Quarterly Ambient Air Quality Monitoring Report for the Durham York Energy Centre – April to June 2018

FINAL REPORT

August 8, 2018

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Sign-off Sheet

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Executive Summary

The Regional Municipalities of Durham and York constructed the Durham York Energy Centre (DYEC) which is an Energy-from-Waste (EFW) Facility intended to provide a long-term, sustainable solution to manage the remaining municipal solid waste after waste diversion from the Regions. The facility commenced commercial operation on February 1, 2016.

The Ambient Air Quality Monitoring Plan – Durham York Residual Waste Study (Stantec, 2012), was developed based on the Regional Council's mandate to provide ambient air quality monitoring in the area of the DYEC for a three-year period. An ambient air quality monitoring and reporting program was also a requirement laid out in the Provincial Minister's Notice of Approval to Proceed with the Undertaking, detailed in Condition 11 of the Notice of Approval (MECP, 2010). The air monitoring plan was also developed to satisfy the conditions of the Environmental Compliance Approval and the environmental mitigation and commitments set out in the Environmental Assessment (Jacques Whitford, 2009).
The predominantly downwind station is located along Rundle Road, south of Baseline Road. The predominantly upwind station is sited at the Courtice Water Pollution Control Plant (WPCP). Since May 2013, measurements of the following air contaminants have been made at the two stations:

- Continuously monitored
  - Sulphur Dioxide (SO_2)
  - Nitrogen Oxides (NO_X)
  - Particulate Matter smaller than 2.5 microns ($PM_{2.5}$)
- Non-continuously monitored
  - Metals in Total Suspended Particulate (TSP) matter
  - Polycyclic Aromatic Hydrocarbons (PAHs)
  - Dioxins and Furans

Operation of the non-continuous monitors was temporarily discontinued from June 28, 2014 (after completion of the background air quality data collection period) onwards through the rest of construction and commissioning, as per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012). The EFW facility became fully operational on February 1, 2016 and monitoring of non-continuous air quality parameters resumed.

A third Fence Line Station, which measures non-continuous parameters (metals and total particulate matter), was installed prior to full operation of the DYEC. As per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012), the Fence Line Station, which collects non-continuous parameters began operation on February 1, 2016 upon start of commercial operations. The Fence Line Station was scheduled to run for a one-year period, but this period has been extended at the request of the Regional Municipality of Durham.

Meteorological data is also measured at the Courtice WPCP and Rundle Road Stations. The predominantly downwind Rundle Road Station measures horizontal wind speed, wind direction, atmospheric temperature, relative humidity, and rainfall. The predominantly upwind Courtice WPCP Station measures atmospheric temperature, relative humidity, rainfall, and barometric pressure. Wind speed and wind direction data at the predominantly upwind location are measured and provided by the Courtice Water Pollution Control Plant.

This quarterly report provides a summary of the ambient air quality data collected at the three stations for the period from April to June 2018 (Calendar Quarter 2). Data recovery rates for all measured air quality parameters were acceptable for this quarter.

Site personnel noted ongoing Highway 418 construction on the north and south sides of Highway 401 between Courtice and Crago Roads during Quarter 2, 2018.

The following observations and conclusions were made from a review of the measured ambient air quality monitoring data:

1. Measured concentrations of NO_2, SO_2, and $PM_{2.5}$ were below the applicable air quality evaluation criteria or human health risk assessment (HHRA) health-based criteria presented in **Table 2-2** of this report.

2. Since the Canadian Ambient Air Quality Standard (CAAQS) for $PM_{2.5}$ is based on a 98^{th} percentile level over 3 years, whereas the $PM_{2.5}$ measurement period at both stations for this quarterly report was 3 months, there is insufficient data collected to determine with any certainty if exceedances of the CAAQS would occur. Therefore, no comparison of the measured $PM_{2.5}$ data during this quarter to the CAAQS was conducted for this report, as it would not be scientifically accurate or representative.

3. The maximum measured concentrations of TSP and all metals with MECP air quality Standards, were below their applicable Standards (as presented in **Table 2-3** in this report) with the exception of four TSP measurements at the Rundle Road Station on May 2, May 14, June 1, and June 19, 2018. As required by the Ambient Air Quality Monitoring Plan, a written notice of exceedance was submitted to the Region of Durham, Region of York, MECP, and the local Medical Officer of Health for the May 2 exceedance. Stantec's root cause analysis determined that the likely cause of the TSP exceedance was heavy truck and construction activities occurring adjacent to the Rundle Road Station. Construction activities were ongoing and therefore subsequent notifications were not submitted since the root cause was unchanged and unrelated to the DYEC.

4. The maximum measured concentrations of PAHs with MECP air quality Standards were well below their applicable criteria shown in **Table 2-4**, with the exception of 24-hour benzo(a)pyrene (B(a)P) concentrations measured on May 2 and May 26 at both the Courtice WPCP Station and the Rundle Road Station. Measured concentrations of B(a)P exceeded the applicable Ontario Ambient Air Quality Criteria (AAQC) by between 3.6% and 261%. The current Ontario 24-hour B(a)P AAQC was introduced in 2011 and levels above this AAQC are commonly measured throughout Ontario. The

measurements were however, well below the MECP Schedule 6 Upper Risk Threshold, the MECP O. Reg. 419/05 24-hour average guideline, and the HHRA health-based criterion.

5. The maximum measured toxic equivalent dioxin and furan (D/F) concentration was below the applicable Standard presented in **Table 2-4,** except for one measurement on May 26 at the Courtice WPCP Station. A notification of a potential exceedance was prepared by Stantec and submitted to the Regions of Durham and York, MECP, and the Region's Medical Officer of Health, in accordance with Section 9 of the Ambient Air Quality Monitoring Plan (Stantec, 2012). A root cause analysis was prepared and the potential impact on human health was evaluated by a toxicologist. The measured D/F concentrations are not expected to have resulted in an adverse effect on human health or the environment. Winds were generally southwesterly over the 24-hour measurement period, for which the Courtice WPCP Station is upwind of the DYEC. D/F concentrations were also elevated at the Rundle Road Station (but not above the applicable AAQC), suggesting that D/F concentrations were elevated regionally and likely due to a regional emissions source.

In summary, the measured concentrations of the air contaminants monitored were below their applicable MECP Standards during the April to June 2018 monitoring period with the exception of TSP, benzo(a)pyrene and dioxins and furans. Furthermore, measured levels of the monitored contaminants were below their applicable HHRA health-based criteria except for TSP (which used the same criteria as the MECP standard).

Abbreviations

AAQC	Ambient Air Quality Criteria
ACB List	Air Contaminants Benchmarks List: Standards, Guidelines, and Screening Levels for Assessing Point of Impingement Concentrations of Air Contaminants
CAAQS	Canadian Ambient Air Quality Standards
CAC	Criteria Air Contaminants
CDD	Chlorinated Dibenzo-p-dioxins
CDF	Chlorinated Dibenzo-p-furans
D/Fs	Dioxins and Furans
DYEC	Durham York Energy Centre
EFW	Energy from Waste
MECP	Ontario Ministry of the Environment, Conservation and Parks
SO_2	Sulphur Dioxide
NO_X	Nitrogen Oxides
PAH	Polycyclic Aromatic Hydrocarbons
Particulate	A particle of a solid or liquid that is suspended in air
PCB	Polychlorinated biphenyl
PCDD/PCDF	Polychlorinated dibenzo-p-dioxins and dibenzofurans
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter smaller than 2.5 microns
TEQ	Toxic Equivalent Quotient
TEQs	Toxic Equivalents
TSP	Total Suspended Particulate
WPCP	Water Pollution Control Plant
Elements	
Cd	Cadmium
Hg	Mercury
Pb	Lead
Al	Aluminum
As	Arsenic
Be	Beryllium
Cr	Chromium
Cu	Copper

Mn	Manganese
Ni	Nickel
Ag	Silver
Ti	Titanium
Tl	Thallium
Sn	Tin
V	Vanadium
Zn	Zinc
Zr	Zirconium
Miscellaneous	
°C	Temperature in degrees Celsius
N/A	Not Available
%	Percent
µg	microgram
ppm	Parts per million
ppb	Parts per billion
ppbv	Parts per billion by volume
ppt	Parts per trillion
min	Minimum
max	Maximum
mm	Millimetre
m	Metre
nm	nanometre
km/hr	Kilometres per hour
mg/m^3	Milligrams per cubic metre
$µg/m^3$	Microgram per cubic metre
ng/m^3	Nanograms per cubic metre
pg/m^3	Picograms per cubic metre
pg TEQ/m^3	Picograms of toxic exposure equivalents per cubic metre

1.0 INTRODUCTION

The Regional Municipalities of Durham and York constructed the Durham York Energy Centre (DYEC) which is an Energy-from-Waste (EFW) Facility intended to provide a long-term, sustainable solution to manage municipal solid waste remaining after diversion from the Regions. The site location of the DYEC is shown in **Figure 1-1.** The facility commenced commercial operation on February 1, 2016.

An Ambient Air Quality Monitoring Plan – Durham York Residual Waste Study (Ambient Monitoring Plan) was developed and included two monitoring stations referred to as the Courtice Water Pollution Control Plant (WPCP) Station and the Rundle Road Station (as well as a temporary Fence Line Station). The plan developed for these stations was based on the Regional Council's mandate to provide ambient air quality monitoring in the area of the DYEC for a three-year period.

The purposes of the ambient air quality monitoring program are to:

1. 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 (Jacques Whitford, 2009);

2. Monitor concentration levels of EFW-related air contaminants in nearby residential areas; and

3. Quantify background ambient levels of air contaminants in the area.

Two monitoring stations (Courtice WPCP and Rundle Road Stations) in the vicinity of the DYEC were set up in April 2013. Since May 2013, the two stations have measured the following air contaminants:

- Continuously monitored criteria air contaminants (CACs)
  - Sulphur Dioxide (SO_2)
  - Nitrogen Oxides (NO_X)
  - Particulate Matter smaller than 2.5 microns ($PM_{2.5}$)
- Non-continuously monitored
  - Metals in Total Suspended Particulate (TSP) matter
  - Polycyclic Aromatic Hydrocarbons (PAHs)
  - Dioxins and Furans

Operation of the non-continuous monitors was temporarily discontinued from June 28, 2014 (after completion of the background air quality data collection period) onwards through the rest of construction and commissioning, as per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012). The EFW facility became fully operational starting February 1, 2016, and non-continuous monitoring resumed (as specified in the Ambient Monitoring Plan).

A third Fence Line Station, which measures non-continuous parameters (metals and total particulate matter), was installed prior to full operation of the DYEC. As per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012), the Fence Line Station, which collects non-continuous parameters began operation

on February 1, 2016 upon start of commercial operations. The Fence Line Station was scheduled to run for one-year, but this period has been extended at the request of the Regional Municipality of Durham.

This quarterly report provides a summary of the ambient air quality data collected at the three stations for the period from April to June 2018 (Q2).

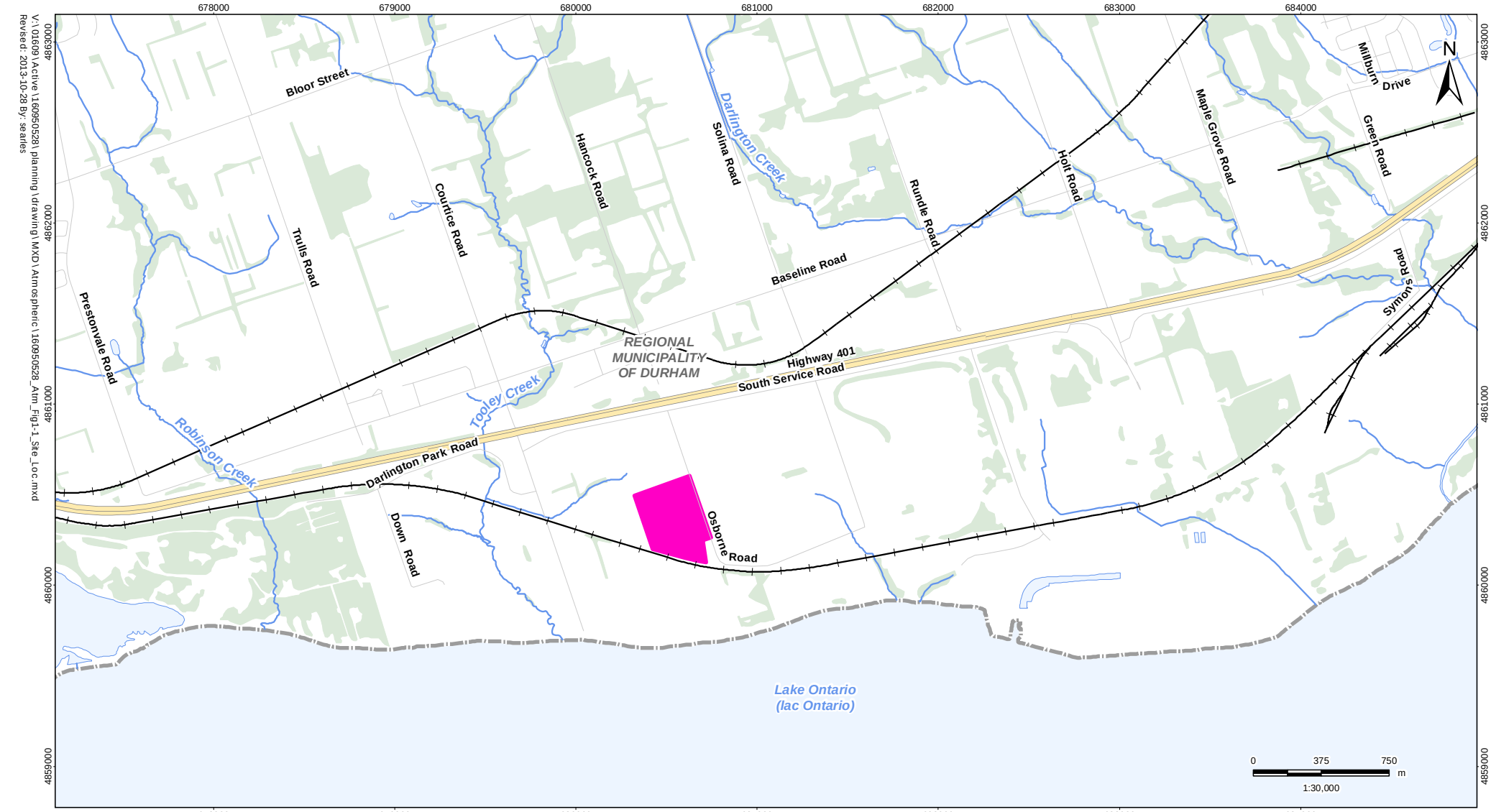
1.1 LOCATIONS OF AMBIENT AIR QUALITY MONITORING STATIONS

The selection of sites for the monitoring stations was accomplished in consultation with the Ontario Ministry of the Environment, Conservation and Parks (MECP) and Regional Municipality of Durham and York representatives based on the results of air quality modelling done in support of the environmental assessment for the project, the locations of nearby sensitive receptors, and general MECP siting criteria. Two monitoring stations (one predominantly downwind and one predominantly upwind) were chosen for the ambient air quality program. The final locations of the monitoring stations were influenced by the availability of electrical power, accessibility of each location and security. Details of the siting requirements are provided in the Ambient Monitoring Plan.

