09	0.06	0.02	0.05	-	5.22E-02	1.51E-02	9.16E-02	8.05E-02	9.16E-02	5.51E-02	8	100
Dibenzo(a,h)Anthracene	ng/m^3	-	-	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	-	5.09E-03	6.41E-04	1.25E-02	9.60E-03	1.25E-02	3.50E-03	8	100
Fluoranthene	ng/m^3	-	-	0.44	0.24	1.02	0.57	2.26	2.16	0.20	1.79	-	1.09E+00	2.05E-01	2.26E+00	1.02E+00	2.26E+00	2.16E+00	8	100
Fluorene	ng/m^3	-	-	1.63	0.33	2.32	1.88	12.23	10.15	0.61	4.52	-	4.21E+00	3.34E-01	1.22E+01	2.32E+00	1.22E+01	1.01E+01	8	100
Indeno(1,2,3-cd)Pyrene	ng/m^3	-	-	0.04	0.01	0.00	0.03	0.03	0.01	0.00	0.00	-	1.60E-02	3.37E-04	4.11E-02	4.11E-02	2.96E-02	8.92E-03	8	100
Naphthalene	ng/m^3	*22500*	*22500*	16.40	5.55	12.69	19.38	81.11	44.02	5.25	19.97	0	2.55E+01	5.25E+00	8.11E+01	1.64E+01	8.11E+01	4.40E+01	8	100
o-Terphenyl	ng/m^3	-	-	0.01	0.00	0.02	0.01	0.01	0.01	0.00	0.01	-	1.04E-02	4.14E-03	1.90E-02	1.90E-02	1.42E-02	1.11E-02	8	100
Perylene	ng/m^3	-	-	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	-	3.10E-03	2.53E-04	7.01E-03	4.98E-03	5.11E-03	7.01E-03	8	100
Phenanthrene	ng/m^3	-	-	2.58	0.87	5.12	2.93	16.22	14.66	1.13	8.41	-	6.49E+00	8.71E-01	1.62E+01	5.12E+00	1.62E+01	1.47E+01	8	100
Pyrene	ng/m^3	-	-	0.23	0.14	0.39	0.26	0.80	0.74	0.08	0.72	-	4.21E-01	8.47E-02	7.96E-01	3.94E-01	7.96E-01	7.38E-01	8	100
Tetralin	ng/m^3	-	-	2.37	0.65	3.47	1.45	9.94	2.03	1.55	0.96	-	2.80E+00	6.47E-01	9.94E+00	3.47E+00	9.94E+00	2.03E+00	8	100
Total PAH[4]	ng/m^3	-	-	39.94	11.67	42.35	47.78	216.27	140.49	14.10	62.15	-	7.18E+01	1.17E+01	2.16E+02	4.24E+01	2.16E+02	1.40E+02	8	100

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

[1] AAQC

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

[3] O. Reg. 419/05 24 Hour Guideline

[4] Total PAH sums all PAH contaminants

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

Sample Date	Courtice			Rundle		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m^3)	No.	(min)	(m^3)
April 4, 2021	L2574892-3	1440	1696	L2574892-1	1440	1710
April 10, 2021	L2579340-2	1440	1635	L2579340-4	1440	1634
April 16, 2021	L2579340-1	1440	1694	L2579340-3	1440	1692
April 22, 2021	L2584014-1	1440	1703	L2584014-3	1440	1714
April 28, 2021	L2584014-2	1440	1646	L2584014-4	1440	1642
May 4, 2021	L2587946-2	1440	1693	L2587946-4	1440	1654
May 10, 2021	L2587946-1	1440	1694	Invalid Sample		
May 16, 2021	L2593490-2	1440	1693	L2593490-4	1440	1654
May 22, 2021	L2593490-1	1440	1661	L2593490-3	1440	1697
May 28, 2021	L2597998-4	1440	1735	L2597998-2	1440	1753
June 3, 2021	L2597998-3	1440	1658	L2597998-1	1440	1685
June 9, 2021	L2603141-2	1440	1639	L2603141-4	1440	1611
June 15, 2021	L2603141-1	1440	1675	L2603141-3	1440	1644
June 21, 2021	L2608170-3	1440	1666	Invalid Sample		
June 27, 2021	L2608170-4	1440	1658	L2608170-2	1440	1627

