

DURHAM YORK ENERGY CENTRE

COURTICE, ONTARIO

2022 Q3 AMBIENT AIR QUALITY MONITORING REPORT

RWDI #2205149

November 11, 2022

SUBMITTED TO:

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1 INTRODUCTION

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

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

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

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

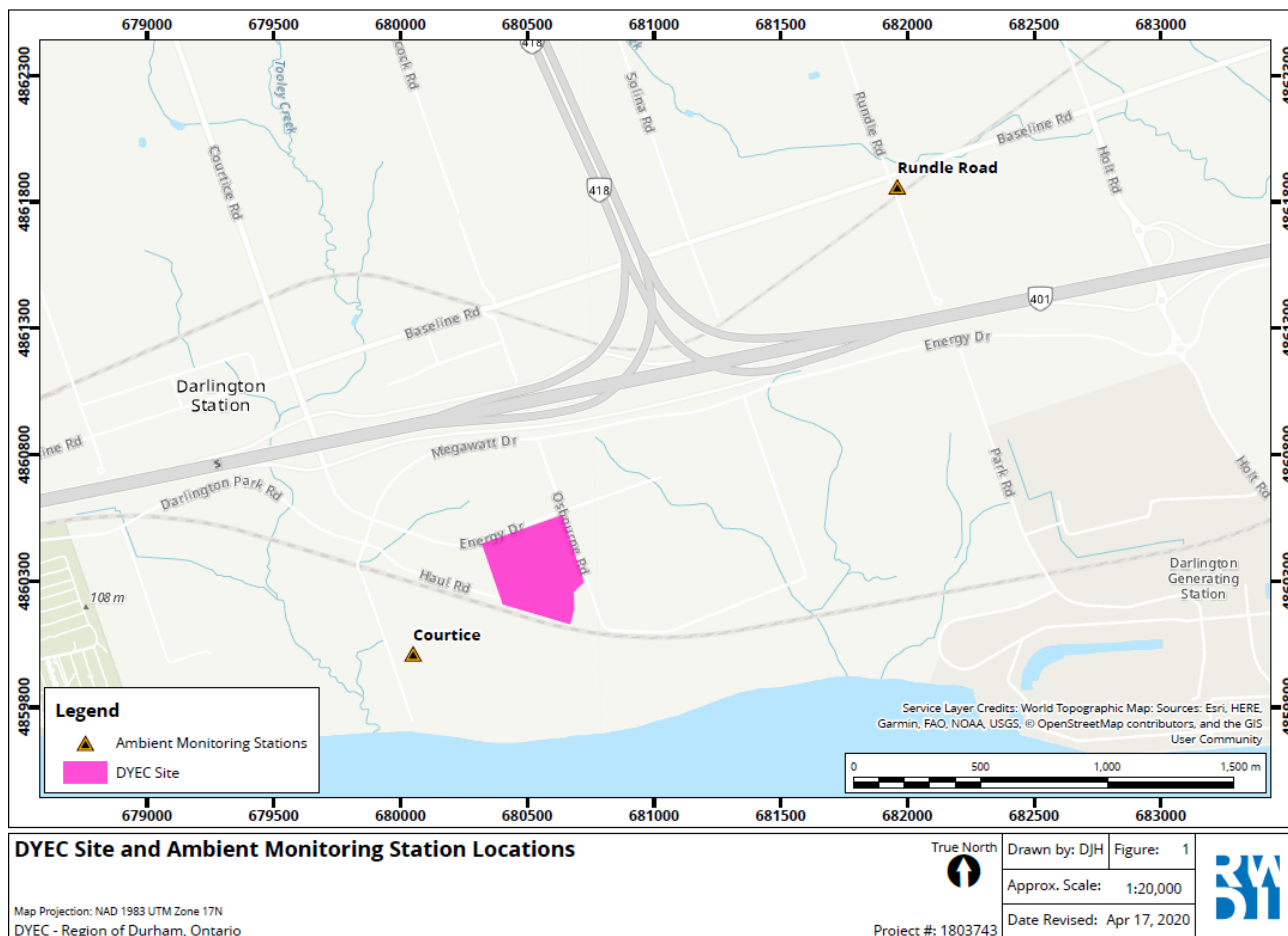
The facility has two (2) monitoring stations which collect continuous and discrete ambient measurements, known as the Courtice Station and Rundle Road Station. The station locations are shown in Figure 1. The Courtice and Rundle Road Stations were operational in May of 2013 and have been operated on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

The Courtice and Rundle Road Stations continuously monitor the following air quality parameters: Particulate Matter less than 2.5 microns (PM_{2.5}), Nitrogen Oxides (NO_x) and Sulfur Dioxide (SO₂). In addition, both discretely monitor the following air quality parameters: Total Suspended Particulate (TSP), Metals, Dioxins and Furans (D&F) and Polycyclic Aromatic Hydrocarbons (PAHs).

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

Throughout this monitoring period there were thirty-six (36) exceedance events of the rolling 10-minute SO₂ AAQC and fifteen (15) exceedance events of the rolling 1-hour SO₂ AAQC at the Courtice station. Throughout this monitoring period there was one (1) exceedance event of the rolling 1-hour SO₂ AAQC at the Rundle Road station. There was one (1) exceedance of the TSP AAQC, which occurred on July 22nd at the Rundle Road Station. Data recovery rates were acceptable and valid for all measured Q3 continuous and discrete parameters.

Figure 1. DYEC Site and Ambient Monitoring Station Locations



1.1 Sampling Locations

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

Figure 2. Rundle Road Station



Figure 3. Courtice Station



2 SAMPLING METHODOLOGY

The Rundle Road and Courtice Stations are both equipped with the following continuous monitors: Thermo Scientific Model 5030 SHARP (Synchronized Hybrid Ambient Real-time Particulate) monitor (PM_{2.5} analyzer), Teledyne Nitrogen Oxides Analyzer Model T200 (NO_x analyzer), and a Teledyne Sulfur Dioxide Analyzer Model T100 (SO₂ 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 NO₂), and nitrogen dioxide (NO₂). The amount of NO is measured by detecting the chemiluminescence reaction that occurs in the reaction cell when NO molecules are exposed to ozone (O₃). The NO and O₃ 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+NO₂) measurement, sample gas is periodically bypassed through a heated molybdenum converter cartridge that converts any NO₂ 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 NO₂ producing a NO_x measurement. The resultant NO₂ 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 (SO₂) Analyzer is a microprocessor-controlled analyzer that determines the concentration of SO₂ in a sample gas drawn through the instrument. In the sample chamber, sample gas is excited by ultraviolet light causing the SO₂ to absorb energy from the light and move to an active state (SO₂*). These active SO₂* molecules must decay into a stable state back to SO₂, and when this happens a photon of light is released which is recognized by the instrument as fluorescence. The instrument measures the amount of fluorescence to determine the amount of SO₂ present in the sample gas.

The SO₂ 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/m³ for the 3-year average of annual 98th percentile 24-hour concentration, and 8.8 µg/m³ 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}, SO₂ and NO₂ 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 98 th percentile of the daily 24-hour average concentrations
		µg/m ³		
	Annual	8.8		The 3-year average of the annual average of all 1-hour concentrations
		µg/m ³		
Sulphur Dioxide (SO ₂)	1-hour	70	65	The 3-year average of the annual 99 th 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 98 th 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 were no MECP audits conducted in Q3 of 2022.

5 SUMMARY OF AMBIENT MEASUREMENTS

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

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5.1 Meteorological Station Results

5.1.1 Courtice Station Results

The Courtice Station collected the following meteorological parameters: wind speed, wind direction, relative humidity, ambient temperature, ambient pressure and precipitation. The meteorological tower at the station is at a height of approximately 10 meters tall. The Courtice Station maintained a minimum 96.8% of data collection for all of the parameters measured during Q3. Hourly statistics from the meteorological station are presented in **Table 2**. A wind rose showing trends in wind speed and wind direction during Q3 is provided in **Figure 4**.

Figure 4. Wind Roses of Hourly Wind Speed and Wind Direction – July to September 2022

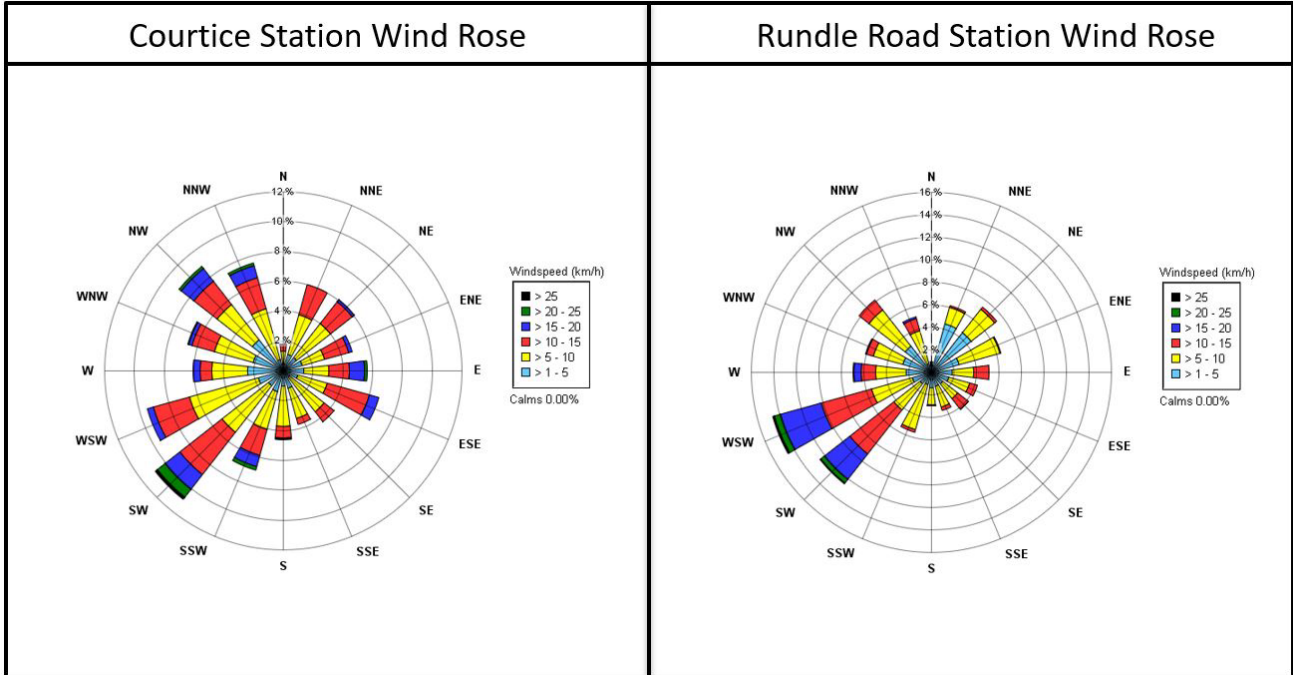




Table 2. Hourly Statistics from the Courtice Meteorological Station

Courtice Station MET Statistics	Maximum 1 hr Mean					Minimum 1 hr Mean					Monthly Mean					Total	% Valid hours					
Parameter	WS	Temp	RH	Pres	Rain	WS	Temp	RH	Pres	Rain	WS	Temp	RH	Pres	Rain	Rain	WS	WD	Temp	RH	Pres	Rain
Units	(km/hr)	(°C)	(%)	"Hg	mm	(km/hr)	(°C)	(%)	"Hg	mm	(km/hr)	(°C)	(%)	"Hg	mm	mm	(%)					
July	29.4	29.6	100.0	29.9	7.2	0.7	12.5	27.5	29.2	0.0	7.9	20.4	70.0	29.6	0.1	46.3	100.0	95.3	100.0	100.0	100.0	100.0
August	26.5	28.5	100.0	29.9	2.4	0.8	12.2	24.9	29.4	0.0	9.0	21.4	72.5	29.7	0.0	14.1	100.0	97.6	100.0	100.0	100.0	99.9
September	28.4	24.7	100.0	30.2	8.8	0.0	4.8	35.6	29.2	0.0	9.1	16.5	74.2	29.7	0.1	40.2	100.0	97.6	100.0	100.0	100.0	100.0
Q3 Arithmetic Mean											8.7	19.5	72.2	29.7	0.0	100.6	100.0	96.8	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 94.2% data collection for all of the meteorological parameters measured during Q3. Hourly statistics from the meteorological station is presented in **Table 3**. A wind rose showing trends in wind speed and wind direction during Q3 is provided in **Figure 4**. When comparing the Rain data between the Courtice and Rundle Road Stations a difference is noted with the Rundle Road Station having higher Total Rain results throughout the quarter. A calibration was completed on both stations on August 30, 2022 that verified the Rain instruments were both operating within acceptable criteria. The Total Rain data recorded at both stations did not show any erratic values which would indicate malfunctions in the rain gauges.

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	(%)				
July	28.9	29.3	100.0	25.7	0.1	12.3	35.2	0.0	7.8	20.6	72.1	0.1	98.4	100.0	94.6	100.0	100.0	100.0
August	24.8	28.9	100.0	10.0	0.1	11.2	29.8	0.0	7.4	21.0	77.4	0.1	56.5	100.0	95.4	100.0	100.0	99.9
September	28.8	26.6	100.0	25.0	0.0	3.5	38.0	0.0	7.3	16.1	81.0	0.1	62.8	100.0	92.5	100.0	100.0	100.0
Q3 Arithmetic Mean									7.5	19.2	76.8	0.1	217.7	100.0	94.2	100.0	100.0	100.0



5.2 NO_x, SO₂ and PM_{2.5} Summary Table Results

Table 4 provides a summary of Maximum 1-hour Rolling Means, Maximum 24-hour Rolling Means, Monthly Means, Quarterly Means and Percent valid data for the Courtice Station. **Table 5** provides a summary of Maximum 1-hour Means, Maximum 24-hour Means, Monthly Means, Quarterly Means and Percent valid data for the Rundle Road Station. **Table 6** provides a summary of exceedance statistics for both Courtice and Rundle Road Stations. At the Courtice Station, there were thirty-six (36) exceedance events of the rolling 10-minute SO₂ AAQC and fifteen (15) exceedance events of the 1-hour SO₂ AAQC in Q3. At the Rundle Road Station one (1) exceedance event of the 1-hour SO₂ AAQC in Q3.

Table 4. Summary of Courtice Station Continuous Data Statistics

Courtice Monitoring Station Data Statistics	Maximum Rolling 10 min Mean	Maximum Rolling 1 hr Mean					Maximum 24 hr Rolling Mean					Monthly Mean					% Valid Hours				
Compound	SO ₂	PM _{2.5}	NO _x	NO	NO ₂	SO ₂	PM _{2.5}	NO _x	NO	NO ₂	SO ₂	PM _{2.5}	NO _x	NO	NO ₂	SO ₂	PM _{2.5}	NO _x	NO	NO ₂	SO ₂
Units	ppb	(µg/m ³)	ppb				(µg/m ³)	ppb				(µg/m ³)	ppb				(%)				
AAQC/CAAQS	67				200	40	27 ^A			100											
July	219.7	20.5	37.4	18.2	31.3	102.3	11.9	10.5	2.3	9.8	14.8	5.8	4.5	0.6	4.2	1.4	99.7	98.9	98.9	98.9	99.7
August	185.9	15.5	30.1	16.9	22.0	68.1	9.6	9.1	2.2	8.0	9.2	4.8	4.1	0.6	3.7	1.2	99.6	98.9	98.9	98.9	99.6
September	179.3	27.5	42.9	28.8	25.1	73.6	11.0	15.3	5.9	10.3	11.2	3.9	5.6	1.8	3.9	2.4	99.9	99.7	99.7	99.7	99.2
Q3 Arithmetic Mean												4.8	4.7	1.0	3.9	1.7	99.7	99.2	99.2	99.2	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	(µg/m ³)	ppb				(µg/m ³)	ppb				(µg/m ³)	ppb				(%)				
AAQC/CAAQS	67				200	40	27 ^A			100											
July	48.9	48.8	59.4	39.7	23.2	23.3	16.8	16.3	6.7	10.3	2.3	5.8	4.7	1.7	3.1	0.3	99.9	99.6	99.6	99.6	99.6
August	19.4	16.0	85.1	62.5	22.8	10.0	8.5	18.0	8.8	9.3	1.1	4.4	3.9	1.5	2.5	0.3	99.7	99.7	99.7	99.7	99.6
September	64.3	17.7	25.1	13.6	17.0	46.8	10.9	9.2	2.8	6.9	4.2	3.6	3.5	1.0	2.6	0.4	99.9	99.2	99.2	99.2	99.0
Q3 Arithmetic Mean												4.6	4.1	1.4	2.7	0.4	99.8	99.5	99.5	99.5	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.		
July	21	0		0	6		0	0	N/A	0		N/A	0	
August	5	0		0	3		0	0	N/A	0		N/A	0	
September	10	0		0	6		0	1	N/A	0		N/A	0	
Q3 Total	36	0		0	15		0	1	N/A	0		N/A	0	

5.3 Oxides of Nitrogen Results

5.3.1 Courtice Station Results

Data recovery levels were high for oxides of nitrogen (99.2% valid data). Monitoring results were compared to the AAQC for NO₂ 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 NO₂ value seen among the 1-hour rolling averages was 31.3 ppb, which is 15.7% of the AAQC. The highest NO₂ value seen among the rolling 24-hour averages was 10.3 ppb, which is 10.3% of the AAQC. The measurements are summarized in **Table 4** above. A pollution rose is presented in **Figure 5** for the Courtice Station during Q3 composed of hourly average NO₂ 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 NO₂ impacts were largely from the north-northeast to east-northeast. The Station is downwind of the DYEC when winds are from the northeast and east-northeast directions, which happened frequently during the monitoring period, therefore it is likely that the DYEC contributed to the observed concentrations. There are additional impacts from the west to north-northwest which indicates reception from surrounding industry or the highway and railway corridors.

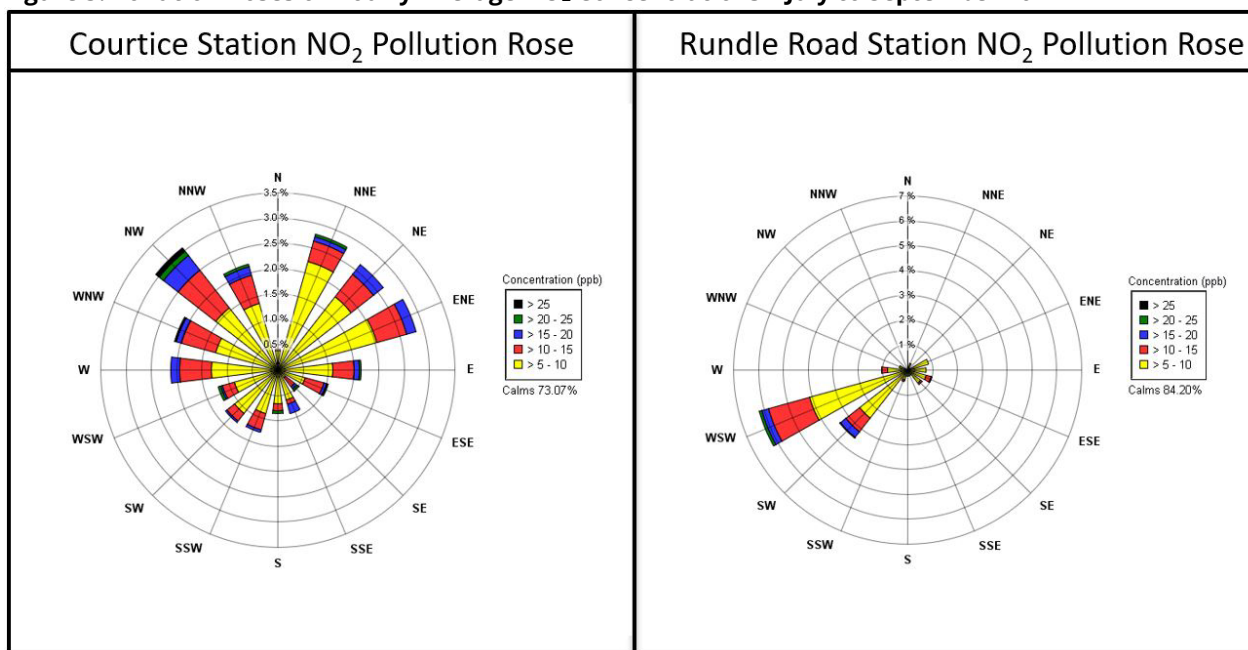
5.3.2 Rundle Road Station Results

Data recovery levels were high for oxides of nitrogen (99.5% 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 NO₂ value seen among the 1-hour rolling averages was 23.2 ppb, which is 11.6% of the AAQC. The highest NO₂ value seen among the rolling 24-hour averages was 10.3 ppb, which is 10.3% 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 Q3 composed of hourly average NO₂ 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 NO₂ events at the Rundle Road Station occurred when winds were from the southwest to west-southwest. The Station is downwind of the DYEC when winds are from the southwest and south-southwest directions, which happened occasionally during the monitoring period, therefore it is likely that the DYEC partially contributed to the observed concentrations. There are additional impacts from the west-southwest which indicates reception from surrounding industry or the highway and railway corridors.

Figure 5. Pollution Roses of Hourly Average NO₂ Concentrations – July to September 2022



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 2022, there have been more frequent SO₂ concentrations elevated above the AAQC's than in previous years due to the new limits imposed at the start of 2020. The highest SO₂ value seen among the 10-min rolling averages was 219.7 ppb, which is 327.9% of the AAQC. The highest SO₂ value seen among the 1-hour rolling averages was 102.3 ppb, which is 255.8% of the AAQC. There were thirty-six (36) exceedance events of the rolling 10-minute AAQC and fifteen (15) exceedance events of the rolling 1-hour AAQC. A table outlining the interpretation of the exceedance periods can be found in **Appendix E**.

The SO₂ statistical results are summarized in Table 4 above. A pollution rose is presented in Figure 6 for the Courtice Station during Q3 composed of hourly average SO₂ 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 Q3 composed of 5-minute average SO₂ 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 SO₂ events at Courtice occurred from the north-northeast to east-northeast directions. The events were possibly a result of emissions from surrounding industrial sources with contributions from the DYEC in the east-northeast



direction. The Courtice Station pollution rose in Figure 7 shows that <0.31% of the 5-min SO₂ events are elevated >67 ppb and occurred from the north-northwest to north-northeast directions. The pollution rose indicates that the DYEC was not a contributor to elevated SO₂ levels at the station and that the levels may be related to other industrial activity nearby.

Durham Region staff have provided a Technical Memorandum summarizing the DYEC SO₂ continuous emissions monitoring system (CEMS) data during the exceedance events recorded at the Courtice and Rundle Road Ambient Monitoring Stations for Q3, which is included in **Appendix G**. The Memorandum indicates that based on the in-stack concentration levels measured by the CEMS, that there were no unusual levels of SO₂ emissions during the ambient Station exceedance events and that the facility's impact on ambient air quality would be expected to be quite low.

5.4.2 Rundle Road Station Results

Data recovery levels were high for sulphur dioxide (99.4% valid data). Monitoring results were compared to the AAQC for 10-minute and 1-hour rolling average periods. The highest SO₂ value seen among the 10-min rolling averages was 64.3 ppb, which is 96.0% of the AAQC. The highest SO₂ value seen among the 1-hour rolling averages was 46.8 ppb, which is 117.0% of the AAQC. There was 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 SO₂ statistical results are summarized in Table 5 above. A pollution rose is presented in Figure 6 for the Rundle Road Station during Q3 composed of hourly average SO₂ 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 Q3 composed of 5-minute average SO₂ 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 SO₂ events at the Rundle Road Station occurred when winds were from the east-southeast to south-southeast. The pollution rose indicates that the DYEC was not a contributor to SO₂ levels at the station and that the levels may be related to other industrial activity nearby. The Rundle Road Station pollution rose in Figure 7 shows that there were only SO₂ concentrations >67 ppb from the east-southeast direction.

Figure 6. Pollution Roses of Hourly Average SO₂ Concentrations – July to September 2022

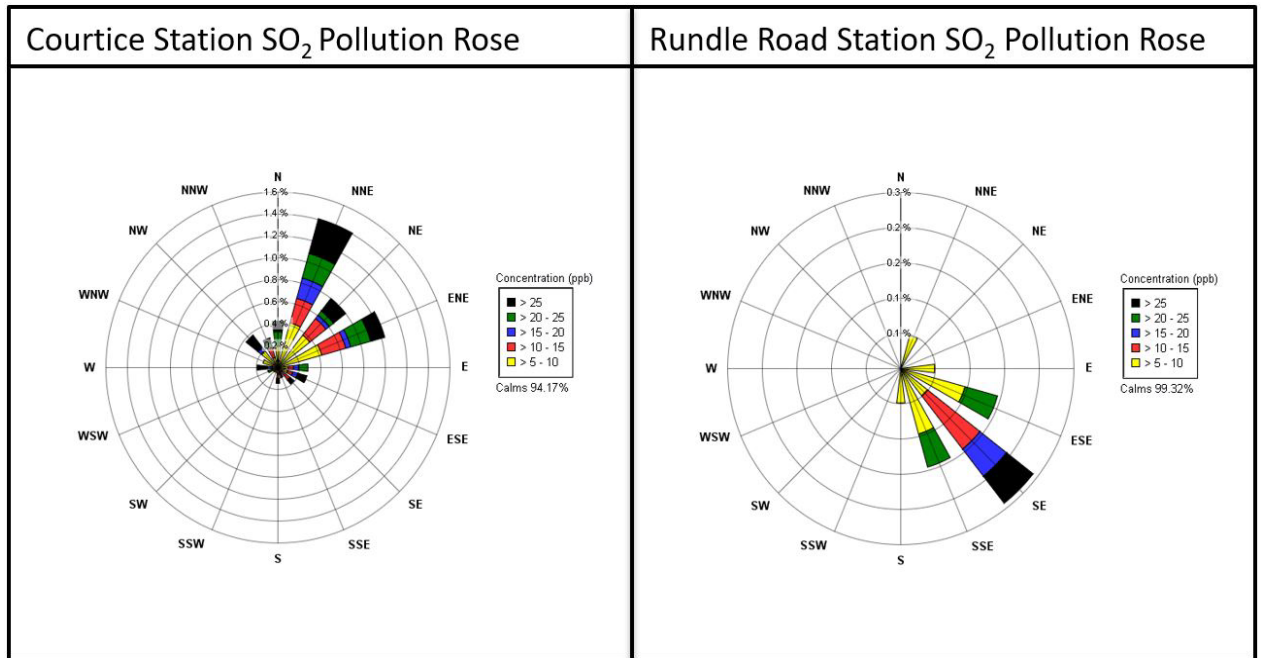
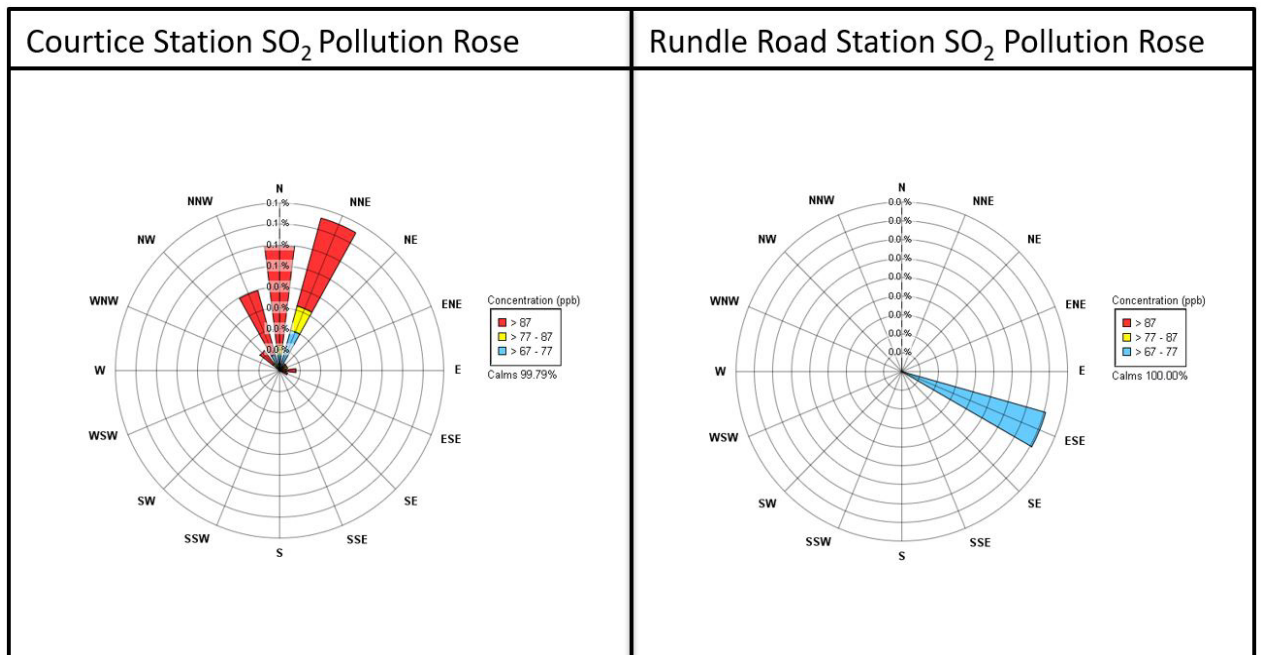


Figure 7. Pollution Roses of 5-minute Average SO₂ Concentrations >67 ppb – July to September 2022



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 (99.7% valid data). There is no 1-hour AAQC or standard for PM_{2.5}, but there is a 24-hour CAAQS of 27 µg/m³ for the 3-year average of the annual 98th percentile 24-hour concentrations, and 8.8 µg/m³ 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 27.5 µg/m³ and the highest value seen among the 24-hour rolling averages was 11.9 µg/m³. The results are summarized in **Table 4** above. A pollution rose is presented in **Figure 8** for the Courtice Station during Q3 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/m³ were omitted from the graphic wind rose representation.

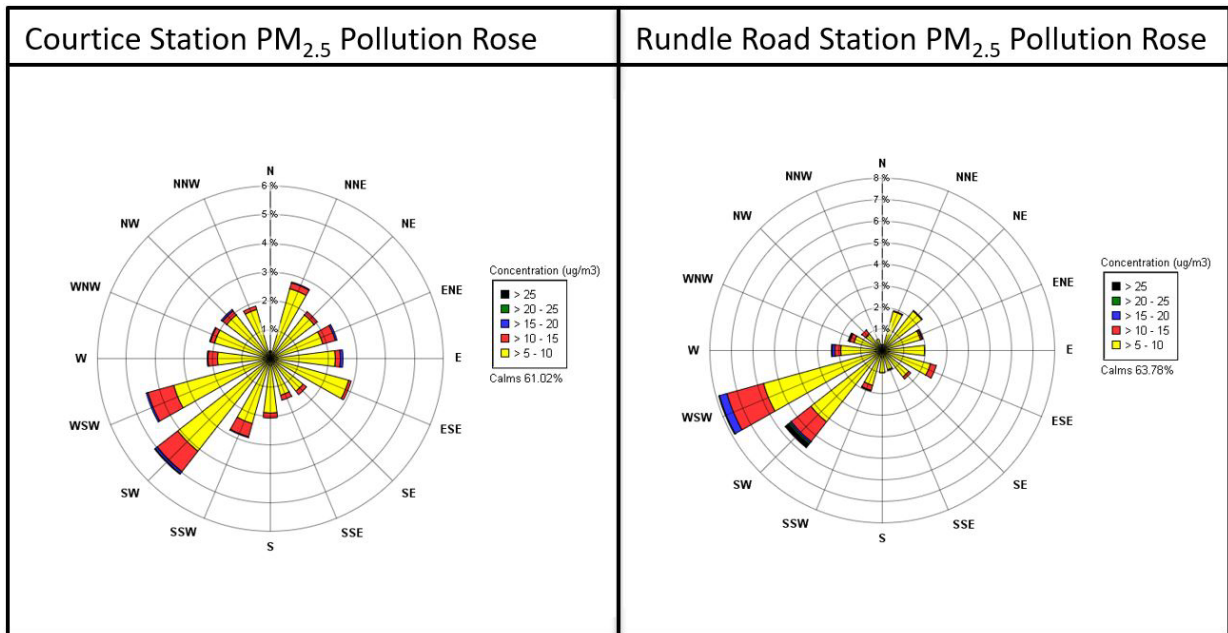
The Courtice Station pollution rose in **Figure 8** shows that the majority of elevated PM_{2.5} events at Courtice occurred when winds were from the southwest to west-southwest, which places the station downwind of the DYEC only part of the time. Other contributions are in line with nearby industrial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

5.5.2 Rundle Road Station Results

Data recovery levels were high for particulate matter less than 2.5 microns (99.8% valid data). The highest PM_{2.5} value seen among the 1-hour rolling averages was 48.8 µg/m³ and the highest value seen among the 24-hour rolling averages was 16.8 µg/m³. The results are summarized in **Table 5** above. A pollution rose is presented in **Figure 8** for the Rundle Road Station during Q3 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/m³ 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 southwest to west-southwest, which places the station downwind of the DYEC only part of the time. Other possible contributions include nearby high traffic areas and urban background.

Figure 8. Pollution Roses of Hourly Average PM_{2.5} Concentrations – July to September 2022



5.6 TSP and Metals Hi-Vol Results

All of the TSP Hi-Vols operated on a discrete schedule every 6 days according to the NAPS schedule during Q3 with the sample days being: July 4th, 10th, 16th, 22nd, 28th, August 3rd, 9th, 15th, 21st, 27th, September 2nd, 8th, 14th, 20th and 26th, 2022.