The Rundle Road Station is sited northeast of the DYEC in the vicinity of residential receptors predominantly downwind of the DYEC, and within the area where maximum annual concentrations are predicted to occur. This predominantly downwind station is located along Rundle Road, south of Baseline Road. Its location is shown in **Figure 1-2** and **Figure 1-3**. The monitoring station measures all the air contaminants listed in Section 1.1 and meteorological data.

The predominately upwind Courtice WPCP Station is located at the Courtice Water Pollution Control Plant (WPCP) to the southwest of the DYEC with the objective of measuring background air quality in a predominantly upwind location. The location is presented in **Figure 1-2** and **Figure 1-4.** This monitoring station measures the air contaminants presented in Section 1.1, as well as meteorological data, with the exception of wind speed and wind direction, which are measured and provided by the Courtice WPCP.

A third Fence Line Station, which measures non-continuous parameters (metals and total particulate matter), was installed prior to full operation of the DYEC. As per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012), the Fence Line Station, which collects non-continuous parameters began operation after the Facility's commissioning period was completed. The Fence Line Station was scheduled to run for one-year, but this period has been extended. The location is presented in **Figure 1-2** and **Figure 1-5**.



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October 2013
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Stantec

Legend

- Durham York Energy Centre Site
- Railway
- Road
- Highway
- Watercourse
- Waterbody
- Wooded Area

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

Client/Project

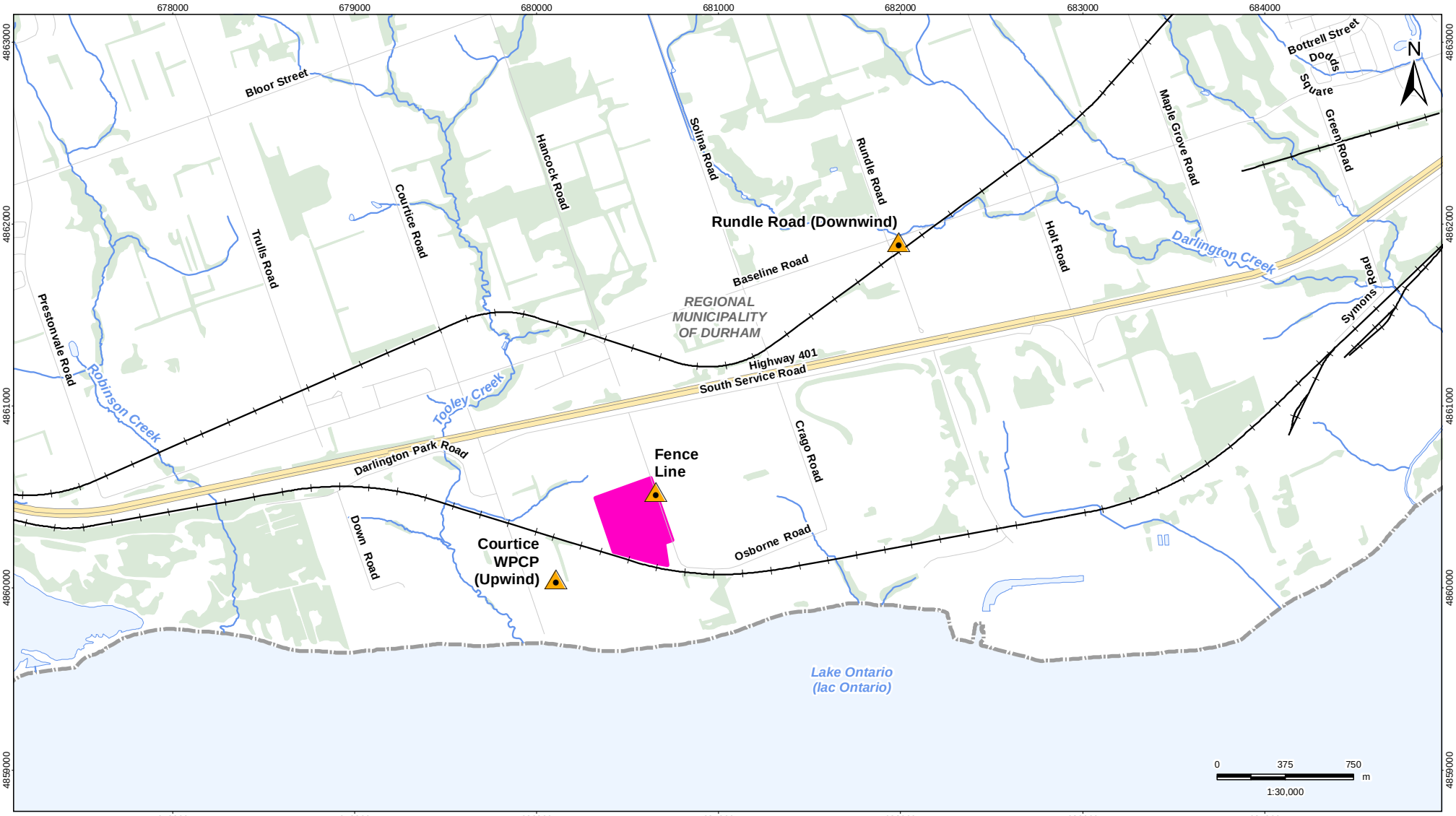
The Region of Durham
Durham York Energy Centre

Figure No.

1-1

Title

Site Location Plan



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Revised: 2016-05-11 By: searles

Stantec

Legend

- Station Location
- Durham York Energy Centre Site
- Railway
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1. Coordinate System: NAD 1983 UTM Zone 17N
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Client/Project

The Region of Durham
Durham York Energy Centre

Figure No.

1-2

Title

Locations of Ambient Monitoring Stations

Figure 1-3: View of the Rundle Road Ambient Air Quality Monitoring Station

Figure 1-4: View of the Courtice WPCP Ambient Air Quality Monitoring Station

Figure 1-5: View of the Fence Line Ambient Air Quality Monitoring Station

2.0 KEY COMPONENTS ASSESSED

2.1 METEOROLOGY

The following meteorological parameters are measured at the Rundle Road and Courtice WPCP Stations.

Table 2-1: Summary of Meteorological Parameters Measured at Each Station

Courtice WPCP (Predominately Upwind) Ambient Air Quality Monitoring Station	Rundle Road (Predominately Downwind) Ambient Air Quality Monitoring Station
Wind Speed and Direction @ 20 m	Wind Speed and Direction @7.9 m
Ambient Temperature @ 2 m	Ambient Temperature @ 2 m
Relative Humidity	Relative Humidity
Rainfall	Rainfall
Barometric Pressure	

2.2 AIR QUALITY CONTAMINANTS OF CONCERN

The ambient air quality monitoring program for the DYEC includes the following contaminants specified in the Ambient Monitoring Plan (Stantec, 2012):

- Continuously monitored criteria air contaminants (CACs)
  - Sulphur Dioxide (SO_2)
  - Nitrogen Oxides (NO_X)
  - Particulate Matter smaller than 2.5 microns ($PM_{2.5}$)
- Non-continuously monitored
  - Metals in Total Suspended Particulate (TSP) matter
  - Polycyclic Aromatic Hydrocarbons (PAHs)
  - Dioxins and Furans

Operation of the non-continuous monitors was temporarily discontinued between June 28, 2014 and January 31, 2016 as per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012). The EFW facility started full commercial operation on February 1, 2016, and monitoring of non-continuous monitors resumed, as specified in the Ambient Monitoring Plan (Stantec, 2012).

The following are lists of the specific metals, PAHs, and dioxins and furans being measured. Rationales for the choice of contaminants being monitored are provided in the Ambient Monitoring Plan (Stantec, 2012).

Metals:

- Aluminum (Al)
- Antimony (Sb)
- Arsenic (As)
- Barium (Ba)
- Beryllium (Be)
- Bismuth (Bi)
- Boron (B)
- Cadmium (Cd)
- Cobalt (Co)
- Copper (Cu)
- Chromium (Cr) (Total)
- Iron (Fe)
- Lead (Pb)
- Magnesium (Mg)
- Manganese (Mn)
- Mercury (Hg)
- Molybdenum (Mo)
- Nickel (Ni)
- Phosphorus (Ph)
- Selenium (Se)
- Silver (Ag)
- Strontium (Sr)
- Thallium (Tl)
- Tin (Sn)
- Titanium (Ti)
- Uranium (U)
- Vanadium (V)
- Zinc (Zn)
- Zirconium (Zr)

Polycyclic Aromatic Hydrocarbons:

- 1-Methylnaphthalene
- 2-Methylnaphthalene
- Acenaphthene
- Acenaphthylene
- Anthracene
- Benzo(a)anthracene
- Benzo(a)fluorene
- Benzo(a)pyrene
- Benzo(b)fluorene
- Benzo(b)fluoranthene
- Benzo(e)pyrene
- Benzo(g,h,i)perylene
- Benzo(k)fluoranthene
- Biphenol
- Chrysene
- Dibenz(a,h)anthracene
- Dibenz(a,c)anthracene
- Fluoranthene
- Indeno(1,2,3-cd)pyrene
- Naphthalene
- Perylene
- Phenanthrene
- Pyrene
- Tetralin
- o-Terphenyl
- Total PAHs

Dioxins and Furans:

- 2,3,7,8-Tetra CDD
- 1,2,3,7,8-Penta CDD
- 1,2,3,4,7,8-Hexa CDD
- 1,2,3,6,7,8-Hexa CDD
- 1,2,3,7,8,9-Hexa CDD
- 1,2,3,4,6,7,8-Hepta CDD
- Octa CDD
- Total Tetra CDD
- Total Penta CDD
- Total Hexa CDD
- Total Hepta CDD
- 2,3,7,8-Tetra CDF
- 1,2,3,7,8-Penta CDF
- 2,3,4,7,8-Penta CDF
- 1,2,3,4,7,8-Hexa CDF
- 1,2,3,6,7,8-Hexa CDF
- 2,3,4,6,7,8-Hexa CDF
- 1,2,3,7,8,9-Hexa CDF
- 1,2,3,4,6,7,8-Hepta CDF
- 1,2,3,4,7,8,9-Hepta CDF
- Octa CDF
- Total Tetra CDF
- Total Penta CDF
- Total Hexa CDF
- Total Hepta CDF
- Total toxic equivalency (I-TEQ)

2.3 AIR QUALITY CRITERIA

Several evaluation criteria were used for comparison to the air quality data as specified in the Ambient Air Monitoring Plan (Stantec, 2012). The first set was the Ontario Ambient Air Quality Criteria (AAQC) developed by the MECP (MECP, 2012). The second set of criteria was the Standards reported in O. Reg. 419/05 (Schedules 3 and 6) and the MECP Guidelines and Jurisdictional Screening Levels. In December 2016, O. Reg. 419/05 Standards, Guidelines, and Jurisdictional Screening Levels were consolidated into a new format known as the "Air Contaminants Benchmarks List: Standards, Guidelines, and Screening Levels for Assessing Point of Impingement Concentrations of Air Contaminants" (ACB List) (MECP, 2018).

Not all chemicals have regulatory limits, or in some instances updated health-based criteria were used in the human health risk assessment (HHRA) conducted in support of the Environmental Assessment (July 31, 2009 - December 10, 2009). These health-based values, which were reported in Table 7-2 (Summary of Inhalation TRVs and Inhalation Benchmarks Selected for CACs) and Table 7-3 (Inhalation TRVs and Inhalation Benchmarks for Selected COPCs) of the HHRA (Stantec, 2009) were used as another set of criteria.

Additionally, federal ambient air quality standards were considered. The previously applicable 24-hour Canada-Wide Standard (CWS) for $PM_{2.5}$ of 30 µg/m^3 (98th percentile averaged over 3 consecutive years) has been superseded by the new Canadian Ambient Air Quality Standard (CAAQS) of 28 µg/m^3 (98th percentile averaged over 3 consecutive years) and the annual objective of 10 µg/m^3 as noted in **Table 2-2**. The proposed CAAQS 24-hour objective for 2020 is 27 µg/m^3.

There is an AAQC for nitrogen dioxide (NO_2) as well as a Schedule 3 Standard for nitrogen oxides (NO_X) which is based on health effects of NO_2, as NO_2 has adverse health effects at much lower concentrations than nitric oxide (NO). At the request of the MECP (MECP, 2017), ambient NO_X measurements are not compared with the NO_2 AAQC or Schedule 3 NO_X Standard.

Summaries of the relevant air quality criteria for the contaminants monitored in Q2 2018 are presented in **Table 2-2** to **Table 2-4**.