Table B8: 2021 Courtice Station Q2 Monitoring Results for TSP and Metals

Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	4-Apr-21	10-Apr-21	16-Apr-21	22-Apr-21	28-Apr-21	4-May-21	10-May-21	16-May-21	22-May-21	28-May-21	3-Jun-21	9-Jun-21	15-Jun-21	21-Jun-21	27-Jun-21	MECP Criteria ($\mu g/m^3$)	No. > Criteria	Geometric Mean	Arithmetic Mean	Q2 Minimum Concentration	Q2 Maximum Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	$\mu g/m^3$	*120*	*120*	24.06	70.34	4.49	14.56	21.99	19.85	20.31	101.00	58.58	25.99	10.62	41.61	27.46	25.03	23.64	*120*	0	25.25	32.64	4.49	101.00	70.34	101.00	41.61	15	100
Total Mercury (Hg)	$\mu g/m^3$	*2*	*2*	3.13E-05	2.39E-05	2.95E-06	1.59E-05	1.28E-05	6.50E-06	8.26E-06	8.80E-05	3.43E-05	8.07E-06	3.02E-06	1.04E-05	8.36E-06	8.40E-06	2.11E-05	*2*	0	1.25E-05	1.89E-05	2.95E-06	8.80E-05	3.13E-05	8.80E-05	2.11E-05	15	100
Aluminum (Al)	$\mu g/m^3$	*4.8*	-	1.38E-01	6.91E-01	2.85E-02	1.39E-01	2.04E-01	9.81E-02	1.56E-01	1.07E+00	4.44E-01	1.71E-01	3.47E-02	2.07E-01	1.98E-01	1.58E-01	1.11E-01	*4.8*	0	1.68E-01	2.56E-01	2.85E-02	1.07E+00	6.91E-01	1.07E+00	2.07E-01	15	100
Antimony (Sb)	$\mu g/m^3$	*25*	*25*	6.25E-04	6.79E-04	1.95E-04	3.17E-04	4.01E-04	5.14E-04	5.61E-04	1.67E-03	1.24E-03	3.34E-04	5.37E-04	7.99E-04	4.00E-04	3.06E-04	6.03E-04	*25*	0	5.27E-04	6.12E-04	1.95E-04	1.67E-03	6.79E-04	1.67E-03	7.99E-04	15	100
Arsenic (As)	$\mu g/m^3$	*0.3*	*0.3*	8.84E-04	9.17E-04	8.85E-04	8.81E-04	9.11E-04	8.86E-04	8.85E-04	1.35E-02	9.03E-04	8.65E-04	9.05E-04	9.15E-04	8.96E-04	9.00E-04	9.05E-04	*0.3*	0	1.07E-03	1.73E-03	8.65E-04	1.35E-02	9.17E-04	1.35E-02	9.15E-04	15	100
Barium (Ba)	$\mu g/m^3$	*10*	*10*	5.71E-03	7.40E-03	2.87E-03	4.49E-03	4.21E-03	3.48E-03	7.67E-03	1.73E-02	1.70E-02	3.45E-03	1.95E-03	8.05E-03	4.97E-03	3.40E-03	4.13E-03	*10*	0	5.28E-03	6.41E-03	1.95E-03	1.73E-02	7.40E-03	1.73E-02	8.05E-03	15	100
Beryllium (Be)	$\mu g/m^3$	*0.01*	*0.01*	1.47E-05	3.12E-05	1.48E-05	1.47E-05	1.52E-05	1.48E-05	1.48E-05	4.55E-05	1.51E-05	1.44E-05	1.51E-05	1.53E-05	1.49E-05	1.50E-05	1.51E-05	*0.01*	0	1.69E-05	1.80E-05	1.44E-05	4.55E-05	3.12E-05	4.55E-05	1.53E-05	15	100
Bismuth (Bi)	$\mu g/m^3$	-	-	5.31E-04	5.50E-04	5.31E-04	5.28E-04	5.47E-04	5.32E-04	5.31E-04	5.32E-04	1.57E-03	5.19E-04	5.43E-04	5.49E-04	5.37E-04	5.40E-04	5.43E-04	-	-	5.76E-04	6.05E-04	5.19E-04	1.57E-03	5.50E-04	1.57E-03	5.49E-04	15	100
Boron (B)	$\mu g/m^3$	*120*	-	4.42E-03	4.59E-03	4.43E-03	4.40E-03	4.56E-03	4.43E-03	4.43E-03	4.43E-03	4.52E-03	4.32E-03	4.52E-03	4.58E-03	4.48E-03	4.50E-03	4.52E-03	*120*	0	4.47E-03	4.48E-03	4.32E-03	4.59E-03	4.59E-03	4.52E-03	4.58E-03	15	100
Cadmium (Cd)	$\mu g/m^3$	*0.025*	*0.025*	1.75E-04	1.30E-04	4.72E-05	1.87E-04	1.89E-04	1.59E-04	1.37E-04	3.59E-04	1.78E-04	8.18E-05	1.23E-04	1.26E-04	5.61E-05	6.42E-05	8.02E-05	*0.025*	0	1.22E-04	1.40E-04	4.72E-05	3.59E-04	1.89E-04	3.59E-04	1.26E-04	15	100
Chromium (Cr)	$\mu g/m^3$	*0.5*	-	1.00E-03	3.67E-03	1.00E-03	2.06E-03	1.03E-03	1.00E-03	2.36E-03	4.49E-03	3.07E-03	9.80E-04	1.03E-03	2.62E-03	1.01E-03	1.02E-03	1.03E-03	*0.5*	0	1.55E-03	1.83E-03	9.80E-04	4.49E-03	3.67E-03	4.49E-03	2.62E-03	15	100
Cobalt (Co)	$\mu g/m^3$	*0.1*	*0.1*	1.12E-04	2.34E-04	4.19E-05	9.69E-05	9.84E-05	1.18E-04	1.22E-04	5.10E-04	2.65E-04	1.00E-04	3.80E-05	1.43E-04	1.21E-04	9.54E-05	7.84E-05	*0.1*	0	1.17E-04	1.45E-04	3.80E-05	5.10E-04	2.34E-04	5.10E-04	1.43E-04	15	100
Copper (Cu)	$\mu g/m^3$	*50*	-	2.48E-02	1.23E-02	7.97E-03	8.63E-03	7.29E-03	1.28E-02	1.75E-02	1.58E-02	2.98E-02	6.17E-03	2.91E-02	2.00E-02	7.40E-03	5.76E-03	4.52E-03	*50*	0	1.17E-02	1.40E-02	4.52E-03	2.98E-02	2.48E-02	2.98E-02	2.91E-02	15	100
Iron (Fe)	$\mu g/m^3$	*4*	-	3.34E-01	1.02E+00	1.04E-01	3.04E-01	3.20E-01	2.34E-01	3.70E-01	1.68E+00	8.13E-01	3.58E-01	1.44E-01	4.78E-01	3.49E-01	2.86E-01	2.09E-01	*4*	0	3.59E-01	4.67E-01	1.04E-01	1.68E+00	1.02E+00	1.68E+00	4.78E-01	15	100
Lead (Pb)	$\mu g/m^3$	*0.5*	*0.5*	5.04E-03	2.54E-03	7.20E-04	1.96E-03	1.60E-03	2.69E-03	2.08E-03	7.97E-03	4.82E-03	1.45E-03	2.99E-03	2.83E-03	2.45E-03	1.40E-03	1.91E-03	*2*	0	2.40E-03	2.83E-03	7.20E-04	7.97E-03	5.04E-03	7.97E-03	2.99E-03	15	100
Magnesium (Mg)	$\mu g/m^3$	-	-	1.90E-01	5.17E-01	5.19E-02	1.77E-01	1.82E-01	1.25E-01	2.39E-01	9.57E-01	5.31E-01	1.89E-01	6.76E-02	2.71E-01	2.19E-01	2.27E-01	1.36E-01	-	-	2.08E-01	2.72E-01	5.19E-02	9.57E-01	5.17E-01	9.57E-01	2.71E-01	15	100
Manganese (Mn)	$\mu g/m^3$	*0.4*	-	1.39E-02	2.10E-02	2.14E-03	1.16E-02	8.26E-03	8.03E-03	1.35E-02	4.97E-02	2.87E-02	9.63E-03	2.85E-03	1.56E-02	1.10E-02	1.07E-02	7.54E-03	*0.4*	0	1.09E-02	1.43E-02	2.14E-03	4.97E-02	2.10E-02	4.97E-02	1.56E-02	15	100
Molybdenum (Mo)	$\mu g/m^3$	*120*	-	5.19E-04	6.73E-04	2.36E-04	4.23E-04	3.89E-04	6.67E-04	6.14E-04	9.92E-04	9.69E-04	3.57E-04	8.56E-04	1.02E-03	1.17E-03	5.16E-04	3.74E-04	*120*	0	5.91E-04	6.52E-04	2.36E-04	1.17E-03	6.73E-04	9.92E-04	1.17E-03	15	100
Nickel (Ni)	$\mu g/m^3$	*0.2*	-	9.91E-04	1.55E-03	6.14E-04	9.51E-04	8.51E-04	7.86E-04	9.98E-04	2.08E-03	1.23E-03	1.05E-03	7.48E-04	1.21E-03	8.24E-04	7.08E-04	5.37E-04	*0.2*	0	9.49E-04	1.01E-03	5.37E-04	2.08E-03	1.55E-03	2.08E-03	1.21E-03	15	100
Phosphorus (P)	$\mu g/m^3$	-	-	2.21E-01	2.29E-01	2.21E-01	2.20E-01	2.28E-01	2.22E-01	2.21E-01	2.22E-01	2.26E-01	2.16E-01	2.26E-01	2.29E-01	2.24E-01	2.25E-01	2.26E-01	-	-	2.24E-01	2.24E-01	2.16E-01	2.29E-01	2.29E-01	2.26E-01	2.29E-01	15	100
Selenium (Se)	$\mu g/m^3$	*10*	*10*	9.43E-04	3.98E-04	3.84E-04	3.82E-04	3.95E-04	3.84E-04	3.84E-04	1.00E-03	1.08E-03	3.75E-04	3.92E-04	3.97E-04	3.88E-04	3.90E-04	9.65E-04	*10*	0	4.99E-04	5.51E-04	3.75E-04	1.08E-03	9.43E-04	1.08E-03	9.65E-04	15	100
Silver (Ag)	$\mu g/m^3$	*1*	*1*	6.78E-05	7.34E-05	2.66E-05	2.64E-05	2.73E-05	2.66E-05	2.66E-05	2.66E-05	2.71E-05	2.59E-05	5.67E-05	2.75E-05	2.69E-05	2.70E-05	2.71E-05	*1*	0	3.20E-05	3.46E-05	2.59E-05	7.34E-05	7.34E-05	2.71E-05	5.67E-05	15	100
Strontium (Sr)	$\mu g/m^3$	*120*	-	3.83E-03	2.26E-02	8.85E-04	3.05E-03	7.84E-03	3.78E-03	5.61E-03	2.34E-02	1.35E-02	4.38E-03	9.05E-04	5.86E-03	4.54E-03	4.38E-03	2.23E-03	*120*	0	4.72E-03	7.12E-03	8.85E-04	2.34E-02	2.26E-02	2.34E-02	5.86E-03	15	100
Thallium (Tl)	$\mu g/m^3$	-	-	2.65E-05	1.08E-04	2.66E-05	2.64E-05	2.73E-05	2.66E-05	2.66E-05	2.66E-05	2.71E-05	2.59E-05	2.71E-05	2.75E-05	2.69E-05	2.70E-05	2.71E-05	-	-	2.94E-05	3.22E-05	2.59E-05	1.08E-04	1.08E-04	2.71E-05	2.75E-05	15	100
Tin (Sn)	$\mu g/m^3$	*10*	*10*	7.19E-04	6.61E-04	1.77E-04	5.52E-04	4.68E-04	5.14E-04	6.61E-04	1.40E-03	1.37E-03	5.76E-04	7.66E-04	8.66E-04	1.79E-04	1.80E-04	4.64E-04	*10*	0	5.34E-04	6.37E-04	1.77E-04	1.40E-03	7.19E-04	1.40E-03	8.66E-04	15	100
Titanium (Ti)	$\mu g/m^3$	*120*	-	3.24E-03	3.61E-02	3.25E-03	7.63E-03	1.09E-02	3.25E-03	8.26E-03	4.25E-02	1.75E-02	9.22E-03	3.32E-03	1.22E-02	1.19E-02	7.20E-03	3.32E-03	*120*	0	8.35E-03	1.20E-02	3.24E-03	4.25E-02	3.61E-02	4.25E-02	1.22E-02	15	100
Uranium (Ur)	$\mu g/m^3$	*1.5*	-	2.76E-05	8.44E-05	1.77E-06	8.81E-06	4.87E-05	1.10E-05	9.39E-06	9.63E-05	3.99E-05	1.79E-05	6.76E-06	1.99E-05	1.24E-05	1.99E-05	1.07E-05	*1.5*	0	1.75E-05	2.77E-05	1.77E-06	9.63E-05	8.44E-05	9.63E-05	1.99E-05	15	100
Vanadium (V)	$\mu g/m^3$	*2*	*1*	1.47E-03	1.53E-03	1.48E-03	1.47E-03	1.52E-03	1.48E-03	1.48E-03	2.95E-03	1.51E-03	1.44E-03	1.51E-03	1.53E-03	1.49E-03	1.50E-03	1.51E-03	*2*	0	1.56E-03	1.59E-03	1.44E-03	2.95E-03	1.53E-03	2.95E-03	1.53E-03	15	100
Zinc (Zn)	$\mu g/m^3$	*120*	-	4.40E-02	2.65E-02	2.46E-02	3.99E-02	4.05E-02	3.51E-02	3.56E-02	4.89E-02	4.28E-02	1.48E-02	1.63E-02	4.34E-02	2.85E-02	2.19E-02	1.83E-02	*120*	0	3.00E-02	3.21E-02	1.48E-02	4.89E-02	4.40E-02	4.89E-02	4.34E-02	15	100
Zirconium (Zr)	$\mu g/m^3$	*20*	-	5.90E-04	6.12E-04	5.90E-04	5.87E-04	6.08E-04	5.91E-04	5.90E-04	5.91E-04	6.02E-04	5.76E-04	6.03E-04	6.10E-04	5.97E-04	6.00E-04	6.03E-04	*20*	0	5.97E-04	5.97E-04	5.76E-04	6.12E-04	6.12E-04	6.02E-04	6.10E-04	15	100