5.6.1 Courtice Station Results

Data recovery levels were moderate for the TSP sampler at the Courtice Station (80% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria for TSP, mercury or metals during Q3. **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	Q3 Minimum Concentration	Q3 Maximum Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	µg/m³	120	120	0	20.9	22.0	11.27	32.23	32.23	24.98	26.59	12	80
Total Mercury (Hg)	µg/m³	2	2	0	9.81E-06	1.05E-05	2.97E-06	1.74E-05	1.74E-05	1.40E-05	1.05E-05	12	80
Aluminum (Al)	µg/m³	4.8	-	0	1.81E-01	1.99E-01	9.08E-02	3.13E-01	2.69E-01	2.91E-01	3.13E-01	12	80
Antimony (Sb)	µg/m³	25	25	0	8.95E-04	9.99E-04	5.04E-04	2.80E-03	2.80E-03	1.24E-03	1.08E-03	12	80
Arsenic (As)	µg/m³	0.3	0.3	0	1.01E-03	1.14E-03	8.75E-04	3.83E-03	3.83E-03	9.12E-04	9.06E-04	12	80
Barium (Ba)	µg/m³	10	10	0	8.24E-03	8.76E-03	3.36E-03	1.27E-02	1.27E-02	9.77E-03	1.03E-02	12	80
Beryllium (Be)	µg/m³	0.01	0.01	0	1.60E-05	1.65E-05	1.46E-05	3.44E-05	1.55E-05	3.44E-05	1.51E-05	12	80
Bismuth (Bi)	µg/m³	-	-	-	5.37E-04	5.37E-04	5.25E-04	5.58E-04	5.58E-04	5.47E-04	5.44E-04	12	80
Boron (B)	µg/m³	120	-	0	4.74E-03	4.85E-03	4.38E-03	9.02E-03	9.02E-03	4.56E-03	4.53E-03	12	80
Cadmium (Cd)	µg/m³	0.025	0.025	0	9.00E-05	1.01E-04	3.44E-05	1.86E-04	1.86E-04	1.46E-04	7.60E-05	12	80
Chromium (Cr)	µg/m³	0.5	-	0	2.19E-03	2.33E-03	9.98E-04	3.37E-03	3.37E-03	3.04E-03	2.72E-03	12	80
Cobalt (Co)	µg/m³	0.1	0.1	0	1.44E-04	1.49E-04	8.10E-05	1.86E-04	1.86E-04	1.75E-04	1.82E-04	12	80
Copper (Cu)	µg/m³	50	-	0	3.54E-02	3.78E-02	2.17E-02	6.16E-02	6.16E-02	3.07E-02	5.69E-02	12	80
Iron (Fe)	µg/m³	4	-	0	5.11E-01	5.36E-01	2.13E-01	7.67E-01	7.67E-01	6.39E-01	6.41E-01	12	80
Lead (Pb)	µg/m³	0.5	0.5	0	1.81E-03	1.97E-03	7.06E-04	3.50E-03	3.50E-03	2.52E-03	1.57E-03	12	80
Magnesium (Mg)	µg/m³	-	-	-	2.25E-01	2.43E-01	9.63E-02	3.34E-01	3.34E-01	2.90E-01	3.21E-01	12	80
Manganese (Mn)	µg/m³	0.4	-	0	1.37E-02	1.45E-02	5.31E-03	2.19E-02	2.19E-02	1.62E-02	1.71E-02	12	80
Molybdenum (Mo)	µg/m³	120	-	0	1.65E-03	1.74E-03	9.29E-04	3.31E-03	2.29E-03	1.69E-03	3.31E-03	12	80
Nickel (Ni)	µg/m³	0.2	-	0	1.03E-03	1.07E-03	5.46E-04	1.45E-03	1.43E-03	1.45E-03	1.41E-03	12	80
Phosphorus (P)	µg/m³	-	-	-	2.24E-01	2.24E-01	2.19E-01	2.32E-01	2.32E-01	2.28E-01	2.27E-01	12	80
Selenium (Se)	µg/m³	10	10	0	4.64E-04	5.20E-04	3.80E-04	1.52E-03	1.52E-03	8.22E-04	3.93E-04	12	80
Silver (Ag)	µg/m³	1	1	0	4.56E-05	7.08E-05	2.63E-05	3.37E-04	3.37E-04	1.15E-04	2.72E-05	12	80
Strontium (Sr)	µg/m³	120	-	0	4.94E-03	5.38E-03	2.49E-03	9.50E-03	9.50E-03	6.27E-03	7.92E-03	12	80
Thallium (Tl)	µg/m³	-	-	-	2.69E-05	2.69E-05	2.63E-05	2.79E-05	2.79E-05	2.74E-05	2.72E-05	12	80
Tin (Sn)	µg/m³	10	10	0	7.81E-04	8.68E-04	1.78E-04	1.52E-03	1.52E-03	1.20E-03	9.20E-04	12	80
Titanium (Ti)	µg/m³	120	-	0	8.53E-03	9.47E-03	3.23E-03	1.66E-02	1.18E-02	1.39E-02	1.66E-02	12	80
Uranium (Ur)	µg/m³	1.5	-	0	1.53E-05	1.66E-05	7.89E-06	2.55E-05	2.55E-05	2.53E-05	1.66E-05	12	80
Vanadium (V)	µg/m³	2	1	0	1.49E-03	1.49E-03	1.46E-03	1.55E-03	1.55E-03	1.52E-03	1.51E-03	12	80
Zinc (Zn)	µg/m³	120	-	0	3.26E-02	3.40E-02	1.55E-02	4.46E-02	4.46E-02	4.21E-02	3.42E-02	12	80
Zirconium (Zr)	µg/m³	20	-	0	5.97E-04	5.97E-04	5.83E-04	6.20E-04	6.20E-04	6.08E-04	6.04E-04	12	80

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 moderate for the TSP sampler at the Rundle Road Station (80% valid data). There was one exceedance of the 24-hour TSP AAQC during Q2 of 2022. There were no exceedances of any of the AAQC's or HHRA Criteria for mercury or metals during Q3.

The exceedance occurred on July 22nd, 2022. Since the winds were predominantly coming from the SSE to the NW, the Rundle Road Station was partially downwind of the DYEC during the sampling period. Given the wind conditions during the sampling period, it is possible that the measured TSP exceedance is attributable to the Energy Centre operations although CEMS data indicates that particulate emissions were within the expected values as well as below the listed Limits. It is likely that other sources played a role in the measured exceedance including but not limited to local construction and agricultural activities.

Exceedance documentation can be found in **Appendix F. 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	Q3 Minimum Concentration	Q3 Maximum Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	µg/m³	120	120	1	30.9	37.6	12.23	120.93	120.93	51.23	31.17	12	80
Total Mercury (Hg)	µg/m³	2	2	0	8.22E-06	9.14E-06	3.00E-06	1.50E-05	1.50E-05	1.42E-05	9.40E-06	12	80
Aluminum (Al)	µg/m³	4.8	-	0	3.09E-01	4.43E-01	8.87E-02	1.61E+00	1.61E+00	7.22E-01	2.43E-01	12	80
Antimony (Sb)	µg/m³	25	25	0	6.92E-04	7.57E-04	2.44E-04	1.21E-03	1.21E-03	9.81E-04	1.17E-03	12	80
Arsenic (As)	µg/m³	0.3	0.3	0	1.14E-03	1.37E-03	8.81E-04	4.92E-03	4.92E-03	2.44E-03	9.10E-04	12	80
Barium (Ba)	µg/m³	10	10	0	1.01E-02	1.14E-02	4.77E-03	2.53E-02	2.53E-02	1.33E-02	1.43E-02	12	80
Beryllium (Be)	µg/m³	0.01	0.01	0	1.95E-05	2.25E-05	1.47E-05	6.83E-05	6.83E-05	3.09E-05	1.52E-05	12	80
Bismuth (Bi)	µg/m³	-	-	-	5.47E-04	5.47E-04	5.29E-04	5.64E-04	5.64E-04	5.56E-04	5.46E-04	12	80
Boron (B)	µg/m³	120	-	0	5.39E-03	5.96E-03	4.41E-03	1.57E-02	1.57E-02	1.05E-02	4.55E-03	12	80
Cadmium (Cd)	µg/m³	0.025	0.025	0	7.02E-05	7.64E-05	1.95E-05	1.36E-04	1.36E-04	8.75E-05	7.99E-05	12	80
Chromium (Cr)	µg/m³	0.5	-	0	2.08E-03	2.51E-03	9.99E-04	5.64E-03	5.64E-03	3.33E-03	3.09E-03	12	80
Cobalt (Co)	µg/m³	0.1	0.1	0	2.12E-04	2.66E-04	7.52E-05	8.27E-04	8.27E-04	4.11E-04	1.83E-04	12	80
Copper (Cu)	µg/m³	50	-	0	3.25E-02	3.39E-02	2.08E-02	6.21E-02	6.21E-02	3.36E-02	3.62E-02	12	80
Iron (Fe)	µg/m³	4	-	0	6.25E-01	7.58E-01	2.49E-01	2.24E+00	2.24E+00	1.12E+00	6.48E-01	12	80
Lead (Pb)	µg/m³	0.5	0.5	0	2.14E-03	2.37E-03	9.51E-04	4.78E-03	4.78E-03	2.88E-03	2.13E-03	12	80
Magnesium (Mg)	µg/m³	-	-	-	3.15E-01	3.91E-01	1.08E-01	1.17E+00	1.17E+00	5.98E-01	3.09E-01	12	80
Manganese (Mn)	µg/m³	0.4	-	0	1.84E-02	2.20E-02	6.80E-03	6.52E-02	6.52E-02	2.72E-02	1.94E-02	12	80
Molybdenum (Mo)	µg/m³	120	-	0	1.61E-03	1.70E-03	8.84E-04	2.98E-03	2.98E-03	1.96E-03	1.78E-03	12	80
Nickel (Ni)	µg/m³	0.2	-	0	1.18E-03	1.29E-03	5.61E-04	2.67E-03	2.67E-03	1.96E-03	1.41E-03	12	80
Phosphorus (P)	µg/m³	-	-	-	2.28E-01	2.28E-01	2.20E-01	2.35E-01	2.35E-01	2.31E-01	2.27E-01	12	80
Selenium (Se)	µg/m³	10	10	0	4.75E-04	5.42E-04	3.82E-04	1.72E-03	1.72E-03	8.35E-04	3.94E-04	12	80
Silver (Ag)	µg/m³	1	1	0	4.38E-05	6.15E-05	2.64E-05	2.43E-04	2.43E-04	1.21E-04	2.73E-05	12	80
Strontium (Sr)	µg/m³	120	-	0	7.11E-03	9.25E-03	2.57E-03	2.79E-02	2.79E-02	1.80E-02	5.10E-03	12	80
Thallium (Tl)	µg/m³	-	-	-	2.73E-05	2.73E-05	2.64E-05	2.82E-05	2.82E-05	2.78E-05	2.73E-05	12	80
Tin (Sn)	µg/m³	10	10	0	7.52E-04	8.34E-04	1.83E-04	1.47E-03	1.47E-03	9.57E-04	1.09E-03	12	80
Titanium (Ti)	µg/m³	120	-	0	1.47E-02	2.18E-02	3.23E-03	8.27E-02	8.27E-02	3.33E-02	1.52E-02	12	80



Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	No. > Criteria	Geometric Mean	Arithmetic Mean	Q3 Minimum Concentration	Q3 Maximum Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
Uranium (Ur)	µg/m³	1.5	-	0	1.88E-05	2.36E-05	6.64E-06	6.52E-05	6.52E-05	4.28E-05	1.39E-05	12	80
Vanadium (V)	µg/m³	2	1	0	1.64E-03	1.72E-03	1.47E-03	3.95E-03	3.95E-03	1.54E-03	1.52E-03	12	80
Zinc (Zn)	µg/m³	120	-	0	5.07E-02	5.70E-02	2.28E-02	1.34E-01	1.34E-01	6.64E-02	7.58E-02	12	80
Zirconium (Zr)	µg/m³	20	-	0	6.44E-04	6.59E-04	5.88E-04	1.23E-03	1.23E-03	6.17E-04	6.06E-04	12	80

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 Q3 with the sample days being: July 4th, 16th, 28th, August 9th, 21st, September 2nd, 14th and 26th, 2022.

5.7.1 Courtice Station Results

Data recovery levels were moderate for the PAH results at the Courtice Station (75% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria during Q3 of 2022.

Table 9 outlines the statistics summary for this station.

Table 9. Statistics Summary of PAH Results for Courtice Station

Contaminant	Units	MECP Criteria (µg/m³)	No. > Criteria	Arithmetic Mean	Minimum Q3 Concentration	Maximum Q3 Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m³	12000	0	8.49E+00	8.97E-01	1.22E+01	1.22E+01	8.62E+00	5.81E+00	6	75
2-Methylnaphthalene	ng/m³	10000	0	1.82E+01	1.56E+00	2.62E+01	2.62E+01	1.79E+01	1.19E+01	6	75
Acenaphthene	ng/m³	-	-	1.18E+01	3.44E-01	1.86E+01	1.86E+01	1.05E+01	9.09E+00	6	75
Acenaphthylene	ng/m³	3500	0	3.44E-01	4.53E-02	5.49E-01	5.49E-01	3.06E-01	3.34E-01	6	75
Anthracene	ng/m³	200	0	4.23E-01	3.25E-02	6.13E-01	5.52E-01	6.13E-01	5.02E-01	6	75
Benzo(a)Anthracene	ng/m³	-	-	1.50E-02	6.76E-03	3.12E-02	3.12E-02	6.76E-03	9.22E-03	6	75
Benzo(a)fluorene	ng/m³	-	-	5.29E-02	2.28E-02	9.53E-02	9.53E-02	2.48E-02	5.65E-02	6	75
Benzo(a)Pyrene (Historically High)	ng/m³	0.05	0	1.74E-02	7.45E-03	2.87E-02	2.36E-02	7.45E-03	2.87E-02	6	75
Benzo(b)Fluoranthene	ng/m³	-	-	3.25E-02	1.66E-02	6.36E-02	6.36E-02	1.66E-02	1.89E-02	6	75
Benzo(b)fluorene	ng/m³	-	-	2.48E-02	8.44E-03	4.95E-02	4.95E-02	1.07E-02	2.24E-02	6	75
Benzo(e)Pyrene	ng/m³	-	-	1.99E-02	7.00E-03	4.07E-02	4.07E-02	7.00E-03	1.44E-02	6	75
Benzo(g,h,i)Perylene	ng/m³	-	-	2.17E-02	1.17E-02	2.89E-02	2.89E-02	1.17E-02	2.08E-02	6	75
Benzo(k)Fluoranthene	ng/m³	-	-	2.11E-02	9.12E-03	4.32E-02	4.32E-02	1.01E-02	1.20E-02	6	75
Biphenyl	ng/m³	-	-	4.22E+00	6.00E-01	7.93E+00	7.93E+00	4.11E+00	2.09E+00	6	75
Chrysene	ng/m³	-	-	6.69E-02	3.19E-02	1.30E-01	1.30E-01	3.54E-02	4.59E-02	6	75
Dibenzo(a,h)Anthracene	ng/m³	-	-	4.44E-03	3.00E-04	1.07E-02	1.07E-02	3.00E-04	4.47E-03	6	75
Fluoranthene	ng/m³	-	-	1.71E+00	3.12E-01	3.12E+00	3.12E+00	1.37E+00	1.48E+00	6	75
Fluorene	ng/m³	-	-	8.19E+00	5.66E-01	1.66E+01	1.66E+01	6.49E+00	5.35E+00	6	75
Indeno(1,2,3-cd)Pyrene	ng/m³	-	-	1.98E-02	1.12E-02	3.15E-02	3.15E-02	1.12E-02	1.57E-02	6	75
Naphthalene	ng/m³	22500	0	2.42E+01	2.73E+00	4.73E+01	4.73E+01	2.46E+01	1.82E+01	6	75
o-Terphenyl	ng/m³	-	-	1.30E-02	6.19E-03	2.51E-02	2.51E-02	6.19E-03	1.10E-02	6	75
Perylene	ng/m³	-	-	1.34E-03	3.00E-04	1.57E-03	1.57E-03	3.00E-04	1.56E-03	6	75
Phenanthrene	ng/m³	-	-	1.20E+01	1.33E+00	2.42E+01	2.42E+01	8.50E+00	9.21E+00	6	75
Pyrene	ng/m³	-	-	6.82E-01	1.72E-01	1.07E+00	1.07E+00	5.71E-01	7.11E-01	6	75
Tetralin	ng/m³	-	-	1.29E+00	6.94E-01	1.91E+00	1.91E+00	6.94E-01	1.83E+00	6	75
Total PAH	ng/m³	-	-	91.84	9.62	135.37	135.37	84.39	66.71	6	75

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 moderate for the PAH results at the Rundle Road Station (75% valid data). There were no exceedances of any of the AAQC’s or HHRA Criteria during Q3 of 2022.

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 Q3 Concentration	Maximum Q3 Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m³	12000	0	5.15E+00	1.40E+00	9.91E+00	9.91E+00	2.06E+00	2.17E+00	6	75
2-Methylnaphthalene	ng/m³	10000	0	1.04E+01	2.59E+00	2.03E+01	2.03E+01	3.28E+00	4.04E+00	6	75
Acenaphthene	ng/m³	-	-	6.39E+00	1.19E+00	1.53E+01	1.53E+01	1.62E+00	1.23E+00	6	75
Acenaphthylene	ng/m³	3500	0	2.53E-01	8.58E-02	4.87E-01	4.87E-01	1.67E-01	2.73E-01	6	75
Anthracene	ng/m³	200	0	6.93E-01	1.04E-01	2.45E+00	2.45E+00	1.80E-01	1.58E-01	6	75
Benzo(a)Anthracene	ng/m³	-	-	1.87E-02	8.84E-03	4.33E-02	4.33E-02	1.36E-02	1.24E-02	6	75
Benzo(a)fluorene	ng/m³	-	-	8.77E-02	2.93E-02	1.67E-01	1.67E-01	2.93E-02	5.03E-02	6	75
Benzo(a)Pyrene (Historically High)	ng/m³	0.05	0	1.97E-02	8.05E-03	3.62E-02	2.40E-02	8.05E-03	3.62E-02	6	75
Benzo(b)Fluoranthene	ng/m³	-	-	3.65E-02	1.84E-02	5.55E-02	5.55E-02	1.84E-02	3.73E-02	6	75
Benzo(b)fluorene	ng/m³	-	-	3.93E-02	1.41E-02	8.42E-02	8.42E-02	1.41E-02	2.43E-02	6	75
Benzo(e)Pyrene	ng/m³	-	-	2.03E-02	1.04E-02	3.34E-02	3.34E-02	1.04E-02	1.72E-02	6	75
Benzo(g,h,i)Perylene	ng/m³	-	-	2.64E-02	1.35E-02	3.71E-02	3.06E-02	1.35E-02	3.71E-02	6	75
Benzo(k)Fluoranthene	ng/m³	-	-	2.28E-02	1.26E-02	3.79E-02	3.79E-02	1.59E-02	1.83E-02	6	75
Biphenyl	ng/m³	-	-	2.85E+00	6.84E-01	6.60E+00	6.60E+00	1.05E+00	8.96E-01	6	75
Chrysene	ng/m³	-	-	9.65E-02	3.83E-02	2.41E-01	2.41E-01	4.91E-02	4.49E-02	6	75
Dibenzo(a,h)Anthracene	ng/m³	-	-	4.75E-03	1.89E-03	9.81E-03	5.55E-03	1.89E-03	9.81E-03	6	75
Fluoranthene	ng/m³	-	-	2.84E+00	5.16E-01	8.51E+00	8.51E+00	5.18E-01	9.46E-01	6	75
Fluorene	ng/m³	-	-	5.94E+00	1.03E+00	1.55E+01	1.55E+01	1.29E+00	1.46E+00	6	75
Indeno(1,2,3-cd)Pyrene	ng/m³	-	-	2.26E-02	1.63E-02	2.80E-02	2.80E-02	1.63E-02	2.15E-02	6	75
Naphthalene	ng/m³	22500	0	1.15E+01	3.08E+00	1.99E+01	1.99E+01	5.27E+00	7.21E+00	6	75
o-Terphenyl	ng/m³	-	-	1.07E-02	4.88E-03	1.85E-02	1.85E-02	4.88E-03	1.15E-02	6	75
Perylene	ng/m³	-	-	1.32E-03	2.96E-04	1.58E-03	1.54E-03	2.96E-04	1.58E-03	6	75
Phenanthrene	ng/m³	-	-	1.25E+01	2.17E+00	3.67E+01	3.67E+01	2.50E+00	3.54E+00	6	75
Pyrene	ng/m³	-	-	1.15E+00	2.66E-01	3.25E+00	3.25E+00	2.66E-01	4.72E-01	6	75
Tetralin	ng/m³	-	-	9.75E-01	3.08E-01	1.91E+00	1.91E+00	4.11E-01	1.07E+00	6	75
Total PAH	ng/m³	-	-	60.96	16.19	138.15	138.15	18.81	21.28	6	75

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 Q3 with the sample days being: July 16th, August 9th, September 2nd and 26th, 2022.

5.8.1 Courtice Station Results

Data recovery levels were moderate for the D&F results at the Courtice Station (75% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria for any of the D&F's during Q3. **Table 11** is a summary of the statistics for this station.

Table 11. Courtice Station Q3 Monitoring Results for Dioxins and Furans

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	No. > Criteria	Arithmetic Mean	Q3 Minimum Concentration	Q3 Maximum Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg/m ³	-	-	-	1.77E-03	3.91E-04	4.17E-03	4.17E-03	7.66E-04	3.91E-04	3	75
1,2,3,7,8-PeCDD	pg/m ³	-	-	-	2.86E-03	7.03E-04	7.16E-03	7.16E-03	7.21E-04	7.03E-04	3	75
1,2,3,4,7,8-HxCDD	pg/m ³	-	-	-	2.54E-04	5.00E-05	6.45E-04	6.45E-04	6.61E-05	5.00E-05	3	75
1,2,3,6,7,8-HxCDD	pg/m ³	-	-	-	3.21E-04	6.46E-05	8.30E-04	8.30E-04	6.46E-05	6.88E-05	3	75
1,2,3,7,8,9-HxCDD	pg/m ³	-	-	-	2.96E-04	6.31E-05	7.22E-04	7.22E-04	6.31E-05	1.03E-04	3	75
1,2,3,4,6,7,8-HpCDD	pg/m ³	-	-	-	1.72E-04	5.71E-05	2.41E-04	2.41E-04	5.71E-05	2.18E-04	3	75
OCDD	pg/m ³	-	-	-	2.15E-05	1.67E-05	2.48E-05	2.48E-05	1.67E-05	2.32E-05	3	75
2,3,7,8-TCDF	pg/m ³	-	-	-	1.80E-04	9.16E-05	2.93E-04	2.93E-04	9.16E-05	1.56E-04	3	75
1,2,3,7,8-PeCDF	pg/m ³	-	-	-	1.26E-04	2.57E-05	2.72E-04	2.72E-04	2.57E-05	8.16E-05	3	75
2,3,4,7,8-PeCDF	pg/m ³	-	-	-	1.11E-03	1.94E-04	2.46E-03	2.46E-03	1.94E-04	6.66E-04	3	75
1,2,3,4,7,8-HxCDF	pg/m ³	-	-	-	1.97E-04	4.95E-05	3.40E-04	3.40E-04	4.95E-05	2.03E-04	3	75
1,2,3,6,7,8-HxCDF	pg/m ³	-	-	-	1.45E-04	4.80E-05	3.24E-04	3.24E-04	4.80E-05	6.25E-05	3	75
2,3,4,6,7,8-HxCDF	pg/m ³	-	-	-	3.31E-04	4.80E-05	7.28E-04	7.28E-04	4.80E-05	2.16E-04	3	75
1,2,3,7,8,9-HxCDF	pg/m ³	-	-	-	4.35E-04	9.46E-05	8.70E-04	8.70E-04	9.46E-05	3.41E-04	3	75
1,2,3,4,6,7,8-HpCDF	pg/m ³	-	-	-	5.89E-05	1.80E-05	1.27E-04	1.27E-04	1.80E-05	3.13E-05	3	75
1,2,3,4,7,8,9-HpCDF	pg/m ³	-	-	-	2.89E-05	3.45E-06	7.90E-05	7.90E-05	3.45E-06	4.22E-06	3	75
OCDF	pg/m ³	-	-	-	1.21E-06	5.63E-07	2.04E-06	2.04E-06	1.04E-06	5.63E-07	3	75
Total Toxic Equivalency	pg TEQ/m ³	0.1 1 ^[1]	-	0	8.31E-03	2.33E-03	1.93E-02	1.93E-02	2.33E-03	3.32E-03	3	75

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



5.8.2 Rundle Road Station Results

Data recovery levels were moderate for the D&F results at the Rundle Road Station (75% valid data). There were no exceedances of any of the AAQC's or HHRA Criteria for any of the D&F's during Q3. **Table 12** is a summary of the statistics for this station.

Table 12. Rundle Road Station Q3 Monitoring Results for Dioxins and Furans

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	No. > Criteria	Arithmetic Mean	Q3 Minimum Concentration	Q3 Maximum Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg/m ³	-	-	-	1.09E-03	6.33E-04	1.94E-03	1.94E-03	6.95E-04	6.33E-04	3	75
1,2,3,7,8-PeCDD	pg/m ³	-	-	-	2.81E-03	4.29E-04	7.34E-03	6.72E-04	4.29E-04	7.34E-03	3	75
1,2,3,4,7,8-HxCDD	pg/m ³	-	-	-	2.77E-04	4.78E-05	6.61E-04	4.78E-05	1.23E-04	6.61E-04	3	75
1,2,3,6,7,8-HxCDD	pg/m ³	-	-	-	3.26E-04	6.07E-05	8.51E-04	6.57E-05	6.07E-05	8.51E-04	3	75
1,2,3,7,8,9-HxCDD	pg/m ³	-	-	-	3.00E-04	6.07E-05	7.41E-04	9.85E-05	6.07E-05	7.41E-04	3	75
1,2,3,4,6,7,8-HpCDD	pg/m ³	-	-	-	1.66E-04	4.14E-05	2.47E-04	2.08E-04	4.14E-05	2.47E-04	3	75
OCDD	pg/m ³	-	-	-	1.92E-05	1.00E-05	2.54E-05	2.21E-05	1.00E-05	2.54E-05	3	75
2,3,7,8-TCDF	pg/m ³	-	-	-	1.84E-04	1.02E-04	3.01E-04	1.49E-04	1.02E-04	3.01E-04	3	75
1,2,3,7,8-PeCDF	pg/m ³	-	-	-	1.26E-04	2.04E-05	2.79E-04	7.79E-05	2.04E-05	2.79E-04	3	75
2,3,4,7,8-PeCDF	pg/m ³	-	-	-	1.23E-03	5.43E-04	2.53E-03	6.36E-04	5.43E-04	2.53E-03	3	75
1,2,3,4,7,8-HxCDF	pg/m ³	-	-	-	1.96E-04	4.44E-05	3.48E-04	1.94E-04	4.44E-05	3.48E-04	3	75
1,2,3,6,7,8-HxCDF	pg/m ³	-	-	-	1.96E-04	5.97E-05	3.32E-04	5.97E-05	1.95E-04	3.32E-04	3	75
2,3,4,6,7,8-HxCDF	pg/m ³	-	-	-	3.28E-04	3.11E-05	7.47E-04	2.06E-04	3.11E-05	7.47E-04	3	75
1,2,3,7,8,9-HxCDF	pg/m ³	-	-	-	4.75E-04	2.09E-04	8.92E-04	3.25E-04	2.09E-04	8.92E-04	3	75
1,2,3,4,6,7,8-HpCDF	pg/m ³	-	-	-	6.62E-05	2.99E-05	1.31E-04	2.99E-05	3.82E-05	1.31E-04	3	75
1,2,3,4,7,8,9-HpCDF	pg/m ³	-	-	-	2.96E-05	3.70E-06	8.10E-05	4.03E-06	3.70E-06	8.10E-05	3	75
OCDF	pg/m ³	-	-	-	1.09E-06	5.37E-07	2.09E-06	5.37E-07	6.45E-07	2.09E-06	3	75
Total Toxic Equivalency	pg TEQ/m ³	0.1 1 ^[1]	-	0	7.83E-03	2.61E-03	1.61E-02	4.74E-03	2.61E-03	1.61E-02	3	75

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



6 SURROUNDING ACTIVITY

During Q3 of 2022 there were several notable events which occurred near the Rundle Road station which could have impacted local air quality.

On July 17th, 2022, a large fire engulfed a Durham Regional Police Services' building at 19 Courtice Court, Courtice, ON. This facility is located approximately 2 km west of the Rundle Road station.

Ongoing throughout Q3 of 2022, was the installation of a septic system at the building adjacent to the Rundle Road station as well as construction of a building on the property directly West of the Rundle Road station. The increased construction activity in the area surrounding the station would have likely impacted air quality measurements.

7 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 SO₂ 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**.

7.1 Continuous Monitoring

On July 19th, 2022, erroneous spikes in the NO_x data occurred at the Courtice station, which resulted in four hours of NO, NO₂, and NO_x data being invalidated. Similarly, erroneous spikes occurred on July 23rd, 2022, resulting in one hour of NO, NO₂, and NO_x data being invalidated at the Courtice station.

On September 15th, 2022, one hour of SO₂ data at the Courtice station was invalidated due to verification checks on the recently installed perm tube.

7.2 Discrete Monitoring

The July 10th, 2022 Rundle TSP & metals sample was invalidated because of insufficient sample volume due to a tripped breaker which stopped power to the sampler mid run. This breaker was replaced during the calibration visit on July 13th, 2022.

The August 21st, 2022 PAH samples were invalid for both sites due to an error caused by the laboratory during analysis of the samples. A memo from the laboratory that discusses the cause of the error is attached in **Appendix H**.



An error with the sample media changes for the September 2nd sampling date caused the August 27th and September 2nd TSP & metals samples to be invalid at both stations. Due to this error the September 2nd PAH and D&F samples were also invalid at both stations.

The September 26th, 2022, Courtice TSP & metals sample was invalidated because of an equipment malfunction.

8 CONCLUSIONS

This Q3 report provides a summary of the ambient air quality data collected at the Courtice and Rundle Road Stations. There were thirty-six (36) exceedance events of the rolling 10-minute SO₂ AAQC and fifteen (15) exceedance events of the 1-hour SO₂ AAQC at the Courtice Station. There was one (1) exceedance event of the 1-hour SO₂ AAQC at the Rundle Road Station. There was one (1) exceedance of the 24-Hour TSP AAQC, which occurred on July 22nd at the Rundle Road Station. Data recovery rates were acceptable and valid for all measured Q3 continuous and discrete parameters.

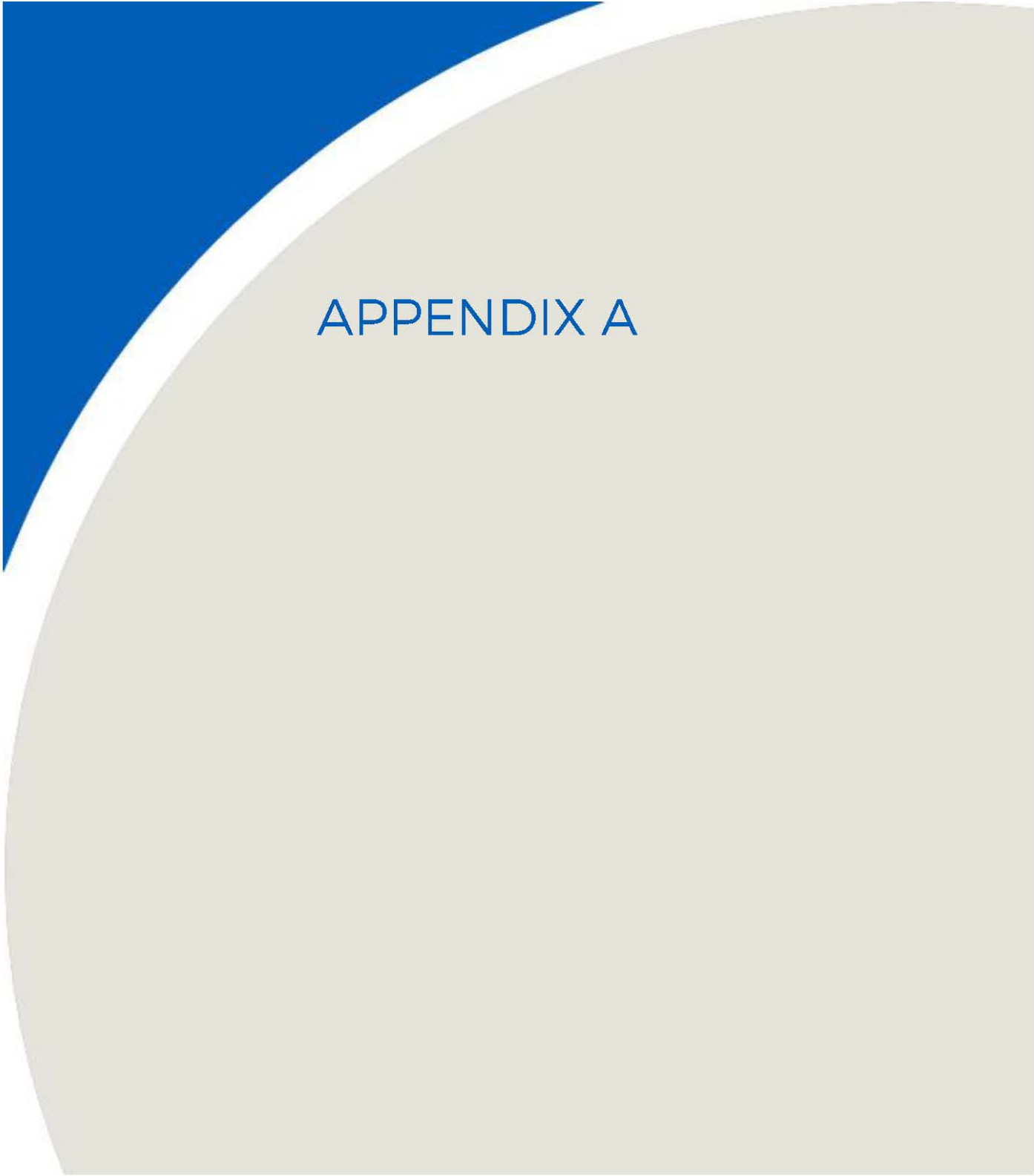
9 REFERENCES

1. Canadian Council of Ministers of the Environment (CCME), 2012. Guidance Document on Achievement Determination – C Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone. PN 1483 978-1-896997-91-9 PDF
2. Canadian Council of Ministers of the Environment (CCME), 2019. Guidance Document on Air Zone Management. PN 1593978-1-77202-050-2 PDF
3. Ontario Ministry of the Environment and Climate Change, 2018. [Technical Assessment and Standards Development Branch] Ontario Air Standards for Sulphur Dioxide (SO₂). [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

10 GENERAL STATEMENT OF LIMITATIONS

This report entitled “2022 Q3 Ambient Air Quality Monitoring Report”, dated November 8, 2022 was prepared by RWDI AIR Inc. (“RWDI”) for The Regional Municipality of Durham (“Client”). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein (“Project”). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

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

A large decorative graphic on the left side of the page. It features a blue triangle in the top-left corner, a white curved line separating it from a large light-grey circular area, and the text 'APPENDIX A' centered within the grey area.