Table 2-2: Summary of Air Quality Criteria for CACs

Contaminant	CAS	MECP Criteria			HHRA Health-Based Criteria		
		1-Hour (ppb / µg/m³)	24-Hour (ppb / µg/m³)	Annual (ppb / µg/m³)	1-Hour (ppb / µg/m³)	24-Hour (ppb / µg/m³)	Annual (ppb / µg/m³)
Sulphur Dioxide	7446095	250 /690	100 / 275	20 / 55	250 / 690	100 / 275	11 / 29
Nitrogen Dioxide	10102-44-0	200 /400	100 / 200	-	200 / 400	100 / 200	30 / 60
Contaminant	**CAS**	**Canadian Ambient Air Quality Standards (CAAQS)**			**HHRA Health-Based Criteria**		
		1-Hour (µg/m³)	**24-Hour (µg/m³)**	**Annual (µg/m³)**	**1-Hour (µg/m³)**	**24-Hour (µg/m³)**	**Other time Period (µg/m³)**
$PM_{2.5}$	N/A	-	28 [A]	10 [B]	-	30 [C]	-

A. Canadian Ambient Air Quality Standards (CAAQS) for Respirable Particulate Matter and Ozone, effective by 2015 (CCME, 2012). The Respirable Particulate Matter Objective is referenced to the 98th percentile daily average concentration averaged over 3 consecutive years.

B. Annual Canadian Ambient Air Quality Standard for Respirable Particulate Matter, effective by 2015. The Respirable Particulate Matter Objective is referenced to the 3-year average of the annual average concentrations.

C. HHRA Health-Based criterion for $PM_{2.5}$ was selected referencing CCME (2006).

Table 2-3: Summary of Air Quality Criteria for Metals

Contaminant	CAS	MECP Criteria			HHRA Health-Based Criteria		
		1-Hour (µg/m³)	24-Hour (µg/m³)	Other time Period (µg/m³)	1-Hour (µg/m³)	24-Hour (µg/m³)	Annual (µg/m³)
Total Particulate	NA	-	120	-	-	120	60
Aluminum	7429-90-5	-	4.8	-	-	-	-
Antimony	7440-36-0	-	25	-	5	25	0.2
Arsenic	7440-38-2	-	0.3	-	0.2	0.3	0.015 [A] 0.0043 [B]
Barium	7440-39-3	-	10	-	5	10	1
Beryllium	7440-41-7	-	0.01	-	0.02	0.01	0.007 [A] 0.0024 [B]
Bismuth	7440-69-9	-					
Boron	7440-42-8	-	120	-	50	-	5
Cadmium	7440-43-9	-	0.025	0.005; annual	0.1	0.025	0.005 [A] 0.0098 [B]
Chromium (Total)	7440-47-3	-	0.5	-	1	-	60
Cobalt	7440-48-4	-	0.1	-	0.2	0.1	0.1
Copper	8440-50-8	-	50	-	-	-	-
Iron	15438-31-0	-	4	-	-	-	-

Table 2-3: Summary of Air Quality Criteria for Metals

Contaminant	CAS	MECP Criteria			HHRA Health-Based Criteria		
		1-Hour (µg/m^3)	24-Hour (µg/m^3)	Other time Period (µg/m^3)	1-Hour (µg/m^3)	24-Hour (µg/m^3)	Annual (µg/m^3)
Lead	7439-92-1	-	0.5	0.2; 30-day	1.5	0.5	0.5
Magnesium	7439-95-4	-					
Manganese	7439-96-5	-	0.4	-	-	-	-
Mercury	7439-97-6	-	2	-	0.6	2	0.3
Molybdenum	7439-87-7	-	120	-	-	-	-
Nickel	7440-02-0	-	0.2	0.04; annual	6	-	0.05
Phosphorus	7723-14-0	-	-	-	-	-	6.4×10^7
Selenium	7782-49-2	-	10	-	2	10	0.2
Silver	7440-22-4	-	1	-	0.1	1	0.01
Strontium	7440-24-6	-	120	-	-	-	-
Thallium	7440-28-0	-	-	-	1	-	0.1
Tin	7440-31-5	-	10	-	20	10	2
Titanium	7440-32-6	-	120	-	-	-	-
Vanadium	7440-62-2	-	2	-	0.5	1	1
Uranium	7440-61-1	-	1.5	0.03; annual	-	-	-
Zinc	7440-66-6	-	120	-	50	-	5
Zirconium	7440-67-7	-	20	-	-	-	-

A. Annual Average
B. Carcinogenic Annual Average

Table 2-4: Summary of Air Quality Criteria for PAHs and D/Fs

Contaminant	CAS	MECP Criteria			HHRA Health-Based Criteria			
		1-Hour (ng/m^3)	24-Hour (ng/m^3)	Other time Period (ng/m^3)	1-Hour (ng/m^3)	24-Hour (ng/m^3)	Annual (ng/m^3)	Toxic Equivalency Factor Annual [A, G] (ng/m^3)$^{-1}$
1-Methylnaphthalene	90-12-0	-	12,000	-	-	-	3,000	-
2-Methylnaphthalene	91-57-6	-	10,000	-	-	-	3,000	-
Acenaphthene	83-32-9	-	-	-	1,000	-	-	1
Acenaphthylene	208-96-8	-	3,500	-	1,000	-	-	10
Anthracene	120-12-7	-	200	-	500	-	50	-

Table 2-4: Summary of Air Quality Criteria for PAHs and D/Fs

Contaminant	CAS	MECP Criteria			HHRA Health-Based Criteria			
		1-Hour (ng/m^3)	24-Hour (ng/m^3)	Other time Period (ng/m^3)	1-Hour (ng/m^3)	24-Hour (ng/m^3)	Annual (ng/m^3)	Toxic Equivalency Factor Annual [A, G] $(ng/m^3)^{-1}$
Benzo(a)anthracene	56-55-3	-	-	-	500	-	-	100
Benzo(b)fluoranthene	205-99-2	-	-	-	500	-	-	100
Benzo(k)fluoranthene	207 -08-9	-	-	-	500	-	-	100
Benzo(a)fluorene	238-84-6	-	-	-	500	-	50	-
Benzo(b)fluorene	243-17-4	-	-	-	500	-	50	-
Benzo (g,h,i) perylene	191-24-2	-	-	-	500	-	-	100
Benzo(a)pyrene	50-32-8	-	0.05 [B] 5 [C] 1.1 [D]	0.01; annual	-	1	87 [A]	-
Benzo(e)pyrene	192-97-2	-	-	-	500	-	-	10
Biphenyl	92-52-4	-	-	-	-	-	224,000	-
Chrysene	218-01-9	-						-
Dibenzo(a,c)anthracene	215-58-7	-	-	-	-	-	-	100
Dibenzo(a,h)anthracene	53-70-3	-	-	-	500	-	-	1,000
Fluoranthene	206-44-0	-	-	-	500	-	-	1
Indeno(1,2,3-cd)pyrene	193-39-5	-	-	-	500	-	-	100
Naphthalene	91-20-3	-	22,500	-	-	22,500	3,000	-
o-Terphenyl	84-15-1	-	-	-	50,000	-	5,000	-
Perylene	198-55-0	-	-	-	500	-	-	1
Phenanthrene	85-01-8	-	-	-	500	-	-	1
Pyrene	129-00-0	-	-	-	500	-	-	1
Tetralin	119-64-2	-						-
Dioxins and Furans Total Toxic Equivalency [E]	NA	-	0.1 (pg TEQ/m^3) [F] 1 (pg TEQ/m^3) [C]	-	-	5 (pg TEQ/m^3)	1.03 (pg TEQ/m^3)	-

A. Carcinogenic Annual Average. Units in $(ng/m^3)^{-1.}$

B. Ontario Ambient Air Quality Criteria - The standard for benzo(a)pyrene (B(a)P) is for B(a)P as a surrogate for PAHs.

C. O. Reg. 419/05 Schedule 6 Upper Risk Thresholds.

D. O. Reg. 419/05 24 Hour Guideline.

E. Application of the air standard for dioxins, furans, and dioxin-like PCBs requires the calculation of the total toxicity equivalent (TEQ) concentration contributed by all dioxin-like compounds in the mixture. TEQ is calculated using the methodology as per the O. Reg. 419/05 Summary of Standards and Guidelines, and the corresponding WHO2005 toxic equivalency factors (i-TEFs).

F. O. Reg. 419/05 Schedule 3 Standard phased in after July 1, 2016.

G. Toxic Equivalency Factors (TEFs) are shown as benzo(a)pyrene equivalents.

3.0 INSTRUMENTATION SUMMARY AND FIELD CONDITIONS

3.1 INSTRUMENTATION

The measurement program at the monitoring stations includes both continuous and non-continuous monitors to sample air contaminant concentrations.

Monitoring for respirable particulate matter ($PM_{2.5}$), nitrogen oxides (NO_X) and sulphur dioxide (SO_2) are conducted on a continuous basis. A summary of the continuous monitors and a brief description of their principle of operation are provided in **Table 3-1** below.

Table 3-1: Summary of Continuous Ambient Air Quality Monitors

Contaminant	Monitor	Principle of Operation	Range	Time Interval
$PM_{2.5}$	Thermo Sharp 5030 Synchronized Hybrid Ambient Real-time Particulate Monitor	Light Scattering Photometry / Beta Attenuation - Consists of a carbon14 source, detector, and light scattering Nephelometer in a rack-mountable enclosure. The Thermo Sharp utilizes a continuous (non-step wise) hybrid mass measurement and a combination of beta attenuation and light scattering technology. The unit's filter tape is automatically advanced based upon a user defined frequency or particulate loading.	0 -10 mg/m^3	1 minute
NO, NO_2, NO_X	Teledyne API Model 200E Chemiluminescence Analyzer	Chemiluminescence - Uses a chemiluminescence detection principle and microprocessor technology for ambient continuous emissions monitoring (CEM). Measurements are automatically compensated for temperature and pressure changes.	0 – 1000 ppb	1 second
SO_2	Teledyne API Model T100	Pulsed Florescence - SO_2 levels are measured based on the principle that SO_2 has a strong ultraviolet (UV) absorption at a wavelength between 200 and 240 nanometres (nm). The absorption of photons at these wavelengths results in the emission of fluorescence photons at a higher wavelength. The amount of fluorescence measured is directly proportional to the concentration of SO_2.	0 – 1000 ppb	1 second

Two manually operated, High-Volume (Hi-Vol) air samplers are installed at both the Courtice WPCP (predominantly upwind) and Rundle Road (predominantly downwind) Stations to collect metals in total suspended particulate (TSP), polycyclic aromatic hydrocarbons (PAHs), and dioxins and furans. Sampling for these contaminants is conducted following the methodology and analyses described in the Ambient Monitoring Plan (Stantec, 2012), as presented in **Table 3-2**. Monitoring for metals in TSP is also conducted at the Fence Line Station. The samples were submitted to Maxxam Analytics Inc., a Canadian Association for Laboratory Accreditation Inc. (CALA) / Standards Council of Canada (SCC) accredited laboratory, for analysis.

Table 3-2: Summary of Non-Continuous Ambient Air Quality Monitors

Contaminant	Sampler	Filter Media	Lab Analysis	Sampling Schedule
TSP and metals	Tisch Environmental TE-5170 mass-flow High-Volume sampler	Pre-weighed, conditioned Teflon coated glass fibre filters	Weighed for particulate loading and analysed using the Atomic Emission Spectroscopy / Inductively Coupled Plasma (AES/ICP) technique to determine metals content	24-hour sample taken every 6 days
PAHs	Tisch Environmental TE-1000 mass-flow high volume air sampler	Dual chambered sampling module with a Teflon-coated glass fibre filter and a Poly-Urethane Foam (PUF) cartridge	Gas Chromatography / Mass Spectrometry (GC/MS)	24-hour sample taken every 12 days
Dioxins and Furans				24-hour sample taken every 24 days.

Horizontal wind speed, wind direction, atmospheric temperature, relative humidity, and rainfall are measured at the predominantly downwind Rundle Road Station. The meteorological sensors at the Rundle Road Station are mounted on an external 7.9 m aluminum tower. Atmospheric temperature, relative humidity, rainfall, and barometric pressure are measured at the predominantly upwind Courtice WPCP Station. Wind speed and wind direction data at the predominantly upwind location are measured on a 20 m tower and are provided by the Courtice WPCP.

The meteorological equipment is summarized in **Table 3-3**.

Table 3-3: Summary of Meteorological Equipment

Parameter	Equipment
Wind Speed/Wind Direction	Met One Instruments Inc. Model 034B
Temperature/Relative Humidity	Campbell Scientific Model HMP60
Atmospheric Pressure	Campbell Scientific Model CS106
Rainfall	Texas Electronic TE525M

A Campbell Scientific CRX1000 data acquisition system (DAS) is used to collect continuous instrument monitoring data and status codes from the continuous ambient air quality monitors. Continuous station data is maintained in the data loggers, and data is viewed locally using a laptop and the relevant DAS software applications. Remote data transmission is accomplished by the periodic transmission of collected station air quality data via cellular phone.

3.2 INSTRUMENTATION ISSUES

No issues were encountered with the continuous monitors during Q2 2018, except on April 14 through April 16, when a rain/ice storm caused the anemometer at Rundle Road and the rain gauges at both Rundle Road and Courtice WPCP Stations to freeze. For the non-continuous sampling, a Hi-Vol sampler motor failure at the Fence Line Station and improperly set mass flow controllers at the Rundle Road and Fence Line Stations were the only issues encountered.

The operational issues encountered during Q2 2018 for the three monitoring stations are presented in **Table 3-4** to **Table 3-6**.

Table 3-4: Summary of Instrument Issues at the Courtice WPCP Station (Predominately Upwind)

Parameter	Issues	Time Frame	Remedial Action
SO_2	None		
NO_X	None		
$PM_{2.5}$	None		
TSP/Metals Hi-Vol	None		
PAH/ D/F Hi-Vol	None		
Other	Rain Gauge Frozen	April 14 through April 16	None required. After the ice storm, temperatures increased, the ice melted, and the rain gauge returned to normal functionality.