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

Table B9: 2021 Rundle Station Q2 Monitoring Results for TSP and Metals

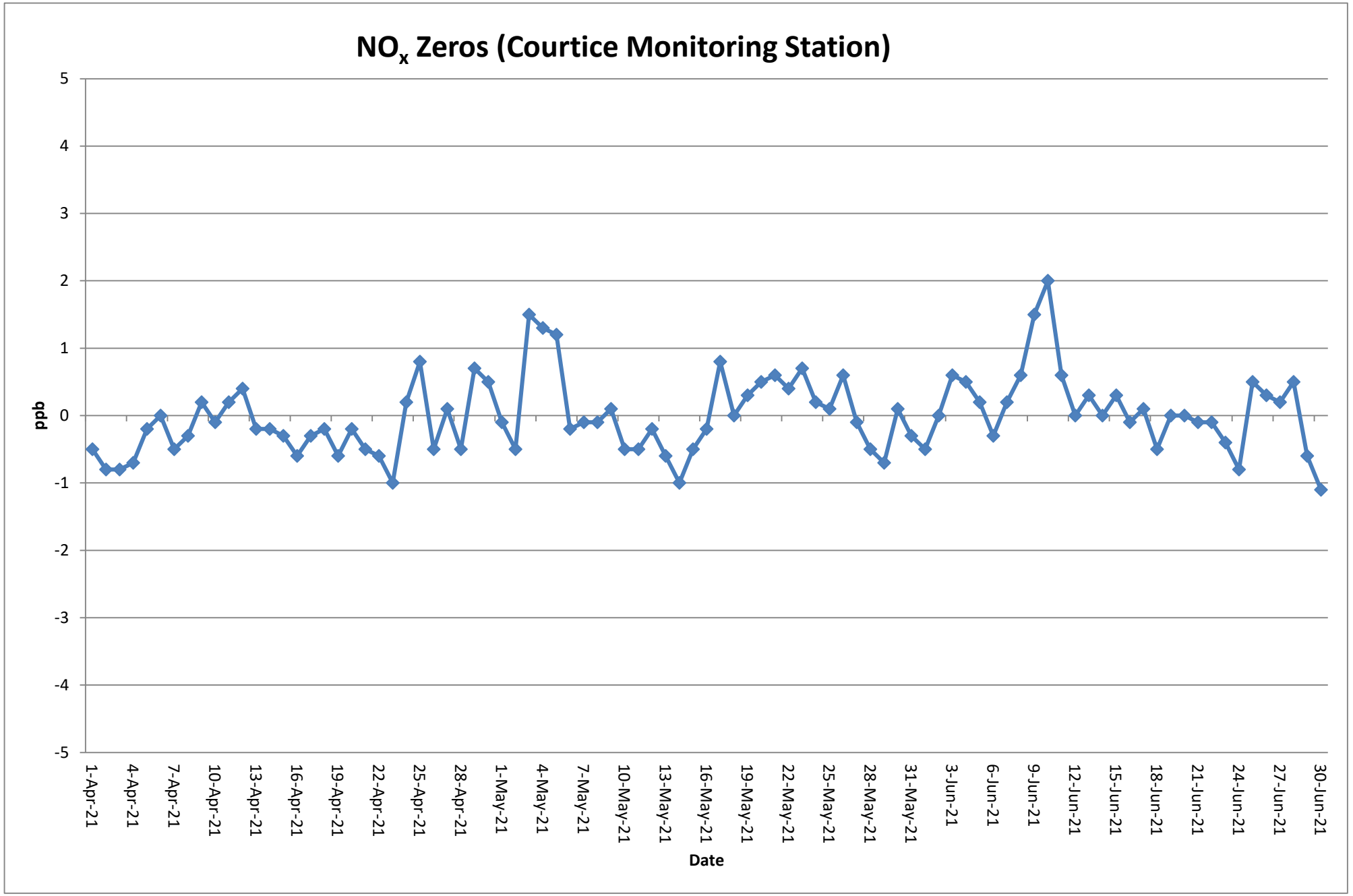
Contaminant	Units	*MECP Criteria*	*HHRA Health Based Criteria*	4-Apr-21	10-Apr-21	16-Apr-21	22-Apr-21	28-Apr-21	4-May-21	10-May-21	16-May-21	22-May-21	28-May-21	3-Jun-21	9-Jun-21	15-Jun-21	21-Jun-21	27-Jun-21	MECP Criteria ($\mu g/m^3$)	No. > Criteria	Geometric Mean	Arithmetic Mean	Q2 Minimum Concentration	Q2 Maximum Concentration	April Maximum Concentration	May Maximum Concentration	June Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	$\mu g/m^3$	*120*	*120*	22.98	43.08	5.38	17.27	19.12	20.98		75.57	57.22	25.16	18.10	47.18	26.58		24.95	*120*	0	25.8	31.0	5.4	75.6	43.1	75.6	47.2	13	87
Mercury (Hg)	$\mu g/m^3$	*2*	*2*	4.04E-05	1.16E-05	2.96E-06	2.92E-06	9.14E-06	1.27E-05		1.87E-04	1.17E-04	6.85E-06	6.53E-06	8.69E-06	6.69E-06		7.99E-06	*2*	0	1.27E-05	3.23E-05	2.92E-06	1.87E-04	4.04E-05	1.87E-04	8.69E-06	13	87
Aluminum (Al)	$\mu g/m^3$	*4.8*	-	1.18E-01	4.44E-01	3.86E-02	1.47E-01	1.71E-01	1.38E-01		9.25E-01	5.57E-01	1.66E-01	9.20E-02	2.74E-01	1.53E-01		1.19E-01	*4.8*	0	1.84E-01	2.57E-01	3.86E-02	9.25E-01	4.44E-01	9.25E-01	2.74E-01	13	87
Antimony (Sb)	$\mu g/m^3$	*25*	*25*	5.20E-04	6.12E-04	7.39E-05	2.33E-04	3.71E-04	5.56E-04		1.35E-03	1.14E-03	1.94E-04	6.94E-04	6.08E-04	1.52E-04		6.88E-04	*25*	0	4.26E-04	5.54E-04	7.39E-05	1.35E-03	6.12E-04	1.35E-03	6.94E-04	13	87
Arsenic (As)	$\mu g/m^3$	*0.3*	*0.3*	8.77E-04	9.18E-04	8.87E-04	8.75E-04	9.14E-04	9.07E-04		2.61E-02	1.83E-03	8.56E-04	8.90E-04	9.31E-04	9.12E-04		9.22E-04	*0.3*	0	1.23E-03	2.91E-03	8.56E-04	2.61E-02	9.18E-04	2.61E-02	9.31E-04	13	87
Barium (Ba)	$\mu g/m^3$	*10*	*10*	4.63E-03	7.22E-03	2.59E-03	3.94E-03	4.36E-03	5.33E-03		1.44E-02	2.14E-02	3.49E-03	5.64E-03	7.32E-03	3.18E-03		4.95E-03	*10*	0	5.62E-03	6.81E-03	2.59E-03	2.14E-02	7.22E-03	2.14E-02	7.32E-03	13	87
Beryllium (Be)	$\mu g/m^3$	*0.01*	*0.01*	4.15E-05	1.53E-05	1.48E-05	1.46E-05	1.52E-05	1.51E-05		4.11E-05	1.47E-05	1.43E-05	1.48E-05	1.55E-05	1.52E-05		1.54E-05	*0.01*	0	1.75E-05	1.90E-05	1.43E-05	4.15E-05	4.15E-05	4.11E-05	1.55E-05	13	87
Bismuth (Bi)	$\mu g/m^3$	-	-	5.26E-04	5.51E-04	5.32E-04	5.25E-04	5.48E-04	5.44E-04		5.44E-04	1.65E-03	5.13E-04	5.34E-04	5.59E-04	5.47E-04		5.53E-04	-	-	5.88E-04	6.25E-04	5.13E-04	1.65E-03	5.51E-04	1.65E-03	5.59E-04	13	87
Boron (B)	$\mu g/m^3$	*120*	-	4.39E-03	4.59E-03	4.43E-03	4.38E-03	4.57E-03	4.53E-03		4.53E-03	4.42E-03	4.28E-03	4.45E-03	4.66E-03	4.56E-03		4.61E-03	*120*	0	4.49E-03	4.49E-03	4.28E-03	4.66E-03	4.59E-03	4.53E-03	4.66E-03	13	87
Cadmium (Cd)	$\mu g/m^3$	*0.025*	*0.025*	2.01E-04	9.42E-05	5.32E-05	3.81E-04	1.15E-04	1.63E-04		3.89E-04	1.69E-04	7.36E-05	8.13E-05	1.02E-04	1.09E-04		1.19E-04	*0.025*	0	1.32E-04	1.58E-04	5.32E-05	3.89E-04	3.81E-04	3.89E-04	1.19E-04	13	87
Chromium (Cr)	$\mu g/m^3$	*0.5*	-	9.94E-04	2.69E-03	1.00E-03	9.92E-04	1.04E-03	1.03E-03		4.78E-03	3.95E-03	9.70E-04	1.01E-03	2.42E-03	1.03E-03		1.04E-03	*0.5*	0	1.46E-03	1.77E-03	9.70E-04	4.78E-03	2.69E-03	4.78E-03	2.42E-03	13	87
Cobalt (Co)	$\mu g/m^3$	*0.1*	*0.1*	9.59E-05	2.14E-04	4.37E-05	9.39E-05	8.83E-05	1.06E-04		6.17E-04	3.32E-04	9.53E-05	6.71E-05	1.68E-04	1.41E-04		8.91E-05	*0.1*	0	1.27E-04	1.65E-04	4.37E-05	6.17E-04	2.14E-04	6.17E-04	1.68E-04	13	87
Copper (Cu)	$\mu g/m^3$	*50*	-	1.06E-02	1.03E-02	4.55E-03	4.73E-03	3.78E-03	8.04E-03		2.94E-02	7.25E-02	1.16E-02	4.38E-02	3.10E-02	6.93E-03		3.04E-02	*50*	0	1.35E-02	2.06E-02	3.78E-03	7.25E-02	1.06E-02	7.25E-02	4.38E-02	13	87
Iron (Fe)	$\mu g/m^3$	*4*	-	2.89E-01	8.26E-01	8.45E-02	2.54E-01	2.71E-01	3.08E-01		1.73E+00	1.05E+00	2.77E-01	2.97E-01	5.51E-01	2.15E-01		2.59E-01	*4*	0	3.64E-01	4.93E-01	8.45E-02	1.73E+00	8.26E-01	1.73E+00	5.51E-01	13	87
Lead (Pb)	$\mu g/m^3$	*0.5*	*0.5*	6.84E-03	2.42E-03	5.32E-04	1.04E-03	1.11E-03	2.38E-03		7.56E-03	5.49E-03	1.30E-03	1.89E-03	2.63E-03	1.98E-03		2.07E-03	*2*	0	2.19E-03	2.86E-03	5.32E-04	7.56E-03	6.84E-03	7.56E-03	2.63E-03	13	87
Magnesium (Mg)	$\mu g/m^3$	-	-	1.71E-01	3.78E-01	6.26E-02	1.81E-01	1.41E-01	1.38E-01		9.01E-01	5.39E-01	1.81E-01	1.24E-01	3.10E-01	1.84E-01		1.49E-01	-	-	2.07E-01	2.66E-01	6.26E-02	9.01E-01	3.78E-01	9.01E-01	3.10E-01	13	87
Manganese (Mn)	$\mu g/m^3$	*0.4*	-	1.77E-02	1.57E-02	2.23E-03	7.23E-03	6.06E-03	8.10E-03		4.35E-02	3.21E-02	9.41E-03	5.37E-03	1.60E-02	8.21E-03		8.60E-03	*0.4*	0	1.04E-02	1.39E-02	2.23E-03	4.35E-02	1.77E-02	4.35E-02	1.60E-02	13	87
Molybdenum (Mo)	$\mu g/m^3$	*120*	-	4.21E-04	4.35E-04	1.06E-04	2.16E-04	2.56E-04	4.66E-04		1.49E-03	1.06E-03	3.82E-04	8.90E-04	9.56E-04	2.37E-04		1.25E-03	*120*	0	4.82E-04	6.28E-04	1.06E-04	1.49E-03	4.35E-04	1.49E-03	1.25E-03	13	87
Nickel (Ni)	$\mu g/m^3$	*0.2*	-	1.07E-03	1.38E-03	6.38E-04	1.06E-03	6.64E-04	7.92E-04		2.59E-03	1.63E-03	5.02E-04	6.94E-04	1.10E-03	6.08E-04		7.50E-04	*0.2*	0	9.29E-04	1.04E-03	5.02E-04	2.59E-03	1.38E-03	2.59E-03	1.10E-03	13	87
Phosphorus (P)	$\mu g/m^3$	-	-	2.19E-01	2.29E-01	2.22E-01	2.19E-01	2.28E-01	2.27E-01		2.27E-01	2.21E-01	2.14E-01	2.23E-01	2.33E-01	2.28E-01		2.30E-01	-	-	2.25E-01	2.25E-01	2.14E-01	2.33E-01	2.29E-01	2.27E-01	2.33E-01	13	87
Selenium (Se)	$\mu g/m^3$	*10*	*10*	3.80E-04	3.98E-04	3.84E-04	3.79E-04	3.96E-04	3.93E-04		1.09E-03	1.00E-03	3.71E-04	3.86E-04	4.03E-04	3.95E-04		8.60E-04	*10*	0	4.81E-04	5.26E-04	3.71E-04	1.09E-03	3.98E-04	1.09E-03	8.60E-04	13	87
Silver (Ag)	$\mu g/m^3$	*1*	*1*	8.42E-05	6.67E-05	2.66E-05	2.63E-05	2.74E-05	2.72E-05		2.72E-05	7.07E-05	2.57E-05	5.46E-05	2.79E-05	2.74E-05		2.77E-05	*1*	0	3.59E-05	4.00E-05	2.57E-05	8.42E-05	8.42E-05	7.07E-05	5.46E-05	13	87
Strontium (Sr)	$\mu g/m^3$	*120*	-	3.51E-03	1.32E-02	8.87E-04	4.32E-03	4.51E-03	5.26E-03		1.87E-02	1.18E-02	3.59E-03	3.92E-03	7.08E-03	4.20E-03		2.21E-03	*120*	0	4.87E-03	6.40E-03	8.87E-04	1.87E-02	1.32E-02	1.87E-02	7.08E-03	13	87
Thallium (Tl)	$\mu g/m^3$	-	-	2.63E-05	2.75E-05	2.66E-05	2.63E-05	2.74E-05	2.72E-05		2.72E-05	2.65E-05	2.57E-05	2.67E-05	2.79E-05	2.74E-05		2.77E-05	-	-	2.69E-05	2.70E-05	2.57E-05	2.79E-05	2.75E-05	2.72E-05	2.79E-05	13	87
Tin (Sn)	$\mu g/m^3$	*10*	*10*	6.84E-04	7.65E-04	1.77E-04	4.73E-04	1.83E-04	6.23E-04		1.80E-03	1.37E-03	1.71E-04	6.53E-04	8.01E-04	1.82E-04		9.04E-04	*10*	0	5.15E-04	6.76E-04	1.71E-04	1.80E-03	7.65E-04	1.80E-03	9.04E-04	13	87
Titanium (Ti)	$\mu g/m^3$	*120*	-	3.22E-03	1.77E-02	3.25E-03	3.21E-03	7.31E-03	3.33E-03		3.51E-02	2.30E-02	8.56E-03	3.26E-03	1.49E-02	8.52E-03		3.38E-03	*120*	0	7.20E-03	1.04E-02	3.21E-03	3.51E-02	1.77E-02	3.51E-02	1.49E-02	13	87
Uranium (Ur)	$\mu g/m^3$	*1.5*	-	4.87E-05	6.98E-05	1.77E-06	8.52E-06	2.88E-05	1.48E-05		7.80E-05	4.08E-05	1.59E-05	8.61E-06	2.30E-05	1.06E-05		1.07E-05	*1.5*	0	1.83E-05	2.77E-05	1.77E-06	7.80E-05	6.98E-05	7.80E-05	2.30E-05	13	87
Vanadium (V)	$\mu g/m^3$	*2*	*1*	1.46E-03	1.53E-03	1.48E-03	1.46E-03	1.52E-03	1.51E-03		1.51E-03	1.47E-03	1.43E-03	1.48E-03	1.55E-03	1.52E-03		1.54E-03	*2*	0	1.50E-03	1.50E-03	1.43E-03	1.55E-03	1.53E-03	1.51E-03	1.55E-03	13	87
Zinc (Zn)	$\mu g/m^3$	*120*	-	5.84E-02	3.41E-02	1.62E-02	3.28E-02	1.44E-02	2.81E-02		4.73E-02	5.39E-02	1.27E-02	2.81E-02	4.72E-02	3.15E-02		2.46E-02	*120*	0	2.98E-02	3.30E-02	1.27E-02	5.84E-02	5.84E-02	5.39E-02	4.72E-02	13	87
Zirconium (Zr)	$\mu g/m^3$	*20*	-	5.85E-04	6.12E-04	5.91E-04	5.83E-04	6.09E-04	6.05E-04		6.05E-04	5.89E-04	5.70E-04	5.93E-04	6.21E-04	6.08E-04		6.15E-04	*20*	0	5.99E-04	5.99E-04	5.70E-04	6.21E-04	6.12E-04	6.05E-04	6.21E-04	13	87