APPENDIX A

Table A1: 2022 Summary Statistics for Q3

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	(µg/m ³)	ppb				(µg/m ³)	ppb				(µg/m ³)	ppb				(%)				
AAQC/CAAQS	67				200	40	27 ^A			100											
July	219.7	20.5	37.4	18.2	31.3	102.3	11.9	10.5	2.3	9.8	14.8	5.8	4.5	0.6	4.2	1.4	99.7	98.9	98.9	98.9	99.7
August	185.9	15.5	30.1	16.9	22.0	68.1	9.6	9.1	2.2	8.0	9.2	4.8	4.1	0.6	3.7	1.2	99.6	98.9	98.9	98.9	99.6
September	179.3	27.5	42.9	28.8	25.1	73.6	11.0	15.3	5.9	10.3	11.2	3.9	5.6	1.8	3.9	2.4	99.9	99.7	99.7	99.7	99.2
Q3 Arithmetic Mean												4.8	4.7	1.0	3.9	1.7	99.7	99.2	99.2	99.2	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	(µg/m ³)	ppb				(µg/m ³)	ppb				(µg/m ³)	ppb				(%)				
AAQC/CAAQS	67				200	40	27 ^A			100											
July	48.9	48.8	59.4	39.7	23.2	23.3	16.8	16.3	6.7	10.3	2.3	5.8	4.7	1.7	3.1	0.3	99.9	99.6	99.6	99.6	99.6
August	19.4	16.0	85.1	62.5	22.8	10.0	8.5	18.0	8.8	9.3	1.1	4.4	3.9	1.5	2.5	0.3	99.7	99.7	99.7	99.7	99.6
September	64.3	17.7	25.1	13.6	17.0	46.8	10.9	9.2	2.8	6.9	4.2	3.6	3.5	1.0	2.6	0.4	99.9	99.2	99.2	99.2	99.0
Q3 Arithmetic Mean												4.6	4.1	1.4	2.7	0.4	99.8	99.5	99.5	99.5	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.		
July	21	0		0	6		0	0	N/A	0		N/A	0	
August	5	0		0	3		0	0	N/A	0		N/A	0	
September	10	0		0	6		0	1	N/A	0		N/A	0	
Q3 Total	36	0		0	15		0	1	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						
July	29.4	29.6	100.0	29.9	7.2	0.7	12.5	27.5	29.2	0.0	7.9	20.4	70.0	29.6	0.1	46.3	100.0	95.3	100.0	100.0	100.0	100.0
August	26.5	28.5	100.0	29.9	2.4	0.8	12.2	24.9	29.4	0.0	9.0	21.4	72.5	29.7	0.0	14.1	100.0	97.6	100.0	100.0	100.0	99.9
September	28.4	24.7	100.0	30.2	8.8	0.0	4.8	35.6	29.2	0.0	9.1	16.5	74.2	29.7	0.1	40.2	100.0	97.6	100.0	100.0	100.0	100.0
Q3 Arithmetic Mean											8.7	19.5	72.2	29.7	0.0	100.6	100.0	96.8	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					
July	28.9	29.3	100.0	25.7	0.1	12.3	35.2	0.0	7.8	20.6	72.1	0.1	98.4	100.0	94.6	100.0	100.0	100.0
August	24.8	28.9	100.0	10.0	0.1	11.2	29.8	0.0	7.4	21.0	77.4	0.1	56.5	100.0	95.4	100.0	100.0	99.9
September	28.8	26.6	100.0	25.0	0.0	3.5	38.0	0.0	7.3	16.1	81.0	0.1	62.8	100.0	92.5	100.0	100.0	100.0
Q3 Arithmetic Mean									7.5	19.2	76.8	0.1	217.7	100.0	94.2	100.0	100.0	100.0

Table A2: 2022 Q3 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.	%
July	N/A	5.8	20.5	11.9	742	99.7
August	N/A	4.8	15.5	9.6	741	99.6
September	N/A	3.9	27.5	11.0	719	99.9

Table A3: 2022 Q3 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.	%
July	N/A	5.8	48.8	16.8	743	99.9
August	N/A	4.4	16.0	8.5	742	99.7
September	N/A	3.6	17.7	10.9	719	99.9

Table A4: 2022 Q3 Station Courtice Monitoring Results for NO_x

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.	%
July	N/A	N/A	4.5	37.4	10.5	736	98.9
August	N/A	N/A	4.1	30.1	9.1	736	98.9
September	N/A	N/A	5.6	42.9	15.3	718	99.7

Table A5: 2022 Q3 Station Rundle Monitoring Results for NO_x

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.	%
July	N/A	N/A	4.7	59.4	16.3	741	99.6
August	N/A	N/A	3.9	85.1	18.0	742	99.7
September	N/A	N/A	3.5	25.1	9.2	714	99.2

Table A6: 2022 Q3 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.	%
July	N/A	N/A	0.6	18.2	2.3	736	98.9
August	N/A	N/A	0.6	16.9	2.2	736	98.9
September	N/A	N/A	1.8	28.8	5.9	718	99.7

Table A7: 2022 Q3 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.	%
July	N/A	N/A	1.7	39.7	6.7	741	99.6
August	N/A	N/A	1.5	62.5	8.8	742	99.7
September	N/A	N/A	1.0	13.6	2.8	714	99.2

Table A8: 2022 Q3 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.	%
July	0	0	4.2	31.3	9.8	736	98.9
August	0	0	3.7	22.0	8.0	736	98.9
September	0	0	3.9	25.1	10.3	718	99.7

Table A9: 2022 Q3 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.	%
July	0	0	3.1	23.2	10.3	741	99.6
August	0	0	2.5	22.8	9.3	742	99.7
September	0	0	2.6	17.0	6.9	714	99.2

Table A10: 2022 Q3 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.	%
July	21	6	1.4	219.7	102.3	14.8	742	99.7
August	5	3	1.2	185.9	68.1	9.2	741	99.6
September	10	6	2.4	179.3	73.6	11.2	714	99.2

Table A11: 2022 Q3 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.	%
July	0	0	0.3	48.9	23.3	2.3	741	99.6
August	0	0	0.3	19.4	10.0	1.1	741	99.6
September	0	1	0.4	64.3	46.8	4.2	713	99.0

Table A12: 2022 Q3 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)	(%)
July	29.4	0.7	7.9	100.0
August	26.5	0.8	9.0	100.0
September	28.4	0.0	9.1	100.0

Table A13: 2022 Q3 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)	(%)
July	28.9	0.1	7.8	100.0
August	24.8	0.1	7.4	100.0
September	28.8	0.0	7.3	100.0

Table A14: 2022 Q3 Courtice Meterological Station Wind Direction Data Summary

MET Statistics	Valid Data
Month	Wind Direction
	(%)
July	95.3
August	97.6
September	97.6

Table A15: 2022 Q3 Rundle Meterological Station Wind Direction Data Summary

MET Statistics	Valid Data
Month	Wind Direction
	(%)
July	94.6
August	95.4
September	92.5

Table A16: 2022 Q3 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)	(%)
July	29.6	12.5	20.4	100.0
August	28.5	12.2	21.4	100.0
September	24.7	4.8	16.5	100.0

Table A17: 2022 Q3 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)	(%)
July	29.3	12.3	20.6	100.0
August	28.9	11.2	21.0	100.0
September	26.6	3.5	16.1	100.0

Table A18: 2022 Q3 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
	(%)	(%)	(%)	(%)
July	100.0	27.5	70.0	100.0
August	100.0	24.9	72.5	100.0
September	100.0	35.6	74.2	100.0

Table A19: 2022 Q3 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
	(%)	(%)	(%)	(%)
July	100.0	35.2	72.1	100.0
August	100.0	29.8	77.4	100.0
September	100.0	38.0	81.0	100.0

Table A20: 2022 Q3 Courtice Meterological Station Precipitation Data Summary

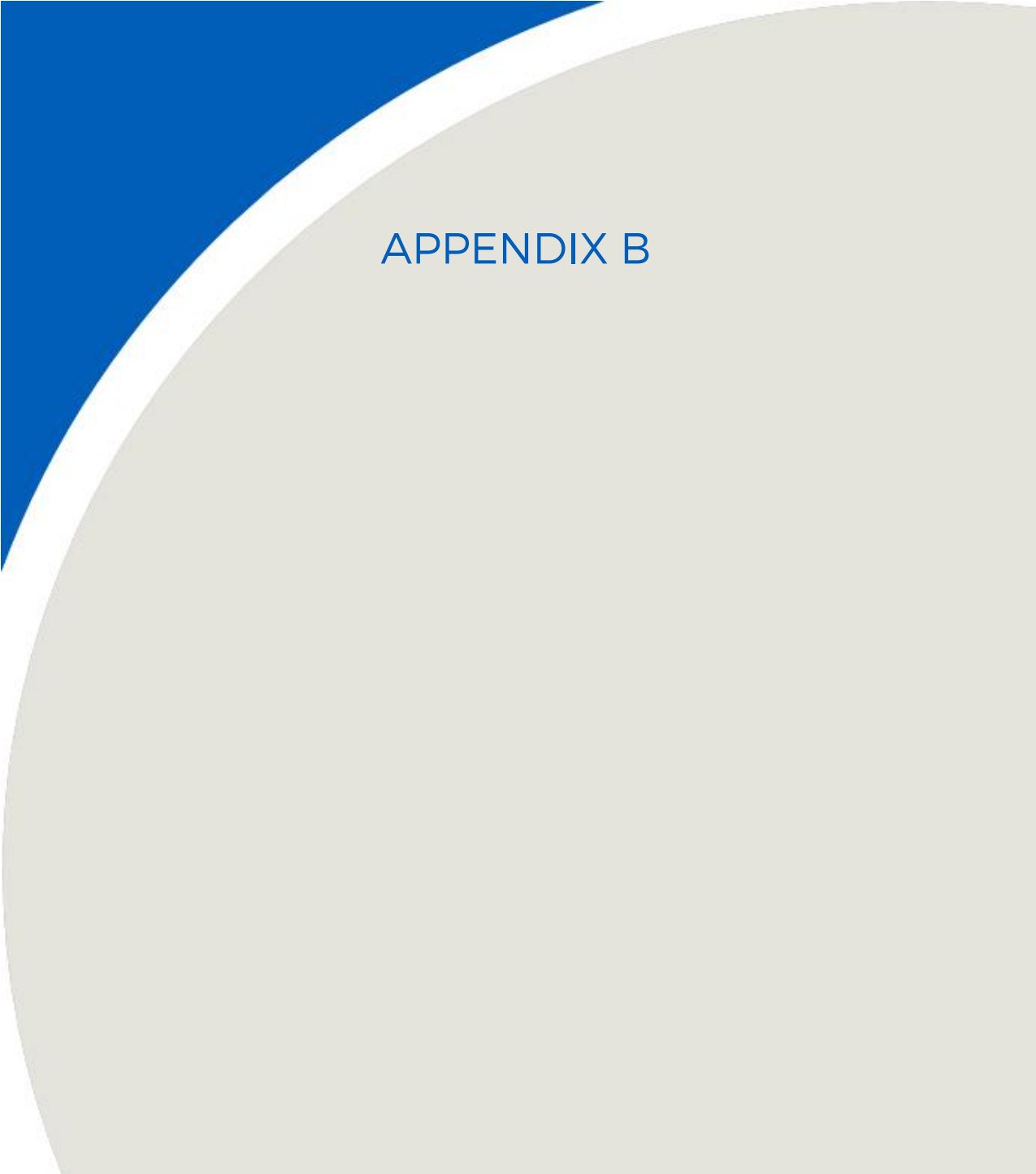
MET Statistics	Maximum 1 hr Mean	Minimum 1 hr	Monthly Mean	Total	Valid Data
Month	Precipitation	Precipitation	Precipitation	Precipitation	Precipitation
	(mm)	(mm)	(mm)	(mm)	%
July	7.2	0.0	0.1	46.3	100.0
August	2.4	0.0	0.0	14.1	99.9
September	8.8	0.0	0.1	40.2	100.0

Table A21: 2022 Q3 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)	%
July	25.7	0.0	0.1	98.4	100.0
August	10.0	0.0	0.1	56.5	99.9
September	25.0	0.0	0.1	62.8	100.0

Table A22: 2022 Q3 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)	(%)
July	29.9	29.2	29.6	100.0
August	29.9	29.4	29.7	100.0
September	30.2	29.2	29.7	100.0

The graphic for Appendix B features a large, light gray circular shape on the right side of the page. To its left, a blue triangular shape is partially visible, separated from the gray circle by a thin white curved line.

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)
July 16, 2022	L2723893-1	1440	324	L2723893-2	1440	335
August 9, 2022	L2728002-1	1440	333	L2728002-2	1440	338
September 2, 2022	Invalid			Invalid		
September 26, 2022	L2734916-2	1440	320	L2734916-1	1440	316

Table B2: 2022 Courtice Station Q3 Monitoring Results for Dioxins & Furans

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	16-Jul-22	9-Aug-22	2-Sep-22	26-Sep-22	MECP Criteria (µg/m³)	No. > Criteria	Arithmetic Mean	Q3 Minimum Concentration	Q3 Maximum Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg TEQ/m³	-	-	4.17E-03	7.66E-04	Invalid	3.91E-04	-	-	1.77E-03	3.91E-04	4.17E-03	4.17E-03	7.66E-04	3.91E-04	3	75
1,2,3,7,8-PeCDD	pg TEQ/m³	-	-	7.16E-03	7.21E-04		7.03E-04	-	-	2.86E-03	7.03E-04	7.16E-03	7.16E-03	7.21E-04	7.03E-04	3	75
1,2,3,4,7,8-HxCDD	pg TEQ/m³	-	-	6.45E-04	6.61E-05		5.00E-05	-	-	2.54E-04	5.00E-05	6.45E-04	6.45E-04	6.61E-05	5.00E-05	3	75
1,2,3,6,7,8-HxCDD	pg TEQ/m³	-	-	8.30E-04	6.46E-05		6.88E-05	-	-	3.21E-04	6.46E-05	8.30E-04	8.30E-04	6.46E-05	6.88E-05	3	75
1,2,3,7,8,9-HxCDD	pg TEQ/m³	-	-	7.22E-04	6.31E-05		1.03E-04	-	-	2.96E-04	6.31E-05	7.22E-04	7.22E-04	6.31E-05	1.03E-04	3	75
1,2,3,4,6,7,8-HpCDD	pg TEQ/m³	-	-	2.41E-04	5.71E-05		2.18E-04	-	-	1.72E-04	5.71E-05	2.41E-04	2.41E-04	5.71E-05	2.18E-04	3	75
OCDD	pg TEQ/m³	-	-	2.48E-05	1.67E-05		2.32E-05	-	-	2.15E-05	1.67E-05	2.48E-05	2.48E-05	1.67E-05	2.32E-05	3	75
2,3,7,8-TCDF	pg TEQ/m³	-	-	2.93E-04	9.16E-05		1.56E-04	-	-	1.80E-04	9.16E-05	2.93E-04	2.93E-04	9.16E-05	1.56E-04	3	75
1,2,3,7,8-PeCDF	pg TEQ/m³	-	-	2.72E-04	2.57E-05		8.16E-05	-	-	1.26E-04	2.57E-05	2.72E-04	2.72E-04	2.57E-05	8.16E-05	3	75
2,3,4,7,8-PeCDF	pg TEQ/m³	-	-	2.46E-03	1.94E-04		6.66E-04	-	-	1.11E-03	1.94E-04	2.46E-03	2.46E-03	1.94E-04	6.66E-04	3	75
1,2,3,4,7,8-HxCDF	pg TEQ/m³	-	-	3.40E-04	4.95E-05		2.03E-04	-	-	1.97E-04	4.95E-05	3.40E-04	3.40E-04	4.95E-05	2.03E-04	3	75
1,2,3,6,7,8-HxCDF	pg TEQ/m³	-	-	3.24E-04	4.80E-05		6.25E-05	-	-	1.45E-04	4.80E-05	3.24E-04	3.24E-04	4.80E-05	6.25E-05	3	75
2,3,4,6,7,8-HxCDF	pg TEQ/m³	-	-	7.28E-04	4.80E-05		2.16E-04	-	-	3.31E-04	4.80E-05	7.28E-04	7.28E-04	4.80E-05	2.16E-04	3	75
1,2,3,7,8,9-HxCDF	pg TEQ/m³	-	-	8.70E-04	9.46E-05		3.41E-04	-	-	4.35E-04	9.46E-05	8.70E-04	8.70E-04	9.46E-05	3.41E-04	3	75
1,2,3,4,6,7,8-HpCDF	pg TEQ/m³	-	-	1.27E-04	1.80E-05		3.13E-05	-	-	5.89E-05	1.80E-05	1.27E-04	1.27E-04	1.80E-05	3.13E-05	3	75
1,2,3,4,7,8,9-HpCDF	pg TEQ/m³	-	-	7.90E-05	3.45E-06		4.22E-06	-	-	2.89E-05	3.45E-06	7.90E-05	7.90E-05	3.45E-06	4.22E-06	3	75
OCDF	pg TEQ/m³	-	-	2.04E-06	1.04E-06		5.63E-07	-	-	1.21E-06	5.63E-07	2.04E-06	2.04E-06	1.04E-06	5.63E-07	3	75
Total Toxic Equivalency	pg TEQ/m³	0.1 1 ^[1]	-	1.93E-02	2.33E-03		3.32E-03	0.1	0	8.31E-03	2.33E-03	1.93E-02	1.93E-02	2.33E-03	3.32E-03	3	75

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

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

Table B3: 2022 Rundle Road Station Q3 Monitoring Results for Dioxins & Furans

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	16-Jul-22	9-Aug-22	2-Sep-22	26-Sep-22	MECP Criteria (µg/m³)	No. > Criteria	Arithmetic Mean	Q3 Minimum Concentration	Q3 Maximum Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
2,3,7,8-TCDD	pg TEQ/m³	-	-	1.94E-03	6.95E-04	Invalid	6.33E-04	-	-	1.09E-03	6.33E-04	1.94E-03	1.94E-03	6.95E-04	6.33E-04	3	75
1,2,3,7,8-PeCDD	pg TEQ/m³	-	-	6.72E-04	4.29E-04		7.34E-03	-	-	2.81E-03	4.29E-04	7.34E-03	6.72E-04	4.29E-04	7.34E-03	3	75
1,2,3,4,7,8-HxCDD	pg TEQ/m³	-	-	4.78E-05	1.23E-04		6.61E-04	-	-	2.77E-04	4.78E-05	6.61E-04	4.78E-05	1.23E-04	6.61E-04	3	75
1,2,3,6,7,8-HxCDD	pg TEQ/m³	-	-	6.57E-05	6.07E-05		8.51E-04	-	-	3.26E-04	6.07E-05	8.51E-04	6.57E-05	6.07E-05	8.51E-04	3	75
1,2,3,7,8,9-HxCDD	pg TEQ/m³	-	-	9.85E-05	6.07E-05		7.41E-04	-	-	3.00E-04	6.07E-05	7.41E-04	9.85E-05	6.07E-05	7.41E-04	3	75
1,2,3,4,6,7,8-HpCDD	pg TEQ/m³	-	-	2.08E-04	4.14E-05		2.47E-04	-	-	1.66E-04	4.14E-05	2.47E-04	2.08E-04	4.14E-05	2.47E-04	3	75
OCDD	pg TEQ/m³	-	-	2.21E-05	1.00E-05		2.54E-05	-	-	1.92E-05	1.00E-05	2.54E-05	2.21E-05	1.00E-05	2.54E-05	3	75
2,3,7,8-TCDF	pg TEQ/m³	-	-	1.49E-04	1.02E-04		3.01E-04	-	-	1.84E-04	1.02E-04	3.01E-04	1.49E-04	1.02E-04	3.01E-04	3	75
1,2,3,7,8-PeCDF	pg TEQ/m³	-	-	7.79E-05	2.04E-05		2.79E-04	-	-	1.26E-04	2.04E-05	2.79E-04	7.79E-05	2.04E-05	2.79E-04	3	75
2,3,4,7,8-PeCDF	pg TEQ/m³	-	-	6.36E-04	5.43E-04		2.53E-03	-	-	1.23E-03	5.43E-04	2.53E-03	6.36E-04	5.43E-04	2.53E-03	3	75
1,2,3,4,7,8-HxCDF	pg TEQ/m³	-	-	1.94E-04	4.44E-05		3.48E-04	-	-	1.96E-04	4.44E-05	3.48E-04	1.94E-04	4.44E-05	3.48E-04	3	75
1,2,3,6,7,8-HxCDF	pg TEQ/m³	-	-	5.97E-05	1.95E-04		3.32E-04	-	-	1.96E-04	5.97E-05	3.32E-04	5.97E-05	1.95E-04	3.32E-04	3	75
2,3,4,6,7,8-HxCDF	pg TEQ/m³	-	-	2.06E-04	3.11E-05		7.47E-04	-	-	3.28E-04	3.11E-05	7.47E-04	2.06E-04	3.11E-05	7.47E-04	3	75
1,2,3,7,8,9-HxCDF	pg TEQ/m³	-	-	3.25E-04	2.09E-04		8.92E-04	-	-	4.75E-04	2.09E-04	8.92E-04	3.25E-04	2.09E-04	8.92E-04	3	75
1,2,3,4,6,7,8-HpCDF	pg TEQ/m³	-	-	2.99E-05	3.82E-05		1.31E-04	-	-	6.62E-05	2.99E-05	1.31E-04	2.99E-05	3.82E-05	1.31E-04	3	75
1,2,3,4,7,8,9-HpCDF	pg TEQ/m³	-	-	4.03E-06	3.70E-06		8.10E-05	-	-	2.96E-05	3.70E-06	8.10E-05	4.03E-06	3.70E-06	8.10E-05	3	75
OCDF	pg TEQ/m³	-	-	5.37E-07	6.45E-07		2.09E-06	-	-	1.09E-06	5.37E-07	2.09E-06	5.37E-07	6.45E-07	2.09E-06	3	75
Total Toxic Equivalency	pg TEQ/m³	0.1 1 ^[1]	-	4.74E-03	2.61E-03		1.61E-02	0.1	0	7.83E-03	2.61E-03	1.61E-02	4.74E-03	2.61E-03	1.61E-02	3	75

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

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

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

Sample Date	Courtice			Rundle		
	Filter ID	Sample Duration	Sample Volume	Filter ID	Sample Duration	Sample Volume
	No.	(min)	(m ³)	No.	(min)	(m ³)
July 4, 2022	L2721068-2	1440	321	L2721068-1	1440	327
July 16, 2022	L2723893-1	1440	324	L2723893-2	1440	335
July 28, 2022	L2726099-1	1440	319	L2726099-2	1440	325
August 9, 2022	L2728002-1	1440	333	L2728002-2	1440	338
August 21, 2022	Invalid			Invalid		
September 2, 2022	Invalid			Invalid		
September 14, 2022	L2733422-2	1439	329	L2733422-1	1440	337
September 26, 2022	L2734916-2	1440	320	L2734916-1	1440	316

Table B5: 2022 Courtice Station Q3 Monitoring Results for PAHs

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	4-Jul-22	16-Jul-22	28-Jul-22	9-Aug-22	21-Aug-22	2-Sep-22	14-Sep-22	26-Sep-22	No. > Criteria	Arithmetic Mean	Minimum Q3 Concentration	Maximum Q3 Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m ³	12000	-	1.15E+01	1.22E+01	1.19E+01	8.62E+00	Invalid	Invalid	5.81E+00	8.97E-01	0	8.49E+00	8.97E-01	1.22E+01	1.22E+01	8.62E+00	5.81E+00	6	75
2-Methylnaphthalene	ng/m ³	10000	-	2.62E+01	2.62E+01	2.54E+01	1.79E+01			1.19E+01	1.56E+00	0	1.82E+01	1.56E+00	2.62E+01	2.62E+01	1.79E+01	1.19E+01	6	75
Acenaphthene	ng/m ³	-	-	1.46E+01	1.86E+01	1.75E+01	1.05E+01			9.09E+00	3.44E-01	-	1.18E+01	3.44E-01	1.86E+01	1.86E+01	1.05E+01	9.09E+00	6	75
Acenaphthylene	ng/m ³	3500	-	3.04E-01	5.49E-01	5.24E-01	3.06E-01			3.34E-01	4.53E-02	0	3.44E-01	4.53E-02	5.49E-01	5.49E-01	3.06E-01	3.34E-01	6	75
Anthracene	ng/m ³	200	-	4.67E-01	5.52E-01	3.73E-01	6.13E-01			5.02E-01	3.25E-02	0	4.23E-01	3.25E-02	6.13E-01	5.52E-01	6.13E-01	5.02E-01	6	75
Benzo(a)Anthracene	ng/m ³	-	-	1.17E-02	3.12E-02	2.18E-02	6.76E-03			9.00E-03	9.22E-03	-	1.50E-02	6.76E-03	3.12E-02	3.12E-02	6.76E-03	9.22E-03	6	75
Benzo(a)fluorene	ng/m ³	-	-	6.73E-02	5.09E-02	9.53E-02	2.48E-02			5.65E-02	2.28E-02	-	5.29E-02	2.28E-02	9.53E-02	9.53E-02	2.48E-02	5.65E-02	6	75
Benzo(a)Pyrene (Historically High)	ng/m ³	0.05 ^[1] 5 ^[2] 1.1 ^[3]	1	1.62E-02	1.87E-02	2.36E-02	7.45E-03			2.87E-02	9.88E-03	0	1.74E-02	7.45E-03	2.87E-02	2.36E-02	7.45E-03	2.87E-02	6	75
Benzo(b)Fluoranthene	ng/m ³	-	-	3.36E-02	6.36E-02	4.39E-02	1.66E-02			1.89E-02	1.83E-02	-	3.25E-02	1.66E-02	6.36E-02	6.36E-02	1.66E-02	1.89E-02	6	75
Benzo(b)fluorene	ng/m ³	-	-	2.72E-02	3.03E-02	4.95E-02	1.07E-02			2.24E-02	8.44E-03	-	2.48E-02	8.44E-03	4.95E-02	4.95E-02	1.07E-02	2.24E-02	6	75
Benzo(e)Pyrene	ng/m ³	-	-	2.14E-02	4.07E-02	2.36E-02	7.00E-03			1.25E-02	1.44E-02	-	1.99E-02	7.00E-03	4.07E-02	4.07E-02	7.00E-03	1.44E-02	6	75
Benzo(g,h,i)Perylene	ng/m ³	-	-	2.74E-02	2.89E-02	2.38E-02	1.17E-02			2.08E-02	1.73E-02	-	2.17E-02	1.17E-02	2.89E-02	2.89E-02	1.17E-02	2.08E-02	6	75
Benzo(k)Fluoranthene	ng/m ³	-	-	1.64E-02	4.32E-02	3.57E-02	1.01E-02			9.12E-03	1.20E-02	-	2.11E-02	9.12E-03	4.32E-02	4.32E-02	1.01E-02	1.20E-02	6	75
Biphenyl	ng/m ³	-	-	5.20E+00	7.93E+00	5.36E+00	4.11E+00			2.09E+00	6.00E-01	-	4.22E+00	6.00E-01	7.93E+00	7.93E+00	4.11E+00	2.09E+00	6	75
Chrysene	ng/m ³	-	-	6.39E-02	1.30E-01	9.50E-02	3.54E-02			4.59E-02	3.19E-02	-	6.69E-02	3.19E-02	1.30E-01	1.30E-01	3.54E-02	4.59E-02	6	75
Dibenzo(a,h)Anthracene	ng/m ³	-	-	4.49E-03	1.07E-02	3.48E-03	3.00E-04			3.19E-03	4.47E-03	-	4.44E-03	3.00E-04	1.07E-02	1.07E-02	3.00E-04	4.47E-03	6	75
Fluoranthene	ng/m ³	-	-	2.30E+00	3.12E+00	1.70E+00	1.37E+00			1.48E+00	3.12E-01	-	1.71E+00	3.12E-01	3.12E+00	3.12E+00	1.37E+00	1.48E+00	6	75
Fluorene	ng/m ³	-	-	9.94E+00	1.66E+01	1.02E+01	6.49E+00			5.35E+00	5.66E-01	-	8.19E+00	5.66E-01	1.66E+01	1.66E+01	6.49E+00	5.35E+00	6	75
Indeno(1,2,3-cd)Pyrene	ng/m ³	-	-	2.41E-02	3.15E-02	2.26E-02	1.12E-02			1.57E-02	1.38E-02	-	1.98E-02	1.12E-02	3.15E-02	3.15E-02	1.12E-02	1.57E-02	6	75
Naphthalene	ng/m ³	22500	22500	2.94E+01	2.31E+01	4.73E+01	2.46E+01			1.82E+01	2.73E+00	0	2.42E+01	2.73E+00	4.73E+01	4.73E+01	2.46E+01	1.82E+01	6	75
o-Terphenyl	ng/m ³	-	-	9.25E-03	1.85E-02	2.51E-02	6.19E-03			7.96E-03	1.10E-02	-	1.30E-02	6.19E-03	2.51E-02	2.51E-02	6.19E-03	1.10E-02	6	75
Perylene	ng/m ³	-	-	1.56E-03	1.54E-03	1.57E-03	3.00E-04			1.52E-03	1.56E-03	-	1.34E-03	3.00E-04	1.57E-03	1.57E-03	3.00E-04	1.56E-03	6	75
Phenanthrene	ng/m ³	-	-	1.65E+01	2.42E+01	1.21E+01	8.50E+00			9.21E+00	1.33E+00	-	1.20E+01	1.33E+00	2.42E+01	2.42E+01	8.50E+00	9.21E+00	6	75
Pyrene	ng/m ³	-	-	8.44E-01	1.07E+00	7.21E-01	5.71E-01			7.11E-01	1.72E-01	-	6.82E-01	1.72E-01	1.07E+00	1.07E+00	5.71E-01	7.11E-01	6	75
Tetralin	ng/m ³	-	-	1.91E+00	7.53E-01	1.71E+00	6.94E-01			1.83E+00	8.69E-01	-	1.29E+00	6.94E-01	1.91E+00	1.91E+00	6.94E-01	1.83E+00	6	75
Total PAH ^[4]	ng/m ³	-	-	119.67	135.37	135.24	84.39			66.71	9.62	-	91.84	9.62	135.37	135.37	84.39	66.71	6	75

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

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

Table B6: 2022 Rundle Station Q3 Monitoring Results for PAHs

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	4-Jul-22	16-Jul-22	28-Jul-22	9-Aug-22	21-Aug-22	2-Sep-22	14-Sep-22	26-Sep-22	No. > Criteria	Arithmetic Mean	Minimum Q3 Concentration	Maximum Q3 Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
1-Methylnaphthalene	ng/m ³	12000	-	7.80E+00	9.91E+00	7.57E+00	2.06E+00	Invalid	Invalid	2.17E+00	1.40E+00	0	5.15E+00	1.40E+00	9.91E+00	9.91E+00	2.06E+00	2.17E+00	6	75
2-Methylnaphthalene	ng/m ³	10000	-	1.65E+01	2.03E+01	1.54E+01	3.28E+00			4.04E+00	2.59E+00	0	1.04E+01	2.59E+00	2.03E+01	2.03E+01	3.28E+00	4.04E+00	6	75
Acenaphthene	ng/m ³	-	-	9.51E+00	1.53E+01	9.51E+00	1.62E+00			1.23E+00	1.19E+00	-	6.39E+00	1.19E+00	1.53E+01	1.53E+01	1.62E+00	1.23E+00	6	75
Acenaphthylene	ng/m ³	3500	-	2.37E-01	4.87E-01	2.66E-01	1.67E-01			2.73E-01	8.58E-02	0	2.53E-01	8.58E-02	4.87E-01	4.87E-01	1.67E-01	2.73E-01	6	75
Anthracene	ng/m ³	200	-	6.15E-01	2.45E+00	6.55E-01	1.80E-01			1.04E-01	1.58E-01	0	6.93E-01	1.04E-01	2.45E+00	2.45E+00	1.80E-01	1.58E-01	6	75
Benzo(a)Anthracene	ng/m ³	-	-	1.66E-02	4.33E-02	1.76E-02	1.36E-02			8.84E-03	1.24E-02	-	1.87E-02	8.84E-03	4.33E-02	4.33E-02	1.36E-02	1.24E-02	6	75
Benzo(a)fluorene	ng/m ³	-	-	1.09E-01	1.67E-01	1.38E-01	2.93E-02			3.23E-02	5.03E-02	-	8.77E-02	2.93E-02	1.67E-01	1.67E-01	2.93E-02	5.03E-02	6	75
Benzo(a)Pyrene (Historically High)	ng/m ³	0.05 ^[1] 5 ^[2] 1.1 ^[3]	1	1.84E-02	1.96E-02	2.40E-02	8.05E-03			3.62E-02	1.21E-02	0	1.97E-02	8.05E-03	3.62E-02	2.40E-02	8.05E-03	3.62E-02	6	75
Benzo(b)Fluoranthene	ng/m ³	-	-	4.62E-02	5.55E-02	3.78E-02	1.84E-02			2.40E-02	3.73E-02	-	3.65E-02	1.84E-02	5.55E-02	5.55E-02	1.84E-02	3.73E-02	6	75
Benzo(b)fluorene	ng/m ³	-	-	4.34E-02	8.42E-02	5.23E-02	1.41E-02			1.74E-02	2.43E-02	-	3.93E-02	1.41E-02	8.42E-02	8.42E-02	1.41E-02	2.43E-02	6	75
Benzo(e)Pyrene	ng/m ³	-	-	2.36E-02	3.34E-02	2.03E-02	1.04E-02			1.69E-02	1.72E-02	-	2.03E-02	1.04E-02	3.34E-02	3.34E-02	1.04E-02	1.72E-02	6	75
Benzo(g,h,i)Perylene	ng/m ³	-	-	3.06E-02	2.85E-02	2.53E-02	1.35E-02			3.71E-02	2.35E-02	-	2.64E-02	1.35E-02	3.71E-02	3.06E-02	1.35E-02	3.71E-02	6	75
Benzo(k)Fluoranthene	ng/m ³	-	-	2.62E-02	3.79E-02	2.59E-02	1.59E-02			1.83E-02	1.26E-02	-	2.28E-02	1.26E-02	3.79E-02	3.79E-02	1.59E-02	1.83E-02	6	75
Biphenyl	ng/m ³	-	-	3.52E+00	6.60E+00	4.37E+00	1.05E+00			8.96E-01	6.84E-01	-	2.85E+00	6.84E-01	6.60E+00	6.60E+00	1.05E+00	8.96E-01	6	75
Chrysene	ng/m ³	-	-	9.79E-02	2.41E-01	1.07E-01	4.91E-02			3.83E-02	4.49E-02	-	9.65E-02	3.83E-02	2.41E-01	2.41E-01	4.91E-02	4.49E-02	6	75
Dibenzo(a,h)Anthracene	ng/m ³	-	-	3.85E-03	5.55E-03	3.14E-03	1.89E-03			4.24E-03	9.81E-03	-	4.75E-03	1.89E-03	9.81E-03	5.55E-03	1.89E-03	9.81E-03	6	75
Fluoranthene	ng/m ³	-	-	3.01E+00	8.51E+00	3.54E+00	5.18E-01			5.16E-01	9.46E-01	-	2.84E+00	5.16E-01	8.51E+00	8.51E+00	5.18E-01	9.46E-01	6	75
Fluorene	ng/m ³	-	-	7.80E+00	1.55E+01	8.52E+00	1.29E+00			1.03E+00	1.46E+00	-	5.94E+00	1.03E+00	1.55E+01	1.55E+01	1.29E+00	1.46E+00	6	75
Indeno(1,2,3-cd)Pyrene	ng/m ³	-	-	2.57E-02	2.80E-02	2.42E-02	1.63E-02			2.15E-02	2.00E-02	-	2.26E-02	1.63E-02	2.80E-02	2.80E-02	1.63E-02	2.15E-02	6	75
Naphthalene	ng/m ³	22500	22500	1.62E+01	1.73E+01	1.99E+01	5.27E+00			7.21E+00	3.08E+00	0	1.15E+01	3.08E+00	1.99E+01	1.99E+01	5.27E+00	7.21E+00	6	75
o-Terphenyl	ng/m ³	-	-	9.39E-03	1.49E-02	1.85E-02	4.88E-03			5.31E-03	1.15E-02	-	1.07E-02	4.88E-03	1.85E-02	1.85E-02	4.88E-03	1.15E-02	6	75
Perylene	ng/m ³	-	-	1.53E-03	1.49E-03	1.54E-03	2.96E-04			1.48E-03	1.58E-03	-	1.32E-03	2.96E-04	1.58E-03	1.54E-03	2.96E-04	1.58E-03	6	75
Phenanthrene	ng/m ³	-	-	1.45E+01	3.67E+01	1.54E+01	2.50E+00			2.17E+00	3.54E+00	-	1.25E+01	2.17E+00	3.67E+01	3.67E+01	2.50E+00	3.54E+00	6	75
Pyrene	ng/m ³	-	-	1.20E+00	3.25E+00	1.38E+00	2.66E-01			3.18E-01	4.72E-01	-	1.15E+00	2.66E-01	3.25E+00	3.25E+00	2.66E-01	4.72E-01	6	75
Tetralin	ng/m ³	-	-	1.91E+00	1.11E+00	1.03E+00	4.11E-01			1.07E+00	3.08E-01	-	9.75E-01	3.08E-01	1.91E+00	1.91E+00	4.11E-01	1.07E+00	6	75
Total PAH ^[4]	ng/m ³	-	-	83.27	138.15	88.08	18.81			21.28	16.19	-	60.96	16.19	138.15	138.15	18.81	21.28	6	75

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)
July 4, 2022	L2721070-4	1440	1695	L2721070-2	1440	1642
July 10, 2022	L2723898-1	1440	1614	Invalid		
July 16, 2022	L2723898-2	1440	1673	L2723898-4	1440	1626
July 22, 2022	L2728005-1	1440	1663	L2728005-4	1440	1596
July 28, 2022	L2726100-1	1440	1714	L2726100-2	1440	1631
August 3, 2022	L2728005-2	1440	1645	L2728005-5	1440	1620
August 9, 2022	L2728005-3	1440	1685	L2728005-6	1440	1641
August 15, 2022	L2730287-4	1440	1658	L2730287-2	1440	1657
August 21, 2022	L2730287-3	1440	1703	L2730287-1	1440	1676
August 27, 2022	Invalid			Invalid		
September 2, 2022	Invalid			Invalid		
September 8, 2022	L2733423-3	1440	1685	L2733423-1	1440	1667
September 14, 2022	L2733423-4	1440	1655	L2733423-2	1440	1649
September 20, 2022	L2734921-3	1440	1712	L2734921-1	1440	1651
September 26, 2022	Invalid			L2734921-2	1440	1702