Table 3-5: Summary of Instrument Issues at the Rundle Road Station (Predominately Downwind)

Parameter	Issues	Time Frame	Remedial Action
SO_2	None		
NO_X	None		
$PM_{2.5}$	None		

Table 3-5: Summary of Instrument Issues at the Rundle Road Station (Predominately Downwind)

Parameter	Issues	Time Frame	Remedial Action
TSP/Metals Hi-Vol	The Hi-Vol mass flow controller was improperly set, resulting in a flow rate outside of the range to be considered valid.	April 2, April 8	The cause was determined to be a new technician who did not follow sampling protocols. The technician was removed from the project. The sample was invalidated.
PAH/ D/F Hi-Vol	None		
Other	Anemometer and Rain Gauge Frozen	April 14 through April 16	None required. After the ice storm, temperatures increased, the ice melted, and the instruments returned to normal functionality.

Table 3-6: Summary of Instrument Issues at the Fence Line Station

Parameter	Issues	Time Frame	Remedial Action
TSP/Metals Hi-Vol	Motor failure during TSP sampling	May 26, 2018	Motor replaced with spare and unit re-calibrated.
	The Hi-Vol mass flow controller was improperly set, resulting in a flow rate outside of the range to be considered valid.	April 14	The cause was determined to be a new technician who did not follow sampling protocols. The technician was removed from the project. The sample was invalidated.

3.3 INSTRUMENTATION RECOVERY RATES

Data recovery rates for each continuous monitor at the three monitoring stations during Quarter 2 (April to June 2018) are presented in **Table 3-7** to **Table 3-9**. All data recovery rates were acceptable for this quarter.

Table 3-7: Summary of Data Recovery Rates for the Courtice WPCP Station (Predominately Upwind) – April to June 2018

Parameter	Valid Measurement Hours	Data Recovery Rate (%)[A]
SO_2	2173	99.5%
NO_X	2172	99.5%
$PM_{2.5}$	2174	99.5%
Temperature	2184	100.0%
Rainfall	2148	98.4%
Relative Humidity	2184	100.0%
Pressure	2184	100.0%
Wind Speed/Direction	2105	96.4%

Table 3-7: Summary of Data Recovery Rates for the Courtice WPCP Station (Predominately Upwind) – April to June 2018

Parameter	Valid Measurement Hours	Data Recovery Rate (%)[A]
TSP/Metals	15 [B]	100%
PAHs	7 [B]	100%
Dioxins and Furans	4 [B]	100%

A. Includes any instrumentation issues summarized in Table 3-4, quarterly MECP audit and monthly calibrations.
B. Number of filters/24-hour average samples.

Table 3-8: Summary of Data Recovery Rates for the Rundle Road Station (Predominately Downwind) – April to June 2018

Parameter	Valid Measurement Hours	Data Recovery Rate (%)[A]
SO_2	2174	99.5%
NO_X	2173	99.5%
$PM_{2.5}$	2173	99.5%
Temperature	2184	100.0%
Rainfall	2147	98.3%
Relative Humidity	2184	100.0%
Wind Speed/Direction	2143	98.1%
TSP/Metals	13 [B]	86.7%
PAHs	7 [B]	100%
Dioxins and Furans	4 [B]	100%

A. Includes any instrumentation issues summarized in Table 3-5, quarterly MECP audit, and monthly calibrations.
B. Number of filters/24-hour average samples.

Table 3-9: Summary of Data Recovery Rates for the Fence Line Station – April to June 2018

Parameter	Valid Measurements [B]	Data Recovery Rate (%)[A]
TSP/Metals	13 [B]	86.7%

A. Includes any instrumentation issues summarized in Table 3-6.
B. Number of filters/24-hour average samples.

3.4 CONTINUOUS MONITOR INTERNAL CALIBRATIONS

Summaries of the Courtice WPCP and Rundle Road Station SO_2 and NO_X monitor daily internal zero checks for Q2 2018 are presented in **Appendix A**. Daily internal zero checks are informal checks of an analyzer's response intended as a quick, convenient way to check for possible analyzer malfunction or calibration drift. They are not recommended as a basis for analyzer zero or span adjustments, calibration updates, or adjustment of ambient data (Environment Canada, 1995).

All internal zero calibrations of the SO_2 and NO_X analyzers at the Courtice WPCP and Rundle Road Stations were less than 5 ppb throughout Q2.

3.5 FIELD CONDITION OBSERVATIONS

During Q2 2018 activities in the vicinity of the ambient air monitoring stations were observed that had the potential to be affecting air quality levels during the period. These observations were noted by Stantec personnel during field visits.

Construction of Highway 418, which will connect with Highway 401 between Courtice Road and Crago Road was ongoing during this quarter. Highway 418 will provide a north-south link between Highway 401 and the Phase 2 expansion of Highway 407. The Highway 401/418 interchange will be located almost directly north of the DYEC. Throughout the quarter, excavator/dump truck crews were observed working in a large area immediately north of the DYEC between Megawatt Drive and Highway 401. Major work observed included earthworks and Highway 401 overpass construction for on/off ramps connecting to Highway 418. A photograph of soil berms/ramps and overpass construction activities is provided in **Figure 3-1**. Heavy truck traffic and construction activities along Rundle Road, associated with construction of an Recreational Vehicle storage facility at the south end of Rundle Road were observed.

During Q2, there were seven noted feed stoppages at Boiler 1 and 10 stoppages at Boiler 2. The times when these feed stops occurred are summarized in **Table 3-10**.

Table 3-10: Summary of Boiler Operational Status in Q2 2018

Boiler	Date	Time	Status
Boiler 1	4-Apr-18	5:57-20:34	Boiler Down
	6-Apr-18	14:16-3:40 (7-Apr-18)	Feed Stop
	15-Apr-18	23:35-15:48 (16-Apr-18)	Boiler Down
	19-Apr-18	5:59-23:35	Feed Stop
	2-May-18	9:23-17:36	Boiler Down
	24-May-18	13:55-14:33	Boiler Down
	11-Jun-18	0:00-4:00 (14-Jun-18)	Boiler Down

Table 3-10: Summary of Boiler Operational Status in Q2 2018

Boiler	Date	Time	Status
Boiler 2	4-Apr-18	5:57-16:33	Boiler Down
	6-Apr-18	15:09-3:35	Feed Stop
	10-Apr-18	23:02-1:32 (11-Apr-18)	Feed Stop
	15-Apr-18	21:03-21:32	Boiler Down
	15-Apr-18	23:35-15:39 (16-Apr-18)	Boiler Down
	19-Apr-18	6:00-23:32	Feed Stop
	23-Apr-18	13:52-14:55	Feed Stop
	2-May-18	9:23-16:40	Boiler Down
	24-May-18	13:55-14:33	Boiler Down
	25-Jun-18	0:00-11:00 (29-Jun-18)	Boiler Down

Figure 3-1: Looking North from Megawatt Drive at the Highway 401 and Highway 418 Construction (May 1, 2018)

4.0 SUMMARY OF AMBIENT MEASUREMENTS

The following sections provide summaries of the validated data and the validation completed on each parameter.

4.1 METEOROLOGICAL DATA

A summary of the maximum, minimum, arithmetic mean, and standard deviation of the hourly average meteorological parameters measured at the two monitoring stations for the April to June 2018 period is presented in **Table 4-1**.

Table 4-1: Summary of Hourly Meteorological Measurements – April to June 2018

Parameter	Description	Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)	Units
Temperature	Max	27.3	28.9	^{0}C
	Min	-7.1	-7.3	^{0}C
	Mean (April)	3.0	2.8	^{0}C
	Mean (May)	13.4	14.2	^{0}C
	Mean (June)	17.3	17.6	^{0}C
	Mean (Period)	11.3	11.6	^{0}C
	Standard Deviation	7.2	7.8	^{0}C
Rainfall	Max	16.6	23	mm
	Min	0.0	0.0	mm
	Mean (April)	0.18	0.20	mm
	Mean (May)	0.08	0.09	mm
	Mean (June)	0.05	0.05	mm
	Mean (Period)	0.10	0.11	mm
	Standard Deviation	0.62	0.75	mm
Relative Humidity	Max	94.9	100.0	%
	Min	11.3	12.9	%
	Mean (April)	64.8	68.9	%
	Mean (May)	66.6	68.5	%
	Mean (June)	68.2	71.0	%
	Mean (Period)	66.6	69.5	%
	Standard Deviation	16.7	18.6	%

Table 4-1: Summary of Hourly Meteorological Measurements – April to June 2018

Parameter	Description	Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)	Units
Pressure [A]	Max	30.2	-	in Hg
	Min	28.9	-	in Hg
	Mean (April)	29.7	-	in Hg
	Mean (May)	29.7	-	in Hg
	Mean (June)	29.6	-	in Hg
	Mean (Period)	29.7	-	in Hg
	Standard Deviation	0.2	-	in Hg
Wind Speed [B]	Max	43.2	50.5	km/hr
	Min	0.0	0.4	km/hr
	Mean (April)	13.8	12.3	km/hr
	Mean (May)	10.1	10.3	km/hr
	Mean (June)	9.5	8.7	km/hr
	Mean (Period)	11.2	10.4	km/hr
	Standard Deviation	7.1	6.1	km/hr

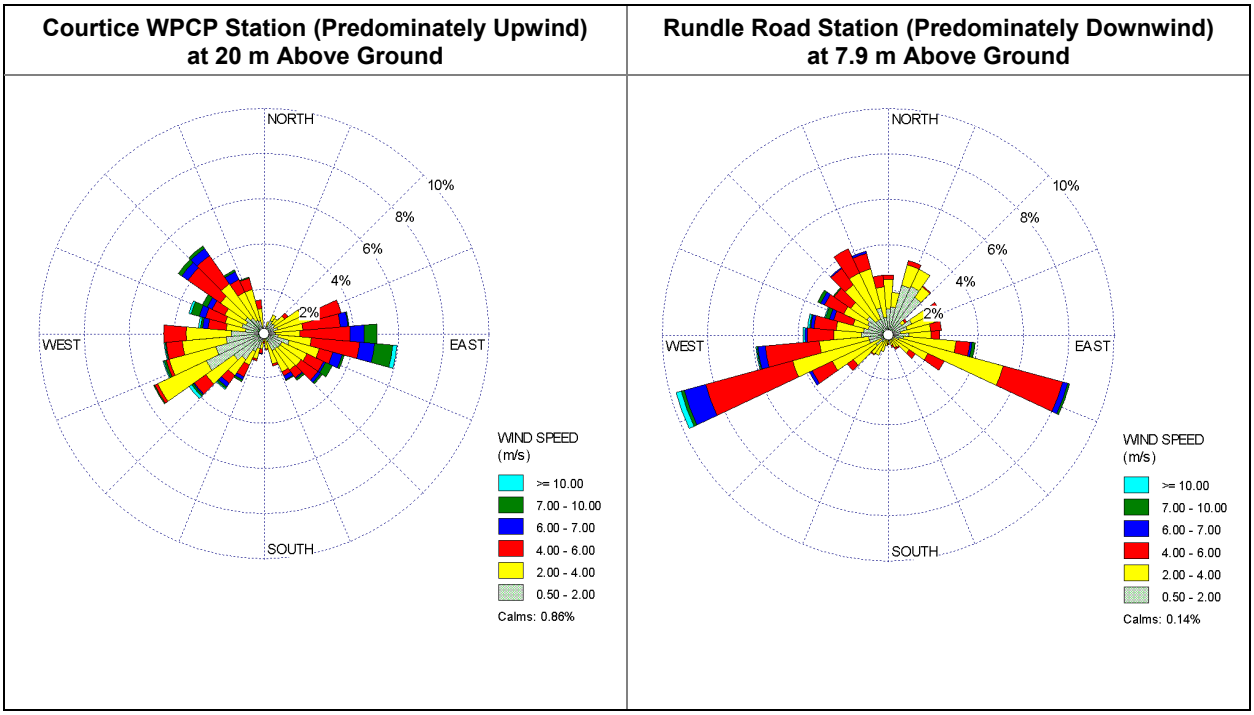
A. Pressure is not measured at the Rundle Road Station.
B. Wind speed at Courtice WPCP Station measured at 20 m and at Rundle Road Station at 7.9 m.

Wind roses showing the directionality and speed at each location are presented in **Figure 4-1**. The length of the radial barbs gives the total percent frequency of winds from the indicated direction, while portions of the barbs of different widths indicate the frequency associated with each wind speed category.

Winds over the three-month period at the Courtice WPCP Station occurred predominantly from east-southeasterly, and northwesterly to west-southwesterly directions. The highest wind speeds occurred from the easterly directions.

At the Rundle Road Station, the wind rose over the three-month period shows winds predominantly occurring from west-southwesterly and east-southeasterly directions. Higher wind speeds occurred from the west-southwest relative to other directions.

Figure 4-1: Wind Roses for April to June 2018



4.2 CAC AMBIENT AIR QUALITY MEASUREMENTS

A summary of the maximum, minimum, arithmetic mean, and standard deviation of the CAC pollutant concentrations measured at each station are presented in **Table 4-2**. Also presented in this table are the number of exceedances (if any occurred) of the relevant O. Reg. 419/05 Schedule 3 Standards, Ontario Ambient Air Quality Criteria (AAQC) or health-based criteria for each contaminant. All monitored contaminants were below their applicable criteria during the period from April to June 2018.

Nitric oxide (NO) has no regulatory criteria as discussed in Section 4.2.2 below. There are both hourly and daily AAQCs for NO_2 which are based on health effects of NO_2; therefore, the AAQCs were compared to measured NO_2 concentrations in this report. As there is no AAQC for NO_X, no criteria comparisons were made as per MECP request (MECP 2017).

A comparison of the maximum measured data to their respective air quality criteria is presented graphically in **Figure 4-2**.