Invalid

Invalid

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

APPENDIX C


NOx Zeros (Courtice Monitoring Station)
ppb
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4
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-2
-3
-4
-5
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7-Apr-21
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22-Apr-21
25-Apr-21
28-Apr-21
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13-May-21
16-May-21
19-May-21
22-May-21
25-May-21
28-May-21
31-May-21
3-Jun-21
6-Jun-21
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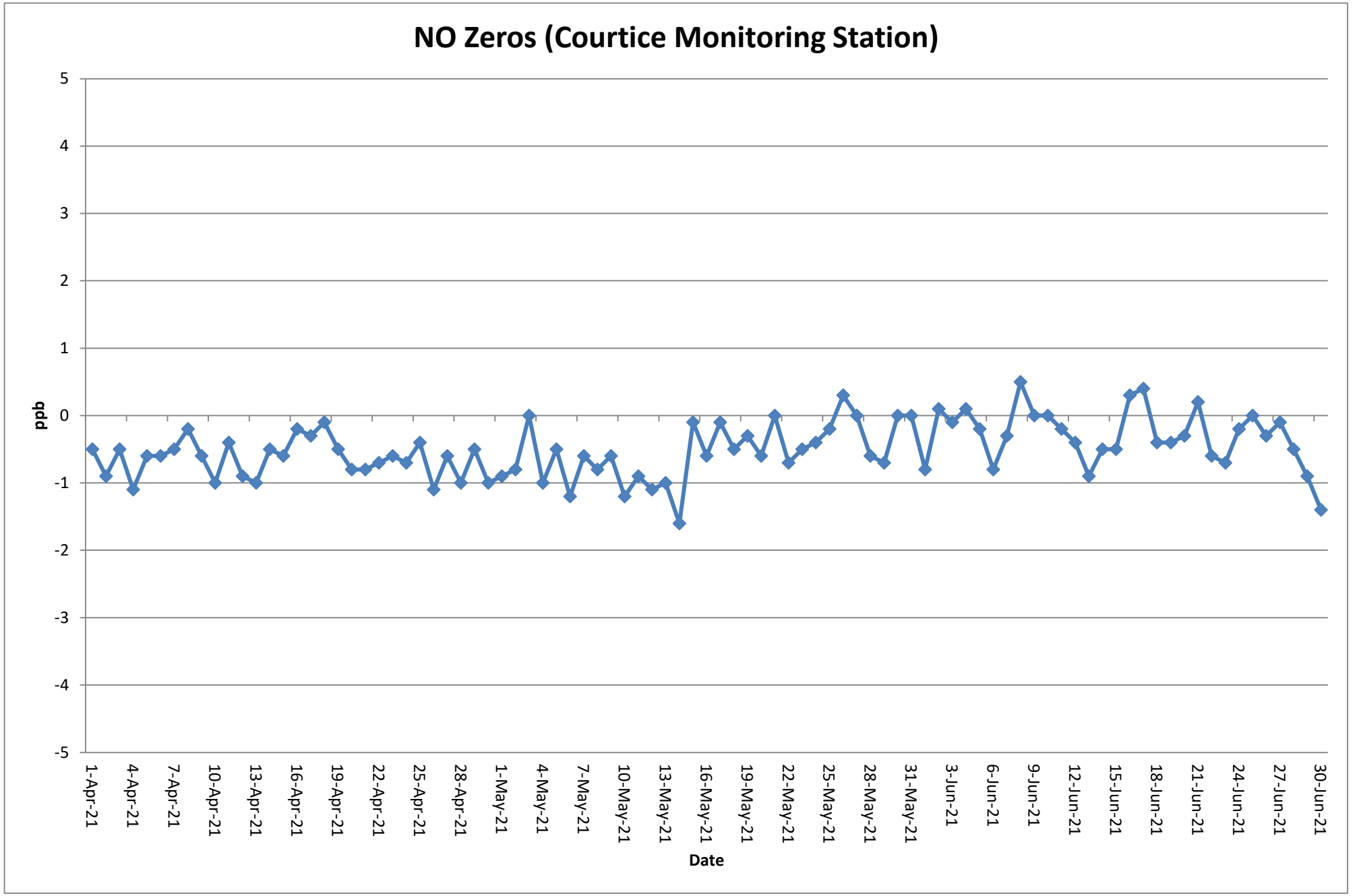
30-Jun-21
Date


NO Zeros (Courtice Monitoring Station)
ppb
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4
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2
1
0
-1
-2
-3
-4
-5
1-Apr-21
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7-Apr-21
10-Apr-21
13-Apr-21
16-Apr-21
19-Apr-21
22-Apr-21
25-Apr-21
28-Apr-21
1-May-21
4-May-21
7-May-21
10-May-21
13-May-21
16-May-21
19-May-21
22-May-21
25-May-21
28-May-21
31-May-21
3-Jun-21
6-Jun-21
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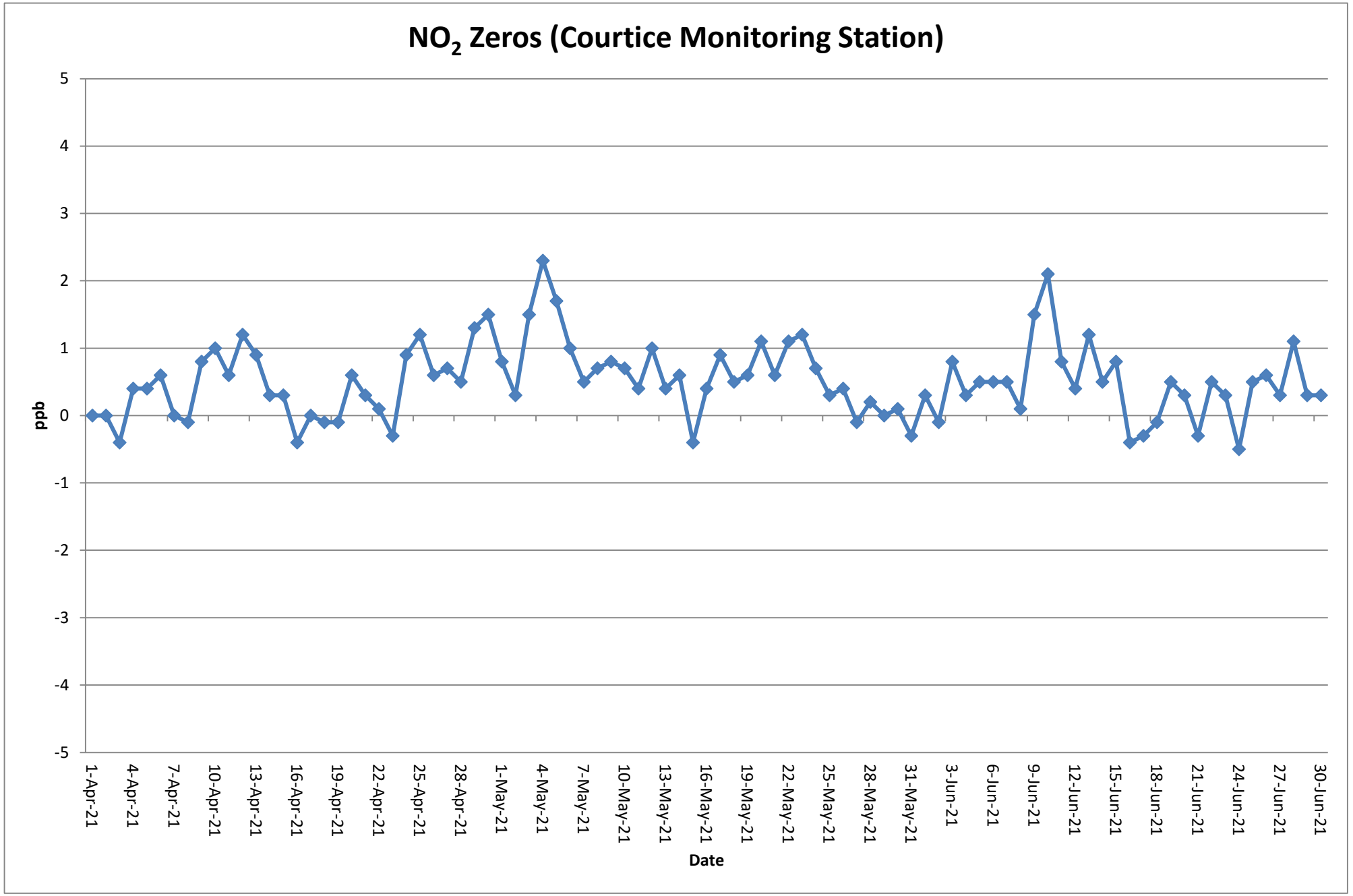
21-Jun-21
24-Jun-21
27-Jun-21
30-Jun-21
Date