Table B8: 2022 Courtice Station Q3 Monitoring Results for TSP and Metals

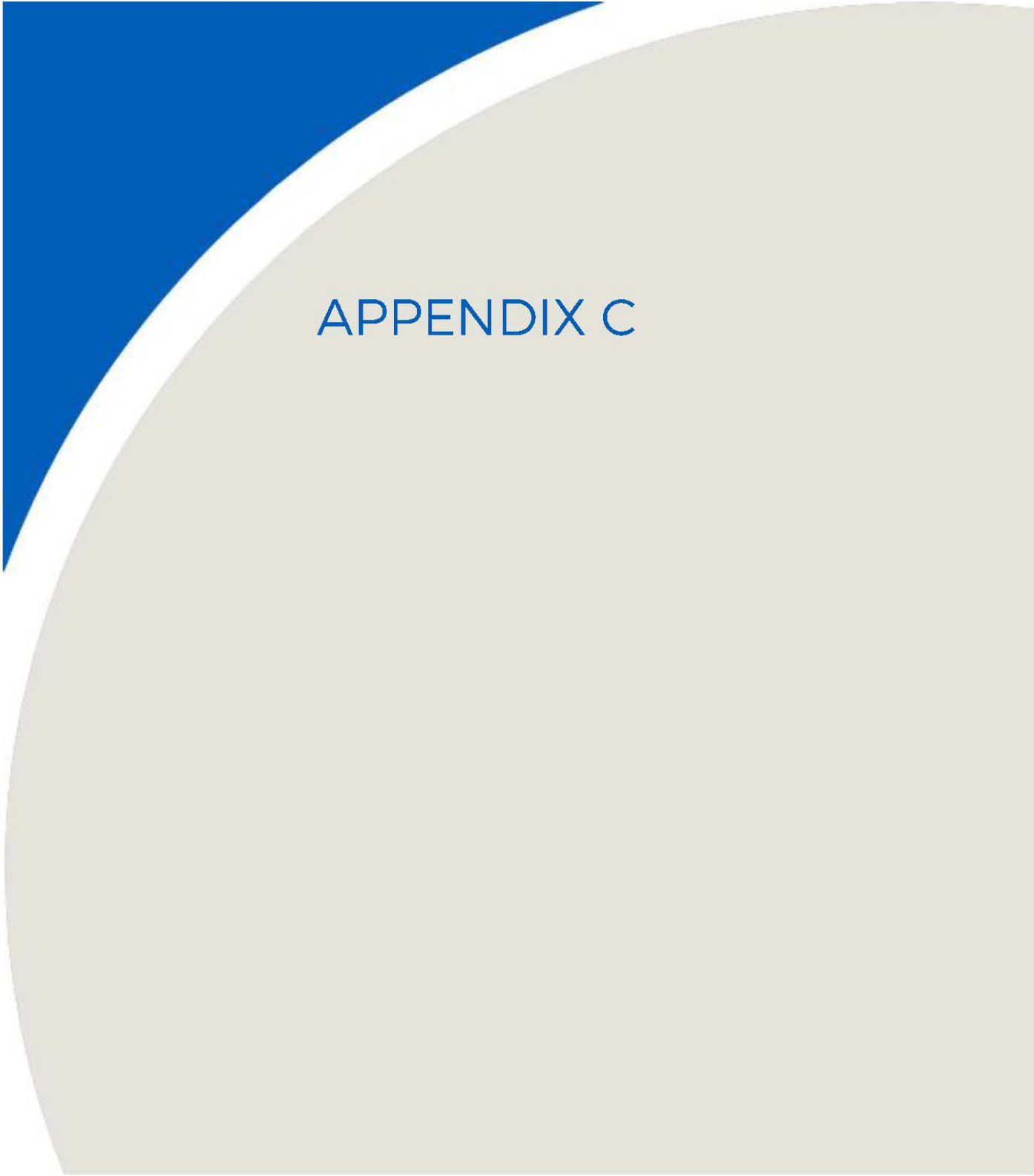
Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	4-Jul-22	10-Jul-22	16-Jul-22	22-Jul-22	28-Jul-22	3-Aug-22	9-Aug-22	15-Aug-22	21-Aug-22	27-Aug-22	2-Sep-22	8-Sep-22	14-Sep-22	20-Sep-22	26-Sep-22	MECP Criteria (µg/m ³)	No. > Criteria	Geometric Mean	Arithmetic Mean	Q3 Minimum Concentration	Q3 Maximum Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	µg/m ³	120	120	28.61	17.16	26.00	32.23	26.66	24.98	13.29	24.37	11.27	Invalid	Invalid	14.84	26.59	17.93	Invalid	120	0	20.9	22.0	11.27	32.23	32.23	24.98	26.59	12	80
Mercury (Hg)	µg/m ³	2	2	9.44E-06	9.29E-06	1.37E-05	1.74E-05	1.05E-05	1.40E-05	2.97E-06	9.65E-06	1.06E-05			8.90E-06	9.06E-06	1.05E-05		2	0	9.81E-06	1.05E-05	2.97E-06	1.74E-05	1.74E-05	1.40E-05	1.05E-05	12	80
Aluminum (Al)	µg/m ³	4.8	-	2.69E-01	1.13E-01	2.22E-01	1.71E-01	1.47E-01	2.67E-01	9.08E-02	2.91E-01	9.45E-02			3.13E-01	2.77E-01	1.29E-01		4.8	0	1.81E-01	1.99E-01	9.08E-02	3.13E-01	2.69E-01	2.91E-01	3.13E-01	12	80
Antimony (Sb)	µg/m ³	25	25	8.44E-04	6.32E-04	2.80E-03	9.20E-04	1.13E-03	1.24E-03	5.04E-04	7.90E-04	6.64E-04			7.48E-04	6.40E-04	1.08E-03		25	0	8.95E-04	9.99E-04	5.04E-04	2.80E-03	2.80E-03	1.24E-03	1.08E-03	12	80
Arsenic (As)	µg/m ³	0.3	0.3	8.85E-04	9.29E-04	3.83E-03	9.02E-04	8.75E-04	9.12E-04	8.90E-04	9.05E-04	8.81E-04			8.90E-04	9.06E-04	8.76E-04		0.3	0	1.01E-03	1.14E-03	8.75E-04	3.83E-03	3.83E-03	9.12E-04	9.06E-04	12	80
Barium (Ba)	µg/m ³	10	10	1.27E-02	5.77E-03	7.65E-03	1.08E-02	1.11E-02	9.12E-03	4.84E-03	9.77E-03	3.36E-03			1.03E-02	9.43E-03	1.03E-02		10	0	8.24E-03	8.76E-03	3.36E-03	1.27E-02	1.27E-02	9.77E-03	1.03E-02	12	80
Beryllium (Be)	µg/m ³	0.01	0.01	1.47E-05	1.55E-05	1.49E-05	1.50E-05	1.46E-05	1.52E-05	1.48E-05	3.44E-05	1.47E-05			1.48E-05	1.51E-05	1.46E-05		0.01	0	1.60E-05	1.65E-05	1.46E-05	3.44E-05	1.55E-05	3.44E-05	1.51E-05	12	80
Bismuth (Bi)	µg/m ³	-	-	5.31E-04	5.58E-04	5.38E-04	5.41E-04	5.25E-04	5.47E-04	5.34E-04	5.43E-04	5.28E-04			5.34E-04	5.44E-04	5.26E-04		-	-	5.37E-04	5.37E-04	5.25E-04	5.58E-04	5.58E-04	5.47E-04	5.44E-04	12	80
Boron (B)	µg/m ³	120	-	4.42E-03	4.65E-03	4.48E-03	9.02E-03	4.38E-03	4.56E-03	4.45E-03	4.52E-03	4.40E-03			4.45E-03	4.53E-03	4.38E-03		120	0	4.74E-03	4.85E-03	4.38E-03	9.02E-03	9.02E-03	4.56E-03	4.53E-03	12	80
Cadmium (Cd)	µg/m ³	0.025	0.025	1.23E-04	1.09E-04	1.86E-04	8.30E-05	1.29E-04	1.28E-04	3.44E-05	1.46E-04	9.98E-05			7.60E-05	4.83E-05	4.50E-05		0.025	0	9.00E-05	1.01E-04	3.44E-05	1.86E-04	1.86E-04	1.46E-04	7.60E-05	12	80
Chromium (Cr)	µg/m ³	0.5	-	2.95E-03	2.17E-03	2.63E-03	3.37E-03	2.45E-03	3.04E-03	1.01E-03	2.05E-03	9.98E-04			2.37E-03	2.72E-03	2.22E-03		0.5	0	2.19E-03	2.33E-03	9.98E-04	3.37E-03	3.37E-03	3.04E-03	2.72E-03	12	80
Cobalt (Co)	µg/m ³	0.1	0.1	1.86E-04	1.57E-04	1.58E-04	1.53E-04	1.66E-04	1.58E-04	8.96E-05	1.75E-04	8.10E-05			1.82E-04	1.72E-04	1.11E-04		0.1	0	1.44E-04	1.49E-04	8.10E-05	1.86E-04	1.86E-04	1.75E-04	1.82E-04	12	80
Copper (Cu)	µg/m ³	50	-	4.49E-02	2.42E-02	6.16E-02	5.47E-02	4.70E-02	2.53E-02	3.07E-02	2.56E-02	2.17E-02			5.69E-02	3.21E-02	2.89E-02		50	0	3.54E-02	3.78E-02	2.17E-02	6.16E-02	6.16E-02	3.07E-02	5.69E-02	12	80
Iron (Fe)	µg/m ³	4	-	7.67E-01	4.66E-01	6.40E-01	6.55E-01	5.41E-01	5.47E-01	3.42E-01	6.39E-01	2.13E-01			6.41E-01	5.17E-01	4.63E-01		4	0	5.11E-01	5.36E-01	2.13E-01	7.67E-01	7.67E-01	6.39E-01	6.41E-01	12	80
Lead (Pb)	µg/m ³	0.5	0.5	2.21E-03	2.27E-03	3.50E-03	1.96E-03	2.94E-03	2.52E-03	7.06E-04	1.72E-03	1.96E-03			1.57E-03	1.12E-03	1.19E-03		2	0	1.81E-03	1.97E-03	7.06E-04	3.50E-03	3.50E-03	2.52E-03	1.57E-03	12	80
Magnesium (Mg)	µg/m ³	-	-	3.29E-01	1.62E-01	3.34E-01	3.33E-01	2.71E-01	2.90E-01	1.10E-01	2.47E-01	9.63E-02			2.54E-01	3.21E-01	1.68E-01		-	-	2.25E-01	2.43E-01	9.63E-02	3.34E-01	3.34E-01	2.90E-01	3.21E-01	12	80
Manganese (Mn)	µg/m ³	0.4	-	1.92E-02	1.03E-02	1.42E-02	2.19E-02	1.76E-02	1.51E-02	9.44E-03	1.62E-02	5.31E-03			1.64E-02	1.71E-02	1.14E-02		0.4	0	1.37E-02	1.45E-02	5.31E-03	2.19E-02	2.19E-02	1.62E-02	1.71E-02	12	80
Molybdenum (Mo)	µg/m ³	120	-	1.83E-03	9.29E-04	2.08E-03	1.65E-03	2.29E-03	1.46E-03	1.69E-03	1.28E-03	1.45E-03			3.31E-03	1.61E-03	1.27E-03		120	0	1.65E-03	1.74E-03	9.29E-04	3.31E-03	2.29E-03	1.69E-03	3.31E-03	12	80
Nickel (Ni)	µg/m ³	0.2	-	1.24E-03	8.86E-04	1.28E-03	1.43E-03	1.04E-03	1.45E-03	5.46E-04	8.26E-04	6.11E-04			9.61E-04	1.41E-03	1.18E-03		0.2	0	1.03E-03	1.07E-03	5.46E-04	1.45E-03	1.43E-03	1.45E-03	1.41E-03	12	80
Phosphorus (P)	µg/m ³	-	-	2.21E-01	2.32E-01	2.24E-01	2.25E-01	2.19E-01	2.28E-01	2.23E-01	2.26E-01	2.20E-01			2.23E-01	2.27E-01	2.19E-01		-	-	2.24E-01	2.24E-01	2.19E-01	2.32E-01	2.32E-01	2.28E-01	2.27E-01	12	80
Selenium (Se)	µg/m ³	10	10	3.83E-04	4.03E-04	3.89E-04	3.91E-04	1.52E-03	3.95E-04	3.86E-04	3.92E-04	8.22E-04			3.86E-04	3.93E-04	3.80E-04		10	0	4.64E-04	5.20E-04	3.80E-04	1.52E-03	1.52E-03	8.22E-04	3.93E-04	12	80
Silver (Ag)	µg/m ³	1	1	2.65E-05	2.79E-05	3.37E-04	2.71E-05	1.20E-04	1.15E-04	2.67E-05	2.71E-05	6.34E-05			2.67E-05	2.72E-05	2.63E-05		1	0	4.56E-05	7.08E-05	2.63E-05	3.37E-04	3.37E-04	1.15E-04	2.72E-05	12	80
Strontium (Sr)	µg/m ³	120	-	9.50E-03	4.15E-03	5.92E-03	5.47E-03	4.03E-03	5.29E-03	2.49E-03	6.27E-03	2.52E-03			7.77E-03	7.92E-03	3.21E-03		120	0	4.94E-03	5.38E-03	2.49E-03	9.50E-03	9.50E-03	6.27E-03	7.92E-03	12	80
Thallium (Tl)	µg/m ³	-	-	2.65E-05	2.79E-05	2.69E-05	2.71E-05	2.63E-05	2.74E-05	2.67E-05	2.71E-05	2.64E-05			2.67E-05	2.72E-05	2.63E-05		-	-	2.69E-05	2.69E-05	2.63E-05	2.79E-05	2.79E-05	2.74E-05	2.72E-05	12	80
Tin (Sn)	µg/m ³	10	10	6.78E-04	5.89E-04	1.52E-03	8.90E-04	1.18E-03	1.20E-03	1.78E-04	6.15E-04	9.92E-04			9.20E-04	9.00E-04	7.36E-04		10	0	7.81E-04	8.68E-04	1.78E-04	1.52E-03	1.52E-03	1.20E-03	9.20E-04	12	80
Titanium (Ti)	µg/m ³	120	-	1.18E-02	7.43E-03	9.56E-03	9.62E-03	8.17E-03	1.09E-02	3.26E-03	1.39E-02	3.23E-03			1.66E-02	1.21E-02	7.01E-03		120	0	8.53E-03	9.47E-03	3.23E-03	1.66E-02	1.18E-02	1.39E-02	1.66E-02	12	80
Uranium (Ur)	µg/m ³	1.5	-	2.55E-05	1.00E-05	2.45E-05	1.30E-05	1.89E-05	2.30E-05	8.31E-06	2.53E-05	1.09E-05			1.66E-05	1.55E-05	7.89E-06		1.5	0	1.53E-05	1.66E-05	7.89E-06	2.55E-05	2.55E-05	2.53E-05	1.66E-05	12	80
Vanadium (V)	µg/m ³	2	1	1.47E-03	1.55E-03	1.49E-03	1.50E-03	1.46E-03	1.52E-03	1.48E-03	1.51E-03	1.47E-03			1.48E-03	1.51E-03	1.46E-03		2	0	1.49E-03	1.49E-03	1.46E-03	1.55E-03	1.55E-03	1.52E-03	1.51E-03	12	80
Zinc (Zn)	µg/m ³	120	-	4.11E-02	3.60E-02	4.44E-02	4.25E-02	4.46E-02	4.21E-02	1.55E-02	2.59E-02	2.48E-02			3.42E-02	2.83E-02	2.82E-02		120	0	3.26E-02	3.40E-02	1.55E-02	4.46E-02	4.46E-02	4.21E-02	3.42E-02	12	80
Zirconium (Zr)	µg/m ³	20	-	5.90E-04	6.20E-04	5.98E-04	6.01E-04	5.83E-04	6.08E-04	5.93E-04	6.03E-04	5.87E-04			5.93E-04	6.04E-04	5.84E-04		20	0	5.97E-04	5.97E-04	5.83E-04	6.20E-04	6.20E-04	6.08E-04	6.04E-04	12	80

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

Table B9: 2022 Rundle Station Q3 Monitoring Results for TSP and Metals

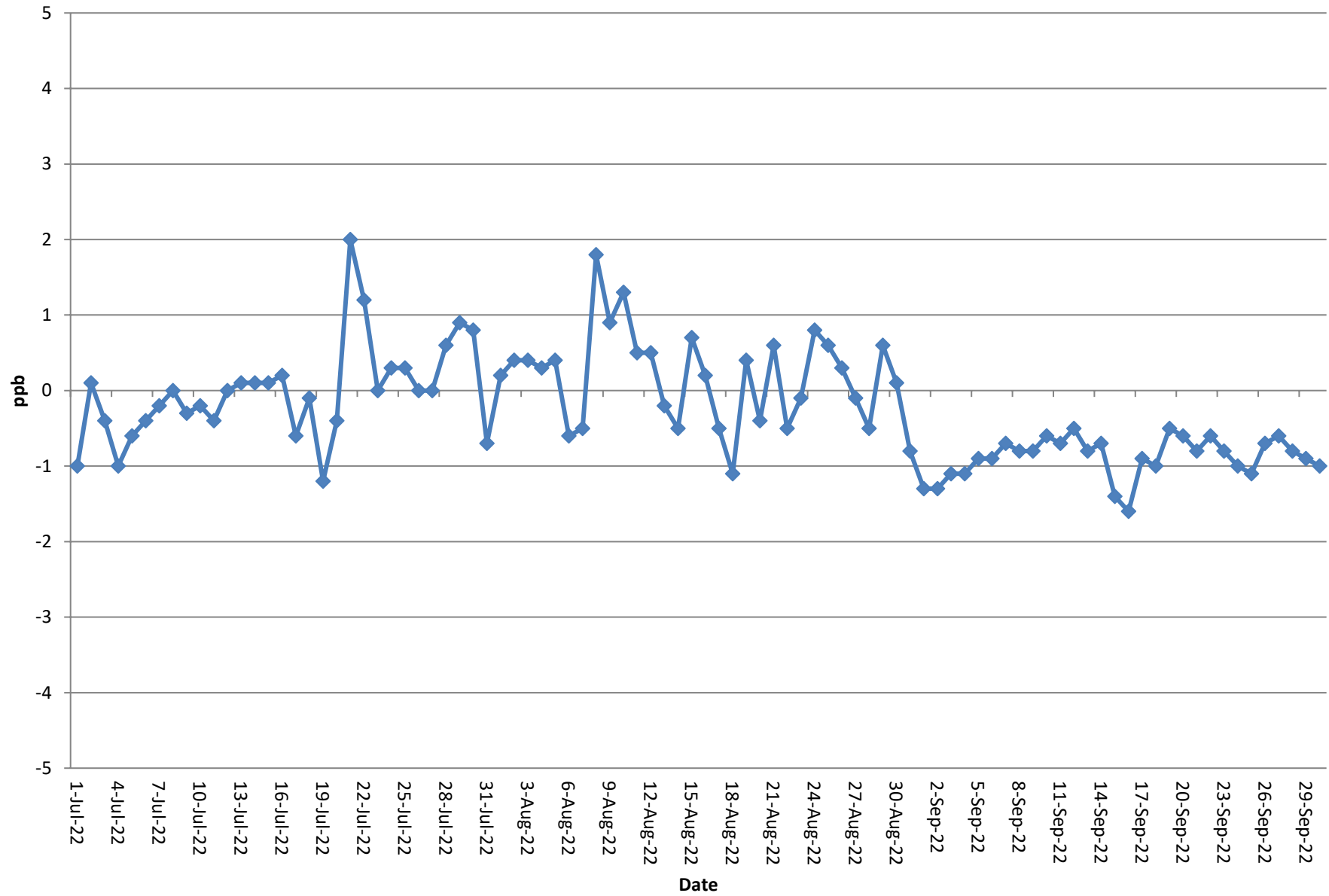
Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	4-Jul-22	10-Jul-22	16-Jul-22	22-Jul-22	28-Jul-22	3-Aug-22	9-Aug-22	15-Aug-22	21-Aug-22	27-Aug-22	2-Sep-22	8-Sep-22	14-Sep-22	20-Sep-22	26-Sep-22	MECP Criteria (µg/m³)	No. > Criteria	Geometric Mean	Arithmetic Mean	Q3 Minimum Concentration	Q3 Maximum Concentration	July Maximum Concentration	August Maximum Concentration	September Maximum Concentration	Number of Valid Samples	% Valid data
Particulate (TSP)	µg/m³	120	120	36.36	Invalid	25.89	120.93	58.49	51.23	24.19	29.75	12.23	Invalid	Invalid	21.12	31.17	21.44	18.04	120	1	30.9	37.6	12.23	120.93	120.93	51.23	31.17	12	80
Mercury (Hg)	µg/m³	2	2	9.74E-06		9.84E-06	1.50E-05	1.35E-05	1.42E-05	3.05E-06	8.45E-06	8.95E-06			3.00E-06	7.28E-06	7.27E-06	9.40E-06	2	0	8.22E-06	9.14E-06	3.00E-06	1.50E-05	1.50E-05	1.42E-05	9.40E-06	12	80
Aluminum (Al)	µg/m³	4.8	-	5.17E-01		2.33E-01	1.61E+00	8.09E-01	7.22E-01	2.03E-01	3.83E-01	1.06E-01			2.41E-01	2.43E-01	1.58E-01	8.87E-02	4.8	0	3.09E-01	4.43E-01	8.87E-02	1.61E+00	1.61E+00	7.22E-01	2.43E-01	12	80
Antimony (Sb)	µg/m³	25	25	6.64E-04		6.33E-04	9.34E-04	1.21E-03	9.81E-04	2.44E-04	5.55E-04	6.21E-04			1.17E-03	1.09E-03	4.91E-04	4.88E-04	25	0	6.92E-04	7.57E-04	2.44E-04	1.21E-03	1.21E-03	9.81E-04	1.17E-03	12	80
Arsenic (As)	µg/m³	0.3	0.3	9.14E-04		4.92E-03	9.40E-04	9.20E-04	9.26E-04	2.44E-03	9.05E-04	8.95E-04			9.00E-04	9.10E-04	9.09E-04	8.81E-04	0.3	0	1.14E-03	1.37E-03	8.81E-04	4.92E-03	4.92E-03	2.44E-03	9.10E-04	12	80
Barium (Ba)	µg/m³	10	10	1.36E-02		6.58E-03	2.53E-02	1.73E-02	1.33E-02	4.77E-03	7.66E-03	6.26E-03			1.43E-02	1.37E-02	8.96E-03	5.42E-03	10	0	1.01E-02	1.14E-02	4.77E-03	2.53E-02	2.53E-02	1.33E-02	1.43E-02	12	80
Beryllium (Be)	µg/m³	0.01	0.01	1.52E-05		1.54E-05	6.83E-05	3.49E-05	3.09E-05	1.52E-05	1.51E-05	1.49E-05			1.50E-05	1.52E-05	1.51E-05	1.47E-05	0.01	0	1.95E-05	2.25E-05	1.47E-05	6.83E-05	6.83E-05	3.09E-05	1.52E-05	12	80
Bismuth (Bi)	µg/m³	-	-	5.48E-04		5.54E-04	5.64E-04	5.52E-04	5.56E-04	5.48E-04	5.43E-04	5.37E-04			5.40E-04	5.46E-04	5.45E-04	5.29E-04	-	-	5.47E-04	5.47E-04	5.29E-04	5.64E-04	5.64E-04	5.56E-04	5.46E-04	12	80
Boron (B)	µg/m³	120	-	4.57E-03		4.61E-03	1.57E-02	4.60E-03	1.05E-02	4.57E-03	4.53E-03	4.47E-03			4.50E-03	4.55E-03	4.54E-03	4.41E-03	120	0	5.39E-03	5.96E-03	4.41E-03	1.57E-02	1.57E-02	1.05E-02	4.55E-03	12	80
Cadmium (Cd)	µg/m³	0.025	0.025	7.19E-05		1.07E-04	8.71E-05	1.36E-04	7.53E-05	1.95E-05	8.75E-05	7.04E-05			6.90E-05	6.37E-05	4.97E-05	7.99E-05	0.025	0	7.02E-05	7.64E-05	1.95E-05	1.36E-04	1.36E-04	8.75E-05	7.99E-05	12	80
Chromium (Cr)	µg/m³	0.5	-	3.17E-03		1.05E-03	5.64E-03	4.23E-03	3.33E-03	1.04E-03	1.03E-03	1.01E-03			2.76E-03	3.09E-03	2.73E-03	9.99E-04	0.5	0	2.08E-03	2.51E-03	9.99E-04	5.64E-03	5.64E-03	3.33E-03	3.09E-03	12	80
Cobalt (Co)	µg/m³	0.1	0.1	3.39E-04		1.91E-04	8.27E-04	4.22E-04	4.11E-04	1.16E-04	2.29E-04	7.52E-05			1.60E-04	1.83E-04	1.18E-04	1.27E-04	0.1	0	2.12E-04	2.66E-04	7.52E-05	8.27E-04	8.27E-04	4.11E-04	1.83E-04	12	80
Copper (Cu)	µg/m³	50	-	6.21E-02		3.43E-02	3.13E-02	4.91E-02	3.36E-02	2.08E-02	3.20E-02	2.52E-02			3.62E-02	3.14E-02	2.48E-02	2.61E-02	50	0	3.25E-02	3.39E-02	2.08E-02	6.21E-02	6.21E-02	3.36E-02	3.62E-02	12	80
Iron (Fe)	µg/m³	4	-	8.47E-01		5.04E-01	2.24E+00	1.13E+00	1.12E+00	3.71E-01	6.16E-01	2.49E-01			6.48E-01	6.37E-01	4.77E-01	2.63E-01	4	0	6.25E-01	7.58E-01	2.49E-01	2.24E+00	2.24E+00	1.12E+00	6.48E-01	12	80
Lead (Pb)	µg/m³	0.5	0.5	1.87E-03		2.88E-03	3.75E-03	4.78E-03	2.72E-03	9.51E-04	2.88E-03	1.86E-03			1.97E-03	1.53E-03	1.10E-03	2.13E-03	2	0	2.14E-03	2.37E-03	9.51E-04	4.78E-03	4.78E-03	2.88E-03	2.13E-03	12	80
Magnesium (Mg)	µg/m³	-	-	4.37E-01		3.32E-01	1.17E+00	6.62E-01	5.98E-01	2.04E-01	2.99E-01	1.08E-01			1.97E-01	3.09E-01	2.30E-01	1.55E-01	-	-	3.15E-01	3.91E-01	1.08E-01	1.17E+00	1.17E+00	5.98E-01	3.09E-01	12	80
Manganese (Mn)	µg/m³	0.4	-	2.39E-02		1.30E-02	6.52E-02	3.40E-02	2.72E-02	1.40E-02	1.67E-02	6.80E-03			1.52E-02	1.94E-02	1.90E-02	9.22E-03	0.4	0	1.84E-02	2.20E-02	6.80E-03	6.52E-02	6.52E-02	2.72E-02	1.94E-02	12	80
Molybdenum (Mo)	µg/m³	120	-	2.25E-03		1.48E-03	1.90E-03	2.98E-03	1.96E-03	8.84E-04	1.62E-03	1.58E-03			1.78E-03	1.69E-03	1.33E-03	9.28E-04	120	0	1.61E-03	1.70E-03	8.84E-04	2.98E-03	2.98E-03	1.96E-03	1.78E-03	12	80
Nickel (Ni)	µg/m³	0.2	-	1.42E-03		1.03E-03	2.67E-03	1.78E-03	1.96E-03	8.78E-04	8.99E-04	5.61E-04			9.66E-04	1.41E-03	1.04E-03	8.46E-04	0.2	0	1.18E-03	1.29E-03	5.61E-04	2.67E-03	2.67E-03	1.96E-03	1.41E-03	12	80
Phosphorus (P)	µg/m³	-	-	2.28E-01		2.31E-01	2.35E-01	2.30E-01	2.31E-01	2.29E-01	2.26E-01	2.24E-01			2.25E-01	2.27E-01	2.27E-01	2.20E-01	-	-	2.28E-01	2.28E-01	2.20E-01	2.35E-01	2.35E-01	2.31E-01	2.27E-01	12	80
Selenium (Se)	µg/m³	10	10	3.96E-04		4.00E-04	4.07E-04	1.72E-03	4.01E-04	3.96E-04	3.92E-04	8.35E-04			3.90E-04	3.94E-04	3.94E-04	3.82E-04	10	0	4.75E-04	5.42E-04	3.82E-04	1.72E-03	1.72E-03	8.35E-04	3.94E-04	12	80
Silver (Ag)	µg/m³	1	1	2.74E-05		2.43E-04	2.82E-05	1.02E-04	1.21E-04	2.74E-05	2.72E-05	5.43E-05			2.70E-05	2.73E-05	2.73E-05	2.64E-05	1	0	4.38E-05	6.15E-05	2.64E-05	2.43E-04	2.43E-04	1.21E-04	2.73E-05	12	80
Strontium (Sr)	µg/m³	120	-	1.24E-02		5.97E-03	2.79E-02	1.44E-02	1.80E-02	4.75E-03	7.36E-03	2.57E-03			5.10E-03	4.91E-03	4.91E-03	2.82E-03	120	0	7.11E-03	9.25E-03	2.57E-03	2.79E-02	2.79E-02	1.80E-02	5.10E-03	12	80
Thallium (Tl)	µg/m³	-	-	2.74E-05		2.77E-05	2.82E-05	2.76E-05	2.78E-05	2.74E-05	2.72E-05	2.68E-05			2.70E-05	2.73E-05	2.73E-05	2.64E-05	-	-	2.73E-05	2.73E-05	2.64E-05	2.82E-05	2.82E-05	2.78E-05	2.73E-05	12	80
Tin (Sn)	µg/m³	10	10	7.67E-04		5.47E-04	9.59E-04	1.47E-03	9.57E-04	1.83E-04	4.89E-04	8.35E-04			9.66E-04	1.05E-03	6.97E-04	1.09E-03	10	0	7.52E-04	8.34E-04	1.83E-04	1.47E-03	1.47E-03	9.57E-04	1.09E-03	12	80
Titanium (Ti)	µg/m³	120	-	1.89E-02		1.17E-02	8.27E-02	3.99E-02	3.33E-02	1.10E-02	1.99E-02	3.28E-03			1.50E-02	1.52E-02	7.87E-03	3.23E-03	120	0	1.47E-02	2.18E-02	3.23E-03	8.27E-02	8.27E-02	3.33E-02	1.52E-02	12	80
Uranium (Ur)	µg/m³	1.5	-	3.48E-05		1.97E-05	6.52E-05	3.53E-05	4.28E-05	1.21E-05	1.90E-05	1.05E-05			1.24E-05	1.39E-05	1.07E-05	6.64E-06	1.5	0	1.88E-05	2.36E-05	6.64E-06	6.52E-05	6.52E-05	4.28E-05	1.39E-05	12	80
Vanadium (V)	µg/m³	2	1	1.52E-03		1.54E-03	3.95E-03	1.53E-03	1.54E-03	1.52E-03	1.51E-03	1.49E-03			1.50E-03	1.52E-03	1.51E-03	1.47E-03	2	0	1.64E-03	1.72E-03	1.47E-03	3.95E-03	3.95E-03	1.54E-03	1.52E-03	12	80
Zinc (Zn)	µg/m³	120	-	3.52E-02		6.83E-02	6.09E-02	1.34E-01	6.23E-02	2.54E-02	6.64E-02	2.28E-02			5.70E-02	3.93E-02	3.63E-02	7.58E-02	120	0	5.07E-02	5.70E-02	2.28E-02	1.34E-01	1.34E-01	6.64E-02	7.58E-02	12	80
Zirconium (Zr)	µg/m³	20	-	6.09E-04		6.15E-04	6.27E-04	1.23E-03	6.17E-04	6.09E-04	6.04E-04	5.97E-04			6.00E-04	6.06E-04	6.06E-04	5.88E-04	20	0	6.44E-04	6.59E-04	5.88E-04	1.23E-03	1.23E-03	6.17E-04	6.06E-04	12	80

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

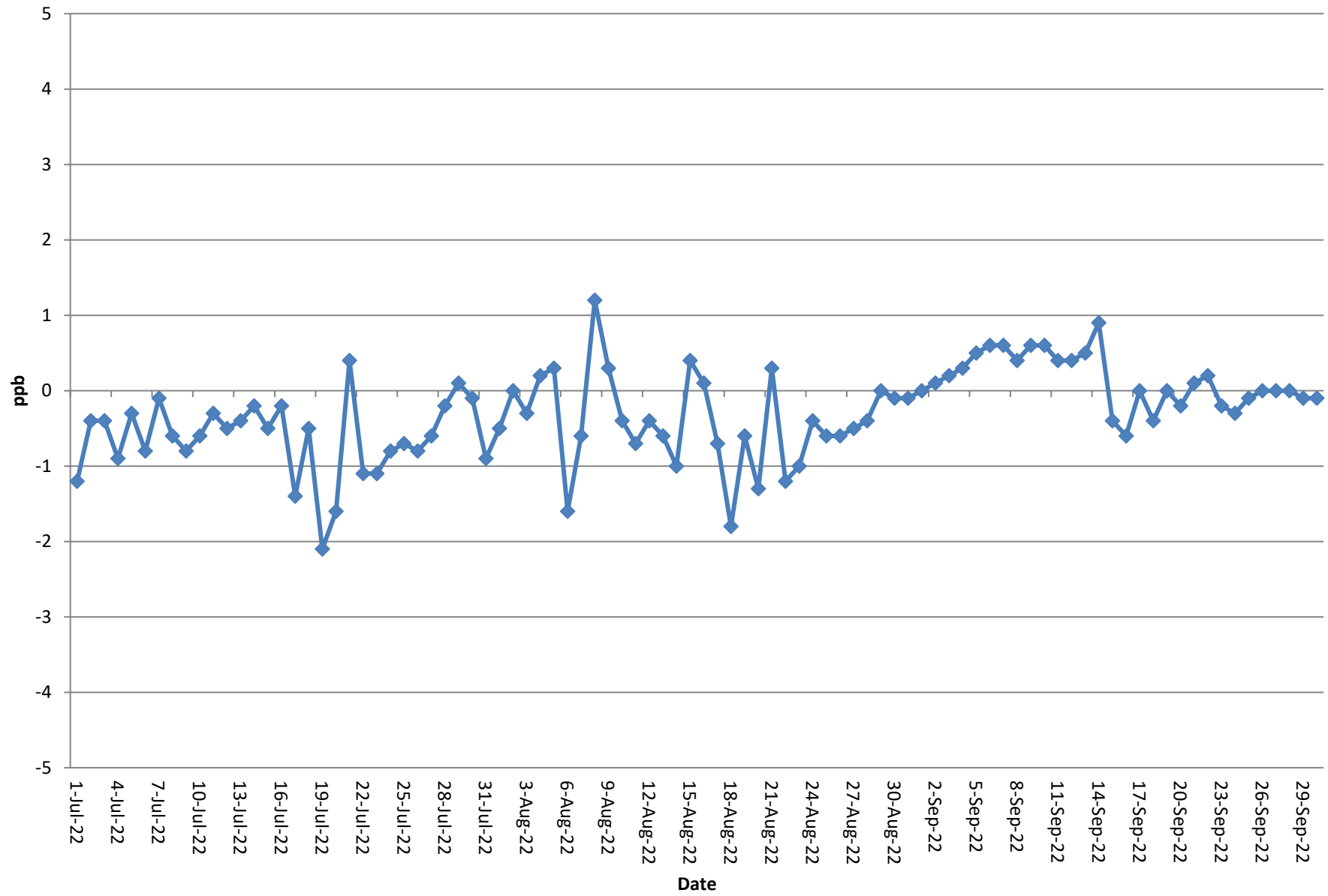
A large decorative graphic on the left side of the page. It features a blue triangular shape at the top left, which is partially covered by a large, light beige circular arc that sweeps across the page. The text 'APPENDIX C' is centered within the beige area.