Table 4-2: Summary of Ambient CAC Monitoring Data – April to June 2018

Pollutant	Averaging Period	MECP Criteria / HHRA Health-Based Criteria		Description	Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		(ppb)	(µg/m^3)		Concentration (ppbv)	Concentration (µg/m^3)	Concentration (ppbv)	Concentration (µg/m^3) [c]
SO_2	1	250	690	Maximum	74.4	198.2	66.0	175.8
				Minimum	0.2	0.6	0.0	0.0
				Mean (April)	2.5	7.1	0.7	2.0
				Mean (May)	4.8	13.0	1.9	5.1
				Mean (June)	4.4	11.7	1.5	3.9
				Mean (Period)	3.9	10.6	1.4	3.7
				Standard Deviation	6.8	18.6	2.9	7.7
				# of Exceedances	0	0	0	0
	24	100	275	Maximum	18.6	52.1	8.5	22.5
				Minimum	0.4	1.2	0.1	0.3
				Mean (April)	2.6	7.4	0.7	2.0
				Mean (May)	4.7	12.9	1.9	5.1
				Mean (June)	4.3	11.6	1.5	3.9
				Mean (Period)	3.9	10.7	1.4	3.7
				Standard Deviation	3.1	8.5	1.2	3.1
				# of Exceedances	0	0	0	0

Table 4-2: Summary of Ambient CAC Monitoring Data – April to June 2018

Pollutant	Averaging Period	MECP Criteria / HHRA Health-Based Criteria		Description	Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		(ppb)	(µg/m^3)		Concentration (ppbv)	Concentration (µg/m^3)	Concentration (ppbv)	Concentration (µg/m^3) [C]
$PM_{2.5}$	24	N/A	28 [A]	Maximum	-	22.5	-	23.1
				Minimum	-	0.3	-	0.6
				Mean (April)	-	5.4	-	5.3
				Mean (May)	-	8.0	-	6.7
				Mean (June)	-	6.6	-	5.2
				Mean (Period)	-	6.7	-	5.7
				Standard Deviation	-	4.2	-	3.6
				# of Exceedances	-	N/A	-	N/A
NO_2	1	200	400	Maximum	39.7	75.8	30.5	60.6
				Minimum	0.0	0.1	0.0	0.0
				Mean (April)	6.2	12.4	5.0	10.0
				Mean (May)	5.2	10.2	6.9	13.5
				Mean (June)	6.5	12.6	5.0	9.6
				Mean (Period)	6.0	11.7	5.7	11.1
				Standard Deviation	6.2	12.3	4.9	9.5
				# of Exceedances	0	0	0	0
	24	100	200	Maximum	16.5	33.3	15.5	29.7
				Minimum	1.1	2.1	0.3	0.6
				Mean (April)	6.3	12.8	4.9	10.0
				Mean (May)	5.2	10.0	6.9	13.4
				Mean (June)	6.4	12.4	5.1	9.8

Table 4-2: Summary of Ambient CAC Monitoring Data – April to June 2018

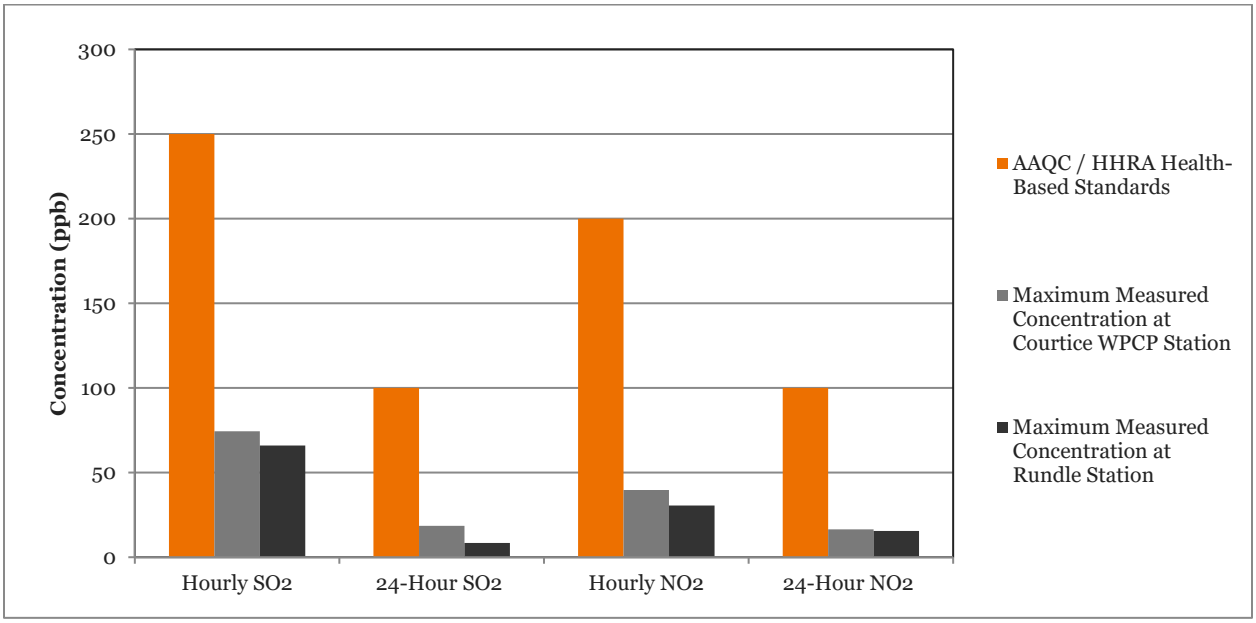
Pollutant	Averaging Period	MECP Criteria / HHRA Health-Based Criteria		Description	Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		(ppb)	(µg/m^3)		Concentration (ppbv)	Concentration (µg/m^3)	Concentration (ppbv)	Concentration (µg/m^3) [C]
				Mean (Period)	6.0	11.7	5.7	11.1
				Standard Deviation	3.0	5.9	2.9	5.7
				# of Exceedances	0	0	0	0
NO [B]	1	N/A	N/A	Maximum	32.7	41.7	54.3	67.6
				Minimum	0.1	0.2	0.0	0.0
				Mean (April)	2.0	2.6	0.9	1.2
				Mean (May)	1.7	2.2	2.3	2.9
				Mean (June)	2.2	2.8	2.6	3.3
				Mean (Period)	2.0	2.5	1.9	2.5
				Standard Deviation	3.2	4.1	3.5	4.4
				# of Exceedances	N/A	N/A	N/A	N/A
	24	N/A	N/A	Maximum	8.2	10.3	10.8	13.5
				Minimum	0.6	0.8	0.0	0.0
				Mean (April)	2.0	2.7	0.9	1.2
				Mean (May)	1.7	2.2	2.3	2.9
				Mean (June)	2.2	2.8	2.7	3.3
				Mean (Period)	2.0	2.5	2.0	2.5
				Standard Deviation	1.4	1.8	1.7	2.2
				# of Exceedances	N/A	N/A	N/A	N/A

Table 4-2: Summary of Ambient CAC Monitoring Data – April to June 2018

Pollutant	Averaging Period	MECP Criteria / HHRA Health-Based Criteria		Description	Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		(ppb)	(µg/m^3)		Concentration (ppbv)	Concentration (µg/m^3)	Concentration (ppbv)	Concentration (µg/m^3) [C]
NO_X	1	N/A	N/A	Maximum	69.5	135.9	71.7	136.9
				Minimum	0.5	0.9	0.0	0.0
				Mean (April)	8.0	16.2	5.8	11.6
				Mean (May)	6.7	13.1	9.1	17.6
				Mean (June)	8.2	15.7	7.5	14.4
				Mean (Period)	7.6	15.0	7.5	14.5
				Standard Deviation	8.7	17.1	7.4	14.4
				# of Exceedances	N/A	N/A	N/A	N/A
	24	N/A	N/A	Maximum	24.2	48.8	20.7	39.5
				Minimum	1.8	3.4	0.5	1.0
				Mean (April)	8.2	16.6	5.7	11.6
				Mean (May)	6.6	12.9	9.0	17.5
				Mean (June)	8.0	15.5	7.6	14.6
				Mean (Period)	7.6	15.0	7.5	14.6
				Standard Deviation	4.2	8.3	4.1	7.9
				# of Exceedances	N/A	N/A	N/A	N/A

A. Canadian Ambient Air Quality Standard for Respirable Particulate Matter. The Respirable Particulate Matter Objective is referenced to the 98th percentile over 3 consecutive years.
B. NO has no regulatory criteria.
C. The conversions from ppb to µg/m^3 are based on actual temperature and pressure. Therefore, the maximum concentration in ppb may not correspond to the same hour as the maximum concentration in µg/m^3.

Figure 4-2: Comparison of NO_2 and SO_2 Ambient Air Quality Monitoring Data to Applicable Criteria



Detailed discussion for each measured contaminant is presented in the following sections.

4.2.1 Sulphur Dioxide (SO_2)

Data summaries are presented in **Appendix B** for sulphur dioxide for each station and month as well as time history plots of the hourly and 24-hour average SO_2 concentrations. For the hourly and 24-hour averages, the Ontario AAQCs of 250 ppb and 100 ppb (690 µg/m^3 and 275 µg/m^3) are shown with blue lines in the respective plot. As shown in these figures, measured ambient SO_2 concentrations at both stations were well below the Ontario AAQCs.

The maximum hourly and 24-hour average SO_2 concentrations measured at the Courtice WPCP Station during April to June 2018 were 74.4 and 18.6 ppb (198.2 and 52.1 µg/m^3) respectively, which are 29.8% and 18.6% of the applicable 1-hour and 24-hour Ontario AAQCs. The maximum hourly and 24-hour average SO_2 concentrations measured at the Rundle Road Station during this quarter were 66.0 and 8.5 ppb (175.8 and 22.5 µg/m^3) respectively, which are 26.4% and 8.5% of the applicable 1-hour and 24-hour Ontario AAQCs.

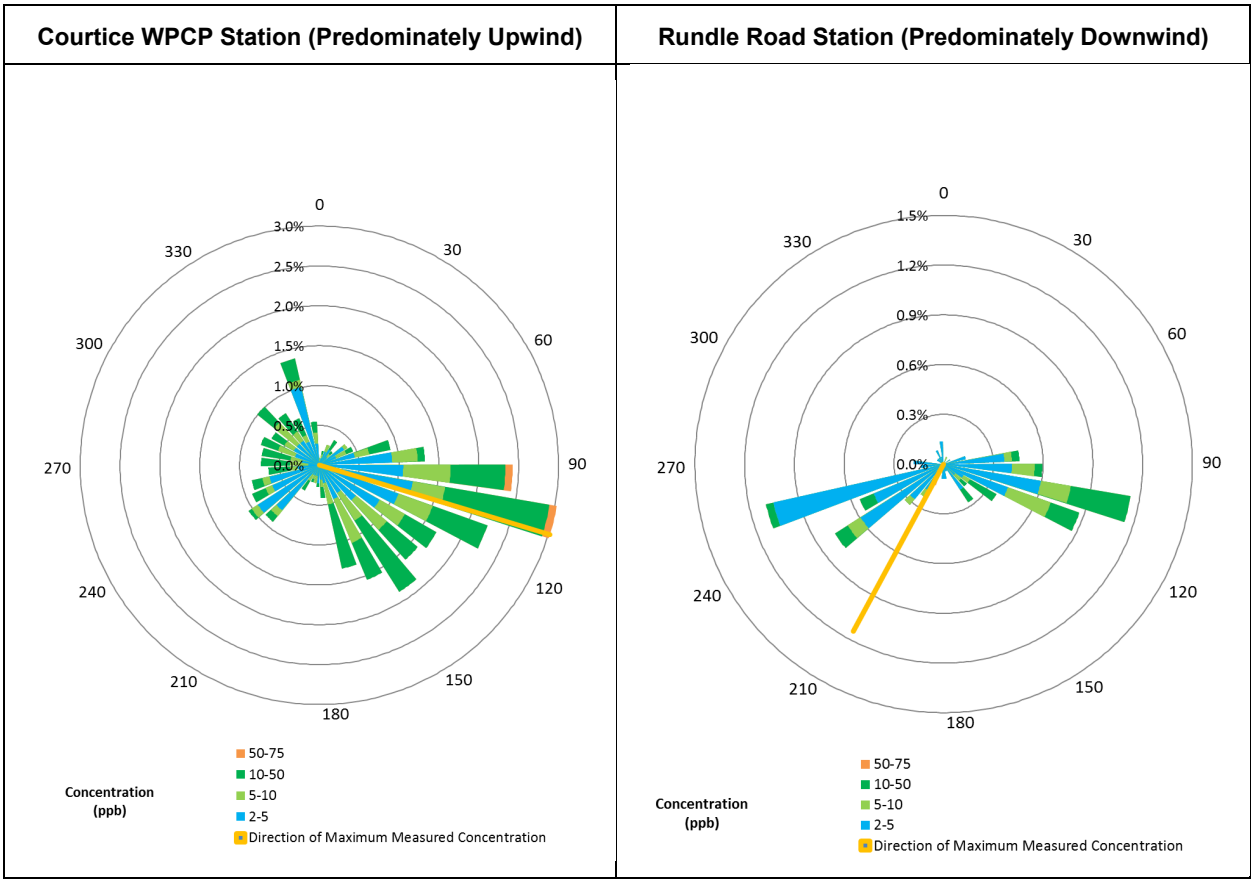
Pollution roses of hourly average SO_2 concentrations measured at the Courtice WPCP Station and Rundle Road Station are presented in **Figure 4-3**. The pollution rose plots present measured hourly average contaminant concentrations versus measured wind direction (over 10° wind sectors). Concentrations less than 2 ppb, which account for 63% of the measurements at the Courtice WPCP and 89% at the Rundle Road Station, have been removed from the plot to allow the distribution of maximum levels to be more clearly shown in the figure. For the Courtice WPCP Station, higher hourly

concentrations were measured when winds were blowing from east-southeasterly to south-southeasterly directions. For the Rundle Road Station, higher hourly concentrations occurred for southwesterly and southeasterly winds.

The maximum hourly average SO_2 concentration measured at the Courtice WPCP occurred on June 3, 2018 at 11:00. During this time, winds were blowing from the east-southeast for which the Courtice WPCP, St. Mary's Cement and a CN railroad are upwind. The maximum hourly average SO_2 concentration measured at the Rundle Road Station occurred on June 10, 2018 at 13:00. During this time, winds were blowing from the southwest for which a CP railroad, Highway 401, the Courtice WPCP and the DYEC were upwind.