NO2 Zeros (Courtice Monitoring Station)
ppb
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2
1
0
-1
-2
-3
-4
-5
1-Apr-21
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10-Apr-21
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16-Apr-21
19-Apr-21
22-Apr-21
25-Apr-21
28-Apr-21
1-May-21
4-May-21
7-May-21
10-May-21
13-May-21
16-May-21
19-May-21
22-May-21
25-May-21
28-May-21
31-May-21
3-Jun-21
6-Jun-21
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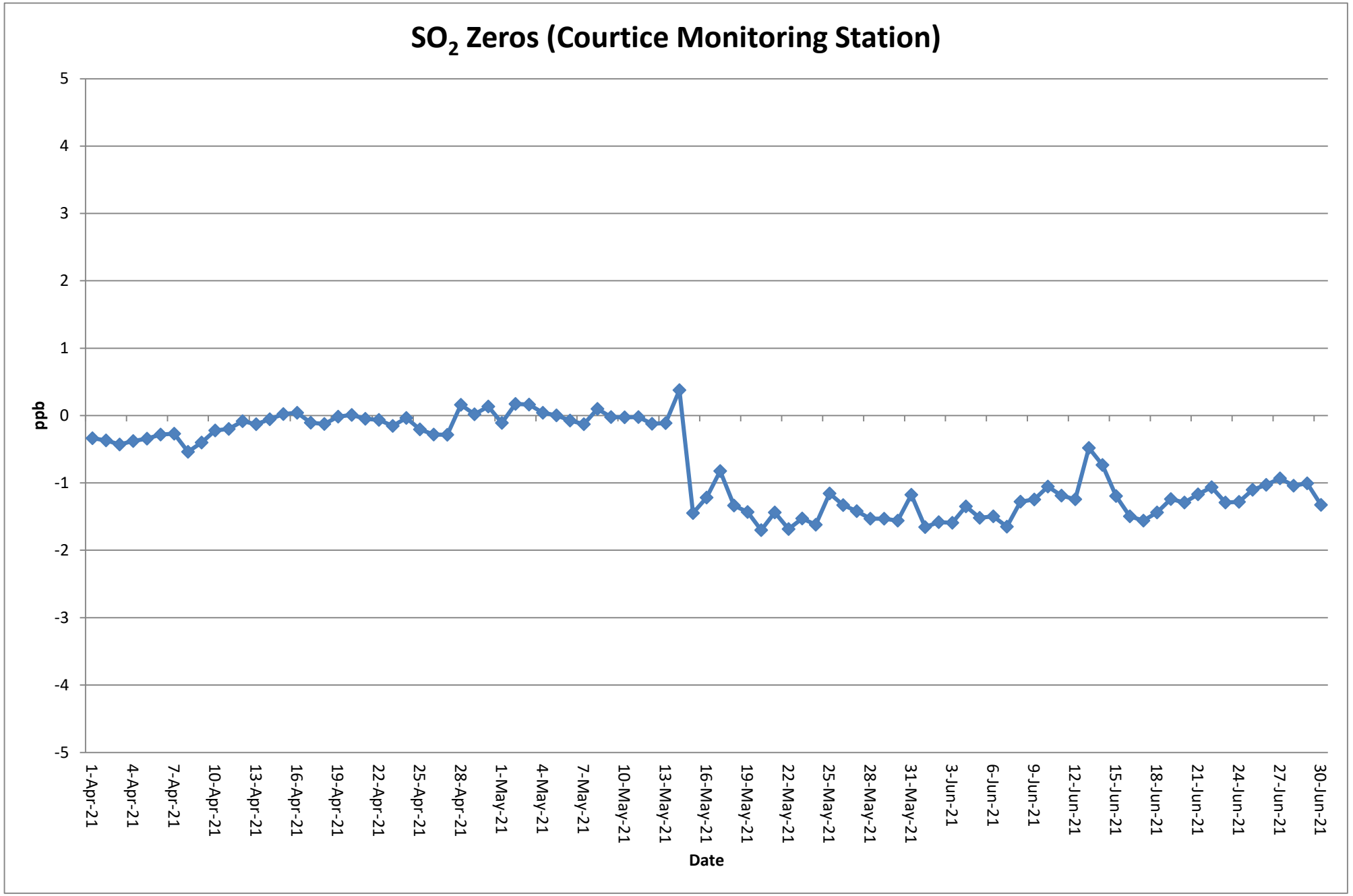
24-Jun-21
27-Jun-21
30-Jun-21
Date


SO2 Zeros (Courtice Monitoring Station)
ppb
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-1
-2
-3
-4
-5
1-Apr-21
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7-May-21
10-May-21
13-May-21
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22-May-21
25-May-21
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3-Jun-21
6-Jun-21
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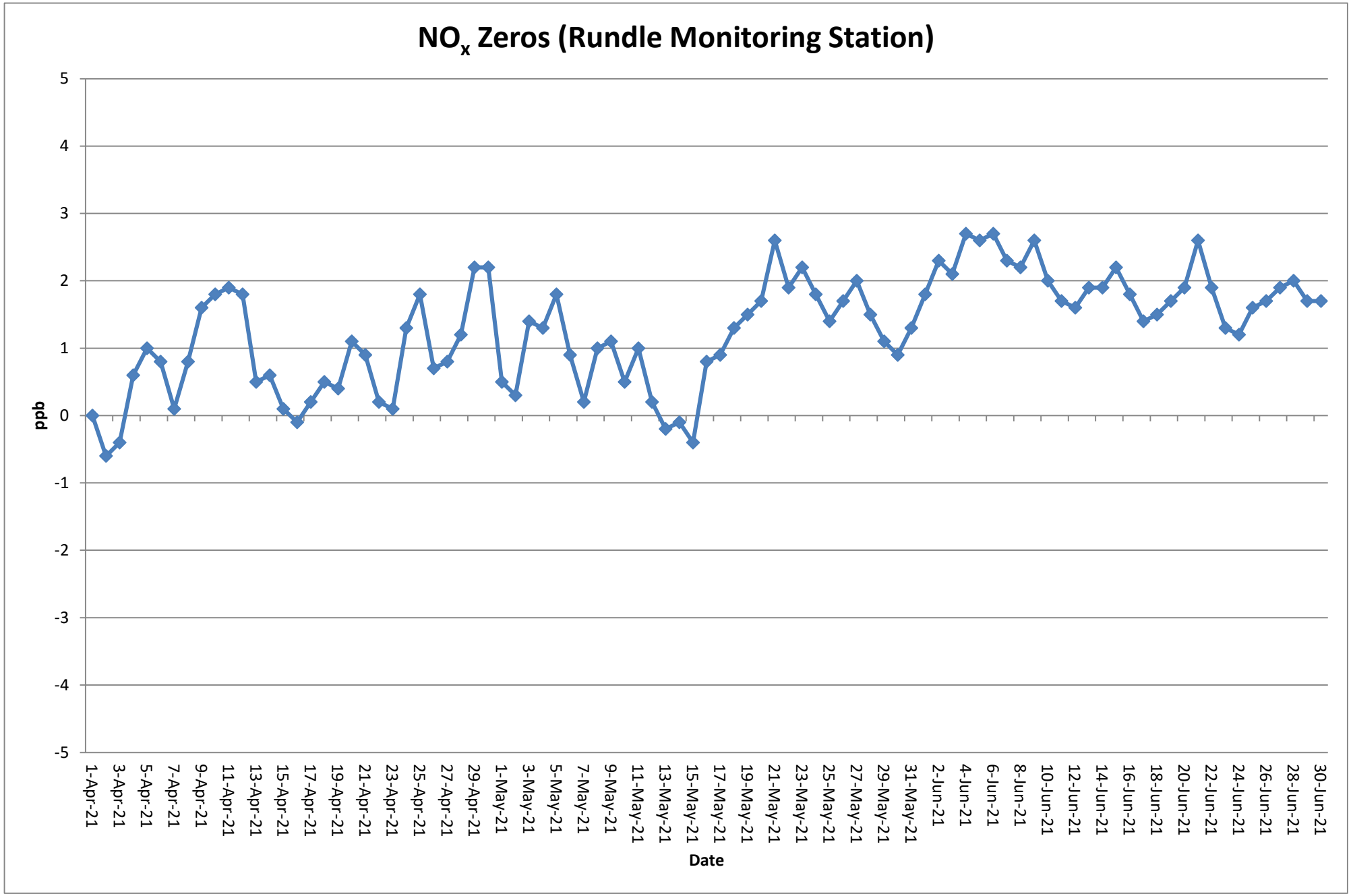
Date


NOx Zeros (Rundle Monitoring Station)
ppb
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4
3
2
1
0
-1
-2
-3
-4
-5
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3-Apr-21
5-Apr-21
7-Apr-21
9-Apr-21
11-Apr-21
13-Apr-21
15-Apr-21
17-Apr-21
19-Apr-21
21-Apr-21
23-Apr-21
25-Apr-21
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29-Apr-21
1-May-21
3-May-21
5-May-21
7-May-21
9-May-21
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17-May-21
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21-May-21
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25-May-21
27-May-21
29-May-21
31-May-21
2-Jun-21
4-Jun-21
6-Jun-21
8-Jun-21
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12-Jun-21
14-Jun-21
16-Jun-21
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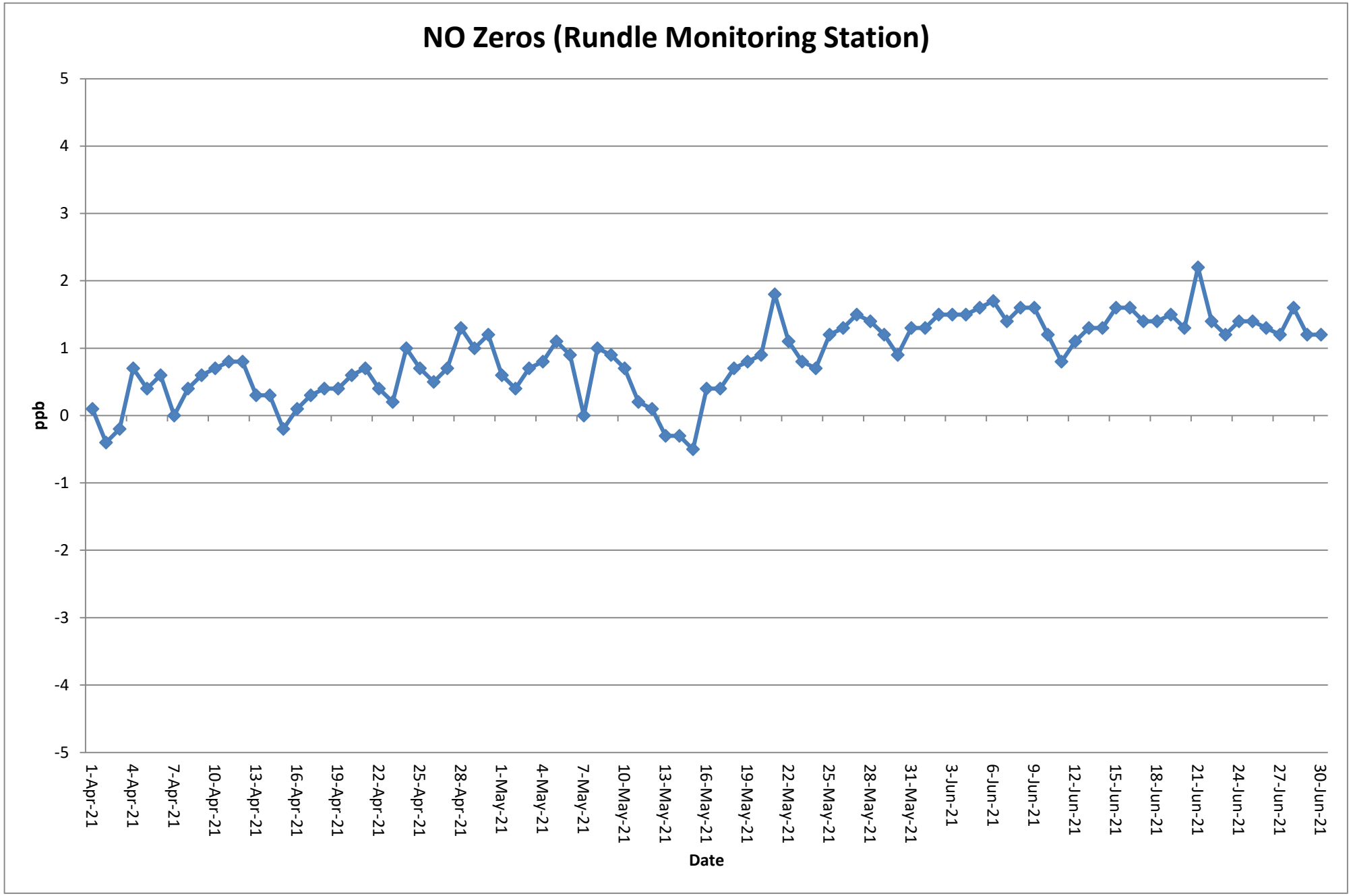
22-Jun-21
24-Jun-21
26-Jun-21
28-Jun-21
30-Jun-21
Date