APPENDIX C

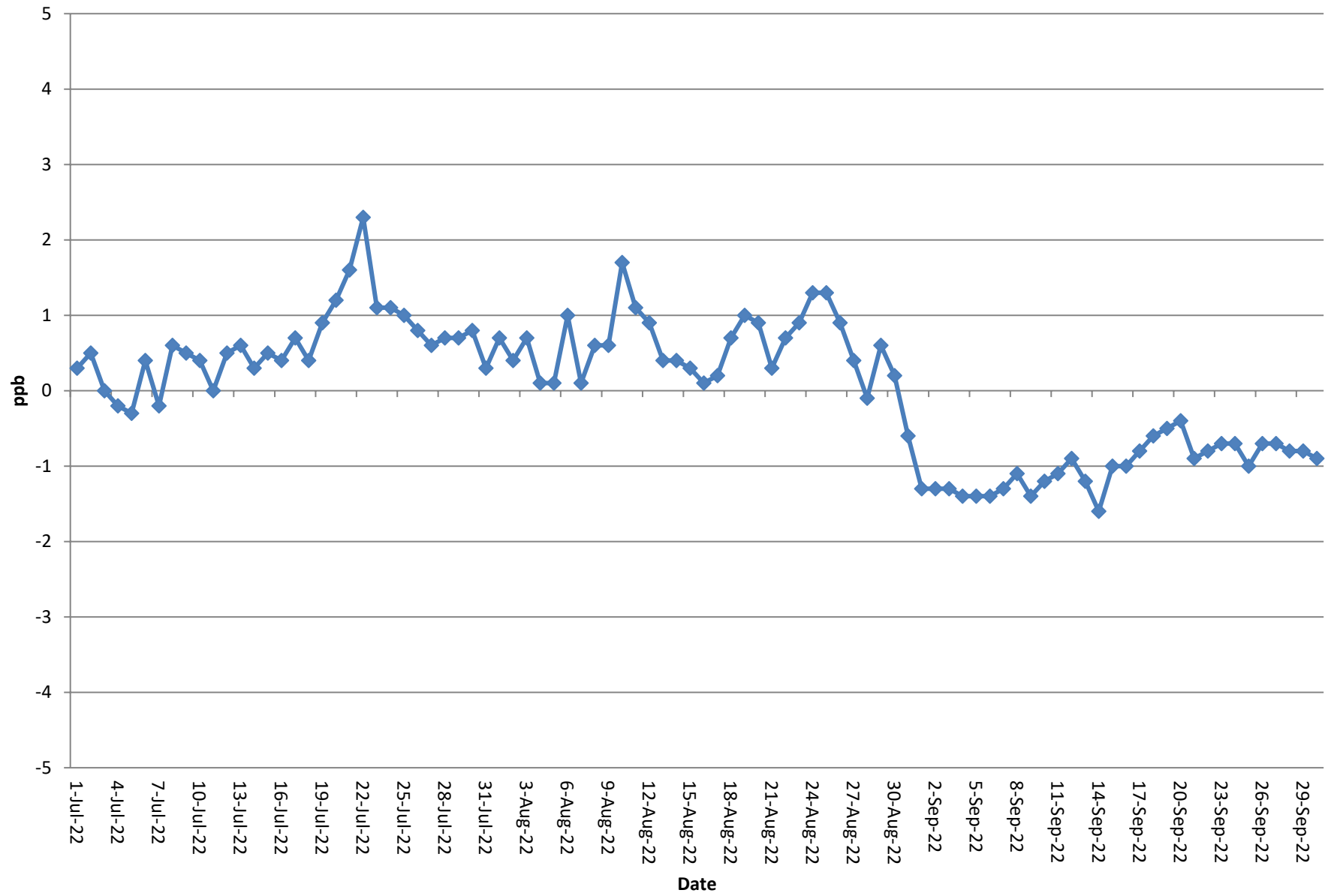
NO_x Zeros (Courtice Monitoring Station)



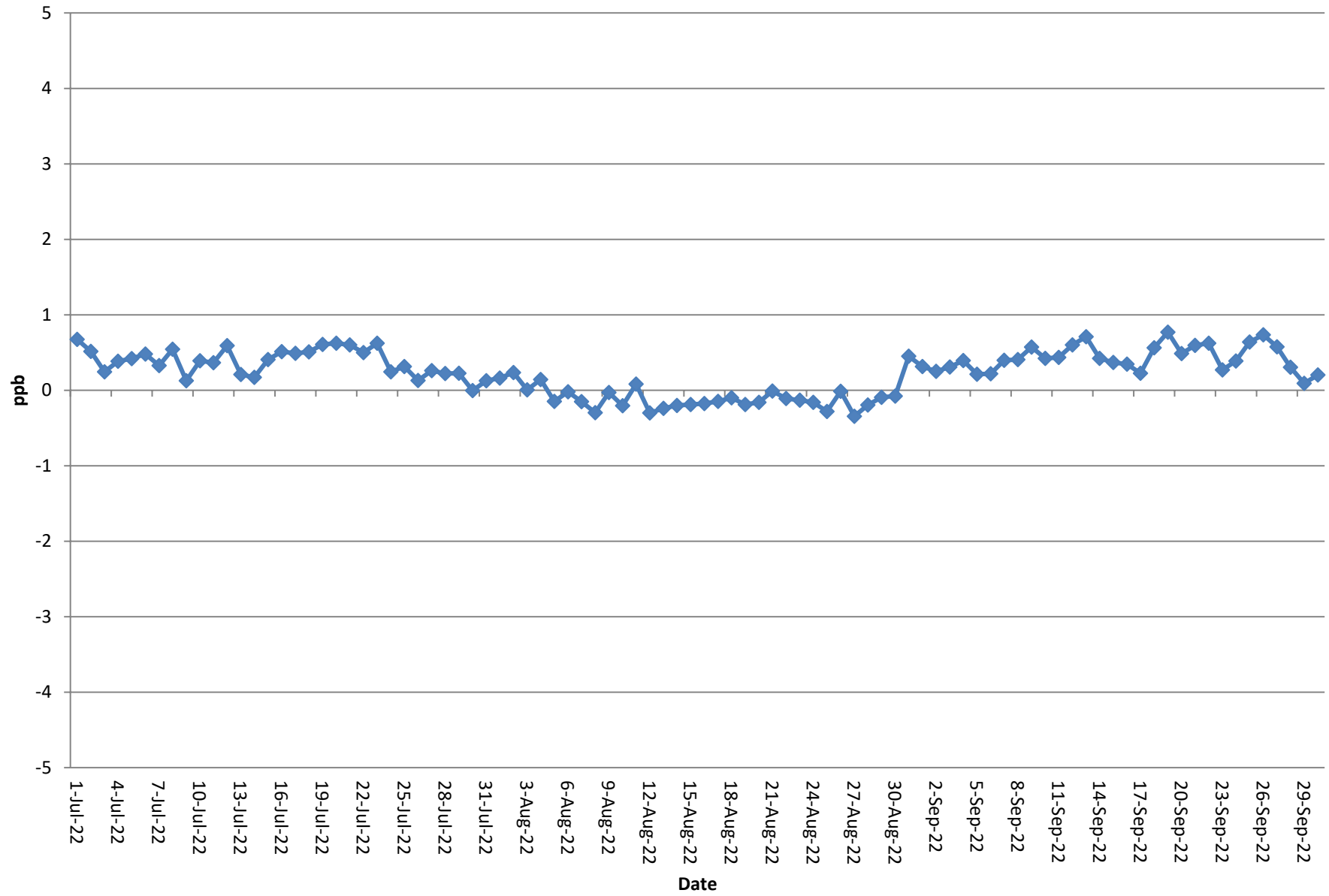
NO Zeros (Courtice Monitoring Station)



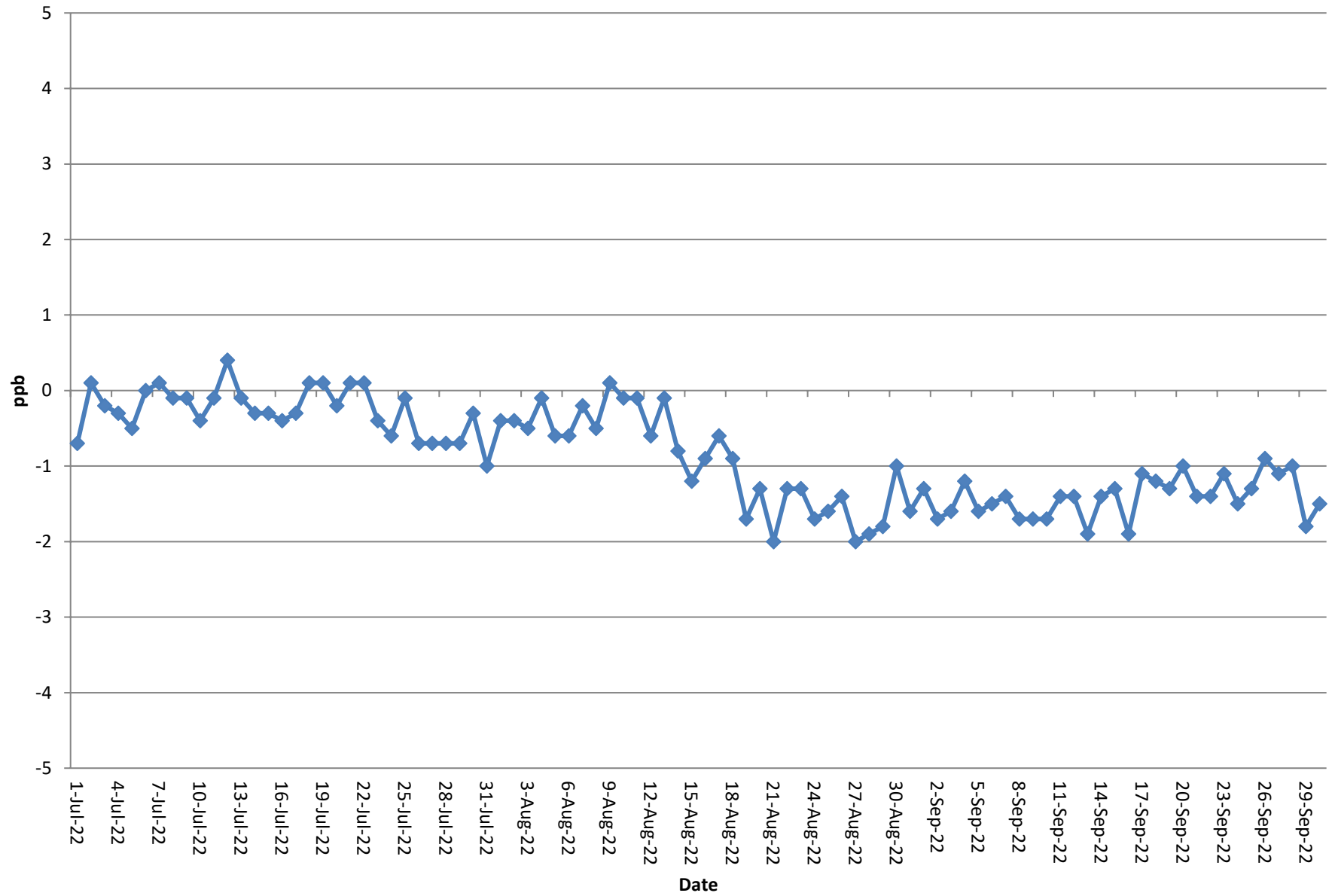
NO₂ Zeros (Courtice Monitoring Station)



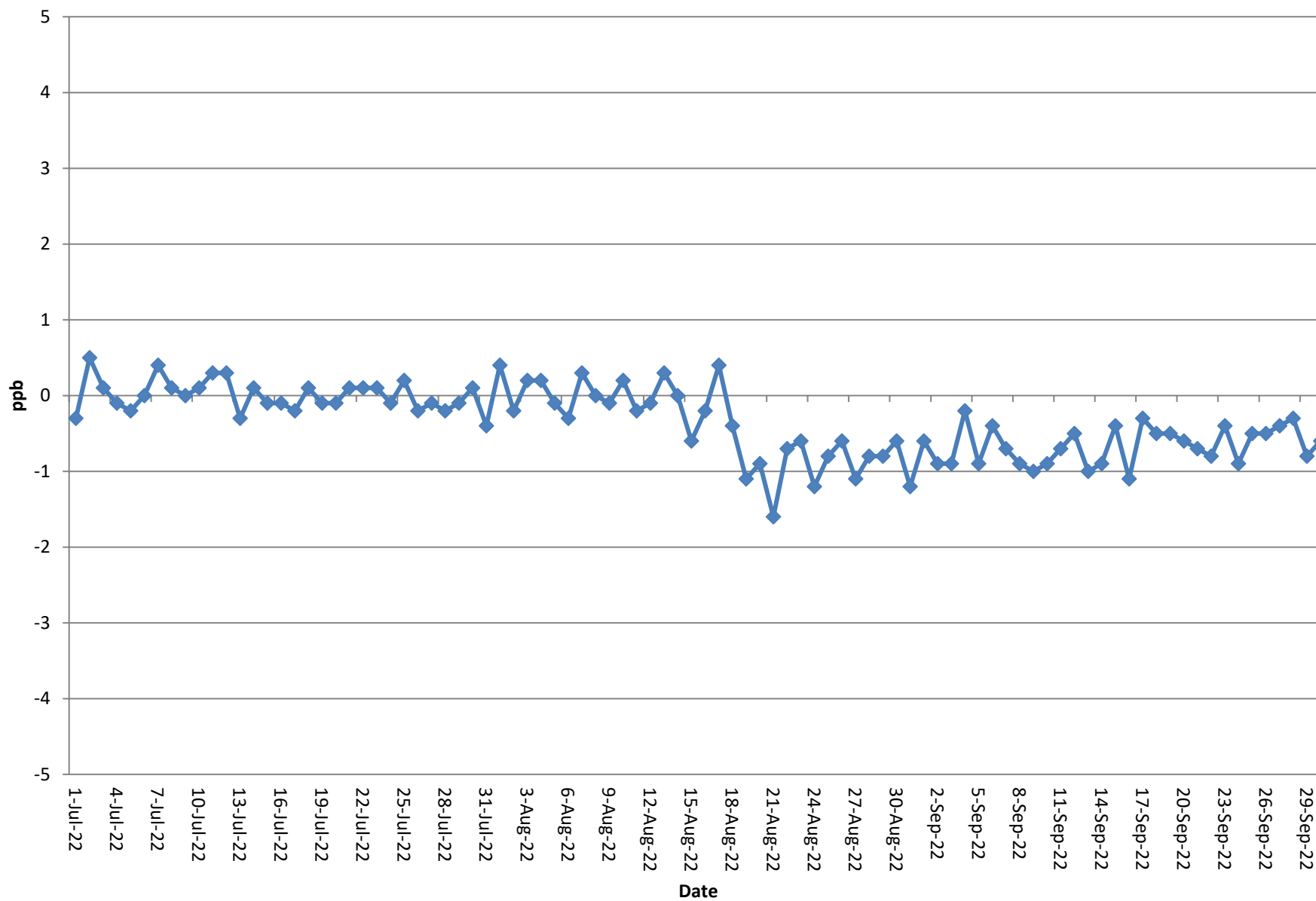
SO₂ Zeros (Courtice Monitoring Station)



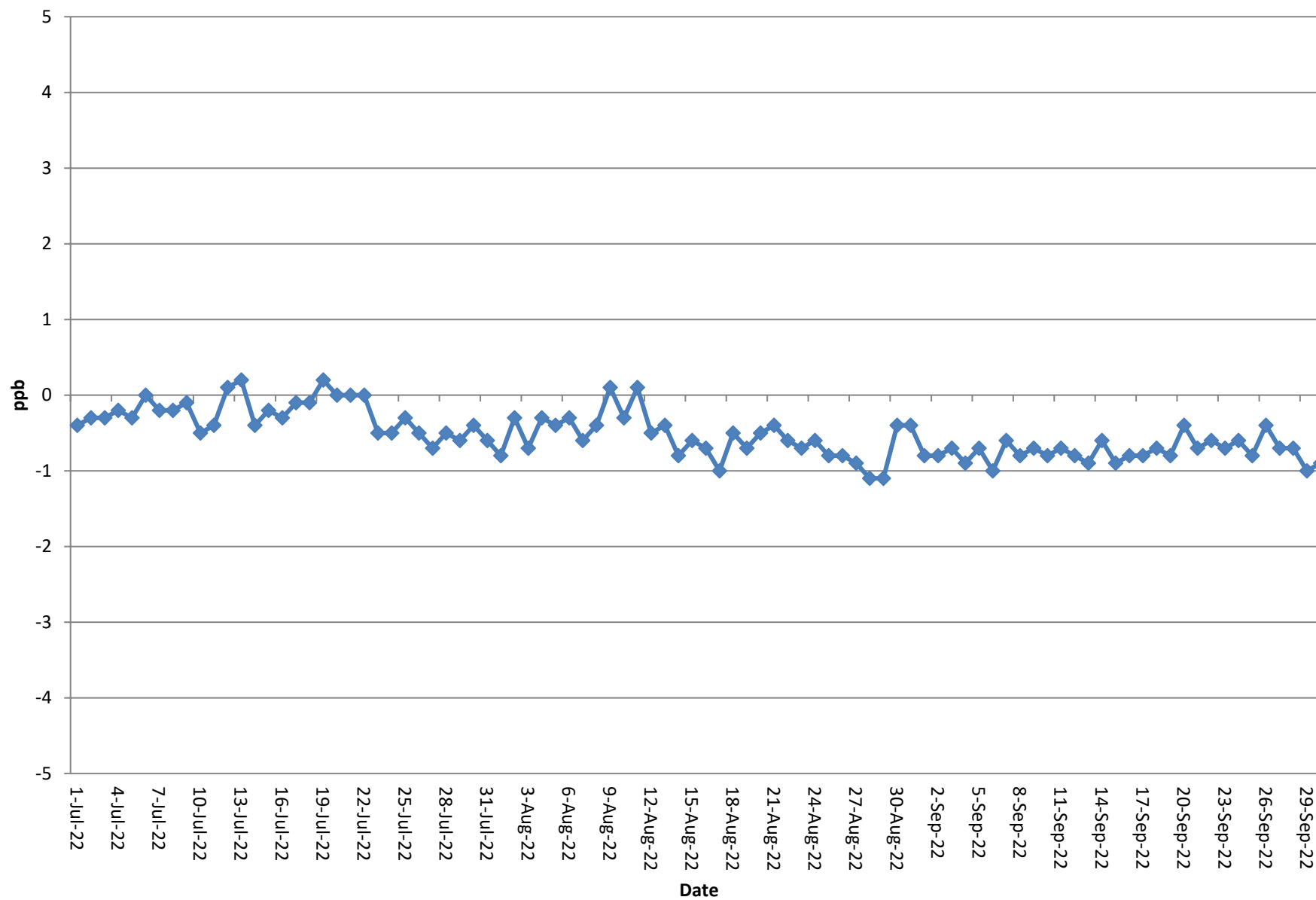
NO_x Zeros (Rundle Road Monitoring Station)



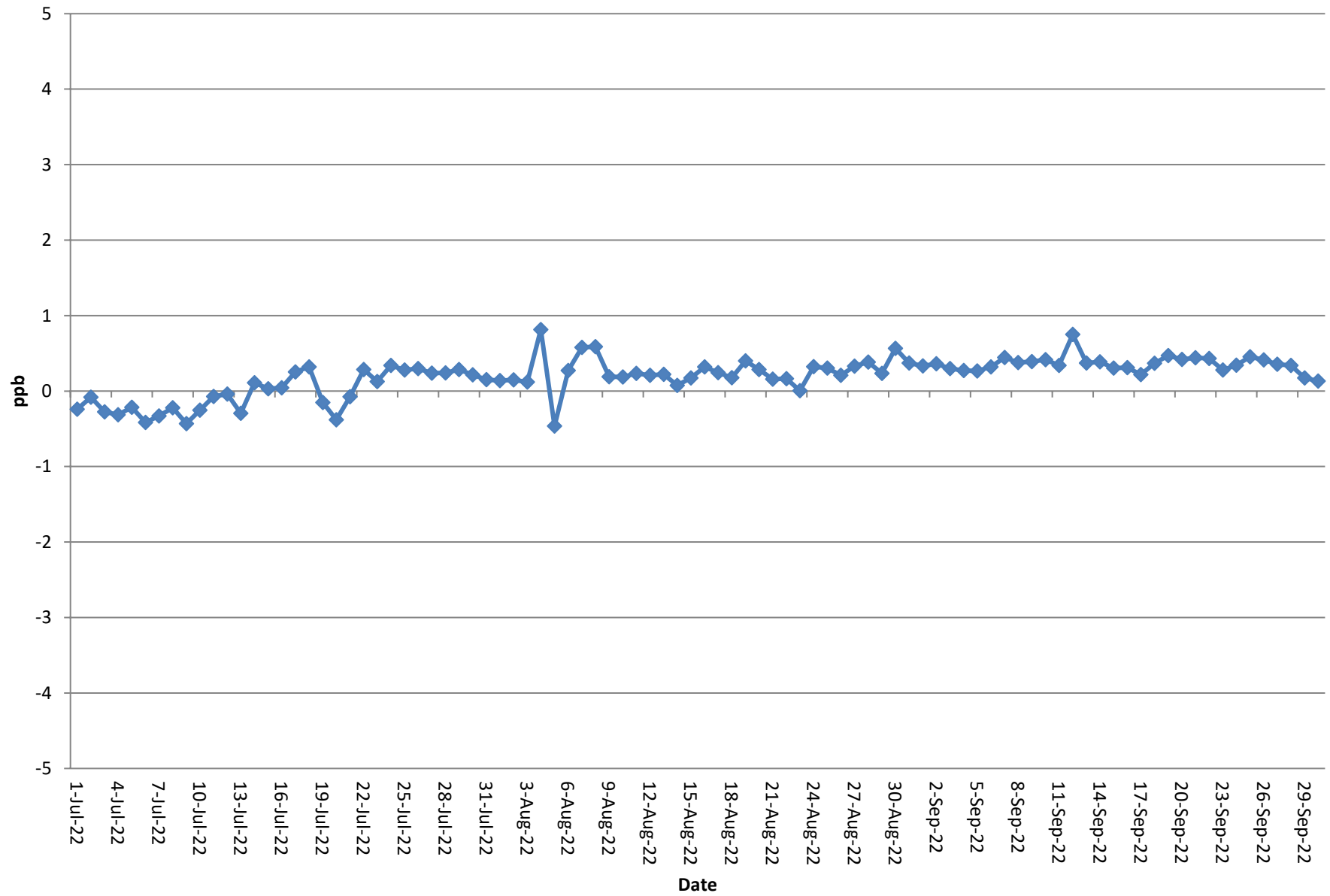
NO Zeros (Rundle Road Monitoring Station)

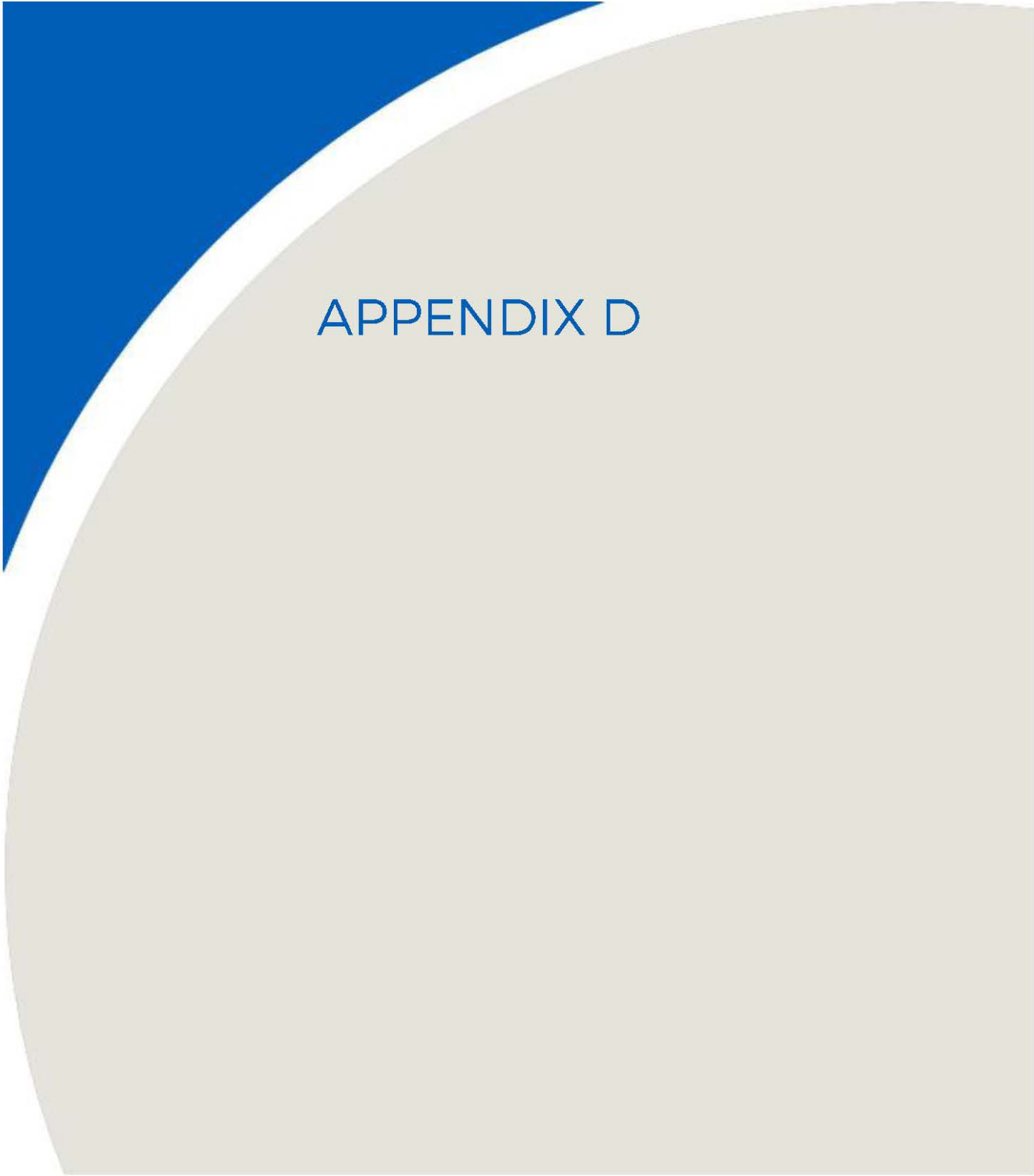


NO₂ Zeros (Rundle Road Monitoring Station)



SO₂ Zeros (Rundle Road Monitoring Station)



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APPENDIX D

Table D1: Q3 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: July 1, 2022			End Date: September 30, 2022			All testing done in EST	
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration	Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	Deleted Hours	
1	14/07/2022	SRS	Deleted Hours	14/07/2022	13:00	14/07/2022	15:00	2	Monthly Calibration
2	30/08/2022	SRS	Deleted Hours	30/08/2022	14:00	30/08/2022	17:00	3	Monthly Calibration
3	08/09/2022	MPA	Zero Correction	01/08/2022	00:00	01/09/2022	00:00	-	Correcting Values <0 to 0
4	14/09/2022	SRS	Deleted Hours	14/09/2022	14:00	14/09/2022	15:00	1	Monthly Calibration
5	06/10/2022	DAIH	Zero Correction	01/09/2022	00:00	01/10/2022	00:00	-	Correcting Values <0 to 0

Table D2: Q3 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: July 1, 2022		End Date: September 30, 2022			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration	Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	Deleted Hours	
1	13/07/2022	SRS	Deleted Hours	13/07/2022	15:00	13/07/2022	16:00	1	Monthly Calibration
2	18/08/2022	SRS	Deleted Hours	18/08/2022	15:00	18/08/2022	17:00	2	Monthly Calibration
3	15/09/2022	SRS	Deleted Hours	15/09/2022	16:00	15/09/2022	17:00	1	Monthly Calibration
4	06/10/2022	DAJH	Zero Correction	01/09/2022	00:00	01/10/2022	00:00	-	Correcting Values <0 to 0

Table D3: Q3 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: July 1, 2022		End Date: September 30, 2022			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration	Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	Deleted Hours	
1	14/07/2022	SRS	Deleted Hours	14/07/2022	12:00	14/07/2022	15:00	3	Monthly Calibration
2	22/08/2022	MPA	Zero Correction	01/07/2022	00:00	01/08/2022	00:00	-	Correcting Values <0 to 0
3	22/08/2022	MPA	Deleted Hours	19/07/2022	01:00	19/07/2022	05:00	4	Invalid: NO _x - NO ₂ - NO > +/- 2 ppb
4	22/08/2022	MPA	Deleted Hours	23/07/2022	01:00	23/07/2022	02:00	1	Invalid: NO _x - NO ₂ - NO > +/- 2 ppb
5	30/08/2022	SRS	Deleted Hours	30/08/2022	11:00	30/08/2022	19:00	8	Monthly Calibration, Instrument Swap & Stabalization Period
6	08/09/2022	MPA	Zero Correction	01/08/2022	00:00	01/09/2022	00:00	-	Correcting Values <0 to 0
	14/09/2022	SRS	Deleted Hours	14/09/2022	12:00	14/09/2022	14:00	2	Monthly Calibration
	06/10/2022	DAJH	Zero Correction	01/09/2022	00:00	01/10/2022	00:00	-	Correcting Values <0 to 0

Table D4: Q3 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: July 1, 2022		End Date: September 30, 2022			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration	Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	Deleted Hours	
1	13/07/2022	SRS	Deleted Hours	13/07/2022	13:00	13/07/2022	16:00	3	Monthly Calibration
2	22/08/2022	MPA	Zero Correction	01/07/2022	00:00	01/08/2022	00:00	-	Correcting Values <0 to 0
3	18/08/2022	SRS	Deleted Hours	18/08/2022	15:00	18/08/2022	17:00	2	Monthly Calibration
4	08/09/2022	MPA	Zero Offset Adjustment	18/08/2022	17:00	01/09/2022	00:00	-	Zero Drift Adjustment Based on Overnight Zeros
5	08/09/2022	MPA	Zero Correction	01/08/2022	00:00	01/09/2022	00:00	-	Correcting Values <0 to 0
6	15/09/2022	SRS	Deleted Hours	15/09/2022	10:00	15/09/2022	16:00	6	Monthly Calibration & Perm Tube Replacement
7	06/10/2022	DAJH	Zero Offset Adjustment	01/09/2022	00:00	01/10/2022	00:00	-	Zero Drift Adjustment Based on Overnight Zeros
8	06/10/2022	DAJH	Zero Correction	01/09/2022	00:00	01/10/2022	00:00	-	Correcting Values <0 to 0

Table D5: Q3 Edit Log for SO₂ 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: July 1, 2022		End Date: September 30, 2022			All testing done in EST		
Edit #	Edit Date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration	Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	Deleted Hours	
1	14/07/2022	SRS	Deleted Hours	14/07/2022	11:00	14/07/2022	13:00	2	Monthly Calibration
2	22/08/2022	MPA	Zero Correction	01/07/2022	00:00	01/08/2022	00:00	-	Correcting Values <0 to 0
3	30/08/2022	SRS	Deleted Hours	30/08/2022	12:00	30/08/2022	15:00	2	Monthly Calibration
4	08/09/2022	MPA	Zero Correction	01/08/2022	00:00	01/09/2022	00:00	-	Correcting Values <0 to 0
5	14/09/2022	SRS	Deleted Hours	14/09/2022	11:00	14/09/2022	16:00	5	Monthly Calibration & Perm Tube Replacement
6	15/09/2022	SRS	Deleted Hours	15/09/2022	12:00	15/09/2022	13:00	1	Perm Tube Verification
7	06/10/2022	DAJH	Zero Correction	01/09/2022	00:00	01/10/2022	00:00	-	Correcting Values <0 to 0

Table D6: Q3 Edit Log for SO₂ 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: July 1, 2022		End Date: September 30, 2022			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration	Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	Deleted Hours	
1	13/07/2022	SRS	Deleted Hours	13/07/2022	11:00	13/07/2022	14:00	3	Monthly Calibration
2	22/08/2022	MPA	Zero Correction	01/07/2022	00:00	01/08/2022	00:00	-	Correcting Values <0 to 0
3	18/08/2022	SRS	Deleted Hours	18/08/2022	13:00	18/08/2022	16:00	3	Monthly Calibration
4	08/09/2022	MPA	Zero Correction	01/08/2022	00:00	01/09/2022	00:00	-	Correcting Values <0 to 0
5	15/09/2022	SRS	Deleted Hours	15/09/2022	11:00	15/09/2022	17:00	6	Monthly Calibration & Perm Tube Replacement
6	06/10/2022	DAJH	Zero Correction	01/09/2022	00:00	01/10/2022	00:00	-	Correcting Values <0 to 0

Table D7: Q3 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: July 1, 2022			End Date: September 30, 2022			All testing done in EST	
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration	Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	Deleted Hours	
1	Deleted Hours	18/08/2022	13:00	30/08/2022	15:00	30/08/2022	16:00	1	Calibration

Table D8: Q3 Edit Log for Meteorological Parameters at Rundle Road Station

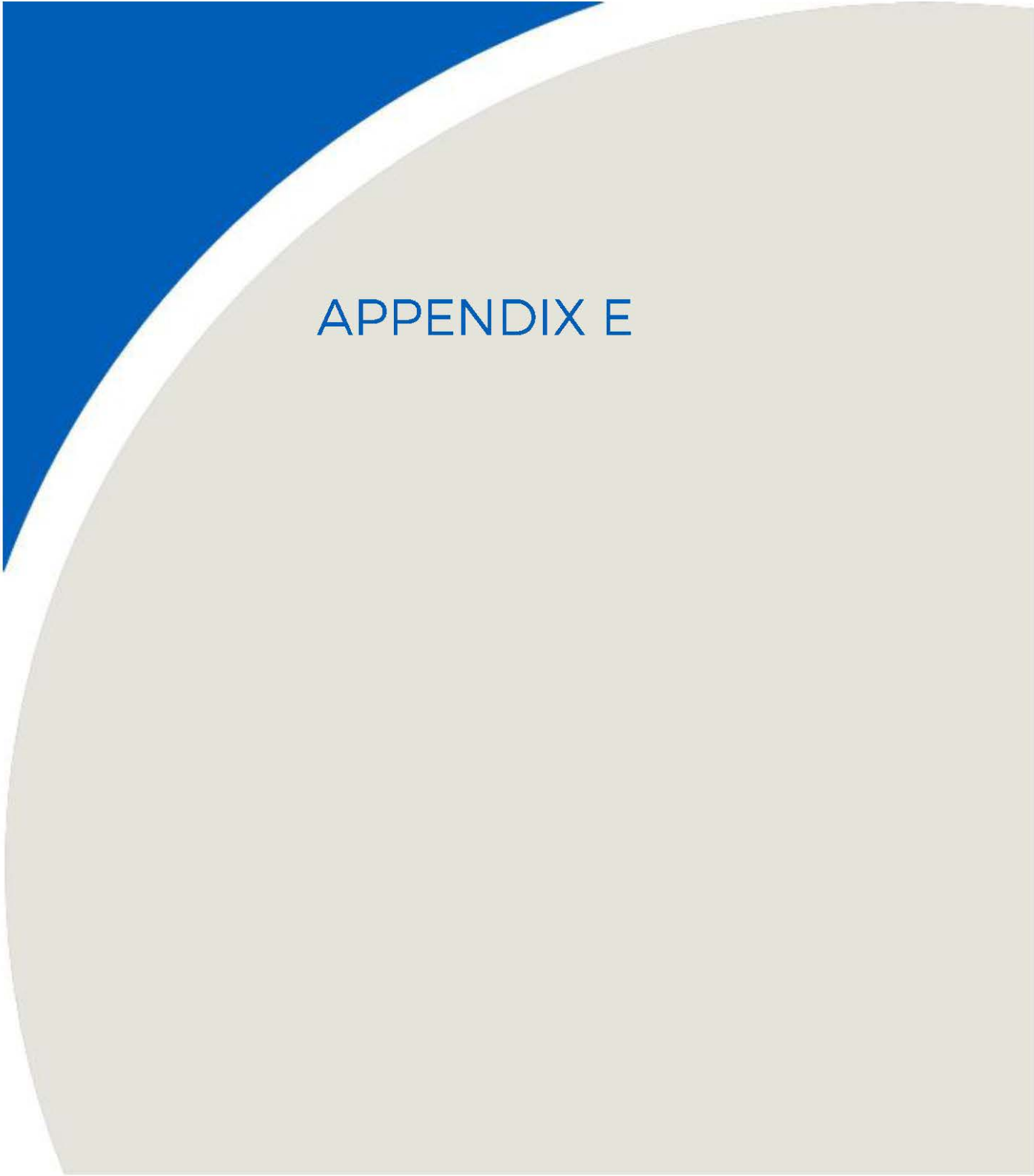
Emitter s Name: Durham York Energy Centre									
Contact	Name: Ms. Lyndsay Waller			Phone: (905) 404-0888 ext 4107			Email: Lyndsay.Waller@Durham.ca		
Station Number: 45200				Station Name: Rundle Station					
Station Address: Rundle Road				Emitter Address: The Region of Durham, 605 Rossland Road, 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: July 1, 2022			End Date: September 30, 2022			All testing done in EST	
Edit #	Edit date (dd/mm/yyyy)	Editor s Name	Edit Action	Starting		Ending		Duration	Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	Deleted Hours	
1	Deleted Hours	18/08/2022	13:00	30/08/2022	15:00	30/08/2022	16:00	1	Calibration

Table D9: Q3 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: July 1, 2022		End Date: September 30, 2022			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor's Name	Edit Action	Starting		Ending		Duration	Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	Deleted Hours	
1	11/10/2022	DAJH	Deleted Hours	27/08/2022	00:00	28/08/2022	00:00	24	TSP - Sample Media Not Changed
2	11/10/2022	DAJH	Deleted Hours	02/09/2022	00:00	03/09/2022	00:00	24	TSP - Sample Media Not Changed
3	11/10/2022	DAJH	Deleted Hours	02/09/2022	00:00	03/09/2022	00:00	24	PAH - Sample Media Not Changed
4	11/10/2022	DAJH	Deleted Hours	02/09/2022	00:00	03/09/2022	00:00	24	D&F - Sample Media Not Changed
5	11/10/2022	DAJH	Deleted Hours	26/09/2022	00:00	27/09/2022	00:00	24	TSP - Equipment Malfunction

Table D10: Q3 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: July 1, 2022		End Date: September 30, 2022			All testing done in EST		
Edit #	Edit date (dd/mm/yyyy)	Editor's Name	Edit Action	Starting		Ending		Duration	Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	Deleted Hours	
1	11/10/2022	DAJH	Deleted Hours	10/07/2022	00:00	11/07/2022	00:00	24	TSP - Equipment Malfunction
2	11/10/2022	DAJH	Deleted Hours	27/08/2022	00:00	28/08/2022	00:00	24	TSP - Sample Media Not Changed
3	11/10/2022	DAJH	Deleted Hours	02/09/2022	00:00	03/09/2022	00:00	24	TSP - Sample Media Not Changed
4	11/10/2022	DAJH	Deleted Hours	02/09/2022	00:00	03/09/2022	00:00	24	PAH - Sample Media Not Changed
5	11/10/2022	DAJH	Deleted Hours	02/09/2022	00:00	03/09/2022	00:00	24	D&F - Sample Media Not Changed

A large decorative graphic on the left side of the page, featuring a blue triangle and a large beige circle.