The maximum 24-hour average SO_2 concentration at the Courtice WPCP station occurred on April 15, 2018. The wind direction during the 24-hour measurement was blowing from the west for which local roads and agricultural fields are upwind. The maximum 24-hour average SO_2 concentration at the Rundle Road Station occurred on June 11, 2018. The wind direction during the 24-hour measurement at the Rundle Road Station was from the southwest for which a CP railroad, Highway 401, DYEC, and the Courtice WPCP were generally upwind of the station.

Figure 4-3: Pollution Roses of Measured Hourly Average SO_2 Concentrations – April to June 2018



4.2.2 Nitrogen Dioxide (NO_2)

Nitrogen oxides (NO_X) are almost entirely made up of nitric oxide (NO) and nitrogen dioxide (NO_2). Together, they are often referred to as NO_X. Most NO_2 in the atmosphere is formed by the oxidation of NO, which is emitted directly by combustion processes, particularly those at high temperature and pressure. Exposure to both NO and NO_2 can result in adverse health effects to an exposed population. NO_2 is the regulated form of NO_X. Similar to other jurisdictions (e.g., Alberta Environment, World Health Organization), the O. Reg. 419/05 Schedule 3 Standards for NO_X are based on health effects of NO_2, as health effects are seen at much lower concentrations of NO_2 than NO. In this report, because NO_2 is the regulated form of NO_X, the AAQC were compared to measured NO_2 concentrations.

Data summaries are presented in **Appendix C** for nitrogen dioxide for each station and month as well as time history plots of the hourly and 24-hour average NO_2 concentrations. For the hourly and 24-hour averages, the Ontario AAQCs of 200 ppb and 100 ppb (400 µg/m^3 and 200 µg/m^3) are shown with blue lines on the respective plots. As shown in these figures, measured ambient NO_2 concentrations at both stations were well below the Ontario AAQCs.

The maximum hourly and 24-hour average NO_2 concentrations measured at the Courtice WPCP Station during this quarter were 39.7 and 16.5 ppb (75.8 and 33.3 µg/m^3) respectively, which are 19.9% and 16.5% of the applicable 1-hour and 24-hour Ontario AAQCs. At the Rundle Road Station, the maximum measured hourly and 24-hour average concentrations were 30.5 and 15.5 ppb (60.6 and 29.7 µg/m^3), which are 15.3% and 15.5% of the applicable 1-hour and 24-hour Ontario AAQCs.

Pollution roses of measured hourly average NO_2 concentrations are presented in **Figure 4-4**. To more clearly show the distribution of maximum levels in the figures, concentrations less than 10 ppb, which account for 79% of the measurements at the Courtice WPCP Station and 82% at the Rundle Road Station, have been removed from the plots. The measured hourly average concentrations at the Courtice WPCP Station were higher for winds from northwesterly and southeasterly directions. For the Rundle Road Station, higher measured hourly average concentrations occurred for winds blowing from west-southwesterly and easterly directions.

The maximum measured hourly average NO_2 concentration at the Courtice WPCP occurred on June 20, 2018 at 22:00. During this hour, the wind at the Courtice WPCP Station was blowing from the northwest, for which a CN railroad and Highway 401 were upwind. The measured hourly average NO_2 concentration at the MECP Oshawa Station in the same hour was 8 ppb which is lower than that at the Courtice WPCP Station, suggesting the elevated hourly average concentration was due to local emissions sources.

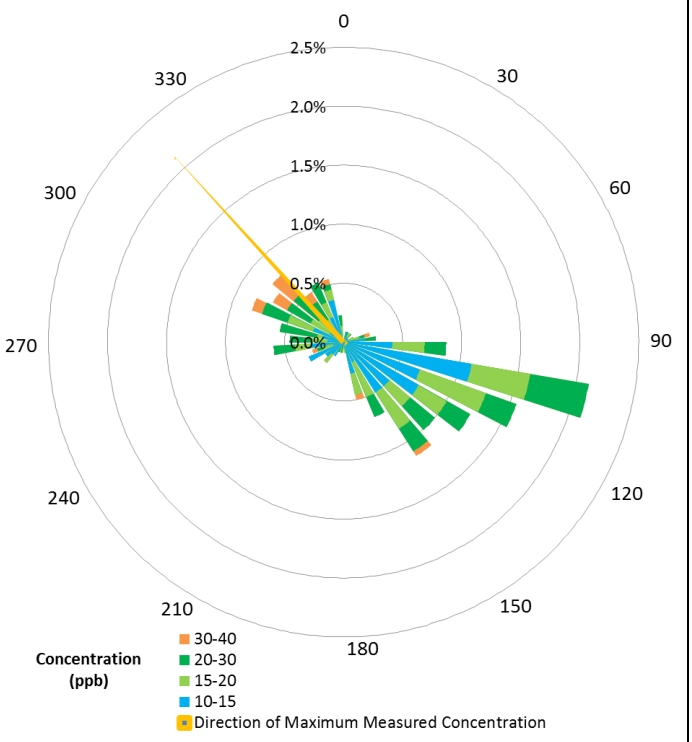
The maximum measured hourly average NO_2 concentration at the Rundle Road Station occurred on May 1, 2018 at 7:00, at which time winds were blowing from the east-northeast. Local roads and a CP railroad were upwind of the Rundle Road Station for this direction. At the same time, the measured NO_2 concentration at the MECP Oshawa Station was 8 ppb, which is lower than that at the Rundle Road Station, suggesting the elevated hourly average concentration was due to local emissions sources.

The maximum measured 24-hour average NO_2 concentration at the Courtice WPCP Station occurred on April 11, 2018. The wind direction during this measurement was from the east-northeast for which a CN railroad, Highway 401, and the DYEC were upwind. The measured 24-hour NO_2 concentration at the MECP Oshawa Station for the same day was 16.3 ppb which is similar to the Courtice WPCP station, suggesting the elevated 24-hour concentration was due to regional emission sources.

The maximum measured 24-hour average NO_2 concentration at the Rundle Road Station occurred on May 25, 2018. Winds were from the west-southwest for which a CP railroad, Highway 401, DYEC, and Highway 418 construction activities are upwind. The measured 24-hour NO_2 concentration at the MECP Oshawa Station for the same day was 7.8 ppb which is lower than the Rundle Road Station, suggesting that the elevated 24-hour concentration was due to local emission sources.

The maximum measured hourly and 24-hour average NO_2 concentrations of 34 ppb and 16.3 ppb respectively at the MECP Oshawa Station during this quarter were comparable to the maximum levels measured at the Courtice WPCP and Rundle Road Stations.

Figure 4-4: Pollution Roses of Measured Hourly Average NO_2 Concentrations – April to June 2018

Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)
	

4.2.3 Nitrogen Oxides (NO_X)

Data summaries are presented in **Appendix D** for nitrogen oxides for each station and month as well as time history plots of the hourly and 24-hour average NO_X concentrations.

As shown in **Table 4-2**, the maximum hourly average NO_X concentration measured at the Courtice WPCP Station was 69.5 ppb (135.9 µg/m^3) and the maximum 24-hour average NO_X concentration measured was 24.2 ppb (48.8 µg/m^3). At the Rundle Road Station, the maximum hourly and 24-hour average concentrations measured during this quarter were 71.7 and 20.7 ppb (136.9 and 39.5 µg/m^3).

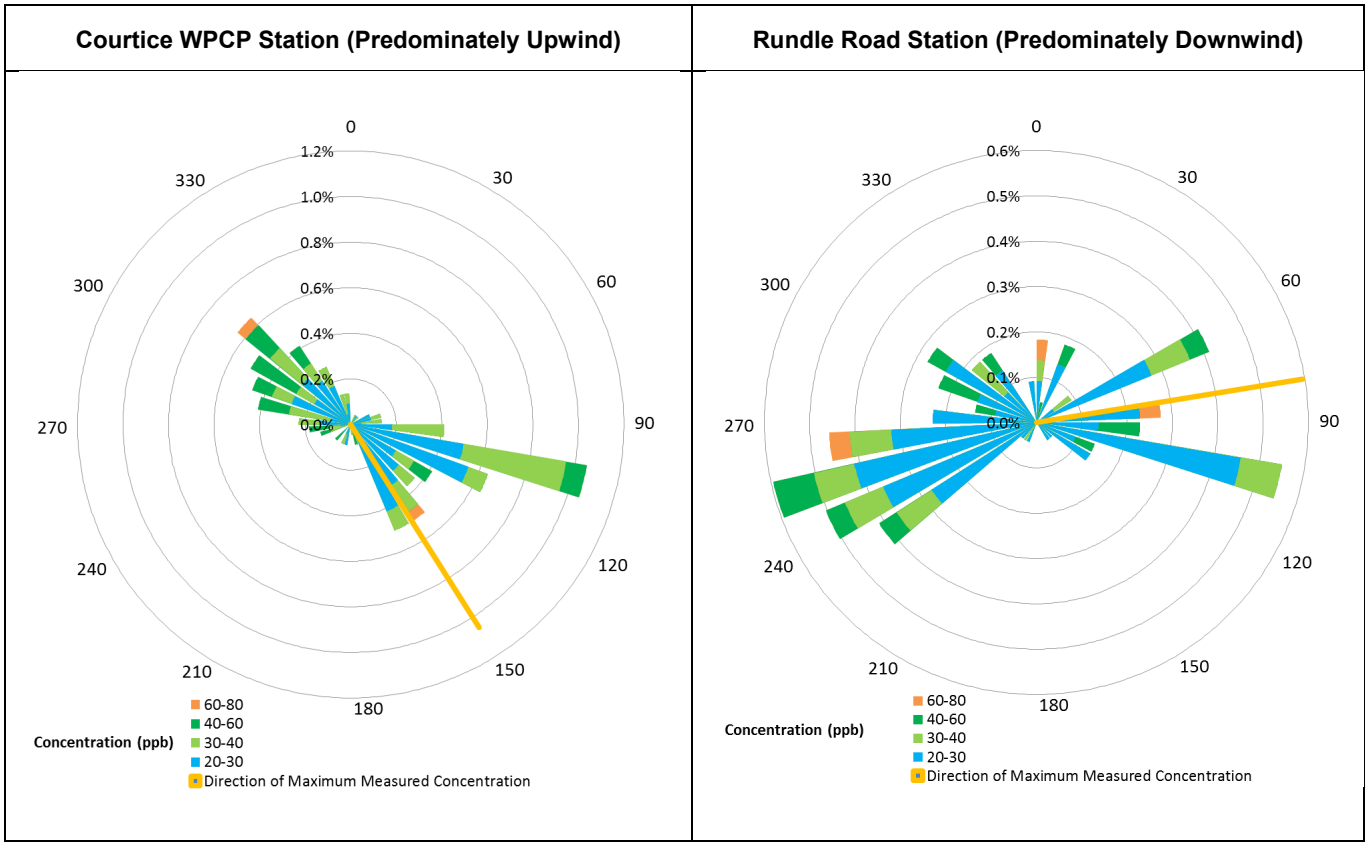
Pollution roses of measured hourly average NO_X concentrations for the Courtice WPCP Station and the Rundle Road Station are presented in **Figure 4-5**. Concentrations less than 20 ppb, which account for 88% and 82% of the measurements at the Courtice WPCP and Rundle Road Stations respectively, have been removed from the plots to allow the distribution of maximum levels to be more clearly shown in the figures. Higher measured hourly average NO_X concentrations at the Courtice WPCP Station occurred for winds blowing from northwesterly and southeasterly directions. At the Rundle Road Station, higher

measured hourly average concentrations generally occurred for west-southwesterly and east-northeasterly wind directions.

The maximum measured hourly average NO_X concentration at the Courtice WPCP occurred June 11, 2018 at 22:00. Winds were blowing from the southeast during this time, for which the Courtice WPCP was upwind. The maximum measured hourly average NO_X concentration at the Rundle Road Station occurred on June 4, 2018 at 7:00. Winds at the Rundle Road Station were from the east for which a CN railroad and local roads were upwind.

The maximum measured 24-hour average NO_X concentrations at the Courtice WPCP occurred on April 11, 2018. Winds at the Courtice WPCP were from the east-northeast, to which a CN railroad and the Courtice WPCP were upwind. The maximum measured 24-hour average NO_X concentrations at the Rundle Road Station occurred on June 4, 2018. Winds at the Rundle Road Station were from the northeast, to which a CP Railroad, and local roads were upwind.

Figure 4-5: Pollution Roses of Measured Hourly Average NO_X Concentrations – April to June 2018



4.2.4 Particulate Matter Smaller than 2.5 Microns ($PM_{2.5}$)

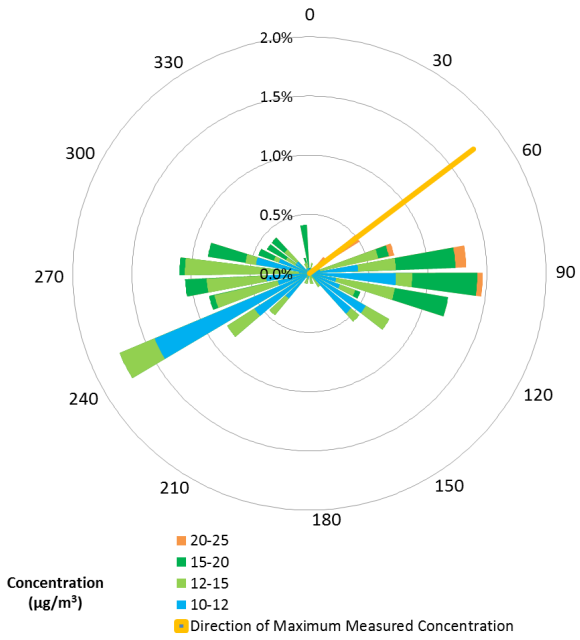
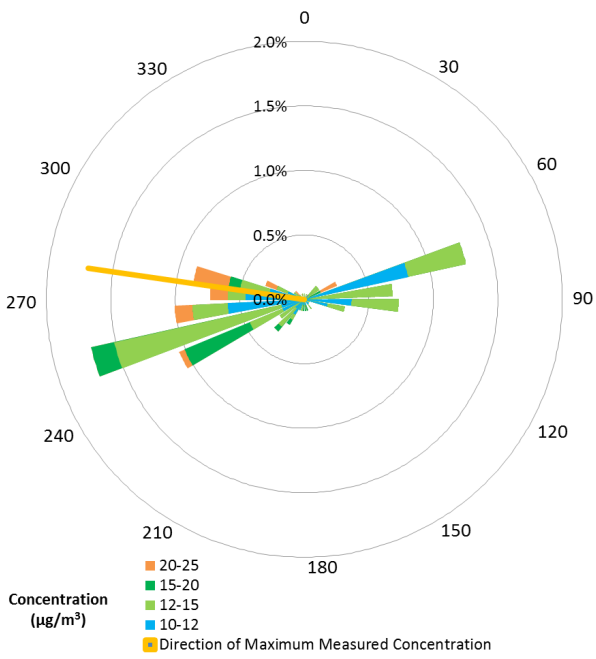
Data summaries and time history plots of measured 24-hour average concentrations are presented in **Appendix E** for $PM_{2.5}$ for the Courtice WPCP and Rundle Road Stations. The maximum measured 24-hour average $PM_{2.5}$ concentrations at the Courtice WPCP and the Rundle Road Stations were 22.5 µg/m^3 and 23.1 µg/m^3 during this quarter. It should be noted that since an exceedance of the criteria for $PM_{2.5}$ requires the average of the 98th percentile levels in each of three consecutive calendar years to be greater than 28 µg/m^3 (CAAQS) or 30 µg/m^3 (HHRA criteria) whereas the $PM_{2.5}$ measurement period at both stations in the report was three months, there is insufficient data in a quarter to determine with any certainty if exceedances of the CAAQS/HHRA criteria would occur. Discussion of $PM_{2.5}$ measurements with respect to the CAAQS/HHRA criteria will be provided in the 2018 annual report, at which time sufficient data will have been collected to make comparisons.