NO Zeros (Rundle Monitoring Station)
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4
3
2
1
0
-1
-2
-3
-4
-5
1-Apr-21
4-Apr-21
7-Apr-21
10-Apr-21
13-Apr-21
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22-Apr-21
25-Apr-21
28-Apr-21
1-May-21
4-May-21
7-May-21
10-May-21
13-May-21
16-May-21
19-May-21
22-May-21
25-May-21
28-May-21
31-May-21
3-Jun-21
6-Jun-21
9-Jun-21
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15-Jun-21
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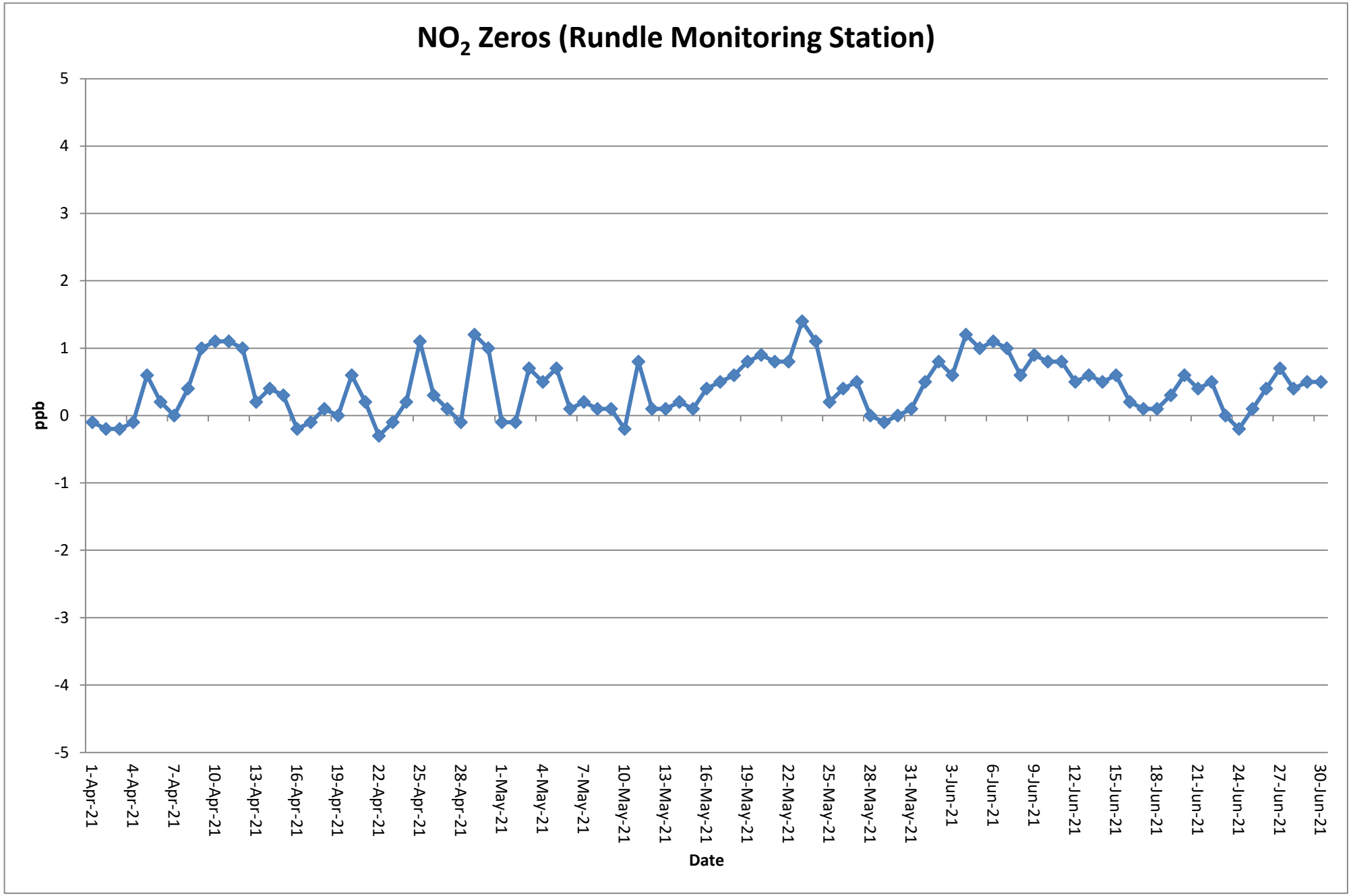
27-Jun-21
30-Jun-21
Date


NO2 Zeros (Rundle Monitoring Station)
ppb
5
4
3
2
1
0
-1
-2
-3
-4
-5
1-Apr-21
4-Apr-21
7-Apr-21
10-Apr-21
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6-Jun-21
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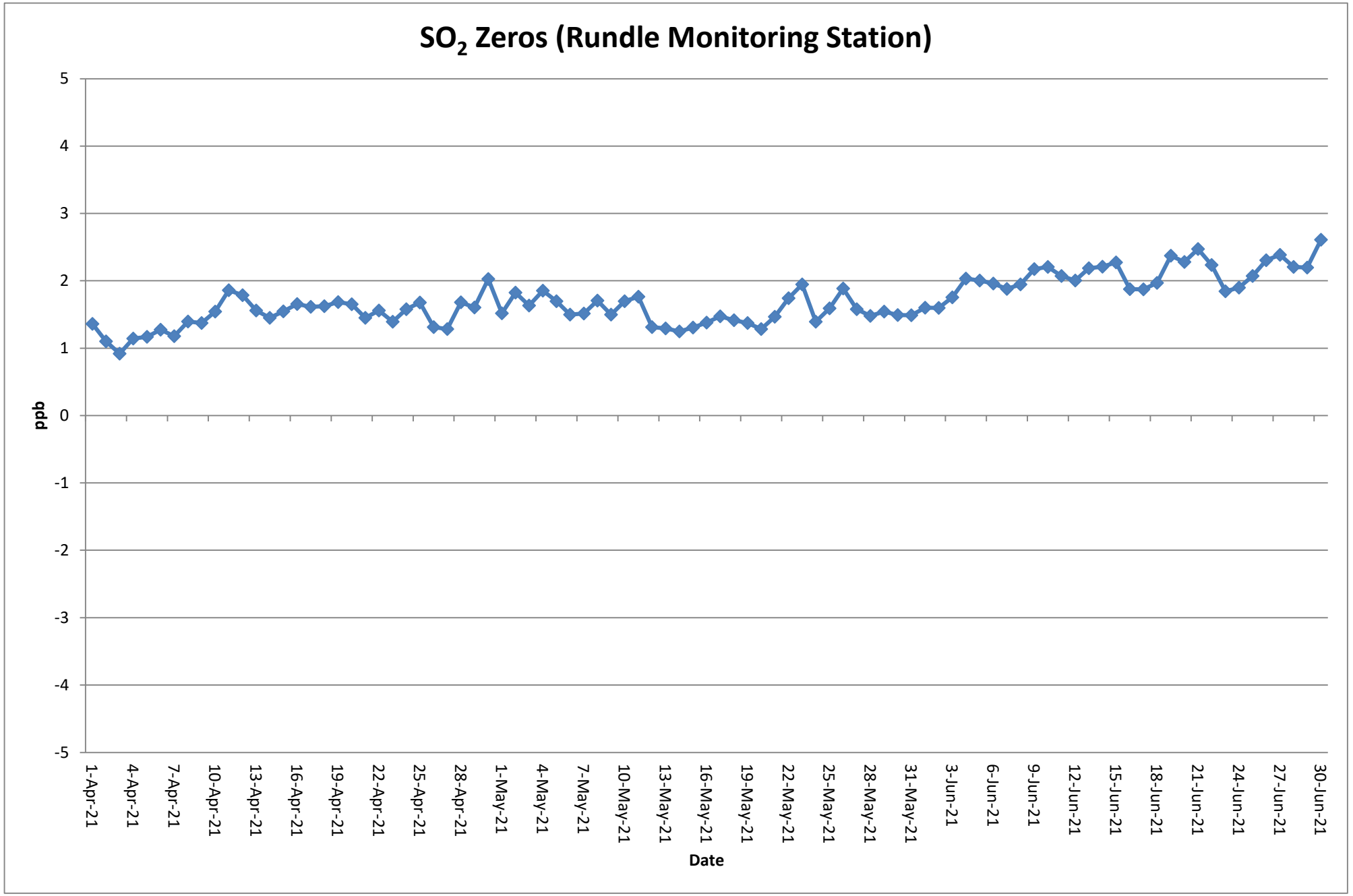
Date


SO2 Zeros (Rundle Monitoring Station)
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-1
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-4
-5
1-Apr-21
4-Apr-21
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3-Jun-21
6-Jun-21
9-Jun-21
12-Jun-21
15-Jun-21
18-Jun-21
21-Jun-21
24-Jun-21
27-Jun-21
30-Jun-21
Date

APPENDIX D

Table D1: Q2 Edit Log for $PM_{2.5}$ at Courtice Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404-0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45201				**Station Name:** Courtice Station					
Station Address: 100 Osbourne Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: $PM_{2.5}$			**Instrument Make & Model:** Thermo Scientific Model 5030 SHARP Monitor					**s/n:** E-1563	
Data Edit Period		Start Date: April 1, 2021		End Date: June 30, 2021			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	23/04/2021	SRS	Deleted Hours	23/04/2021	13:00	23/04/2021	16:00	1	Monthly Calibration
2	14/05/2021	SRS	Deleted Hours	14/05/2021	17:00	14/05/2021	18:00	1	Monthly Calibration
3	09/06/2021	MPA	Deleted Hours	11/05/2021	12:00	11/05/2021	22:00	10	Analyzer Stabalization after Power Failure
4	10/06/2021	MPA	Zero correction	01/05/2021	00:00	01/06/2021	0:00	-	Correcting values <0 to 0
5	30/06/2021	SRS	Deleted Hours	30/06/2021	15:00	30/06/2021	16:00	1	Monthly Calibration
6	12/07/2021	MPA	Zero correction	01/06/2021	00:00	01/07/2021	0:00	-	Correcting values <0 to 0