APPENDIX E

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

Date	Time	SO ₂	SO ₂
		5 min Avg.	10 min Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
07-03-2022	21:30	0.2	0.1
07-03-2022	21:35	0.2	0.2
07-03-2022	21:40	0.2	0.2
07 03 2022	21:45	154.2	77.2
07-03-2022	21:50	152.2	153.2
07 03 2022	21:55	7.1	79.6
07-03-2022	22:00	27.1	17.1
07 03 2022	22:05	217.7	122.4
07-03-2022	22:10	133.6	175.6
07 03 2022	22:15	40.4	87.0
07-03-2022	22:20	103.7	72.1
07 03 2022	22:25	101.0	102.4
07-03-2022	22:30	11.8	56.4
07-03-2022	22:35	6.4	9.1
07-03-2022	22:40	4.4	5.4
07-03-2022	22:45	36.4	20.4
07-03-2022	22:50	5.2	20.8
07-03-2022	22:55	42.1	23.7
07 03 2022	23:00	227.3	134.7
07-03-2022	23:05	212.1	219.7
07 03 2022	23:10	163.8	187.9
07-03-2022	23:15	62.4	113.1
07 03 2022	23:20	182.7	122.6
07-03-2022	23:25	124.8	153.7
07 03 2022	23:30	53.8	89.3
07-03-2022	23:35	14.4	34.1
07-03-2022	23:40	32.8	23.6
07-03-2022	23:45	9.6	21.2
07-03-2022	23:50	100.3	55.0
07 03 2022	23:55	43.3	71.8
07-04-2022	00:00	109.3	76.3
07 04 2022	00:05	48.7	79.0
07-04-2022	00:10	21.0	34.8
07 04 2022	00:15	139.5	80.2
07-04-2022	00:20	117.9	128.7
07 04 2022	00:25	169.2	143.5
07-04-2022	00:30	64.4	116.8
07 04 2022	00:35	96.4	80.4
07-04-2022	00:40	122.2	109.3
07 04 2022	00:45	36.3	79.3
07-04-2022	00:50	14.4	25.4
07-04-2022	00:55	19.2	16.8
07-04-2022	01:00	21.9	20.5
Hidden cells with no values exceeding limit.			
07-25-2022	21:05	0.8	0.4
07-25-2022	21:10	2.3	1.5
07-25-2022	21:15	74.0	38.2
07 25 2022	21:20	129.7	101.9
07-25-2022	21:25	17.3	73.5
07-25-2022	21:30	8.6	12.9
07-25-2022	21:35	6.4	7.5
Hidden cells with no values exceeding limit.			
07-26-2022	19:50	5.8	3.3
07-26-2022	19:55	58.0	31.9
07-26-2022	20:00	58.2	58.1
07 26 2022	20:05	79.6	68.9
07-26-2022	20:10	86.1	82.9
07 26 2022	20:15	86.2	86.2
07-26-2022	20:20	32.0	59.1
07-26-2022	20:25	18.0	25.0
07-26-2022	20:30	11.3	14.7
Hidden cells with no values exceeding limit.			
07-26-2022	20:45	17.5	37.1
07-26-2022	20:50	19.7	18.6
07-26-2022	20:55	37.8	28.8
07 26 2022	21:00	109.3	73.6
07-26-2022	21:05	35.8	72.6
07-26-2022	21:10	20.3	28.0
07-26-2022	21:15	10.9	15.6
Hidden cells with no values exceeding limit.			
07-30-2022	20:40	48.9	56.7
07-30-2022	20:45	53.6	51.3
07-30-2022	20:50	75.9	64.8
07 30 2022	20:55	68.5	72.2
07-30-2022	21:00	71.3	69.9
07 30 2022	21:05	79.9	75.6
07-30-2022	21:10	40.4	60.1
07-30-2022	21:15	24.4	32.4
07-30-2022	21:20	13.7	19.0

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

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

SO2 Exceedance Report

Table E2

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

Date	Time	SO ₂	SO ₂
		5-min Avg.	10-min Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
08-13-2022	04:15	21.2	39.2
08-13-2022	04:20	46.1	33.6
08-13-2022	04:25	72.2	59.2
08-13-2022	04:30	87.9	80.1
08-13-2022	04:35	60.8	74.4
08-13-2022	04:40	44.7	52.7
08-13-2022	04:45	35.2	40.0
Hidden cells with no values exceeding limit.			
08-15-2022	06:05	9.3	11.4
08-15-2022	06:10	8.5	8.9
08-15-2022	06:15	9.2	8.9
08-15-2022	06:20	235.6	122.4
08-15-2022	06:25	136.1	185.9
08-15-2022	06:30	91.4	113.7
08-15-2022	06:35	50.3	70.8
08-15-2022	06:40	53.5	51.9
08-15-2022	06:45	53.1	53.3
Hidden cells with no values exceeding limit.			
08-17-2022	08:30	7.7	5.7
08-17-2022	08:35	47.6	27.6
08-17-2022	08:40	46.9	47.2
08-17-2022	08:45	111.9	79.4
08-17-2022	08:50	106.3	109.1
08-17-2022	08:55	97.7	102.0
08-17-2022	09:00	52.3	75.0
08-17-2022	09:05	26.9	39.6
08-17-2022	09:10	20.2	23.5

Notes:

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

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

Total Number of Reportable Exceedances: 5

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

Date	Time	SO ₂	SO ₂
		5-min Avg.	10-min Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
09-06-2022	21:40	32.5	27.9
09-06-2022	21:45	66.6	49.5
09-06-2022	21:50	49.0	57.8
09-06-2022	21:55	104.1	76.6
09-06-2022	22:00	60.5	82.3
09-06-2022	22:05	41.8	51.1
09-06-2022	22:10	66.6	54.2
09-06-2022	22:15	79.3	73.0
09-06-2022	22:20	31.8	55.6
09-06-2022	22:25	19.3	25.6
09-06-2022	22:30	12.2	15.8
Hidden cells with no values exceeding limit.			
09-08-2022	19:40	10.9	18.0
09-08-2022	19:45	13.9	12.4
09-08-2022	19:50	24.9	19.4
09-08-2022	19:55	147.3	86.1
09-08-2022	20:00	56.5	101.9
09-08-2022	20:05	21.6	39.0
09-08-2022	20:10	122.8	72.2
09-08-2022	20:15	235.8	179.3
09-08-2022	20:20	87.7	161.8
09-08-2022	20:25	28.7	58.2
09-08-2022	20:30	18.7	23.7
09-08-2022	20:35	13.3	16.0
Hidden cells with no values exceeding limit.			
09-15-2022	06:25	3.2	2.9
09-15-2022	06:30	43.0	23.1
09-15-2022	06:35	89.3	66.1
09-15-2022	06:40	56.8	73.0
09-15-2022	06:45	43.3	50.0
09-15-2022	06:50	49.8	46.6
09-15-2022	06:55	45.2	47.5
Hidden cells with no values exceeding limit.			
09-15-2022	19:20	0.5	0.4
09-15-2022	19:25	0.5	0.5
09-15-2022	19:30	16.9	8.7
09-15-2022	19:35	185.3	101.1
09-15-2022	19:40	81.7	133.5
09-15-2022	19:45	19.4	50.5
09-15-2022	19:50	10.2	14.8
Hidden cells with no values exceeding limit.			
09-20-2022	18:10	0.5	0.4
09-20-2022	18:15	4.4	2.4
09-20-2022	18:20	67.4	35.9
09-20-2022	18:25	119.7	93.6
09-20-2022	18:30	88.7	104.2
09-20-2022	18:35	106.1	97.4
09-20-2022	18:40	155.0	130.5
09-20-2022	18:45	44.4	99.7
09-20-2022	18:50	44.0	44.2
09-20-2022	18:55	69.9	57.0
09-20-2022	19:00	39.8	54.9

Notes:

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

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

Total Number of Reportable Exceedances:

SO2 Exceedance Report

Table E4

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

Date	Time	SO ₂	SO ₂
		5-min Avg.	1-hr Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
07-03-2022	21:00	0.3	0.4
07-03-2022	21:05	0.3	0.4
07-03-2022	21:10	0.2	0.4
07-03-2022	21:15	0.1	0.4
07-03-2022	21:20	0.2	0.4
07-03-2022	21:25	0.1	0.3
07-03-2022	21:30	0.2	0.3
07-03-2022	21:35	0.2	0.3
07-03-2022	21:40	0.2	0.2
07-03-2022	21:45	154.2	13.1
07-03-2022	21:50	152.2	25.7
07-03-2022	21:55	7.1	26.3
07-03-2022	22:00	27.1	28.5
07-03-2022	22:05	217.7	46.6
07-03-2022	22:10	133.6	57.7
07-03-2022	22:15	40.4	61.1
07-03-2022	22:20	103.7	69.7
07-03-2022	22:25	101.0	78.1
07-03-2022	22:30	11.8	79.1
07-03-2022	22:35	6.4	79.6
07-03-2022	22:40	4.4	80.0
07-03-2022	22:45	36.4	70.2
07-03-2022	22:50	5.2	57.9
07-03-2022	22:55	42.1	60.8
07-03-2022	23:00	227.3	77.5
07-03-2022	23:05	212.1	77.0
07-03-2022	23:10	163.8	79.6
07-03-2022	23:15	62.4	81.4
07-03-2022	23:20	182.7	88.0
07-03-2022	23:25	124.8	90.0
07-03-2022	23:30	53.8	93.4
07-03-2022	23:35	14.4	94.1
07-03-2022	23:40	32.8	96.5
07-03-2022	23:45	9.6	94.2
07-03-2022	23:50	100.3	102.2
07-03-2022	23:55	43.3	102.3
07-04-2022	00:00	109.3	92.4
07-04-2022	00:05	48.7	78.8
07-04-2022	00:10	21.0	66.9
07-04-2022	00:15	139.5	73.3
07-04-2022	00:20	117.9	67.9
07-04-2022	00:25	169.2	71.6
07-04-2022	00:30	64.4	72.5
07-04-2022	00:35	96.4	79.4
07-04-2022	00:40	122.2	86.8
07-04-2022	00:45	36.3	89.0
07-04-2022	00:50	14.4	81.9
07-04-2022	00:55	19.2	79.9
07-04-2022	01:00	21.9	72.6
07-04-2022	01:05	25.6	70.7
07-04-2022	01:10	8.8	69.6
07-04-2022	01:15	8.2	58.7
07-04-2022	01:20	5.1	49.3
07-04-2022	01:25	3.9	35.5
07-04-2022	01:30	3.5	30.5
07-04-2022	01:35	3.1	22.7
07-04-2022	01:40	2.7	12.7
07-04-2022	01:45		10.6
07-04-2022	01:50		10.2
07-04-2022	01:55		9.2
07-04-2022	02:00		7.6
07-04-2022	02:05		5.1
07-04-2022	02:10		4.4
Hidden cells with no values exceeding limit.			
07-26-2022	19:35	0.5	0.2
07-26-2022	19:40	0.5	0.2
07-26-2022	19:45	0.8	0.3
07-26-2022	19:50	5.8	0.8
07-26-2022	19:55	58.0	5.6
07-26-2022	20:00	58.2	10.4
07-26-2022	20:05	79.6	17.0
07-26-2022	20:10	86.1	24.2
07-26-2022	20:15	86.2	31.4
07-26-2022	20:20	32.0	34.0
07-26-2022	20:25	18.0	35.5
07-26-2022	20:30	11.3	36.4
07-26-2022	20:35	12.8	37.5
07-26-2022	20:40	56.6	42.1
07-26-2022	20:45	17.5	43.5
07-26-2022	20:50	19.7	44.7
07-26-2022	20:55	37.8	43.0
07-26-2022	21:00	109.3	47.3
07-26-2022	21:05	35.8	43.6
07-26-2022	21:10	20.3	38.1
07-26-2022	21:15	10.9	31.8
07-26-2022	21:20	8.9	29.9
07-26-2022	21:25	8.2	29.1
07-26-2022	21:30	7.1	28.8
07-26-2022	21:35	5.8	28.2
07-26-2022	21:40	5.0	23.9
07-26-2022	21:45	3.5	22.7
Hidden cells with no values exceeding limit.			
07-30-2022	20:00	2.5	0.7
07-30-2022	20:05	5.8	1.1
07-30-2022	20:10	2.5	1.3
07-30-2022	20:15	1.5	1.5
07-30-2022	20:20	3.4	1.7
07-30-2022	20:25	11.5	2.7
07-30-2022	20:30	36.3	5.7
07-30-2022	20:35	64.5	11.1
07-30-2022	20:40	48.9	15.2
07-30-2022	20:45	53.6	19.6
07-30-2022	20:50	75.9	25.8
07-30-2022	20:55	68.5	31.2
07-30-2022	21:00	71.3	37.0
07-30-2022	21:05	79.9	43.1
07-30-2022	21:10	40.4	46.3
07-30-2022	21:15	24.4	48.2
07-30-2022	21:20	13.7	49.1
07-30-2022	21:25	9.6	48.9
07-30-2022	21:30	7.4	46.5
07-30-2022	21:35	5.8	41.6
07-30-2022	21:40	3.7	37.9
07-30-2022	21:45	3.8	33.7
07-30-2022	21:50	3.7	27.7
07-30-2022	21:55	3.4	22.3
07-30-2022	22:00	2.9	16.6
07-30-2022	22:05	2.5	10.1
07-30-2022	22:10	1.6	6.9

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

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

Total Number of Reportable Exceedances: 6

SO2 Exceedance Report

Table E5

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

Date	Time	SO ₂	SO ₂
		5 min Avg.	1 hr Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
08-13-2022	03:25	20.6	11.5
08-13-2022	03:30	10.9	12.0
08-13-2022	03:35	11.7	12.3
08-13-2022	03:40	24.3	13.6
08-13-2022	03:45	39.7	16.1
08-13-2022	03:50	37.9	18.5
08-13-2022	03:55	32.1	20.2
08-13-2022	04:00	29.4	21.3
08-13-2022	04:05	25.8	22.1
08-13-2022	04:10	57.2	26.1
08-13-2022	04:15	21.2	27.0
08-13-2022	04:20	46.1	29.8
08-13-2022	04:25	72.2	34.0
08 13 2022	04:30	87.9	40.5
08-13-2022	04:35	60.8	44.6
08-13-2022	04:40	44.7	46.3
08-13-2022	04:45	35.2	45.9
08-13-2022	04:50	29.1	45.1
08-13-2022	04:55	41.3	45.9
08-13-2022	05:00	55.7	48.1
08-13-2022	05:05	48.0	50.0
08-13-2022	05:10	39.9	48.5
08-13-2022	05:15	25.2	48.8
08-13-2022	05:20	12.3	46.0
08-13-2022	05:25	8.7	40.7
08-13-2022	05:30	14.1	34.6
08-13-2022	05:35	14.6	30.7
Hidden cells with no values exceeding limit.			
08-15-2022	05:25	11.6	11.3
08-15-2022	05:30	8.4	11.8
08-15-2022	05:35	3.3	11.9
08-15-2022	05:40	3.2	12.0
08-15-2022	05:45	3.6	12.1
08-15-2022	05:50	3.7	12.2
08-15-2022	05:55	19.2	11.8
08-15-2022	06:00	13.4	11.3
08-15-2022	06:05	9.3	10.3
08-15-2022	06:10	8.5	9.4
08-15-2022	06:15	9.2	8.9
08-15-2022	06:20	235.6	27.4
08-15-2022	06:25	136.1	37.8
08 15 2022	06:30	91.4	44.7
08-15-2022	06:35	50.3	48.6
08-15-2022	06:40	53.5	52.8
08-15-2022	06:45	53.1	56.9
08-15-2022	06:50	47.1	60.6
08-15-2022	06:55	40.3	62.3
08-15-2022	07:00	40.5	64.6
08-15-2022	07:05	30.7	66.4
08-15-2022	07:10	25.3	67.8
08-15-2022	07:15	13.8	68.1
08-15-2022	07:20	19.0	50.1
08-15-2022	07:25	21.8	40.6
08-15-2022	07:30	24.5	35.0
08-15-2022	07:35	20.9	32.6
Hidden cells with no values exceeding limit.			
08-17-2022	07:55	3.8	3.3
08-17-2022	08:00	4.0	3.4
08-17-2022	08:05	3.3	3.4
08-17-2022	08:10	3.9	3.5
08-17-2022	08:15	4.4	3.5
08-17-2022	08:20	4.1	3.6
08-17-2022	08:25	3.7	3.6
08-17-2022	08:30	7.7	4.0
08-17-2022	08:35	47.6	7.6
08-17-2022	08:40	46.9	11.3
08-17-2022	08:45	111.9	20.4
08-17-2022	08:50	106.3	29.0
08-17-2022	08:55	97.7	36.8
08 17 2022	09:00	52.3	40.8
08-17-2022	09:05	26.9	42.8
08-17-2022	09:10	20.2	44.1
08-17-2022	09:15	9.9	44.6
08-17-2022	09:20	9.3	45.0
08-17-2022	09:25	6.7	45.3
08-17-2022	09:30	4.2	45.0
08-17-2022	09:35	3.6	41.3
08-17-2022	09:40	3.8	37.7
08-17-2022	09:45	2.8	28.6
08-17-2022	09:50	2.3	20.0
08-17-2022	09:55	2.6	12.0
08-17-2022	10:00	2.1	7.9
08-17-2022	10:05	1.5	5.7

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

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

Total Number of Reportable Exceedances: 3

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

Date	Time	SO ₂ 5 min Avg.	SO ₂ 1 hr Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
09-06-2022	20:55	2.6	9.6
09-06-2022	21:00	2.3	8.1
09-06-2022	21:05	2.1	5.7
09-06-2022	21:10	4.3	4.6
09-06-2022	21:15	4.4	3.9
09-06-2022	21:20	17.9	4.8
09-06-2022	21:25	55.6	8.9
09-06-2022	21:30	64.6	13.9
09-06-2022	21:35	23.4	15.5
09-06-2022	21:40	32.5	18.0
09-06-2022	21:45	66.6	23.3
09-06-2022	21:50	49.0	27.1
09-06-2022	21:55	104.1	35.6
09-06-2022	22:00	60.5	40.4
09-06-2022	22:05	41.8	45.7
09-06-2022	22:10	66.6	48.9
09-06-2022	22:15	79.3	55.2
09-06-2022	22:20	31.8	56.3
09-06-2022	22:25	19.3	53.3
09-06-2022	22:30	12.2	48.9
09-06-2022	22:35	10.3	47.8
09-06-2022	22:40	7.5	45.8
09-06-2022	22:45	6.5	40.7
09-06-2022	22:50	6.3	37.3
09-06-2022	22:55	6.3	29.9
09-06-2022	23:00	6.3	24.5
09-06-2022	23:05	5.4	21.5
Hidden cells with no values exceeding limit.			
09-08-2022	18:55	1.0	0.8
09-08-2022	19:00	0.9	0.8
09-08-2022	19:05	61.7	5.9
09-08-2022	19:10	69.6	11.6
09-08-2022	19:15	27.0	13.8
09-08-2022	19:20	20.0	15.4
09-08-2022	19:25	18.5	16.9
09-08-2022	19:30	41.3	20.3
09-08-2022	19:35	25.0	22.3
09-08-2022	19:40	10.9	23.2
09-08-2022	19:45	13.9	24.3
09-08-2022	19:50	24.9	26.2
09-08-2022	19:55	147.3	38.4
09-08-2022	20:00	56.5	43.0
09-08-2022	20:05	21.6	39.7
09-08-2022	20:10	122.8	44.1
09-08-2022	20:15	235.8	61.5
09-08-2022	20:20	87.7	67.2
09-08-2022	20:25	28.7	68.0
09-08-2022	20:30	18.7	66.1
09-08-2022	20:35	13.3	65.2
09-08-2022	20:40	10.5	65.1
09-08-2022	20:45	8.6	64.7
09-08-2022	20:50	7.1	63.2
09-08-2022	20:55	6.4	51.5
09-08-2022	21:00	5.7	47.2
09-08-2022	21:05	4.6	45.8
09-08-2022	21:10	3.8	35.9
09-08-2022	21:15	3.8	16.6
09-08-2022	21:20	4.2	9.6
09-08-2022	21:25	8.7	7.9
09-08-2022	21:30	9.6	7.2
09-08-2022	21:35	7.0	6.7
09-08-2022	21:40	5.2	6.2
09-08-2022	21:45	4.5	5.9
09-08-2022	21:50	4.1	5.6
09-08-2022	21:55	3.4	5.4
09-08-2022	22:00	3.2	5.2
09-08-2022	22:05	3.6	5.1
Hidden cells with no values exceeding limit.			
09-15-2022	06:10	3.6	3.0
09-15-2022	06:15	3.6	3.1
09-15-2022	06:20	2.6	3.1
09-15-2022	06:25	3.2	3.1
09-15-2022	06:30	43.0	6.4
09-15-2022	06:35	89.3	13.7
09-15-2022	06:40	56.8	18.2
09-15-2022	06:45	43.3	21.6
09-15-2022	06:50	49.8	25.4
09-15-2022	06:55	45.2	28.9
09-15-2022	07:00	43.9	32.3
09-15-2022	07:05	48.4	36.1
09-15-2022	07:10	41.6	39.2
09-15-2022	07:15	39.5	42.2
09-15-2022	07:20	38.6	45.2
09-15-2022	07:25	41.8	48.4
09-15-2022	07:30	34.5	47.7
09-15-2022	07:35	35.2	43.2
09-15-2022	07:40	33.3	41.3
09-15-2022	07:45	26.5	39.9
09-15-2022	07:50	29.2	38.1
09-15-2022	07:55	27.2	36.6
09-15-2022	08:00	30.5	35.5
09-15-2022	08:05	22.7	33.4
09-15-2022	08:10	15.5	31.2
09-15-2022	08:15	17.8	29.4
09-15-2022	08:20	19.7	27.8
Hidden cells with no values exceeding limit.			
09-15-2022	19:15	0.4	0.5
09-15-2022	19:20	0.5	0.5
09-15-2022	19:25	0.5	0.5
09-15-2022	19:30	16.9	1.8
09-15-2022	19:35	185.3	17.2
09-15-2022	19:40	81.7	24.0
09-15-2022	19:45	19.4	25.6
09-15-2022	19:50	10.2	26.4
09-15-2022	19:55	8.7	27.1
09-15-2022	20:00	4.9	27.4
09-15-2022	20:05	15.2	28.7
09-15-2022	20:10	36.3	31.7
09-15-2022	20:15	36.1	34.6
09-15-2022	20:20	86.4	41.8
09-15-2022	20:25	27.8	44.1
09-15-2022	20:30	26.5	44.9
09-15-2022	20:35	25.0	31.5
09-15-2022	20:40	73.9	30.9
09-15-2022	20:45	32.3	31.9
09-15-2022	20:50	52.1	35.4
09-15-2022	20:55	36.7	37.8
09-15-2022	21:00	27.7	39.7
09-15-2022	21:05	43.1	42.0
09-15-2022	21:10	13.5	40.1
09-15-2022	21:15	9.0	37.8
09-15-2022	21:20	6.3	31.2
09-15-2022	21:25	5.0	29.3
Hidden cells with no values exceeding limit.			
09-20-2022	17:35	0.4	0.5
09-20-2022	17:40	0.4	0.4
09-20-2022	17:45	0.4	0.4
09-20-2022	17:50	0.4	0.4
09-20-2022	17:55	0.4	0.4
09-20-2022	18:00	0.4	0.4
09-20-2022	18:05	0.4	0.4
09-20-2022	18:10	0.5	0.4
09-20-2022	18:15	4.4	0.7
09-20-2022	18:20	67.4	6.3
09-20-2022	18:25	119.7	16.3
09-20-2022	18:30	88.7	23.6
09-20-2022	18:35	106.1	32.4
09-20-2022	18:40	155.0	45.3
09-20-2022	18:45	44.4	49.9
09-20-2022	18:50	44.0	52.6
09-20-2022	18:55	69.9	58.4
09-20-2022	19:00	39.8	61.7
09-20-2022	19:05	21.5	63.4
09-20-2022	19:10	48.0	67.4
09-20-2022	19:15	78.7	72.6
09-20-2022	19:20	49.8	72.1
09-20-2022	19:25	19.1	63.8
09-20-2022	19:30	16.1	57.7
09-20-2022	19:35	12.3	49.9
09-20-2022	19:40	9.3	37.8
09-20-2022	19:45	8.2	34.7

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

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

Total Number of Reportable Exceedences: 6

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

Date	Time	SO ₂	SO ₂
		5-min Avg.	1-hr Running Avg.
(mm/dd/yyyy)	(EST)	(ppb)	(ppb)
09-06-2022	14:45	16.2	7.7
09-06-2022	14:50	29.0	10.1
09-06-2022	14:55	33.0	12.8
09-06-2022	15:00	20.9	14.4
09-06-2022	15:05	25.5	16.5
09-06-2022	15:10	25.4	18.5
09-06-2022	15:15	17.7	19.9
09-06-2022	15:20	24.1	21.5
09-06-2022	15:25	32.6	23.5
09-06-2022	15:30	55.5	27.3
09-06-2022	15:35	69.1	31.0
09-06-2022	15:40	57.7	33.9
09-06-2022	15:45	64.6	37.9
09-06-2022	15:50	63.9	40.8
09-06-2022	15:55	54.3	42.6
09-06-2022	16:00	44.8	44.6
09-06-2022	16:05	42.6	46.0
09-06-2022	16:10	32.7	46.6
09-06-2022	16:15	19.9	46.8
09-06-2022	16:20	20.2	46.5
09-06-2022	16:25	25.7	45.9
09-06-2022	16:30	19.4	42.9
09-06-2022	16:35	17.8	38.6
09-06-2022	16:40	26.7	36.1
09-06-2022	16:45	23.4	32.6
09-06-2022	16:50	12.2	28.3
09-06-2022	16:55	12.1	24.8

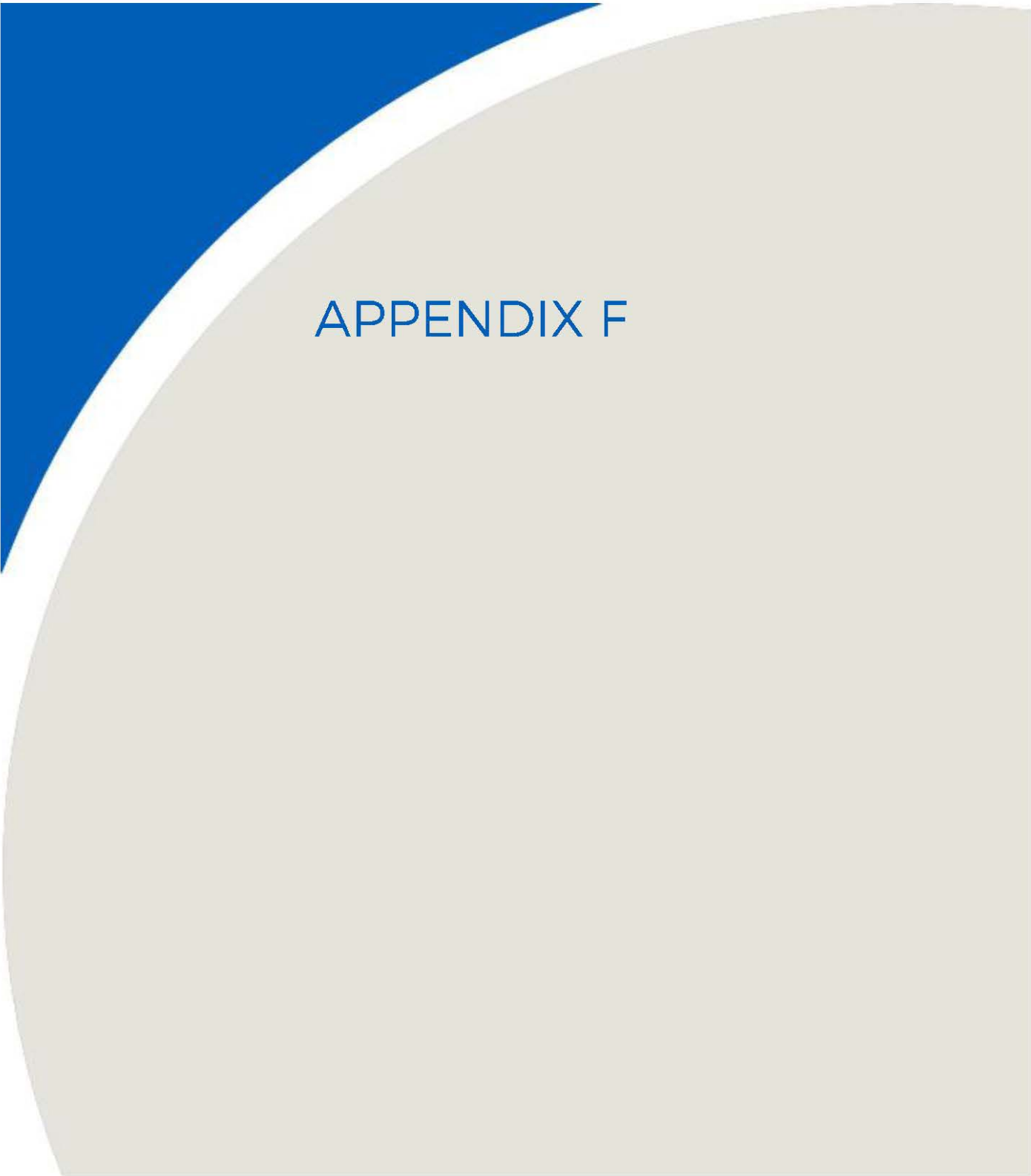
Notes:

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

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

Total Number of Reportable Exceedances:

1

A large decorative graphic on the left side of the page. It features a blue triangular shape in the top-left corner, a white curved line separating it from a large light-grey circular area, and a blue curved line separating the light-grey area from the rest of the page.

APPENDIX F



600 Southgate Drive
Guelph ON Canada
N1G 4P6

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

MEMORANDUM

DATE:	2022-10-20	RWDI Reference No.: 2205149
TO:	Gioseph Anello	EMAIL: Gioseph.Anello@Durham.ca
CC:	Andrew Evans	EMAIL: Andrew.Evans@Durham.ca
CC:	Lyndsay Waller	EMAIL: Lyndsay.Waller@Durham.ca
FROM:	Khalid Hussein	EMAIL: Khalid.Hussein@rwdi.com
RE:	Exceedance Report – Total Suspended Particulates July 22, 2022 Region of Durham, DYEC	

On September 27, 2022, the results from ALS Environmental were received regarding the TSP results from the July 22, 2022 sampling event. On September 27, 2022, the results were entered and assessed, it was noted that there was one (1) Total Suspended Particulates concentration in excess of the 24-hour AAQC on the July 22nd sampling date at the Rundle Road Station measured by the onsite TSP sampler. Due to delays at the laboratory, the results for these samples were received much later than proposed. Attached is a figure depicting the wind rose (indicating the wind speed and direction during the sampling day), and the location of the sampling stations relative to the DYEC.

The following summarizes the TSP concentration and onsite conditions during the July 22nd sampling date:

1. The guideline concentration for TSP is 120 µg/m³. The measured concentration at the Rundle Road sampler for a 24-hour sample was 120.9 µg/m³.
2. During the sampling day, the wind was predominantly from the SSE to the NW, as recorded at the Rundle Road Meteorological Tower. One-hour average wind speeds at Rundle Road Meteorological Tower ranged from 0.42 km/h to 11.41 km/h.
3. RWDI reviewed the available CEMS data over a 72 hour period which includes the day before and after the TSP exceedance date. The data showed no unusual readings, and all parameters were within the expected values as well as below the listed Limits. Based on the data, both boiler 1 and 2 were operating normally during the time reviewed.
4. A review of the current ESDM data shows that Total Particulate Matter emissions from the DYEC for a 24-hour period are estimated to be less than 1% of the MECP limit.
5. During July, 2022, the property owners at the Rundle Road station site were in the process of having a septic system installed and pouring concrete foundation. Heavy construction equipment was in operation close by to the south of the station. The station would have been partially downwind of the construction equipment during the sampling period.



Gioseph Anello
Durham York Energy Centre
RWDI#2205149
October 20, 2022

6. On July 17, 2022, a fire located 1.9km to the west-southwest of the station occurred which destroyed a Durham Police Property Bureau building. The fire was partially downwind during the sampling period however, since the fire occurred 5 days prior to the date of exceedance it is unclear as to whether or not it may have contributed as a primary source of the exceedance.
7. RWDI completed a review of other MECP reported air monitoring stations in the area. At the time of the data review, MECP monitoring station data for TSP was not available for comparison.
8. The Rundle Road meteorological data suggests that the Rundle Road Station was partially downwind of the DYEC during the sampling period. Given the wind conditions during the sampling period, it is possible that the measured TSP exceedance is attributable to the Energy Centre operations although CEMS data indicates that particulate emissions were within the expected values as well as below the listed Limits. It is likely that other sources played a role in the measured exceedance including but not limited to local construction and agricultural activities.