Pollution roses showing the measured 24-hour average ambient $PM_{2.5}$ concentrations versus direction are shown in **Figure 4-6** for both monitoring stations. Concentrations less than 10 µg/m^3, which account for 78% of the measurements at the Courtice WPCP Station and 86% at the Rundle Road Station, have been removed from the plot to allow the distribution of maximum levels to be more clearly shown in the figure. Higher measured 24-hour average concentrations occurred for easterly and westerly winds at the Courtice WPCP Station, and westerly winds at the Rundle Road Station.

The maximum measured 24-hour average $PM_{2.5}$ concentration at the Courtice WPCP Station occurred on April 11. Winds were blowing from the northeast, for which the Courtice WPCP, the DYEC and Highway 418 construction were upwind. The 24-hour average $PM_{2.5}$ concentration at MECP's Oshawa Station for this day was 18.7 µg/m^3 which is comparable to the measurement at the Courtice WPCP Station and suggests the elevated concentration was due to regional emission sources.

At the Rundle Road Station, the maximum measured 24-hour average $PM_{2.5}$ concentrations occurred on April 12. Winds were blowing from the west, for which Highway 418 construction, local businesses and agricultural activities were upwind. The 24-hour average $PM_{2.5}$ concentration at MECP's Oshawa Station for this day was 17.0 µg/m^3 which was similar to the measurement at the Rundle Road Station. The maximum measured 24-hour average $PM_{2.5}$ concentration at MECP's Oshawa Station was 19.0 µg/m^3 and occurred on April 11 for Q2.

Figure 4-6: Pollution Roses of Measured 24-Hour Average $PM_{2.5}$ Concentrations – April to June 2018

Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)
	

4.3 AMBIENT TSP / METALS CONCENTRATIONS

A summary of the maximum and minimum ambient TSP and metals concentrations (for a daily averaging period) are presented in **Table 4-3**. A detailed summary of the concentrations measured for each sample is presented in **Appendix G**.

The maximum measured concentrations of TSP and all metals with MECP air quality criteria were well below their applicable 24-hour criteria (shown in **Table 4-3** below) at all three stations, with the exception of four TSP measurements at the Rundle Road Station on May 2, May 14, June 1, and June 19, 2018. The measured TSP concentrations at the Fence Line and Courtice WPCP Stations were not elevated on these days, suggesting a local emissions source may have been influencing the Rundle Road Station. Field technicians noted heavy truck traffic and construction activities along Rundle Road throughout Q2. The continuous emissions monitoring system at the DYEC indicated opacity was 0% from both boilers during these measurement days.

A notification of a potential exceedance was prepared by Stantec and submitted to the Region of Durham, York, MECP, and the Medical Officer of Health, in accordance with Section 9 of the Ambient Air Quality Monitoring Plan (Stantec, 2012) for the event on May 2. A root cause analysis was completed and the potential impact on human health was evaluated by a toxicologist. Based on Stantec's review, the likely cause of the TSP exceedances was heavy truck traffic and construction near the Rundle Road Station. The measured TSP concentrations are not expected to have resulted in an adverse effect on human health or the environment.

Construction near the Rundle Road station was ongoing throughout Q2 and is the likely root cause for the other three exceedance events based on the prevailing wind direction during those events.

Summaries of the wind direction and potential source contributions for these measurements are presented in **Table 4-4**.

Table 4-3: Summary of Measured Ambient TSP/Metals Concentrations

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	Courtice WPCP (Predominately Upwind)			Rundle Road (Predominately Downwind)			Fence Line		
				Maximum	Minimum	No. of Exceedances	Maximum	Minimum	No. of Exceedances	Maximum	Minimum	No. of Exceedances
Particulate	µg/m^3	120	120	84.7	10.2	0	204	19.3	4	87.8	13.5	0
Total Mercury (Hg)	µg/m^3	2	2	2.03E-05	6.41E-06 [A]	0	3.35E-05	6.59E-06 [A]	0	3.05E-05	6.39E-06 [A]	0
Aluminum (Al)	µg/m^3	4.8	-	8.95E-01	1.72E-02 [A]	0	1.42E+00	6.68E-02	0	9.27E-01	3.74E-02	0
Antimony (Sb)	µg/m^3	25	25	3.45E-03 [A]	3.20E-03 [A]	0	8.72E-03	3.08E-03 [A]	0	3.81E-03 [A]	3.04E-03 [A]	0
Arsenic (As)	µg/m^3	0.3	0.3	2.07E-03 [A]	1.92E-03 [A]	0	2.16E-03 [A]	1.85E-03 [A]	0	2.28E-03 [A]	1.83E-03 [A]	0
Barium (Ba)	µg/m^3	10	10	1.89E-02	2.03E-03	0	2.58E-02	2.51E-03	0	1.95E-02	2.28E-03	0
Beryllium (Be)	µg/m^3	0.01	0.01	3.45E-04 [A]	3.20E-04 [A]	0	3.59E-04 [A]	3.08E-04 [A]	0	3.81E-04 [A]	3.04E-04 [A]	0
Bismuth (Bi)	µg/m^3	-	-	2.07E-03 [A]	1.92E-03 [A]	-	2.16E-03 [A]	1.85E-03 [A]	-	2.28E-03 [A]	1.83E-03 [A]	-
Boron (B)	µg/m^3	120	-	4.20E-03	1.92E-03 [A]	0	4.31E-03	1.87E-03 [A]	0	4.03E-03	1.83E-03 [A]	0
Cadmium (Cd)	µg/m^3	0.025	0.025	1.90E-03	6.40E-04 [A]	0	7.18E-04 [A]	6.15E-04 [A]	0	1.59E-03	6.39E-04 [A]	0
Chromium (Cr)	µg/m^3	0.5	-	4.68E-03	1.60E-03 [A]	0	7.38E-03	1.65E-03 [A]	0	1.17E-02	1.61E-03 [A]	0
Cobalt (Co)	µg/m^3	0.1	0.1	6.90E-04 [A]	6.40E-04 [A]	0	7.18E-04 [A]	6.15E-04 [A]	0	7.61E-04 [A]	6.09E-04 [A]	0
Copper (Cu)	µg/m^3	50	-	3.26E-02	6.30E-03	0	6.15E-02	5.10E-03	0	3.74E-02	4.72E-03	0
Iron (Fe)	µg/m^3	4	-	1.73E+00	1.12E-01	0	2.97E+00	1.31E-01	0	1.80E+00	1.43E-01	0
Lead (Pb)	µg/m^3	0.5	0.5	1.43E-02	9.63E-04 [A]	0	1.16E-02	9.88E-04 [A]	0	8.66E-03	9.65E-04 [A]	0
Magnesium (Mg)	µg/m^3	-	-	1.21E+00	5.08E-02	-	2.10E+00	7.04E-02	-	1.31E+00	7.84E-02	-
Manganese (Mn)	µg/m^3	0.4	-	7.25E-02	2.95E-03	0	1.13E-01	4.09E-03	0	7.81E-02	4.26E-03	0
Molybdenum (Mo)	µg/m^3	120	-	1.03E-03 [A]	9.60E-04 [A]	0	2.32E-03	9.34E-04 [A]	0	2.41E-03	9.13E-04 [A]	0
Nickel (Ni)	µg/m^3	0.2	-	3.85E-03	9.60E-04 [A]	0	3.26E-03	9.88E-04 [A]	0	3.50E-03	9.13E-04 [A]	0
Phosphorus (P)	µg/m^3	-	-	1.63E-01	8.47E-03 [A]	-	1.83E-01	8.31E-03 [A]	-	1.60E-01	8.09E-03 [A]	-
Selenium (Se)	µg/m^3	10	10	3.45E-03 [A]	3.20E-03 [A]	0	3.59E-03 [A]	3.08E-03 [A]	0	3.81E-03 [A]	3.04E-03 [A]	0
Silver (Ag)	µg/m^3	1	1	1.72E-03 [A]	1.60E-03 [A]	0	1.80E-03 [A]	1.54E-03 [A]	0	1.90E-03 [A]	1.52E-03 [A]	0
Strontium (Sr)	µg/m^3	120	-	1.60E-02	1.03E-03	0	5.82E-02	1.72E-03	0	2.64E-02	1.83E-03	0
Thallium (Tl)	µg/m^3	-	-	3.45E-03 [A]	3.20E-03 [A]	-	3.59E-03 [A]	3.08E-03 [A]	-	3.81E-03 [A]	3.04E-03 [A]	-
Tin (Sn)	µg/m^3	10	10	3.45E-03 [A]	3.20E-03 [A]	0	3.59E-03 [A]	3.08E-03 [A]	0	3.81E-03 [A]	3.04E-03 [A]	0
Titanium (Ti)	µg/m^3	120	-	3.19E-02	3.21E-03 [A]	0	5.57E-02	3.59E-03 [A]	0	3.23E-02	3.31E-03 [A]	0
Vanadium (V)	µg/m^3	2	1	1.72E-03 [A]	1.60E-03 [A]	0	4.31E-03	1.56E-03 [A]	0	1.90E-03 [A]	1.52E-03 [A]	0
Zinc (Zn)	µg/m^3	120	-	1.86E-01	7.28E-03	0	1.12E-01	8.64E-03	0	7.32E-02	1.01E-02	0
Zirconium (Zr)	µg/m^3	20	-	1.72E-03 [A]	1.60E-03 [A]	0	1.80E-03 [A]	1.54E-03 [A]	0	1.90E-03 [A]	1.52E-03 [A]	0
Total Uranium (U)	µg/m^3	1.5	-	1.55E-04 [A]	1.44E-04 [A]	0	1.62E-04 [A]	1.38E-04 [A]	0	1.71E-04 [A]	1.37E-04 [A]	0

A. Measured concentration was less than the laboratory method detection limit.

Table 4-4: Source Contribution Analysis – Quarter 2 2018 TSP Exceedances

Date	Station	% above the MECP TSP Criterion	Wind Direction (blowing from)	Potential Source Contributions
2-May-18	Rundle Road	70%	Westerly	The DYEC is not upwind of the Rundle Road Station for these wind directions. Heavy truck traffic and construction activities have been noted from this direction relative to the Rundle Road Station. These activities are the likely cause of the TSP exceedances.
14-May-18	Rundle Road	13%	Westerly	
1-Jun-18	Rundle Road	14%	North-northwesterly	
19-Jun-18	Rundle Road	35%	West-Northwesterly	

4.4 AMBIENT PAH CONCENTRATIONS

A summary of the maximum and minimum ambient PAH concentrations (for a daily averaging period) are presented in **Table 4-5**. In this summary, both individual PAHs as well as a total PAH concentration are reported. A detailed summary of the concentrations measured for each sample is presented in **Appendix H**.

The maximum measured concentrations of the PAHs with MECP AAQCs were below their applicable 24-hour criteria, with the exception of two (2) benzo(a)pyrene (B(a)P) measurements collected at the Courtice WPCP Station on May 2 and May 26, and two (2) B(a)P measurements collected at the Rundle Road Station also on May 2 and May 26, 2018.

The current Ontario 24-hour B(a)P AAQC was introduced in 2011 and levels above this recently enacted AAQC are commonly measured throughout Ontario. B(a)P measurement data available from the National Air Pollutant Surveillance (NAPS) network for Ontario in 2013 (for Simcoe, Toronto, and Hamilton), all had maximum levels above the AAQC (varying between 136% - 6,220% of the criteria). Available NAPS data for Ontario in 2012 (for Windsor, Toronto, and Hamilton) showed maximum B(a)P levels at these stations that varied between 716% - 2,920% of the Ontario AAQCs. In 2011, NAPS data available for seven Ontario stations (Windsor, Toronto, Etobicoke, Hamilton, Simcoe, Pt. Petrie, and Burnt Island) showed exceedances at six of the seven stations, with only the remote Burnt Island Ontario station reporting a maximum level below the MECP AAQC. In 2010, all of these stations, including the Burnt Island station, measured B(a)P levels above the AAQC.

B(a)P is a byproduct of a wide variety of natural and man-made combustion processes (including motor vehicles, natural gas, wood, refuse, oil, forest fires, etc.) and is widely present in the environment (including being present in soil and water).