Table D2: Q2 Edit Log for $PM_{2.5}$ at Rundle Road Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller	**Phone:** (905) 404 0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca					
Station Number: 45200			**Station Name:** Rundle Road Station						
Station Address: Rundle Road			**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON						
Pollutants or Parameter: $PM_{2.5}$		**Instrument Make & Model:** Thermo Scientific Model 5030 SHARP Monitor					**s/n:** E-1569		
Data Edit Period	Start Date: April 1, 2021		End Date: June 30, 2021			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	23/04/2021	SRS	Deleted Hours	23/04/2021	16:00	23/04/2021	17:00	1	Monthly Calibration
2	11/05/2021	MPA	Zero correction	01/04/2021	00:00	01/05/2021	0:00	-	Correcting values <0 to 0
3	14/05/2021	SRS	Deleted Hours	14/05/2021	12:00	14/05/2021	13:00	1	Monthly Calibration
4	10/06/2021	MPA	Deleted Hours	10/05/2021	03:00	10/05/2021	08:00	5	Power Failure
5	30/06/2021	SRS	Deleted Hours	30/06/2021	13:00	30/06/2021	15:00	2	Monthly Calibration
6	10/06/2021	MPA	Zero correction	01/05/2021	00:00	01/06/2021	0:00	-	Correcting values <0 to 0

Table D3: Q2 Edit Log for NO_X at Courtice Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404 0888 ext 4107			**Email:** Lyndsay.Waller@Durham.ca			
Station Number: 45201				**Station Name:** Courtice Station					
Station Address: 100 Osbourne Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: NOx			**Instrument Make & Model:** Teledyne Nitrogen Oxide Analyzer Model T200						**s/n:** 675
Data Edit Period		Start Date: April 1, 2021		End Date: June 30, 2021		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	23/04/2021	SRS	Deleted Hours	23/04/2021	11:00	23/04/2021	13:00	2	Monthly Calibration
2	11/05/2021	MPA	Zero correction	01/04/2021	00:00	01/05/2021	0:00	-	Correcting values <0 to 0
3	14/05/2021	SRS	Deleted Hours	14/05/2021	10:00	14/05/2021	14:00	4	Monthly Calibration and GPT
4	10/06/2021	MPA	Zero correction	01/05/2021	00:00	01/06/2021	0:00	-	Correcting values <0 to 0
5	29/06/2021	SRS	Deleted Hours	29/06/2021	12:00	29/06/2021	15:00	3	Monthly Calibration
6	12/07/2021	MPA	Zero correction	01/06/2021	00:00	01/07/2021	0:00	-	Correcting values <0 to 0

Table D4: Q2 Edit Log for NO_X at Rundle Road Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404 0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45200				**Station Name:** Rundle Road Station					
Station Address: Rundle Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: NOx			**Instrument Make & Model:** Teledyne Nitrogen Oxide Analyzer Model T200						**s/n:** 676
Data Edit Period		Start Date: April 1, 2021		End Date: June 30, 2021			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	23/04/2021	SRS	Deleted Hours	23/04/2021	14:00	23/04/2021	16:00	2	Monthly Calibration
2	11/05/2021	MPA	Zero offset adjustment	28/04/2021	02:00	01/05/2021	02:00	-	Correcting zero drift
3	11/05/2021	MPA	Zero correction	01/04/2021	00:00	01/05/2021	0:00	-	Correcting values <0 to 0
4	14/05/2021	SRS	Deleted Hours	14/05/2021	10:00	14/05/2021	14:00	4	Monthly Calibration and GPT
5	10/06/2021	MPA	Deleted Hours	10/05/2021	02:00	10/05/2021	08:00	6	Power Failure
6	10/06/2021	MPA	Zero offset adjustment	14/05/2021	13:00	03/06/2021	02:00	-	Correcting zero drift
7	10/06/2021	MPA	Zero correction	01/05/2021	00:00	01/06/2021	0:00	-	Correcting values <0 to 0
8	30/06/2021	SRS	Deleted Hours	30/06/2021	11:00	30/06/2021	14:00	3	Monthly Calibration
9	14/07/2021	MPA	Zero offset adjustment	03/06/2021	02:00	30/06/2021	11:00	-	Correcting zero drift
10	14/07/2021	MPA	Zero correction	01/06/2021	00:00	01/07/2021	0:00	-	Correcting values <0 to 0

Table D5: Q2 Edit Log for SO_2 at Courtice Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404 0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45201				**Station Name:** Courtice Station					
Station Address: 100 Osbourne Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: SO_2			**Instrument Make & Model:** Teledyne Sulfur Dioxide Analyzer Model T100						**s/n:** 565
Data Edit Period		Start Date: April 1, 2021		End Date: June 30, 2021			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	23/04/2021	SRS	Deleted Hours	23/04/2021	12:00	23/04/2021	14:00	2	Monthly Calibration
2	11/05/2021	MPA	Zero correction	01/04/2021	00:00	01/05/2021	0:00	-	Correcting values <0 to 0
3	14/05/2021	SRS	Deleted Hours	14/05/2021	14:00	14/05/2021	16:00	2	Monthly Calibration
4	10/06/2021	MPA	Deleted Hours	12/05/2021	08:00	12/05/2021	09:00	1	Analyzer Stabalization after Power Failure
5	10/06/2021	MPA	Zero correction	01/05/2021	00:00	01/06/2021	0:00	-	Correcting values <0 to 0
6	29/06/2021	SRS	Deleted Hours	29/06/2021	14:00	29/06/2021	17:00	3	Monthly Calibration
7	12/07/2021	MPA	Deleted Hours	23/06/2021	17:00	23/06/2021	19:00	2	Flatline Conditions
8	12/07/2021	MPA	Zero correction	01/06/2021	00:00	01/07/2021	0:00	-	Correcting values <0 to 0

Table D6: Q2 Edit Log for SO_2 at Rundle Road Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404 0888 ext 4107			**Email:** Lyndsay.Waller@Durham.ca			
Station Number: 45200				**Station Name:** Rundle Road Station					
Station Address: Rundle Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: SO_2			**Instrument Make & Model:** Teledyne Sulfur Dioxide Analyzer Model T100						**s/n:** 566
Data Edit Period		Start Date: April 1, 2021		End Date: June 30, 2021			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	23/04/2021	SRS	Deleted Hours	23/04/2021	16:00	23/04/2021	17:00	1	Monthly Calibration
2	11/05/2021	MPA	Zero offset adjustment	29/04/2021	02:00	01/05/2021	02:00	-	Correcting zero drift
3	11/05/2021	MPA	Zero correction	01/04/2021	00:00	01/05/2021	0:00	-	Correcting values <0 to 0
4	10/06/2021	MPA	Deleted Hours	10/05/2021	02:00	10/05/2021	08:00	6	Power Failure
5	13/05/2021	SRS	Deleted Hours	13/05/2021	13:00	13/05/2021	16:00	3	Monthly Calibration and Perm Tube Replacement
6	14/05/2021	SRS	Deleted Hours	14/05/2021	10:00	14/05/2021	11:00	1	Calibration to Verify Perm Tube Replacement
7	30/06/2021	SRS	Deleted Hours	30/06/2021	13:00	30/06/2021	15:00	2	Monthly Calibration
8	12/07/2021	MPA	Zero offset adjustment	02/06/2021	02:00	30/06/2021	13:00	-	Correcting zero drift
9	12/07/2021	MPA	Zero correction	01/06/2021	00:00	01/07/2021	0:00	-	Correcting values <0 to 0

Table D7: Q2 Edit Log for Meteorological Parameters at Courtice Road Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404 0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45201				**Station Name:** Courtice Station					
Station Address: 100 Osbourne Road				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: WS, WD, Ambient T, P, RH and Rain			**Instrument Make & Model:** Miscellaneous Meterological Instrumentation					**s/n:** N/A	
Data Edit Period		Start Date: April 1, 2021		End Date: June 30, 2021			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	10/06/2021	MPA	Deleted Hours	20/05/2021	11:00	25/05/2021	0:00	109	Flatline Conditions

Table D8: Q2 Edit Log for Meteorological Parameters at Rundle Road Station

Emitter s Name: Durham York Energy Centre									
Contact	**Name:** Ms. Lyndsay Waller	**Phone:** (905) 404 0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca					
Station Number: 45200			**Station Name:** Rundle Station						
Station Address: Rundle Road			**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON						
Pollutants or Parameter: WS, WD, Ambient T, P, RH and Rain		**Instrument Make & Model:** Miscellaneous Meterological Instrumentation					**s/n:** N/A		
Data Edit Period	Start Date: April 1, 2021		End Date: June 30, 2021			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	15/06/2021	MPA	Deleted Hours	10/05/2021	03:00	10/05/2021	08:00	5	Power Failure

Table D9: Q2 Edit Log for Discrete Sampling at Courtice Station

Emitter s Name: Durham York Energy Center									
Contact	**Name:** Ms. Lyndsay Waller	**Phone:** (905) 404 0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca					
Station Number: 45201			**Station Name:** Courtice Station						
Station Address: 100 Osbourne Road			**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON						
Pollutants or Parameter: N/A		**Instrument Make & Model:** N/A					**s/n:**		
Data Edit Period	Start Date: April 1, 2021	End Date: June 30, 2021		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**	
-	-	-	-	-	-	-	-	-	-

Table D10: Q2 Edit Log for Discrete Sampling at Rundle Station

Emitter s Name: Durham York Energy Center									
Contact	**Name:** Ms. Lyndsay Waller		**Phone:** (905) 404-0888 ext 4107		**Email:** Lyndsay.Waller@Durham.ca				
Station Number: 45200				**Station Name:** Rundle Station					
Station Address: Rundle Rd				**Emitter Address:** The Region of Durham, 605 Rossland Road, Whitby, ON					
Pollutants or Parameter: N/A			**Instrument Make & Model:** N/A						**s/n:**
Data Edit Period		Start Date: April 1, 2021		End Date: June 30, 2021			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	10/06/2021	DAJH	Deleted Hours	10/05/2021	00:00	10/05/2021	24:00	24	Invalid TSP Sample on May 10: Insufficient volume sampled
2	12/07/2021	DAJH	Deleted Hours	21/06/2022	00:00	21/06/2022	24:00	24	Invalid TSP Sample on June 21: Insufficient volume sampled

APPENDIX E

Table E1. SO_2 Courtice Monitoring Station 10-min Running Average Exceedance Period on June 10, 2021

Date & Time	SO_2 5-min Avg.	SO_2 10-min Running Avg.	
EST	ppb	ppb	
10/6/2021 7:30	0	0	
10/6/2021 7:35	0	0	
10/6/2021 7:40	0.534	0.267	
10/6/2021 7:45	1.147	0.8405	
10/6/2021 7:50	0	0.5735	
10/6/2021 7:55	0	0	
10/6/2021 8:00	2.588	1.294	
10/6/2021 8:05	17.052	9.82	
10/6/2021 8:10	56.595	36.8235	
10/6/2021 8:15	89.617	73.106	1
10/6/2021 8:20	78.132	**83.8745**	
10/6/2021 8:25	9.365	43.7485	
10/6/2021 8:30	1.708	5.5365	