At the Rundle Road Station, the NO₂ hourly values were less than 9% of the criteria for the same period. The PM_{2.5} 24-hour average value was 10.2 micrograms per cubic metre at the Rundle Road Station.

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

Respectfully submitted by:

RWDI AIR Inc.

A handwritten signature in black ink, appearing to read 'Khalid Hussein', is written over a faint, circular, dotted background.

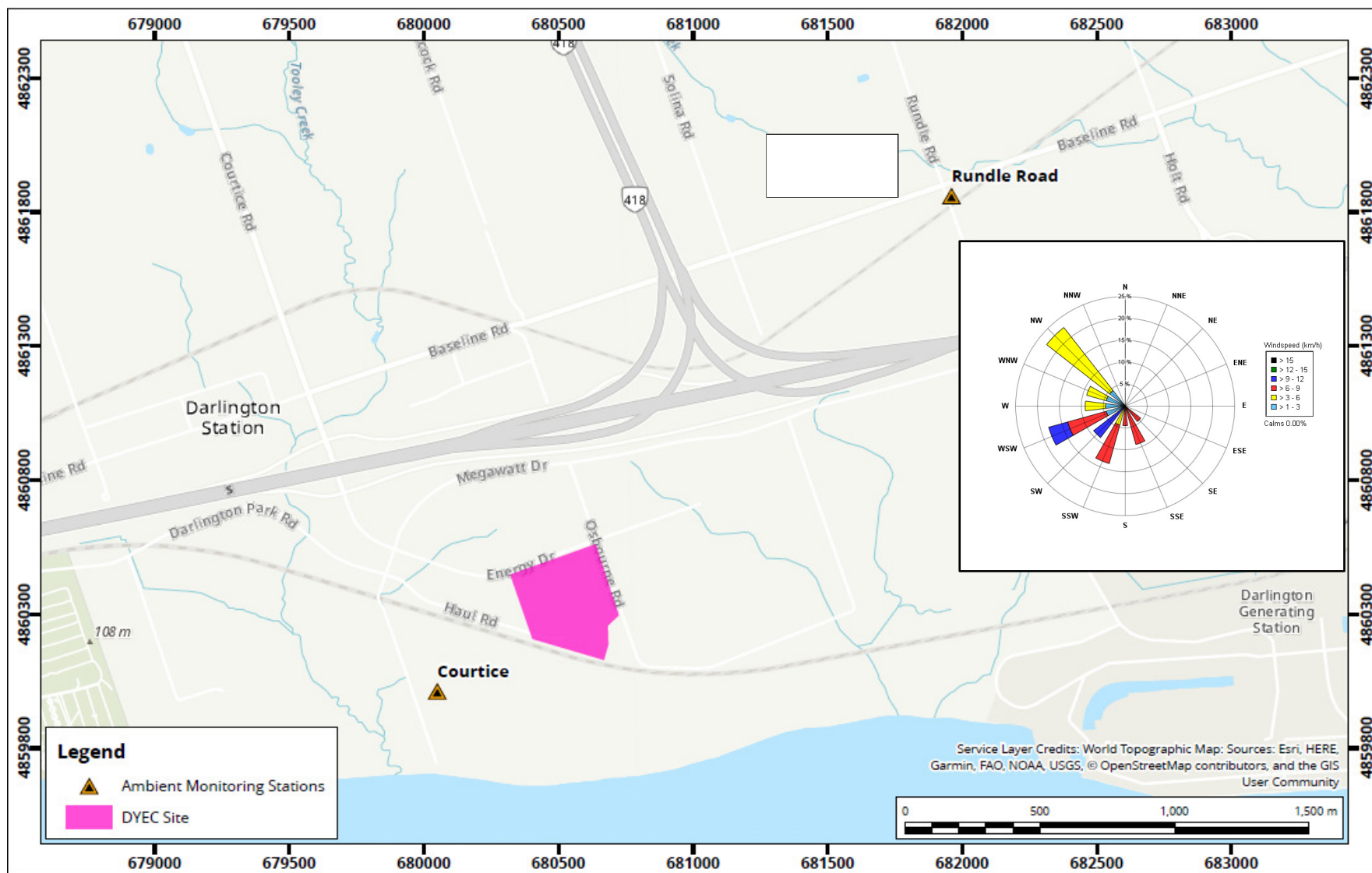
Khalid Hussein, P.Eng.
Project Manager

KAMH/hta

Attach.

ATTACHMENTS





DYEC Site and Ambient Monitoring Station Locations

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



Project #:

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



Table B9: 2022 Rundle Station Q3 Monitoring Results for TSP and Metals

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	22-Jul-22	No. > Criteria
Particulate (TSP)	µg/m ³	120	120	120.93	1
Mercury (Hg)	µg/m ³	2	2	1.50E-05	0
Aluminum (Al)	µg/m ³	4.8	-	1.61E+00	0
Antimony (Sb)	µg/m ³	25	25	9.34E-04	0
Arsenic (As)	µg/m ³	0.3	0.3	9.40E-04	0
Barium (Ba)	µg/m ³	10	10	2.53E-02	0
Beryllium (Be)	µg/m ³	0.01	0.01	6.83E-05	0
Bismuth (Bi)	µg/m ³	-	-	5.64E-04	-
Boron (B)	µg/m ³	120	-	1.57E-02	0
Cadmium (Cd)	µg/m ³	0.025	0.025	8.71E-05	0
Chromium (Cr)	µg/m ³	0.5	-	5.64E-03	0
Cobalt (Co)	µg/m ³	0.1	0.1	8.27E-04	0
Copper (Cu)	µg/m ³	50	-	3.13E-02	0
Iron (Fe)	µg/m ³	4	-	2.24E+00	0
Lead (Pb)	µg/m ³	0.5	0.5	3.75E-03	0
Magnesium (Mg)	µg/m ³	-	-	1.17E+00	-
Manganese (Mn)	µg/m ³	0.4	-	6.52E-02	0
Molybdenum (Mo)	µg/m ³	120	-	1.90E-03	0
Nickel (Ni)	µg/m ³	0.2	-	2.67E-03	0
Phosphorus (P)	µg/m ³	-	-	2.35E-01	-
Selenium (Se)	µg/m ³	10	10	4.07E-04	0
Silver (Ag)	µg/m ³	1	1	2.82E-05	0
Strontium (Sr)	µg/m ³	120	-	2.79E-02	0
Thallium (Tl)	µg/m ³	-	-	2.82E-05	-
Tin (Sn)	µg/m ³	10	10	9.59E-04	0
Titanium (Ti)	µg/m ³	120	-	8.27E-02	0
Uranium (Ur)	µg/m ³	1.5	-	6.52E-05	0
Vanadium (V)	µg/m ³	2	1	3.95E-03	0
Zinc (Zn)	µg/m ³	120	-	6.09E-02	0
Zirconium (Zr)	µg/m ³	20	-	6.27E-04	0

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



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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 8878



L2728002-COFC

Number: 17 -

Page 1 of 1

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all EAP TATs (surcharges may apply)																									
Company:	RWDI	Select Report Format:	☒ PDF ☐ EXCEL ☒ EDD (DIGITAL)	Standard TAT is 15 business days. DTOX analysis standard TAT is 5 business days																									
Contact:	Matt Lantz	Quality Control (QC) Report with Report	☐ YES ☐ NO	15 day (R - Regular) ☐ 5 Business day - DTOX (R - Regular)																									
Phone:	519 823 1311	☐ Compare Results to Criteria on Report - provide details below if box checked		10 day (P-50%) ☐ 3 Business day - DTOX (E - 100%)																									
Company address below will appear on the final report		Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX	5 day (E-100%) ☐																									
Street:	600 Southgate Drive	Email 1 or Fax	Matt.Lantz@rwdi.com	Date and Time Required for all EAP TATs: dd-mm-yy hh:mm																									
City/Province:	Guelph, Ontario	Email 2		For tests that can not be performed according to the service level selected, you will be contacted.																									
Postal Code:	N1G 4P6	Email 3		Analysis Request																									
Invoice To	Same as Report To ☐ YES ☐ NO	Invoice Distribution		<table border="1"> <tr> <th colspan="6">Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F,P) below</th> </tr> <tr> <th>TSP, ICP on H-Vol Filter</th> <th>PAH</th> <th>DX</th> <th></th> <th></th> <th></th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F,P) below						TSP, ICP on H-Vol Filter	PAH	DX															
Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F,P) below																													
TSP, ICP on H-Vol Filter	PAH	DX																											
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution:																											
Company:		Email 1 or Fax																											
Contact:		Email 2																											
Project Information		Oil and Gas Required Fields (client use)																											
ALS Account # / Quote #:		AFE/Cost Center:		PO#																									
Job #:		Major/Minor Code:		Routing Code:																									
PO / AFE:		Requisitioner:																											
LSD:		Location:																											
ALS Lab Work Order # (lab use only):		ALS Contact:		Sampler: Martin Town																									
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Sample Air Volume (m3)	Date (dd-mm-yy)	Sample Period	Sample Type																								
1	WV48828-LITL61-3-Constice	333	09-Aug-22	24hr	Air																								
1	742822	1663	22-Jul-22	24hr	Air																								
2	738745	1645	03-Aug-22	24hr	Air																								
3	743027	1685	09-Aug-22	24hr	Air																								
2	L2726161-2-Rundic	338	09-Aug-22	24hr	Air																								
4	742823	1596	22-Jul-22	24hr	Air																								
5	742824	1620	03-Aug-22	24hr	Air																								
6	738746	1641		24hr	Air																								
				24hr	Air																								
				24hr	Air																								
				24hr	Air																								
				24hr	Air																								
Drinking Water (DW) Samples (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)																											
Are samples taken from a Regulated DW System?		Samples are 10 day TAT																											
☐ YES ☒ NO																													
Are samples for human consumption use?		SAMPLE CONDITION AS RECEIVED (lab use only) Frozen ☐ Ice Packs ☒ Ice Cubes ☐ SIF Observations Yes ☐ Cooling Initiated ☒ Custody seal intact Yes ☒ INITIAL COOLER TEMPERATURES °C: 12.3°C 2.8°C FINAL COOLER TEMPERATURES °C:																											
☐ YES ☒ NO																													
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)																											
Released by:	Date: 11-Aug-22	Time: 10:00	Received by:	Date: 12-Aug-2021	Time: 10:00																								

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

10/21

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

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



RWDI AIR INC. (Guelph)
ATTN: Khalid Hussein
600 Southgate Drive
Guelph ON N1G 4P6

Date Received: 12-AUG-22
Report Date: 29-AUG-22 07:41 (MT)
Version: FINAL

Client Phone: 519-823-1311

Certificate of Analysis

Lab Work Order #: L2728005

Project P.O. #: 1803743 Phase 1000

Job Reference: DYEC

C of C Numbers:

Legal Site Desc:

Claire Kocharakkal, B.Sc.
Project Manager

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ADDRESS: 1435 Norjohn Court, Unit 1, Burlington, ON, L7L 0E6 Canada | Phone: +1 905 331 3111 | Fax: +1 905 331 4567
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2728005-1 #742822-COURTICE-TSP/ICP-JUL22							
Sampled By: Martin Town on 22-JUL-22							
Matrix: Hi Vol Filter							
Miscellaneous Parameters							
Air volume	1663			m3		16-AUG-22	R5844239
Particulate on High Volume Filter							
Total particulate	32.2		0.060	ug/m3		15-AUG-22	R5845556
Total particulate	53600		100	ug		15-AUG-22	R5845556
Mercury on High Volume Filter by CVAA							
Mercury (Hg)	0.0000173		0.0000060	ug/m3	23-AUG-22	24-AUG-22	R5848394
Mercury (Hg)	0.029		0.010	ug	23-AUG-22	24-AUG-22	R5848394
Metals on High Volume Filter by ICPMS							
Silver (Ag)	<0.000054		0.000054	ug/m3	24-AUG-22	24-AUG-22	R5848539
Silver (Ag)	<0.090		0.090	ug	24-AUG-22	24-AUG-22	R5848539
Aluminum (Al)	0.170		0.0054	ug/m3	24-AUG-22	24-AUG-22	R5848539
Aluminum (Al)	284		9.0	ug	24-AUG-22	24-AUG-22	R5848539
Arsenic (As)	<0.0018		0.0018	ug/m3	24-AUG-22	24-AUG-22	R5848539
Arsenic (As)	<3.0		3.0	ug	24-AUG-22	24-AUG-22	R5848539
Barium (Ba)	0.0108		0.00030	ug/m3	24-AUG-22	24-AUG-22	R5848539
Barium (Ba)	18.0		0.50	ug	24-AUG-22	24-AUG-22	R5848539
Beryllium (Be)	<0.000030		0.000030	ug/m3	24-AUG-22	24-AUG-22	R5848539
Beryllium (Be)	<0.050		0.050	ug	24-AUG-22	24-AUG-22	R5848539
Cadmium (Cd)	0.000083		0.000016	ug/m3	24-AUG-22	24-AUG-22	R5848539
Cadmium (Cd)	0.138		0.027	ug	24-AUG-22	24-AUG-22	R5848539
Cobalt (Co)	0.000153		0.000018	ug/m3	24-AUG-22	24-AUG-22	R5848539
Cobalt (Co)	0.255		0.030	ug	24-AUG-22	24-AUG-22	R5848539
Chromium (Cr)	0.0034		0.0020	ug/m3	24-AUG-22	24-AUG-22	R5848539
Chromium (Cr)	5.6		3.4	ug	24-AUG-22	24-AUG-22	R5848539
Copper (Cu)	0.0547		0.00060	ug/m3	24-AUG-22	24-AUG-22	R5848539
Copper (Cu)	90.9		1.0	ug	24-AUG-22	24-AUG-22	R5848539
Iron (Fe)	0.658		0.0072	ug/m3	24-AUG-22	24-AUG-22	R5848539
Iron (Fe)	1090		12	ug	24-AUG-22	24-AUG-22	R5848539
Magnesium (Mg)	0.333		0.036	ug/m3	24-AUG-22	24-AUG-22	R5848539
Magnesium (Mg)	554		60	ug	24-AUG-22	24-AUG-22	R5848539
Manganese (Mn)	0.0219		0.00027	ug/m3	24-AUG-22	24-AUG-22	R5848539
Manganese (Mn)	36.5		0.45	ug	24-AUG-22	24-AUG-22	R5848539
Molybdenum (Mo)	0.00165		0.00022	ug/m3	24-AUG-22	24-AUG-22	R5848539
Molybdenum (Mo)	2.75		0.36	ug	24-AUG-22	24-AUG-22	R5848539
Nickel (Ni)	0.00143		0.00015	ug/m3	24-AUG-22	24-AUG-22	R5848539
Nickel (Ni)	2.38		0.25	ug	24-AUG-22	24-AUG-22	R5848539
Lead (Pb)	0.00196		0.000072	ug/m3	24-AUG-22	24-AUG-22	R5848539
Lead (Pb)	3.26		0.12	ug	24-AUG-22	24-AUG-22	R5848539
Antimony (Sb)	0.00092		0.00015	ug/m3	24-AUG-22	24-AUG-22	R5848539
Antimony (Sb)	1.53		0.25	ug	24-AUG-22	24-AUG-22	R5848539
Selenium (Se)	<0.00078		0.00078	ug/m3	24-AUG-22	24-AUG-22	R5848539
Selenium (Se)	<1.3		1.3	ug	24-AUG-22	24-AUG-22	R5848539
Thallium (Tl)	<0.000054		0.000054	ug/m3	24-AUG-22	24-AUG-22	R5848539
Thallium (Tl)	<0.090		0.090	ug	24-AUG-22	24-AUG-22	R5848539
Uranium (U)	0.0000130		0.0000036	ug/m3	24-AUG-22	24-AUG-22	R5848539
Uranium (U)	0.0216		0.0060	ug	24-AUG-22	24-AUG-22	R5848539
Vanadium (V)	<0.0030		0.0030	ug/m3	24-AUG-22	24-AUG-22	R5848539
Vanadium (V)	<5.0		5.0	ug	24-AUG-22	24-AUG-22	R5848539
Zinc (Zn)	0.0425		0.0027	ug/m3	24-AUG-22	24-AUG-22	R5848539
Zinc (Zn)	70.7		4.5	ug	24-AUG-22	24-AUG-22	R5848539
Bismuth (Bi)	<0.0011		0.0011	ug/m3	24-AUG-22	24-AUG-22	R5848539

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2728005-2 #738745-COURTICE-TSP/ICP-AUG03 Sampled By: Martin Town on 03-AUG-22 Matrix: Hi Vol Filter Metals on High Volume Filter by ICPMS Nickel (Ni) 0.00146 0.00015 ug/m3 24-AUG-22 24-AUG-22 R5848539 Nickel (Ni) 2.39 0.25 ug 24-AUG-22 24-AUG-22 R5848539 Lead (Pb) 0.00252 0.000073 ug/m3 24-AUG-22 24-AUG-22 R5848539 Lead (Pb) 4.15 0.12 ug 24-AUG-22 24-AUG-22 R5848539 Antimony (Sb) 0.00124 0.00015 ug/m3 24-AUG-22 24-AUG-22 R5848539 Antimony (Sb) 2.04 0.25 ug 24-AUG-22 24-AUG-22 R5848539 Selenium (Se) <0.00079 0.00079 ug/m3 24-AUG-22 24-AUG-22 R5848539 Selenium (Se) <1.3 1.3 ug 24-AUG-22 24-AUG-22 R5848539 Thallium (Tl) <0.000055 0.000055 ug/m3 24-AUG-22 24-AUG-22 R5848539 Thallium (Tl) <0.090 0.090 ug 24-AUG-22 24-AUG-22 R5848539 Uranium (U) 0.0000230 0.0000036 ug/m3 24-AUG-22 24-AUG-22 R5848539 Uranium (U) 0.0378 0.0060 ug 24-AUG-22 24-AUG-22 R5848539 Vanadium (V) <0.0030 0.0030 ug/m3 24-AUG-22 24-AUG-22 R5848539 Vanadium (V) <5.0 5.0 ug 24-AUG-22 24-AUG-22 R5848539 Zinc (Zn) 0.0421 0.0027 ug/m3 24-AUG-22 24-AUG-22 R5848539 Zinc (Zn) 69.3 4.5 ug 24-AUG-22 24-AUG-22 R5848539 Bismuth (Bi) <0.0011 0.0011 ug/m3 24-AUG-22 24-AUG-22 R5848539 Bismuth (Bi) <1.8 1.8 ug 24-AUG-22 24-AUG-22 R5848539 Boron (B) <0.0091 0.0091 ug/m3 24-AUG-22 24-AUG-22 R5848539 Boron (B) <15 15 ug 24-AUG-22 24-AUG-22 R5848539 Phosphorus (P) <0.46 0.46 ug/m3 24-AUG-22 24-AUG-22 R5848539 Phosphorus (P) <750 750 ug 24-AUG-22 24-AUG-22 R5848539 Strontium (Sr) 0.0053 0.0018 ug/m3 24-AUG-22 24-AUG-22 R5848539 Strontium (Sr) 8.7 3.0 ug 24-AUG-22 24-AUG-22 R5848539 Tin (Sn) 0.00121 0.00036 ug/m3 24-AUG-22 24-AUG-22 R5848539 Tin (Sn) 1.98 0.60 ug 24-AUG-22 24-AUG-22 R5848539 Titanium (Ti) 0.0110 0.0067 ug/m3 24-AUG-22 24-AUG-22 R5848539 Titanium (Ti) 18 11 ug 24-AUG-22 24-AUG-22 R5848539 Zirconium (Zr) <0.0012 0.0012 ug/m3 24-AUG-22 24-AUG-22 R5848539 Zirconium (Zr) <2.0 2.0 ug 24-AUG-22 24-AUG-22 R5848539							
L2728005-3 #743027-COURTICE-TSP/ICP-AUG09 Sampled By: Martin Town on 09-AUG-22 Matrix: Hi Vol Filter Miscellaneous Parameters Air volume 1685 m3 16-AUG-22 R5844239 Particulate on High Volume Filter Total particulate 13.3 0.059 ug/m3 15-AUG-22 R5845556 Total particulate 22400 100 ug 15-AUG-22 R5845556 Mercury on High Volume Filter by CVAA Mercury (Hg) <0.0000059 0.0000059 ug/m3 23-AUG-22 24-AUG-22 R5848394 Mercury (Hg) <0.010 0.010 ug 23-AUG-22 24-AUG-22 R5848394 Metals on High Volume Filter by ICPMS Silver (Ag) <0.000053 0.000053 ug/m3 24-AUG-22 24-AUG-22 R5848539 Silver (Ag) <0.090 0.090 ug 24-AUG-22 24-AUG-22 R5848539 Aluminum (Al) 0.0908 0.0053 ug/m3 24-AUG-22 24-AUG-22 R5848539 Aluminum (Al) 153 9.0 ug 24-AUG-22 24-AUG-22 R5848539 Arsenic (As) <0.0018 0.0018 ug/m3 24-AUG-22 24-AUG-22 R5848539 Arsenic (As) <3.0 3.0 ug 24-AUG-22 24-AUG-22 R5848539 Barium (Ba) 0.00483 0.00030 ug/m3 24-AUG-22 24-AUG-22 R5848539 Barium (Ba) 8.15 0.50 ug 24-AUG-22 24-AUG-22 R5848539 Beryllium (Be) <0.000030 0.000030 ug/m3 24-AUG-22 24-AUG-22 R5848539							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2728005-3 #743027-COURTICE-TSP/ICP-AUG09 Sampled By: Martin Town on 09-AUG-22 Matrix: Hi Vol Filter Metals on High Volume Filter by ICPMS							
Beryllium (Be)	<0.050		0.050	ug	24-AUG-22	24-AUG-22	R5848539
Cadmium (Cd)	0.000034		0.000016	ug/m3	24-AUG-22	24-AUG-22	R5848539
Cadmium (Cd)	0.058		0.027	ug	24-AUG-22	24-AUG-22	R5848539
Cobalt (Co)	0.000089		0.000018	ug/m3	24-AUG-22	24-AUG-22	R5848539
Cobalt (Co)	0.151		0.030	ug	24-AUG-22	24-AUG-22	R5848539
Chromium (Cr)	<0.0020		0.0020	ug/m3	24-AUG-22	24-AUG-22	R5848539
Chromium (Cr)	<3.4		3.4	ug	24-AUG-22	24-AUG-22	R5848539
Copper (Cu)	0.0307		0.00059	ug/m3	24-AUG-22	24-AUG-22	R5848539
Copper (Cu)	51.8		1.0	ug	24-AUG-22	24-AUG-22	R5848539
Iron (Fe)	0.342		0.0071	ug/m3	24-AUG-22	24-AUG-22	R5848539
Iron (Fe)	576		12	ug	24-AUG-22	24-AUG-22	R5848539
Magnesium (Mg)	0.111		0.036	ug/m3	24-AUG-22	24-AUG-22	R5848539
Magnesium (Mg)	186		60	ug	24-AUG-22	24-AUG-22	R5848539
Manganese (Mn)	0.00943		0.00027	ug/m3	24-AUG-22	24-AUG-22	R5848539
Manganese (Mn)	15.9		0.45	ug	24-AUG-22	24-AUG-22	R5848539
Molybdenum (Mo)	0.00169		0.00021	ug/m3	24-AUG-22	24-AUG-22	R5848539
Molybdenum (Mo)	2.85		0.36	ug	24-AUG-22	24-AUG-22	R5848539
Nickel (Ni)	0.00054		0.00015	ug/m3	24-AUG-22	24-AUG-22	R5848539
Nickel (Ni)	0.92		0.25	ug	24-AUG-22	24-AUG-22	R5848539
Lead (Pb)	0.000708		0.000071	ug/m3	24-AUG-22	24-AUG-22	R5848539
Lead (Pb)	1.19		0.12	ug	24-AUG-22	24-AUG-22	R5848539
Antimony (Sb)	0.00050		0.00015	ug/m3	24-AUG-22	24-AUG-22	R5848539
Antimony (Sb)	0.85		0.25	ug	24-AUG-22	24-AUG-22	R5848539
Selenium (Se)	<0.00077		0.00077	ug/m3	24-AUG-22	24-AUG-22	R5848539
Selenium (Se)	<1.3		1.3	ug	24-AUG-22	24-AUG-22	R5848539
Thallium (Tl)	<0.000053		0.000053	ug/m3	24-AUG-22	24-AUG-22	R5848539
Thallium (Tl)	<0.090		0.090	ug	24-AUG-22	24-AUG-22	R5848539
Uranium (U)	0.0000083		0.0000036	ug/m3	24-AUG-22	24-AUG-22	R5848539
Uranium (U)	0.0140		0.0060	ug	24-AUG-22	24-AUG-22	R5848539
Vanadium (V)	<0.0030		0.0030	ug/m3	24-AUG-22	24-AUG-22	R5848539
Vanadium (V)	<5.0		5.0	ug	24-AUG-22	24-AUG-22	R5848539
Zinc (Zn)	0.0155		0.0027	ug/m3	24-AUG-22	24-AUG-22	R5848539
Zinc (Zn)	26.1		4.5	ug	24-AUG-22	24-AUG-22	R5848539
Bismuth (Bi)	<0.0011		0.0011	ug/m3	24-AUG-22	24-AUG-22	R5848539
Bismuth (Bi)	<1.8		1.8	ug	24-AUG-22	24-AUG-22	R5848539
Boron (B)	<0.0089		0.0089	ug/m3	24-AUG-22	24-AUG-22	R5848539
Boron (B)	<15		15	ug	24-AUG-22	24-AUG-22	R5848539
Phosphorus (P)	<0.45		0.45	ug/m3	24-AUG-22	24-AUG-22	R5848539
Phosphorus (P)	<750		750	ug	24-AUG-22	24-AUG-22	R5848539
Strontium (Sr)	0.0025		0.0018	ug/m3	24-AUG-22	24-AUG-22	R5848539
Strontium (Sr)	4.2		3.0	ug	24-AUG-22	24-AUG-22	R5848539
Tin (Sn)	<0.00036		0.00036	ug/m3	24-AUG-22	24-AUG-22	R5848539
Tin (Sn)	<0.60		0.60	ug	24-AUG-22	24-AUG-22	R5848539
Titanium (Ti)	<0.0065		0.0065	ug/m3	24-AUG-22	24-AUG-22	R5848539
Titanium (Ti)	<11		11	ug	24-AUG-22	24-AUG-22	R5848539
Zirconium (Zr)	<0.0012		0.0012	ug/m3	24-AUG-22	24-AUG-22	R5848539
Zirconium (Zr)	<2.0		2.0	ug	24-AUG-22	24-AUG-22	R5848539
L2728005-4 #742823-RUNDLE-TSP/ICP-JUL22 Sampled By: Martin Town on 22-JUL-22 Matrix: Hi Vol Filter Miscellaneous Parameters							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2728005-4 #742823-RUNDLE-TSP/ICP-JUL22							
Sampled By: Martin Town on 22-JUL-22							
Matrix: Hi Vol Filter							
Air volume	1596			m3		16-AUG-22	R5844239
Particulate on High Volume Filter							
Total particulate	121		0.063	ug/m3		15-AUG-22	R5845556
Total particulate	193000		100	ug		15-AUG-22	R5845556
Mercury on High Volume Filter by CVAA							
Mercury (Hg)	0.0000152		0.0000063	ug/m3	23-AUG-22	24-AUG-22	R5848394
Mercury (Hg)	0.024		0.010	ug	23-AUG-22	24-AUG-22	R5848394
Metals on High Volume Filter by ICPMS							
Silver (Ag)	<0.000056		0.000056	ug/m3	24-AUG-22	24-AUG-22	R5848539
Silver (Ag)	<0.090		0.090	ug	24-AUG-22	24-AUG-22	R5848539
Aluminum (Al)	1.61		0.0056	ug/m3	24-AUG-22	24-AUG-22	R5848539
Aluminum (Al)	2570		9.0	ug	24-AUG-22	24-AUG-22	R5848539
Arsenic (As)	<0.0019		0.0019	ug/m3	24-AUG-22	24-AUG-22	R5848539
Arsenic (As)	<3.0		3.0	ug	24-AUG-22	24-AUG-22	R5848539
Barium (Ba)	0.0253		0.00031	ug/m3	24-AUG-22	24-AUG-22	R5848539
Barium (Ba)	40.4		0.50	ug	24-AUG-22	24-AUG-22	R5848539
Beryllium (Be)	0.000069		0.000031	ug/m3	24-AUG-22	24-AUG-22	R5848539
Beryllium (Be)	0.109		0.050	ug	24-AUG-22	24-AUG-22	R5848539
Cadmium (Cd)	0.000087		0.000017	ug/m3	24-AUG-22	24-AUG-22	R5848539
Cadmium (Cd)	0.139		0.027	ug	24-AUG-22	24-AUG-22	R5848539
Cobalt (Co)	0.000829		0.000019	ug/m3	24-AUG-22	24-AUG-22	R5848539
Cobalt (Co)	1.32		0.030	ug	24-AUG-22	24-AUG-22	R5848539
Chromium (Cr)	0.0056		0.0021	ug/m3	24-AUG-22	24-AUG-22	R5848539
Chromium (Cr)	9.0		3.4	ug	24-AUG-22	24-AUG-22	R5848539
Copper (Cu)	0.0313		0.00063	ug/m3	24-AUG-22	24-AUG-22	R5848539
Copper (Cu)	50.0		1.0	ug	24-AUG-22	24-AUG-22	R5848539
Iron (Fe)	2.24		0.0075	ug/m3	24-AUG-22	24-AUG-22	R5848539
Iron (Fe)	3570		12	ug	24-AUG-22	24-AUG-22	R5848539
Magnesium (Mg)	1.16		0.038	ug/m3	24-AUG-22	24-AUG-22	R5848539
Magnesium (Mg)	1860		60	ug	24-AUG-22	24-AUG-22	R5848539
Manganese (Mn)	0.0651		0.00028	ug/m3	24-AUG-22	24-AUG-22	R5848539
Manganese (Mn)	104		0.45	ug	24-AUG-22	24-AUG-22	R5848539
Molybdenum (Mo)	0.00190		0.00023	ug/m3	24-AUG-22	24-AUG-22	R5848539
Molybdenum (Mo)	3.04		0.36	ug	24-AUG-22	24-AUG-22	R5848539
Nickel (Ni)	0.00267		0.00016	ug/m3	24-AUG-22	24-AUG-22	R5848539
Nickel (Ni)	4.26		0.25	ug	24-AUG-22	24-AUG-22	R5848539
Lead (Pb)	0.00375		0.000075	ug/m3	24-AUG-22	24-AUG-22	R5848539
Lead (Pb)	5.99		0.12	ug	24-AUG-22	24-AUG-22	R5848539
Antimony (Sb)	0.00093		0.00016	ug/m3	24-AUG-22	24-AUG-22	R5848539
Antimony (Sb)	1.49		0.25	ug	24-AUG-22	24-AUG-22	R5848539
Selenium (Se)	<0.00081		0.00081	ug/m3	24-AUG-22	24-AUG-22	R5848539
Selenium (Se)	<1.3		1.3	ug	24-AUG-22	24-AUG-22	R5848539
Thallium (Tl)	<0.000056		0.000056	ug/m3	24-AUG-22	24-AUG-22	R5848539
Thallium (Tl)	<0.090		0.090	ug	24-AUG-22	24-AUG-22	R5848539
Uranium (U)	0.0000651		0.0000038	ug/m3	24-AUG-22	24-AUG-22	R5848539
Uranium (U)	0.104		0.0060	ug	24-AUG-22	24-AUG-22	R5848539
Vanadium (V)	0.0040		0.0031	ug/m3	24-AUG-22	24-AUG-22	R5848539
Vanadium (V)	6.3		5.0	ug	24-AUG-22	24-AUG-22	R5848539
Zinc (Zn)	0.0609		0.0028	ug/m3	24-AUG-22	24-AUG-22	R5848539
Zinc (Zn)	97.2		4.5	ug	24-AUG-22	24-AUG-22	R5848539
Bismuth (Bi)	<0.0011		0.0011	ug/m3	24-AUG-22	24-AUG-22	R5848539
Bismuth (Bi)	<1.8		1.8	ug	24-AUG-22	24-AUG-22	R5848539

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2728005-4 #742823-RUNDLE-TSP/ICP-JUL22 Sampled By: Martin Town on 22-JUL-22 Matrix: Hi Vol Filter Metals on High Volume Filter by ICPMS Boron (B)							

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2728005-5 #742824-RUNDLE-TSP/ICP-AUG03 Sampled By: Martin Town on 03-AUG-22 Matrix: Hi Vol Filter							
Metals on High Volume Filter by ICPMS							
Nickel (Ni)	3.17		0.25	ug	24-AUG-22	24-AUG-22	R5848539
Lead (Pb)	0.00272		0.000074	ug/m3	24-AUG-22	24-AUG-22	R5848539
Lead (Pb)	4.41		0.12	ug	24-AUG-22	24-AUG-22	R5848539
Antimony (Sb)	0.00098		0.00015	ug/m3	24-AUG-22	24-AUG-22	R5848539
Antimony (Sb)	1.59		0.25	ug	24-AUG-22	24-AUG-22	R5848539
Selenium (Se)	<0.00080		0.00080	ug/m3	24-AUG-22	24-AUG-22	R5848539
Selenium (Se)	<1.3		1.3	ug	24-AUG-22	24-AUG-22	R5848539
Thallium (Tl)	<0.000056		0.000056	ug/m3	24-AUG-22	24-AUG-22	R5848539
Thallium (Tl)	<0.090		0.090	ug	24-AUG-22	24-AUG-22	R5848539
Uranium (U)	0.0000428		0.0000037	ug/m3	24-AUG-22	24-AUG-22	R5848539
Uranium (U)	0.0693		0.0060	ug	24-AUG-22	24-AUG-22	R5848539
Vanadium (V)	<0.0031		0.0031	ug/m3	24-AUG-22	24-AUG-22	R5848539
Vanadium (V)	<5.0		5.0	ug	24-AUG-22	24-AUG-22	R5848539
Zinc (Zn)	0.0625		0.0028	ug/m3	24-AUG-22	24-AUG-22	R5848539
Zinc (Zn)	101		4.5	ug	24-AUG-22	24-AUG-22	R5848539
Bismuth (Bi)	<0.0011		0.0011	ug/m3	24-AUG-22	24-AUG-22	R5848539
Bismuth (Bi)	<1.8		1.8	ug	24-AUG-22	24-AUG-22	R5848539
Boron (B)	0.0105		0.0093	ug/m3	24-AUG-22	24-AUG-22	R5848539
Boron (B)	17		15	ug	24-AUG-22	24-AUG-22	R5848539
Phosphorus (P)	<0.46		0.46	ug/m3	24-AUG-22	24-AUG-22	R5848539
Phosphorus (P)	<750		750	ug	24-AUG-22	24-AUG-22	R5848539
Strontium (Sr)	0.0179		0.0019	ug/m3	24-AUG-22	24-AUG-22	R5848539
Strontium (Sr)	29.1		3.0	ug	24-AUG-22	24-AUG-22	R5848539
Tin (Sn)	0.00096		0.00037	ug/m3	24-AUG-22	24-AUG-22	R5848539
Tin (Sn)	1.55		0.60	ug	24-AUG-22	24-AUG-22	R5848539
Titanium (Ti)	0.0331		0.0068	ug/m3	24-AUG-22	24-AUG-22	R5848539
Titanium (Ti)	54		11	ug	24-AUG-22	24-AUG-22	R5848539
Zirconium (Zr)	<0.0012		0.0012	ug/m3	24-AUG-22	24-AUG-22	R5848539
Zirconium (Zr)	<2.0		2.0	ug	24-AUG-22	24-AUG-22	R5848539
L2728005-6 #738746-RUNDLE-TSP/ICP-AUG09 Sampled By: Martin Town on 09-AUG-22 Matrix: Hi Vol Filter							
Miscellaneous Parameters							
Air volume	1641			m3		16-AUG-22	R5844239
Particulate on High Volume Filter							
Total particulate	24.2		0.061	ug/m3		15-AUG-22	R5845556
Total particulate	39700		100	ug		15-AUG-22	R5845556
Mercury on High Volume Filter by CVAA							
Mercury (Hg)	<0.0000061		0.0000061	ug/m3	23-AUG-22	24-AUG-22	R5848394
Mercury (Hg)	<0.010		0.010	ug	23-AUG-22	24-AUG-22	R5848394
Metals on High Volume Filter by ICPMS							
Silver (Ag)	<0.000055		0.000055	ug/m3	24-AUG-22	24-AUG-22	R5848539
Silver (Ag)	<0.090		0.090	ug	24-AUG-22	24-AUG-22	R5848539
Aluminum (Al)	0.203		0.0055	ug/m3	24-AUG-22	24-AUG-22	R5848539
Aluminum (Al)	333		9.0	ug	24-AUG-22	24-AUG-22	R5848539
Arsenic (As)	0.0024		0.0018	ug/m3	24-AUG-22	24-AUG-22	R5848539
Arsenic (As)	4.0		3.0	ug	24-AUG-22	24-AUG-22	R5848539
Barium (Ba)	0.00477		0.00030	ug/m3	24-AUG-22	24-AUG-22	R5848539
Barium (Ba)	7.83		0.50	ug	24-AUG-22	24-AUG-22	R5848539
Beryllium (Be)	<0.000030		0.000030	ug/m3	24-AUG-22	24-AUG-22	R5848539
Beryllium (Be)	<0.050		0.050	ug	24-AUG-22	24-AUG-22	R5848539