D, T & V	Date, Time & Exceedance Value Reported (Reported exceedance is the first running avg. value highlighted)
Max	Maximum of the Range
Min	Minimum of the Range
Faded Values	These values are not used to calculate the number of reportable exceedances
	Range of 5-minute measurements that contribute to the exceedance value reported
	Range of running average values during exceedance period
#	Exceedance number

Table E2. SO_2 Rundle Monitoring Station 10-min Running Average Exceedance Period on June 10, 2021

Date & Time	SO_2 5-min Avg.	SO_2 10-min Running Avg.	
EST	ppb	ppb	
10/06/2021 15:10	26.336	24.2075	
10/06/2021 15:15	56.683	41.5095	
10/06/2021 15:20	67.791	62.237	
10/06/2021 15:25	54.623	61.207	
10/06/2021 15:30	106.612	**80.6175**	1
10/06/2021 15:35	21.219	63.9155	
10/06/2021 15:40	10.781	16	
10/06/2021 15:45	34.363	22.572	
10/06/2021 15:50	74.282	54.3225	
10/06/2021 15:55	93.979	84.1305	2
10/06/2021 16:00	89.678	**91.8285**	
10/06/2021 16:05	95.411	**92.5445**	3
10/06/2021 16:10	73.615	84.513	
10/06/2021 16:15	80.767	**77.191**	4
10/06/2021 16:20	72.791	76.779	
10/06/2021 16:25	67.738	**70.2645**	5
10/06/2021 16:30	31.36	49.549	
10/06/2021 16:35	51.396	41.378	
10/06/2021 16:40	57.896	54.646	

D, T & V	Date, Time & Exceedance Value Reported (Reported exceedance is the first running avg. value highlighted)
Max	Maximum of the Range
Min	Minimum of the Range
Faded Values	These values are not used to calculate the number of reportable exceedances
	Range of 5-minute measurements that contribute to the exceedance value reported
}	Range of running average values during exceedance period
#	Exceedance number

Table E3. SO_2 Rundle Monitoring Station 10-min Running Average Exceedance Period on June 11, 2021

Date & Time	SO_2 5-min Avg.	SO_2 10-min Running Avg.	
EST	ppb	ppb	
11/06/2021 13:40	14.861	16.7355	
11/06/2021 13:45	18.229	16.545	
11/06/2021 13:50	15.394	16.8115	
11/06/2021 13:55	17.017	16.2055	
11/06/2021 14:00	94.675	55.846	
11/06/2021 14:05	98.813	**96.744**	6
11/06/2021 14:10	81.536	90.1745	
11/06/2021 14:15	91.85	**86.693**	7
11/06/2021 14:20	47.823	69.8365	
11/06/2021 14:25	38.855	43.339	
11/06/2021 14:30	22.096	30.4755	
11/06/2021 14:35	12.539	17.3175	

D, T & V	Date, Time & Exceedance Value Reported (Reported exceedance is the first running avg. value highlighted)
Max	Maximum of the Range
Min	Minimum of the Range
Faded Values	These values are not used to calculate the number of reportable exceedances
	Range of 5-minute measurements that contribute to the exceedance value reported
}	Range of running average values during exceedance period
#	Exceedance number

Table E4. SO_2 Courtice Monitoring Station 1-Hour Running Average Exceedance Period on June 11, 2021

Date & Time	SO_2 5-min Avg.	SO_2 1-hr Running Avg.
EST	ppb	ppb
11/06/2021 07:00	8.48	5.37
11/06/2021 07:05	15.63	6.41
11/06/2021 07:10	6.52	6.85
11/06/2021 07:15	1.63	6.93
11/06/2021 07:20	0.81	6.91
11/06/2021 07:25	41.89	10.37
11/06/2021 07:30	35.16	13.29
11/06/2021 07:35	59.75	18.26
11/06/2021 07:40	28.74	20.04
11/06/2021 07:45	78.03	24.48
11/06/2021 07:50	34.08	26.34
11/06/2021 07:55	17.75	27.37
11/06/2021 08:00	43.26	30.27
11/06/2021 08:05	54.75	33.53
11/06/2021 08:10	60.12	38.00
11/06/2021 08:15	53.88	42.35
11/06/2021 08:20	46.16	46.13
11/06/2021 08:25	42.69	**46.20**
11/06/2021 08:30	30.91	45.84
11/06/2021 08:35	39.82	44.18
11/06/2021 08:40	45.12	45.55
11/06/2021 08:45	14.78	40.28
11/06/2021 08:50	4.42	37.80
11/06/2021 08:55	3.33	36.60
11/06/2021 09:00	2.44	33.20
11/06/2021 09:05	2.25	28.83
11/06/2021 09:10	28.61	26.20
11/06/2021 09:15	15.18	22.98
11/06/2021 09:20	4.72	19.52

1

D, T & V	Date, Time & Exceedance Value Reported (Reported exceedance is the first running avg. value highlighted)
Max	Maximum of the Range
Min	Minimum of the Range
Faded Values	These values are not used to calculate the number of reportable exceedances
	Range of 5-minute measurements that contribute to the exceedance value reported
}	Range of running average values during exceedance period
#	Exceedance number

Table E5. SO_2 Rundle Road Monitoring Station 1-Hour Running Average Exceedance Periods on June 10, 2021

Date & Time	SO_2 5-min Avg.	SO_2 1-hr Running Avg.
EST	ppb	ppb
10/06/2021 15:00	3.16	6.20
10/06/2021 15:05	22.08	6.25
10/06/2021 15:10	26.34	7.12
10/06/2021 15:15	56.68	10.65
10/06/2021 15:20	67.79	15.77
10/06/2021 15:25	54.62	20.09
10/06/2021 15:30	106.61	28.80
10/06/2021 15:35	21.22	30.41
10/06/2021 15:40	10.78	31.17
10/06/2021 15:45	34.36	33.92
10/06/2021 15:50	74.28	39.97
10/06/2021 15:55	93.98	47.66
10/06/2021 16:00	89.68	54.87
10/06/2021 16:05	95.41	60.98
10/06/2021 16:10	73.62	64.92
10/06/2021 16:15	80.77	66.93
10/06/2021 16:20	72.79	67.34
10/06/2021 16:25	67.74	68.44
10/06/2021 16:30	31.36	62.17
10/06/2021 16:35	51.40	64.68
10/06/2021 16:40	57.90	68.61
10/06/2021 16:45	57.52	**70.54**
10/06/2021 16:50	35.83	67.33
10/06/2021 16:55	33.15	**62.26**
10/06/2021 17:00	21.70	56.60
10/06/2021 17:05	21.95	50.48
10/06/2021 17:10	17.45	45.80
10/06/2021 17:15	11.28	40.01
10/06/2021 17:20	7.08	34.53
10/06/2021 17:25	4.85	29.29
10/06/2021 17:30	3.78	26.99
10/06/2021 17:35	2.97	22.96
10/06/2021 17:40	2.69	18.36
10/06/2021 17:45	2.03	13.73
10/06/2021 17:50	1.77	10.89
10/06/2021 17:55	1.77	8.28
10/06/2021 18:00	1.47	6.59
10/06/2021 18:05	2.08	4.94
10/06/2021 18:10	2.60	3.70
10/06/2021 18:15	1.70	2.90
10/06/2021 18:20	1.75	2.46

D, T & V	Date, Time & Exceedance Value Reported (Reported exceedance is the first running avg. value highlighted)
Max	Maximum of the Range
Min	Minimum of the Range
Faded Values	These values are not used to calculate the number of reportable exceedances
	Range of 5-minute measurements that contribute to the exceedance value reported
}	Range of running average values during exceedance period
#	Exceedance number

Table E6. SO_2 Rundle Road Monitoring Station 1-Hour Running Average Exceedance Period on June 11, 2021

Date & Time	SO_2 5-min Avg.	SO_2 1-hr Running Avg.
EST	ppb	ppb
11/06/2021 13:10	0.50	0.36
11/06/2021 13:15	3.97	0.67
11/06/2021 13:20	60.47	5.69
11/06/2021 13:25	32.56	8.38
11/06/2021 13:30	29.08	10.77
11/06/2021 13:35	18.61	12.30
11/06/2021 13:40	14.86	13.51
11/06/2021 13:45	18.23	15.01
11/06/2021 13:50	15.39	16.25
11/06/2021 13:55	17.02	17.62
11/06/2021 14:00	94.68	25.48
11/06/2021 14:05	98.81	33.68
11/06/2021 14:10	81.54	40.43
11/06/2021 14:15	91.85	**47.76**
11/06/2021 14:20	47.82	46.70
11/06/2021 14:25	38.86	47.23
11/06/2021 14:30	22.10	46.65
11/06/2021 14:35	12.54	46.14
11/06/2021 14:40	10.42	45.77
11/06/2021 14:45	8.06	44.92
11/06/2021 14:50	7.96	44.30
11/06/2021 14:55	11.14	43.81
11/06/2021 15:00	14.46	37.13
11/06/2021 15:05	10.63	29.78
11/06/2021 15:10	11.52	23.95
11/06/2021 15:15	6.94	16.87
11/06/2021 15:20	5.49	13.34
11/06/2021 15:25	5.05	10.53
11/06/2021 15:30	4.02	9.02

3

D, T & V	Date, Time & Exceedance Value Reported (Reported exceedance is the first running avg. value highlighted)
Max	Maximum of the Range
Min	Minimum of the Range
Faded Values	These values are not used to calculate the number of reportable exceedances
	Range of 5-minute measurements that contribute to the exceedance value reported
	Range of running average values during exceedance period
#	Exceedance number

APPENDIX F

Technical Memorandum

Date: August 5, 2021

To: Claire Finoro, Project Manager, RWDI

From: Gioseph Anello, Director, Waste Management Services, Durham Region

Copy: L. McDowell, Director, Environmental Protection and Promotion Region, York Region

Subject: Durham York Energy Centre (DYEC)
2021 Ambient Air Q2 Sulphur Dioxide Emissions

In support of the 2021, Q2 Ambient Air Quality Monitoring Report prepared by RWDI Inc., the following information is provided in relation to the performance of the DYEC during the periods of elevated sulphur dioxide (SO_2) concentrations observed at the facility's Courtice and Rundle ambient air monitoring stations.

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

According to the DYEC's continuous emissions monitoring system (CEMS), SO_2 stack concentrations were recorded at 0 mg/m^3 throughout the days on June 10 and June 11 in Q2 2021 when ambient SO_2 standards were exceeded. At these measured in-stack concentration levels, the facility's contribution to ambient air quality would be expected to be less than 1% of the new standard.

On June 10 and 11, 2021 instances where the Courtice station experienced an exceedance which occurred between the hours of 8AM to 9AM and 7AM to 9AM respectively, the wind was found to be originating from the ESE direction. The DYEC is situated NE-ENE from the Courtice station. During the time of the exceedance, the DYEC was operational and the reported SO_2 CEMS in stack concentrations recorded 0 mg/Rm^3.

The exceedances at the Rundle station occurred between the hours of 1PM and 6PM on both June 10 and June 11, 2021. The Rundle station meteorological data recorded the wind direction as originating from an ENE direction during the times the exceedances at Rundle station were recorded. Both the Rundle station and the DYEC were situated downwind during the times the exceedances occurred.

Considering both the wind direction and the SO_2 concentrations measured in the stack, it is unlikely that the DYEC contributed to elevated ambient SO_2 concentrations during these periods. It is more likely that ambient concentrations were attributable to other activities.