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2728005-6 #738746-RUNDLE-TSP/ICP-AUG09							
Sampled By: Martin Town on 09-AUG-22							
Matrix: Hi Vol Filter							
Metals on High Volume Filter by ICPMS							
Cadmium (Cd)	0.000019		0.000016	ug/m3	24-AUG-22	24-AUG-22	R5848539
Cadmium (Cd)	0.032		0.027	ug	24-AUG-22	24-AUG-22	R5848539
Cobalt (Co)	0.000116		0.000018	ug/m3	24-AUG-22	24-AUG-22	R5848539
Cobalt (Co)	0.190		0.030	ug	24-AUG-22	24-AUG-22	R5848539
Chromium (Cr)	<0.0021		0.0021	ug/m3	24-AUG-22	24-AUG-22	R5848539
Chromium (Cr)	<3.4		3.4	ug	24-AUG-22	24-AUG-22	R5848539
Copper (Cu)	0.0208		0.00061	ug/m3	24-AUG-22	24-AUG-22	R5848539
Copper (Cu)	34.2		1.0	ug	24-AUG-22	24-AUG-22	R5848539
Iron (Fe)	0.370		0.0073	ug/m3	24-AUG-22	24-AUG-22	R5848539
Iron (Fe)	608		12	ug	24-AUG-22	24-AUG-22	R5848539
Magnesium (Mg)	0.204		0.037	ug/m3	24-AUG-22	24-AUG-22	R5848539
Magnesium (Mg)	335		60	ug	24-AUG-22	24-AUG-22	R5848539
Manganese (Mn)	0.0140		0.00027	ug/m3	24-AUG-22	24-AUG-22	R5848539
Manganese (Mn)	23.0		0.45	ug	24-AUG-22	24-AUG-22	R5848539
Molybdenum (Mo)	0.00089		0.00022	ug/m3	24-AUG-22	24-AUG-22	R5848539
Molybdenum (Mo)	1.45		0.36	ug	24-AUG-22	24-AUG-22	R5848539
Nickel (Ni)	0.00087		0.00015	ug/m3	24-AUG-22	24-AUG-22	R5848539
Nickel (Ni)	1.44		0.25	ug	24-AUG-22	24-AUG-22	R5848539
Lead (Pb)	0.000949		0.000073	ug/m3	24-AUG-22	24-AUG-22	R5848539
Lead (Pb)	1.56		0.12	ug	24-AUG-22	24-AUG-22	R5848539
Antimony (Sb)	0.00025		0.00015	ug/m3	24-AUG-22	24-AUG-22	R5848539
Antimony (Sb)	0.40		0.25	ug	24-AUG-22	24-AUG-22	R5848539
Selenium (Se)	<0.00079		0.00079	ug/m3	24-AUG-22	24-AUG-22	R5848539
Selenium (Se)	<1.3		1.3	ug	24-AUG-22	24-AUG-22	R5848539
Thallium (Tl)	<0.000055		0.000055	ug/m3	24-AUG-22	24-AUG-22	R5848539
Thallium (Tl)	<0.090		0.090	ug	24-AUG-22	24-AUG-22	R5848539
Uranium (U)	0.0000121		0.0000037	ug/m3	24-AUG-22	24-AUG-22	R5848539
Uranium (U)	0.0198		0.0060	ug	24-AUG-22	24-AUG-22	R5848539
Vanadium (V)	<0.0030		0.0030	ug/m3	24-AUG-22	24-AUG-22	R5848539
Vanadium (V)	<5.0		5.0	ug	24-AUG-22	24-AUG-22	R5848539
Zinc (Zn)	0.0254		0.0027	ug/m3	24-AUG-22	24-AUG-22	R5848539
Zinc (Zn)	41.6		4.5	ug	24-AUG-22	24-AUG-22	R5848539
Bismuth (Bi)	<0.0011		0.0011	ug/m3	24-AUG-22	24-AUG-22	R5848539
Bismuth (Bi)	<1.8		1.8	ug	24-AUG-22	24-AUG-22	R5848539
Boron (B)	<0.0091		0.0091	ug/m3	24-AUG-22	24-AUG-22	R5848539
Boron (B)	<15		15	ug	24-AUG-22	24-AUG-22	R5848539
Phosphorus (P)	<0.46		0.46	ug/m3	24-AUG-22	24-AUG-22	R5848539
Phosphorus (P)	<750		750	ug	24-AUG-22	24-AUG-22	R5848539
Strontium (Sr)	0.0048		0.0018	ug/m3	24-AUG-22	24-AUG-22	R5848539
Strontium (Sr)	7.8		3.0	ug	24-AUG-22	24-AUG-22	R5848539
Tin (Sn)	<0.00037		0.00037	ug/m3	24-AUG-22	24-AUG-22	R5848539
Tin (Sn)	<0.60		0.60	ug	24-AUG-22	24-AUG-22	R5848539
Titanium (Ti)	0.0111		0.0067	ug/m3	24-AUG-22	24-AUG-22	R5848539
Titanium (Ti)	18		11	ug	24-AUG-22	24-AUG-22	R5848539
Zirconium (Zr)	<0.0012		0.0012	ug/m3	24-AUG-22	24-AUG-22	R5848539
Zirconium (Zr)	<2.0		2.0	ug	24-AUG-22	24-AUG-22	R5848539

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
AIR VOLUME-HIVOL-BU	Filter	Air volume (m3)	USEPA IO3.1
HG-IO3.5-CVAA-BU	Filter	Mercury on High Volume Filter by CVAA	USEPA Method IO3.5
After weighing (if required), hivol filters are sub-sampled and leached with nitric acid to extract available metal analytes. After dilution, the extracts are submitted to the CVAA instrument for analysis.			
MET-IO3.5-MS-BU	Filter	Metals on High Volume Filter by ICPMS	IO3.5
After weighing (if required), hivol filters are sub-sampled and leached with nitric acid to extract available metal analytes. After dilution, the extracts are submitted to the ICPMS instrument for analysis.			
PART-HIVOL-GRAV-BU	Filter	Particulate on High Volume Filter	USEPA IO3.1

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
BU	ALS ENVIRONMENTAL - BURLINGTON, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2728005

Report Date: 29-AUG-22

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Client: RWDI AIR INC. (Guelph)

600 Southgate Drive
Guelph ON N1G 4P6

Contact: Khalid Hussein

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-IO3.5-CVAA-BU		Filter						
Batch	R5848394							
WG3759147-3	DUP	L2728005-1						
Mercury (Hg)		0.029	0.0225	J	ug	0.0063	0.02	24-AUG-22
WG3759147-2	LCS		94.0		ug		70-130	24-AUG-22
Mercury (Hg)								
WG3759147-1	MB		<0.0050		ug		0.005	24-AUG-22
Mercury (Hg)								
WG3759147-4	MS	L2728005-1	85.8		ug		70-130	24-AUG-22
Mercury (Hg)								
MET-IO3.5-MS-BU		Filter						
Batch	R5848539							
WG3759147-3	DUP	L2728005-1						
Silver (Ag)		<0.090	0.091	RPD-NA	ug	N/A	20	24-AUG-22
Aluminum (Al)		284	431	G	ug	41	20	24-AUG-22
Arsenic (As)		<3.0	<3.0	RPD-NA	ug	N/A	20	24-AUG-22
Barium (Ba)		18.0	20.9		ug	15	20	24-AUG-22
Beryllium (Be)		<0.050	<0.050	RPD-NA	ug	N/A	20	24-AUG-22
Cadmium (Cd)		0.138	0.162		ug	16	20	24-AUG-22
Cobalt (Co)		0.255	0.373	G	ug	38	20	24-AUG-22
Chromium (Cr)		5.6	6.8		ug	20	20	24-AUG-22
Copper (Cu)		90.9	101		ug	10	20	24-AUG-22
Iron (Fe)		1090	1350		ug	21	25	24-AUG-22
Magnesium (Mg)		554	630		ug	13	20	24-AUG-22
Manganese (Mn)		36.5	44.4		ug	20	20	24-AUG-22
Molybdenum (Mo)		2.75	3.54	J,G	ug	0.79	0.72	24-AUG-22
Nickel (Ni)		2.38	2.72		ug	13	20	24-AUG-22
Lead (Pb)		3.26	3.44		ug	5.2	20	24-AUG-22
Antimony (Sb)		1.53	1.76		ug	13	20	24-AUG-22
Selenium (Se)		<1.3	<1.3	RPD-NA	ug	N/A	20	24-AUG-22
Thallium (Tl)		<0.090	<0.090	RPD-NA	ug	N/A	20	24-AUG-22
Uranium (U)		0.0216	0.0293	J	ug	0.0077	0.012	24-AUG-22
Vanadium (V)		<5.0	<5.0	RPD-NA	ug	N/A	20	24-AUG-22
Zinc (Zn)		70.7	76.5		ug	8.0	20	24-AUG-22
Bismuth (Bi)		<1.8	<1.8	RPD-NA	ug	N/A	25	24-AUG-22
Boron (B)		15	19		ug	21	25	24-AUG-22
Phosphorus (P)		<750	<750	RPD-NA	ug	N/A	25	24-AUG-22
Strontium (Sr)		9.1	9.9		ug	8.0	25	24-AUG-22



Workorder: L2728005

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-IO3.5-MS-BU		Filter						
Batch	R5848539							
WG3759147-3	DUP	L2728005-1						
Tin (Sn)		1.48	1.74		ug	16	25	24-AUG-22
Titanium (Ti)		16	23	J	ug	6	22	24-AUG-22
Zirconium (Zr)		<2.0	<2.0	RPD-NA	ug	N/A	25	24-AUG-22
COMMENTS: Al, Co and Mo RPDs are outside ALS DQOs. This is likely due to inhomogeneity in the dispersion of these analytes across the sampled filter surface. Data may show higher-than-normal variability. PE 26-Aug-22								
WG3759147-2	LCS							
Silver (Ag)			92.6		%		70-130	24-AUG-22
Aluminum (Al)			91.5		%		70-130	24-AUG-22
Arsenic (As)			90.7		%		80-120	24-AUG-22
Barium (Ba)			89.4		%		70-130	24-AUG-22
Beryllium (Be)			90.0		%		70-130	24-AUG-22
Cadmium (Cd)			94.2		%		80-120	24-AUG-22
Cobalt (Co)			90.7		%		80-120	24-AUG-22
Chromium (Cr)			89.3		%		80-120	24-AUG-22
Copper (Cu)			93.2		%		80-120	24-AUG-22
Iron (Fe)			93.0		%		80-120	24-AUG-22
Magnesium (Mg)			89.8		%		70-130	24-AUG-22
Manganese (Mn)			102.0		%		80-120	24-AUG-22
Molybdenum (Mo)			90.6		%		70-130	24-AUG-22
Nickel (Ni)			91.7		%		80-120	24-AUG-22
Lead (Pb)			89.8		%		80-120	24-AUG-22
Antimony (Sb)			91.0		%		80-120	24-AUG-22
Selenium (Se)			93.4		%		80-120	24-AUG-22
Thallium (Tl)			90.6		%		70-130	24-AUG-22
Uranium (U)			89.1		%		70-130	24-AUG-22
Vanadium (V)			90.1		%		80-120	24-AUG-22
Zinc (Zn)			93.0		%		80-120	24-AUG-22
Bismuth (Bi)			88.7		%		70-130	24-AUG-22
Boron (B)			96.3		%		70-130	24-AUG-22
Phosphorus (P)			90.0		%		70-130	24-AUG-22
Strontium (Sr)			89.8		%		70-130	24-AUG-22
Tin (Sn)			90.8		%		70-130	24-AUG-22
Titanium (Ti)			90.0		%		70-130	24-AUG-22
Zirconium (Zr)			86.3		%		70-130	24-AUG-22
WG3759147-1	MB							

Quality Control Report

Workorder: L2728005

Report Date: 29-AUG-22

Page 3 of 5

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-IO3.5-MS-BU		Filter						
Batch	R5848539							
WG3759147-1	MB							
Silver (Ag)			<0.090		ug		0.09	24-AUG-22
Aluminum (Al)			<9.0		ug		9	24-AUG-22
Arsenic (As)			<3.0		ug		3	24-AUG-22
Barium (Ba)			<0.50		ug		0.5	24-AUG-22
Beryllium (Be)			<0.050		ug		0.05	24-AUG-22
Cadmium (Cd)			<0.027		ug		0.027	24-AUG-22
Cobalt (Co)			<0.030		ug		0.03	24-AUG-22
Chromium (Cr)			<3.4		ug		3.4	24-AUG-22
Copper (Cu)			<1.0		ug		1	24-AUG-22
Iron (Fe)			15	A	ug		12	24-AUG-22
Magnesium (Mg)			<60		ug		60	24-AUG-22
Manganese (Mn)			2.70	A	ug		0.45	24-AUG-22
Molybdenum (Mo)			<0.36		ug		0.36	24-AUG-22
Nickel (Ni)			<0.25		ug		0.25	24-AUG-22
Lead (Pb)			<0.12		ug		0.12	24-AUG-22
Antimony (Sb)			<0.25		ug		0.25	24-AUG-22
Selenium (Se)			<1.3		ug		1.25	24-AUG-22
Thallium (Tl)			<0.090		ug		0.09	24-AUG-22
Uranium (U)			<0.0060		ug		0.006	24-AUG-22
Vanadium (V)			<5.0		ug		10	24-AUG-22
Zinc (Zn)			<4.5		ug		4.5	24-AUG-22
Bismuth (Bi)			<1.8		ug		1.8	24-AUG-22
Boron (B)			<15		ug		15	24-AUG-22
Phosphorus (P)			<750		ug		750	24-AUG-22
Strontium (Sr)			<3.0		ug		3	24-AUG-22
Tin (Sn)			<0.60		ug		0.6	24-AUG-22
Titanium (Ti)			<11		ug		10.5	24-AUG-22
Zirconium (Zr)			<2.0		ug		2	24-AUG-22
COMMENTS: Mn and Fe observed in the method blank above their LORs. This may be due to background contamination from the laboratory. In the case of Mn, this may provide a high bias to sample data. PE 26-Aug-22								
WG3759147-4	MS	L2728005-1						
Silver (Ag)			92.8		%		75-125	24-AUG-22
Aluminum (Al)			N/A	MS-B	%		-	24-AUG-22
Arsenic (As)			90.0		%		75-125	24-AUG-22
Barium (Ba)			98.1		%		75-125	24-AUG-22

Quality Control Report

Workorder: L2728005

Report Date: 29-AUG-22

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-IO3.5-MS-BU								
Filter								
Batch	R5848539							
WG3759147-4	MS	L2728005-1						
Beryllium (Be)			90.3		%		75-125	24-AUG-22
Cadmium (Cd)			93.0		%		75-125	24-AUG-22
Cobalt (Co)			88.5		%		75-125	24-AUG-22
Chromium (Cr)			85.4		%		75-125	24-AUG-22
Copper (Cu)			N/A	MS-B	%		-	24-AUG-22
Iron (Fe)			N/A	MS-B	%		-	24-AUG-22
Magnesium (Mg)			N/A	MS-B	%		-	24-AUG-22
Manganese (Mn)			91.0		%		75-125	24-AUG-22
Molybdenum (Mo)			90.8		%		75-125	24-AUG-22
Nickel (Ni)			87.7		%		75-125	24-AUG-22
Lead (Pb)			95.8		%		75-125	24-AUG-22
Antimony (Sb)			86.5		%		75-125	24-AUG-22
Selenium (Se)			95.0		%		75-125	24-AUG-22
Thallium (Tl)			94.6		%		75-125	24-AUG-22
Uranium (U)			92.6		%		75-125	24-AUG-22
Vanadium (V)			87.4		%		75-125	24-AUG-22
Zinc (Zn)			88.5		%		75-125	24-AUG-22
Bismuth (Bi)			94.2		%		75-125	24-AUG-22
Boron (B)			94.4		%		75-125	24-AUG-22
Phosphorus (P)			90.3		%		75-125	24-AUG-22
Strontium (Sr)			87.7		%		75-125	24-AUG-22
Tin (Sn)			88.8		%		75-125	24-AUG-22
Titanium (Ti)			81.4		%		75-125	24-AUG-22
Zirconium (Zr)			80.3		%		75-125	24-AUG-22
PART-HIVOL-GRAV-BU								
Filter								
Batch	R5845556							
WG3758205-4	DUP	L2728005-1						
Total particulate		53600	53600		ug	0.0	5	15-AUG-22
WG3758205-1	MB							
Total particulate			<100		ug		100	15-AUG-22

Quality Control Report

Workorder: L2728005

Report Date: 29-AUG-22

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Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
A	Method Blank exceeds ALS DQO. Refer to narrative comments for further information.
G	QC result did not meet ALS DQO. Refer to narrative comments for further information.
J	Duplicate results and limits are expressed in terms of absolute difference.
J,G	QC result did not meet ALS DQO. Refer to narrative comments for further information. Duplicate expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 8878



L2728002-COFC

Number: 17 -

Page 1 of 1

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all EAP TATs (surcharges may apply)																									
Company:	RWDI	Select Report Format:	☒ PDF ☐ EXCEL ☒ EDD (DIGITAL)	Standard TAT is 15 business days. DTOX analysis standard TAT is 5 business days																									
Contact:	Matt Lantz	Quality Control (QC) Report with Report	☐ YES ☐ NO	15 day (R - Regular) ☐ 5 Business day - DTOX (R - Regular)																									
Phone:	519 823 1311	☐ Compare Results to Criteria on Report - provide details below if box checked		10 day (P-50%) ☐ 3 Business day - DTOX (E - 100%)																									
Company address below will appear on the final report		Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX	5 day (E-100%) ☐																									
Street:	600 Southgate Drive	Email 1 or Fax	Matt.Lantz@rwdi.com	Date and Time Required for all EAP TATs: dd-mm-yy hh:mm																									
City/Province:	Guelph, Ontario	Email 2		For tests that can not be performed according to the service level selected, you will be contacted.																									
Postal Code:	N1G 4P6	Email 3		Analysis Request																									
Invoice To	Same as Report To ☐ YES ☐ NO	Invoice Distribution		<table border="1"> <tr> <th colspan="6">Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F,P) below</th> </tr> <tr> <th>TSP, ICP on H-Vol Filter</th> <th>PAH</th> <th>DX</th> <th></th> <th></th> <th></th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F,P) below						TSP, ICP on H-Vol Filter	PAH	DX															
Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F,P) below																													
TSP, ICP on H-Vol Filter	PAH	DX																											
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution:																											
Company:		Email 1 or Fax																											
Contact:		Email 2																											
Project Information		Oil and Gas Required Fields (client use)																											
ALS Account # / Quote #:		AFE/Cost Center:		PO#																									
Job #:		Major/Minor Code:		Routing Code:																									
PO / AFE:		Requisitioner:																											
LSD:		Location:																											
ALS Lab Work Order # (lab use only):		ALS Contact:		Sampler: Martin Town																									
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Sample Air Volume (m3)	Date (dd-mm-yy)	Sample Period	Sample Type																								
1	WV48828-LITL61-3-Constice	333	09-Aug-22	24hr	Air																								
1	742822	1663	22-Jul-22	24hr	Air																								
2	738745	1645	03-Aug-22	24hr	Air																								
3	743027	1685	09-Aug-22	24hr	Air																								
2	L2726161-2-Rundic	338	09-Aug-22	24hr	Air																								
4	742823	1596	22-Jul-22	24hr	Air																								
5	742824	1620	03-Aug-22	24hr	Air																								
6	738746	1641		24hr	Air																								
				24hr	Air																								
				24hr	Air																								
				24hr	Air																								
				24hr	Air																								
Drinking Water (DW) Samples (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)																											
Are samples taken from a Regulated DW System? ☐ YES ☒ NO		Samples are 10 day TAT																											
Are samples for human consumption use? ☐ YES ☒ NO																													
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)																											
Released by:	Date:	Time:	Received by:	Date:	Time:																								
M. Lantz	11-Aug-22	10:00	ARAR Banta	12-Aug-2021	10:00																								
FINAL SHIPMENT RECEPTION (lab use only)		WHITE - LABORATORY COPY YELLOW - CLIENT COPY																											

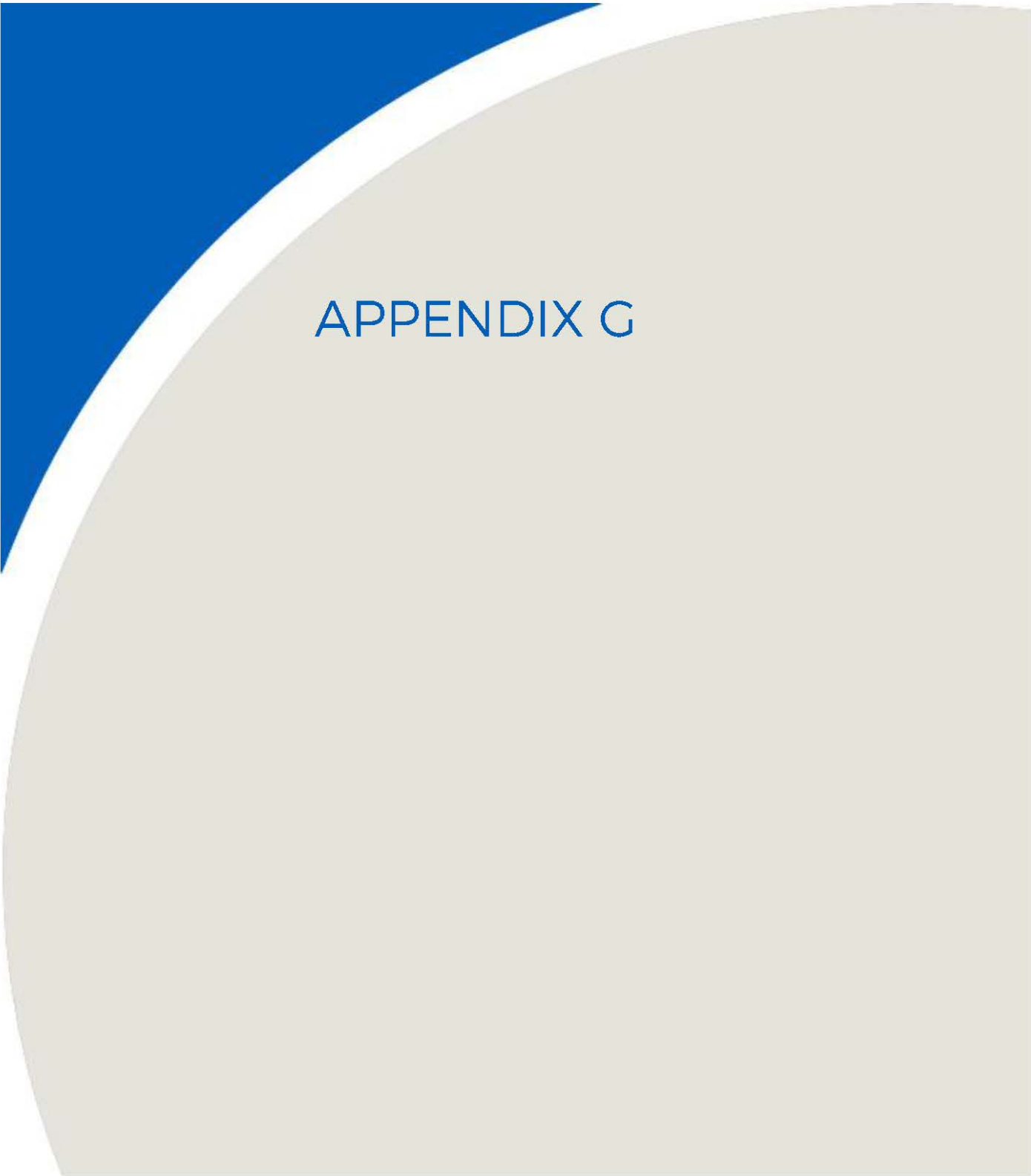
REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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

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

Station: RofD Rundle Daily: 22/07/2022 Type: AVG 1 Hr. [5 Mins.]

07/22/2022	00:00	10.5	0	1.5	1.2	0.075	21.9	22.8	72.9	0	4.04	290	3.81	0.07	295.031	39.32	0.95
07/22/2022	01:00	10.6	0	0.9	0.7	0.199	21.5	22.8	71.9	0	3.1	316	3.76	0.07	294.618	39.13	0.95
07/22/2022	02:00	10.1	0.2	0.6	0.7	0.422	20.7	22.7	69.4	0	3.85	324	3.79	0.07	293.896	39.33	0.95
07/22/2022	03:00	10.9	0.1	0.8	0.8	0.215	19.7	22.9	72.8	0	3.24	310	3.8	0.07	292.84	39.45	0.95
07/22/2022	04:00	11.7	2	3.1	5	0.221	18.1	22.7	81	0	2.9	243	3.85	0.07	291.188	39.78	0.95
07/22/2022	05:00	15.5	6	7.6	13.6	0.268	17.8	22.8	82.6	0	2.01	266	3.87	0.07	290.967	39.91	0.95
07/22/2022	06:00	14.5	11.8	12.4	24.2	0.301	20.2	22.9	72.6	0	4.86	262	3.77	0.07	293.328	39.23	0.95
07/22/2022	07:00	14.2	13.2	12.2	25.4	0.349	22.3	22.8	61.2	0	6.79	256	3.68	0.07	295.442	38.62	0.94
07/22/2022	08:00	13.5	19.4	14.8	34.1	0.401	23.5	23.1	57.7	0	8.79	241	3.63	0.06	296.59	38.31	0.94
07/22/2022	09:00	13.5	20.6	14.7	35.3	0.537	24.5	22.8	53.9	0	11.41	236	3.64	0.07	297.603	38.28	0.94
07/22/2022	10:00	12.6	35.8	17.7	53.5	0.719	25.5	22.9	47.8	0	10.87	227	3.63	0.06	298.672	38.13	0.93
07/22/2022	11:00	8.9	24.1	12.2	36.2	0.637	26.5	22.9	42.4	0	7.8	200	3.62	0.06	299.672	38.02	0.94
07/22/2022	12:00	9.3	18.9	8.2	27.1	0.5	27.4	22.9	40.1	0	6.8	202	3.59	0.06	300.588	37.83	0.93
07/22/2022	13:00	10	2.9	4.1	7	0.296	27.2	22.9	45.5	0	8.1	174	3.59	0.06	300.324	37.84	0.94
07/22/2022	14:00	10.9	0.4	2	2.3	0.333	26.8	22.7	52.8	0	7.08	167	3.57	0.06	299.926	37.76	0.94
07/22/2022	15:00	9.9	0.4	2.2	2.6	0.317	26.5	22.8	57.7	0	7.47	147	3.58	0.07	299.607	37.85	0.94
07/22/2022	16:00	8.9	0.3	2.8	3.1	0.29	25.9	22.5	63.3	0	6.05	137	3.6	0.07	299.092	37.95	0.94
07/22/2022	17:00	6	0.1	1.8	1.8	0.299	26.6	22.6	61.8	0	5.3	197	3.57	0.07	299.8	37.73	0.94
07/22/2022	18:00	4.9	0.1	1.5	1.6	0.261	26.3	22.5	66.2	0	10.29	250	3.59	0.07	299.466	37.88	0.95
07/22/2022	19:00	5.8	0	2.8	2.7	0.286	25.1	22.6	71.7	0	2.43	291	3.59	0.07	298.264	37.95	0.95
07/22/2022	20:00	7.6	0.2	3.3	3.3	0.377	22.6	22.7	81.7	0	3.14	306	3.61	0.07	295.732	38.23	0.95
07/22/2022	21:00	7.6	0	2.2	2.1	0.143	22	22.7	79.4	0	2.19	313	3.62	0.07	295.157	38.34	0.95
07/22/2022	22:00	7.9	0	1.8	1.7	0.094	19.6	22.8	92.6	0	0.42	<Samp	3.76	0.07	292.706	39.21	0.95
07/22/2022	23:00	9.1	1.7	4.6	6.3	0.118	18.5	22.9	100	0	0.48	<Samp	3.95	0.07	291.607	40.31	0.95
Minimum		4.9	0	0.6	0.7	0.075	17.8	22.5	40.1	0	0.42	137	3.57	0.06	290.967	37.73	0.93
MinDate		18:00	00:00	02:00	01:00	00:00	05:00	16:00	12:00	00:00	22:00	16:00	14:00	08:00	05:00	17:00	10:00
Maximum		15.5	35.8	17.7	53.5	0.719	27.4	23.1	100	0	11.41	324	3.95	0.07	300.588	40.31	0.95
MaxDate		05:00	10:00	10:00	10:00	10:00	12:00	08:00	23:00	00:00	09:00	02:00	23:00	00:00	12:00	23:00	00:00
Avg		10.2	6.6	5.7	12.2	0.319	23.2	22.8	66.6	0	5.39	243	3.69	0.07	296.338	38.6	0.94
Num		24	24	24	24	24	24	24	24	24	24	22	24	24	24	24	24
Data[%]		100	100	100	100	100	100	100	100	100	100	91.67	100	100	100	100	100
STD		2.8	9.9	5.2	14.9	0.2	3.1	0.1	15.1	0	3.1	55.5	0.1	0	3.1	0.8	0

A large decorative graphic on the left side of the page. It features a blue triangular shape in the top-left corner, a white curved line separating it from a large light-grey circular area, and a thin white line separating the grey area from the rest of the page.

APPENDIX G



Technical Memorandum

Date: November 1, 2022

To: Khalid Hussein, Project Manager, RWDI

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

Copy: L. McDowell, General Manager, (Interim) Environmental,
Public Works, York Region

Subject: Durham York Energy Centre (DYEC)
2022 Ambient Air Q3 Sulphur Dioxide Emissions

In support of the 2022, Q3 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 (SO₂) 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 SO₂ concentrations at the maximum point of impingement (POI) for a facility operating at 110% maximum continuous rating (MCR) with in-stack SO₂ concentrations at the permit limit of 35 mg/m³. Under this conservative assumed facility operating condition, the predicted maximum 1-hour average concentration at the POI was 8.62 µg/m³, which represents 8.62% of the new ambient air standard of 100 µg/m³, which was implemented in 2020.

During Q3, there were thirty-six (36) exceedance events of the rolling 10-minute SO₂ Ambient Air Quality Criteria (AAQC) and fifteen (15) exceedance events of the rolling 1-hour SO₂ AAQC recorded at the Courtice Station and there was one (1) exceedance event of the rolling 1-hour SO₂ AAQC at the Rundle Road station.

Each of the date and times of the SO₂ AAQC exceedances were compared against the wind direction recorded at the ambient air stations as well as the SO₂ concentrations measured at the DYEC by the continuous emissions monitoring system (CEMS).

As indicated by RWDI in the 2022 DYEC Ambient Air Q3 Report, the Courtice Station pollution rose in Figure 6 shows that the majority of elevated SO₂ events at Courtice occurred from the north-northeast to east-northeast directions. The events were possibly a result of emissions from surrounding industrial sources with contributions from the DYEC in the east-northeast direction. The Courtice Station pollution rose in Figure 7 shows that <0.31% of the 5-min SO₂ events are elevated >67 ppb and occurred from the north-northwest to north-northeast directions. The pollution rose indicates that the DYEC was not a contributor to SO₂ levels at the station and that the levels may be related to other industrial activity nearby.

The Rundle Road Station pollution rose in Figure 6 shows that the majority of elevated SO₂ events at the Rundle Road Station occurred when winds were from the east-southeast to south-southeast. The pollution rose indicates that the DYEC was not a contributor to SO₂ levels at the station and that the levels may be related to other industrial activity nearby. The Rundle Road Station pollution rose in Figure 7 shows that there were only SO₂ concentrations >67 ppb from the east-southeast direction.

During the times the SO₂ AAQC events occurred, both boilers CEMS concentrations, comprised of 24-hour rolling arithmetic average, were recorded between 0-10 mg/Rm³. The DYEC's CEMS concentrations for both boilers were below the DYEC regulatory compliance limit of 35 mg/Rm³ and the facility was operating under normal conditions.

A large decorative graphic on the left side of the page, featuring a blue triangle at the top left and a large, light gray curved shape that resembles a quarter-circle or a stylized 'C' shape, with a white curved line separating the two.

APPENDIX H



RWDI

600 Southgate Drive,
Guelph, ON
N1G 4P6

November 10, 2022

Re: Aug 21 Sampling: RWDI DYEC PAH L2730284 Report Comments

To whom it may concern,

An error was made during the processing of samples received at our laboratory under workorder L2730284, for the analysis of PAH targets. The error had a negative impact on data quality.

We add a standard containing labelled PAH analogues to the sample prior to extraction. Target analyte data are quantified against the labelled analogues in this standard, identified on the report as Extraction Standards. Any losses that may occur during processing affect the target analytes and the extraction standards equally. As a result, the target data are inherently recovery-corrected and not biased, even when losses occur.

We add a second standard, the Injection Standard, with a few additional labelled PAH analogues after the extraction and preparation steps and prior to analysis. These are used to calculate the recovery of the extraction standards. These recoveries provide a measure of how well the standards and targets were maintained during the process.

In this case, an analyst inadvertently added an aliquot of extraction standard at the end of the process, instead of the injection standard. After the initial analysis, the injection standard was added, and the extract re-analyzed. At this point, the nature of the error became clear. As a result, the extract would have the original amount of extraction standard, minus processing losses, plus another aliquot of extraction standard added. Losses can be significant, particularly for the early-eluting PAH. Since the losses are unknown, it was not possible to relate the amount of extraction standard to the amount of target in the samples. The early-eluting PAHs have not been reported.

For the heavier PAH, phenanthrene and later, it appeared that the recoveries were sufficient to be able to quantify the target data assuming two aliquots of extraction standard had been added. i.e., assume that the recoveries from the original addition of extraction standard were 100%. Included in the extraction batch was a laboratory control sample (LCS), a blank that was fortified with a known amount of PAH prior to extraction. The LCS recoveries of the later-eluting targets are all within the method control limits. The later-eluting PAH targets were reported. Since the LCS target recoveries were not biased, an inference can be made that the sample data are also not biased. However, since this cannot be known with certainty, a comment was added to treat the sample data as estimated.



This type of error is extremely rare and was detected during analysis. The Sample Preparation Supervisor discussed the error with the analyst to prevent recurrence.

Regards,

Steve Kennedy
9-Nov-2022

Please accept this letter with our apologies for the matter discussed above. If you have any additional questions, please feel free to reach out to us.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Ron McLeod', is positioned below the word 'Sincerely,'.

Ron McLeod, Ph.D.
Director of Special Chemistries & Air Toxics, Eastern Canada)
Environmental Division