The two B(a)P samples exceeding the Ontario AAQC that were collected at the Courtice WPCP Station were 14.9% and 261% above the Ontario AAQC. The two B(a)P samples exceeding the Ontario AAQC that were collected at the Rundle Road Station were 3.6% and 178% above the Ontario AAQC. The B(a)P samples were however, all well below the MECP Schedule 6 Upper Risk Threshold, the MECP O. Reg. 419/05 24-hour average guideline, and the HHRA health-based criterion. Summaries of the wind direction and potential source contributions for these measurements are presented in **Table 4-6**.

Based on the air quality assessments completed during the Environmental Assessment Study and the Environmental Compliance Approval application for the DYEC, the facility will not be a significant contributor of B(a)P. Therefore, ambient B(a)P levels are not expected to be substantially impacted by the operation of the DYEC.

Table 4-5: Summary of Measured Ambient PAH Concentrations

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	Courtice WPCP (Predominately Upwind)			Rundle Road (Predominately Downwind)		
				Maximum	Minimum	No. of Exceedances	Maximum	Minimum	No. of Exceedances
Benzo(a)pyrene	ng/m^3	0.05 [A] 5 [B] 1.1 [C]	1	1.81E-01	5.24E-03 [A]	2	1.39E-01	9.44E-03	2
1-Methylnaphthalene	ng/m^3	12,000	-	7.76E+00	1.18E+00	0	1.59E+01	8.19E-01	0
2-Methylnaphthalene	ng/m^3	10,000	-	1.23E+01	2.06E+00	0	2.95E+01	1.37E+00	0
Acenaphthene	ng/m^3	-	-	5.06E+00	7.30E-01 [F]	-	1.53E+01	8.78E-02 [F]	-
Acenaphthylene	ng/m^3	3,500	-	1.22E-01 [F]	7.61E-02 [F]	0	1.30E-01 [F]	7.78E-02 [F]	0
Anthracene	ng/m^3	200	-	1.22E-01 [F]	7.61E-02 [F]	0	1.11E+00	7.78E-02 [F]	0
Benzo(a)anthracene	ng/m^3	-	-	1.22E-01 [F]	7.61E-02 [F]	-	1.30E-01 [F]	7.78E-02 [F]	-
Benzo(a)fluorene	ng/m^3	-	-	2.43E-01 [F]	1.52E-01 [F]	-	2.59E-01 [F]	1.56E-01 [F]	-
Benzo(b)fluoranthene	ng/m^3	-	-	1.22E-01 [F]	7.61E-02 [F]	-	1.30E-01 [F]	7.78E-02 [F]	-
Benzo(b)fluorene	ng/m^3	-	-	2.43E-01 [F]	1.52E-01 [F]	-	2.59E-01 [F]	1.56E-01 [F]	-
Benzo(e)pyrene	ng/m^3	-	-	2.43E-01 [F]	1.52E-01 [F]	-	2.59E-01 [F]	1.56E-01 [F]	-
Benzo(g,h,i)perylene	ng/m^3	-	-	1.22E-01 [F]	7.61E-02 [F]	-	1.30E-01 [F]	7.78E-02 [F]	-
Benzo(k)fluoranthene	ng/m^3	-	-	1.22E-01 [F]	7.61E-02 [F]	-	1.30E-01 [F]	7.78E-02 [F]	-
Biphenyl	ng/m^3	-	-	4.57E+00	4.99E-01	-	8.14E+00	4.21E-01	-
Chrysene	ng/m^3	-	-	1.22E-01 [F]	7.61E-02 [F]	-	1.30E-01 [F]	7.78E-02 [F]	-
Dibenz(a,h)anthracene [D]	ng/m^3	-	-	1.22E-01 [F]	7.61E-02 [F]	-	1.30E-01 [F]	7.78E-02 [F]	-
Dibenzo(a,c) anthracene + Picene [D]	ng/m^3	-	-	2.43E-01 [F]	1.52E-01 [F]	-	2.59E-01 [F]	1.56E-01 [F]	-
Fluoranthene	ng/m^3	-	-	1.46E+00	1.14E-01 [F]	-	4.65E+00	8.78E-02 [F]	-
Indeno (1,2,3-cd)pyrene	ng/m^3	-	-	1.22E-01 [F]	7.61E-02 [F]	-	1.30E-01 [F]	7.78E-02 [F]	-

Table 4-5: Summary of Measured Ambient PAH Concentrations

Contaminant	Units	MECP Criteria	HHRA Health Based Criteria	Courtice WPCP (Predominately Upwind)			Rundle Road (Predominately Downwind)		
				Maximum	Minimum	No. of Exceedances	Maximum	Minimum	No. of Exceedances
Naphthalene	ng/m^3	22,500	22,500	5.54E+01	5.45E+00	0	6.41E+01	5.55E+00	0
o-Terphenyl	ng/m^3	-	-	2.43E-01 [F]	1.52E-01 [F]	-	2.59E-01 [F]	1.56E-01 [F]	-
Perylene	ng/m^3	-	-	2.43E-01 [F]	1.52E-01 [F]	-	2.59E-01 [F]	1.56E-01 [F]	-
Phenanthrene	ng/m^3	-	-	5.57E+00	8.22E-01	-	2.24E+01	7.28E-01	-
Pyrene	ng/m^3	-	-	6.39E-01	7.79E-02 [F]	-	1.92E+00	8.78E-02 [F]	-
Tetralin	ng/m^3	-	-	1.92E+00	4.87E-01	-	2.74E+00	4.92E-01	-
Total PAH [E]	ng/m^3	-	-	9.52E+01	1.38E+01	-	1.67E+02	1.22E+01	-

A. Ontario Ambient Air Quality Criteria. The standard for benzo(a)pyrene (B(a)P) is for B(a)P as a surrogate for PAHs.
B. O. Reg. 419/05 Schedule 6 Upper Risk Thresholds.
C. O. Reg. 419/05 24 Hour Guideline.
D. Based on laboratory analyses, dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene. Picene elutes after dibenz(a,h)anthracene.
E. The reported total PAH is the sum of all analyzed PAH species.
F. Measured concentration was less than the laboratory method detection limit.

Table 4-6: Source Contribution Analysis – Quarter 2 2018 B(a)P Exceedances

Date	Station	% above the MECP B(a)P Criterion	Wind Direction (blowing from)	Potential Source Contributions
2-May-18	Courtice WPCP	14.9%	West	Local roads and agricultural areas are located upwind of the Courtice WPCP Station. Potential sources could be vehicle exhaust emissions or agricultural activities.
	Rundle Road	3.6%	West	Land use in this direction is a mix of agricultural and commercial. Highway 418 construction activities were observed upwind of the Rundle Road Station during this quarter. Potential sources could be a nearby business with a poorly controlled combustion source operating, construction vehicle exhaust, or agricultural activities.
26-May-18	Courtice WPCP	261%	East	The Courtice WPCP, local roads and a CP railroad are located upwind of the Courtice WPCP Station. Potential sources could be vehicle and/or locomotive exhaust emissions.
	Rundle Road	178%	West-southwest	Highway 401, Highway 418 construction and a CN railroad are located upwind of the Rundle Road Station. Potential sources could be vehicle exhaust.

4.5 AMBIENT DIOXINS AND FURANS CONCENTRATIONS

A summary of the maximum and minimum ambient dioxins and furans (D/F) concentrations (for a daily averaging period) are presented in **Table 4-7**. In this summary, both individual dioxins and furans concentrations (pg/m^3) as well as the total toxic equivalency concentration (TEQ) are reported. A detailed summary of the concentrations measured for each sample is presented in **Appendix I**.

The maximum measured toxic equivalent dioxins and furans concentrations at both stations were below the applicable 24-hour AAQC of 0.1 pg TEQ/m^3 (as shown in **Table 4-7**), except for one (1) measurement on May 26 at the Courtice WPCP Station. An elevated dioxins and furans concentration (but not above the AAQC) was also measured at the Rundle Road Station on the same day, suggesting that concentrations in the region were elevated on that day. A summary of the wind direction and potential source contributions for this measurement is presented in **Table 4-8.** A notification of a potential exceedance was prepared by Stantec and submitted to the Region of Durham, York, MECP, and the Region's Medical Officer of Health, in accordance with Section 9 of the Ambient Air Quality Monitoring Plan (Stantec, 2012). A root cause analysis was prepared and the potential impact on human health was evaluated by a toxicologist. Winds were generally southwesterly over the 24-hour measurement period, for which the Courtice WPCP Station is upwind of the DYEC. D/F concentrations were also elevated at the Rundle Road Station (but not above the applicable AAQC), suggesting that D/F concentrations were elevated regionally and likely due to a regional emissions source. The measured D/F concentrations are not expected to have resulted in an adverse effect on human health or the environment.

Table 4-7: Summary of Measured Ambient Dioxins and Furans Concentrations

Contaminant	Units	MECP Standards	HHRA Health Based Criteria	Courtice WPCP (Predominately Upwind)			Rundle Road (Predominately Downwind)		
				Maximum	Minimum	No. of Exceedances	Maximum	Minimum	No. of Exceedances
2,3,7,8-Tetra CDD *	pg/m^3			5.81E-03 [A]	4.41E-03 [A]		6.39E-03 [A]	5.01E-03 [A]	
1,2,3,7,8-Penta CDD	pg/m^3			6.59E-03 [A]	4.26E-03 [A]		6.39E-03 [A]	5.39E-03 [A]	
1,2,3,4,7,8-Hexa CDD	pg/m^3			5.84E-03 [A]	5.17E-03 [A]		6.07E-03 [A]	5.09E-03 [A]	
1,2,3,6,7,8-Hexa CDD	pg/m^3			1.52E-02	4.87E-03 [A]		6.04E-03 [A]	5.05E-03 [A]	
1,2,3,7,8,9-Hexa CDD	pg/m^3			2.07E-02	5.02E-03 [A]		1.46E-02	5.31E-03 [A]	
1,2,3,4,6,7,8-Hepta CDD	pg/m^3			1.28E-01	5.19E-03 [A]		9.53E-02	5.22E-03 [A]	
Octa CDD	pg/m^3			3.99E-01	9.09E-03 [A]		3.28E-01	2.63E-02	
Total Tetra CDD	pg/m^3			9.71E-02	4.41E-03 [A]		4.24E-02	5.01E-03 [A]	
Total Penta CDD	pg/m^3			6.55E-02	4.26E-03 [A]		3.54E-02 [A]	5.61E-03 [A]	
Total Hexa CDD	pg/m^3			1.85E-01	5.33E-03 [A]		1.17E-01	3.06E-02	
Total Hepta CDD	pg/m^3			2.76E-01	5.19E-03 [A]		2.04E-01	5.22E-03 [A]	
2,3,7,8-Tetra CDF **	pg/m^3			1.98E-01	4.41E-03 [A]		1.41E-01	4.55E-03 [A]	
1,2,3,7,8-Penta CDF	pg/m^3	-	-	4.84E-02	3.80E-03 [A]	-	4.11E-02	4.85E-03 [A]	
2,3,4,7,8-Penta CDF	pg/m^3			9.56E-02	3.80E-03 [A]		9.06E-02	5.01E-03 [A]	
1,2,3,4,7,8-Hexa CDF	pg/m^3			1.83E-01	3.65E-03 [A]		1.38E-01	4.55E-03 [A]	
1,2,3,6,7,8-Hexa CDF	pg/m^3			8.28E-02	3.50E-03 [A]		7.16E-02	4.40E-03 [A]	
2,3,4,6,7,8-Hexa CDF	pg/m^3			9.47E-02	3.96E-03 [A]		6.85E-02	5.01E-03 [A]	
1,2,3,7,8,9-Hexa CDF	pg/m^3			1.58E-02	4.11E-03 [A]		1.76E-02	5.16E-03 [A]	
1,2,3,4,6,7,8-Hepta CDF	pg/m^3			4.87E-01	3.73E-03 [A]		3.29E-01	3.49E-03 [A]	
1,2,3,4,7,8,9-Hepta CDF	pg/m^3			8.83E-02	5.52E-03 [A]		8.01E-02	4.25E-03 [A]	
Octa CDF	pg/m^3			3.32E-01	5.52E-03 [A]		2.48E-01	5.05E-03 [A]	
Total Tetra CDF	pg/m^3			1.16E+00	4.41E-03 [A]		1.03E+00	4.55E-03 [A]	
Total Penta CDF	pg/m^3			1.14E+00	3.80E-03 [A]		1.09E+00	4.85E-03 [A]	
Total Hexa CDF	pg/m^3			9.59E-01	3.80E-03 [A]		8.89E-01	4.70E-03 [A]	
Total Hepta CDF	pg/m^3			8.59E-01	4.54E-03 [A]		6.75E-01	3.79E-03 [A]	
TOTAL TOXIC EQUIVALENCY [B]	pg TEQ/m^3	0.1 1 [C]	-	0.109	0.014	1	0.091	0.017	0

A. Measured concentration was less than the laboratory method detection limit.
B. Total Toxicity Equivalent (TEQ) concentration contributed by all dioxins, furans and dioxin-like PCBs calculated as per O. Reg. 419/05 methodology using corresponding WHO_{2005} toxic equivalency factors (TEFs) and a value of half the minimum detection limit (MDL) substituted for concentrations less than the MDL.
C. O. Reg. 419/05 Schedule 6 Upper Risk Thresholds.
* CDD - Chloro Dibenzo-p-Dioxin, ** CDF - Chloro Dibenzo-p-Furan.

Table 4-8: Source Contribution Analysis – Quarter 2 2018 Dioxin/Furan Exceedance

Date	Station	% above the MECP Criterion	Wind Direction (blowing from)	Potential Source Contributions
26-May-18	Courtice WPCP	9%	Southwesterly	Winds were generally southwesterly over the 24-hour measurement period, for which the Courtice WPCP Station is upwind of the DYEC. D/F concentrations were also elevated at Rundle Road, suggesting that D/F levels were elevated regionally and likely due to a regional emissions source.

5.0 CONCLUSIONS

This quarterly report provides a summary of the ambient air quality data collected at the three monitoring stations located predominantly upwind and downwind in the vicinity of the DYEC for the period from April to June 2018. Data recovery rates for all measured air quality parameters for this quarter were acceptable. Additional details on instrumentation issues are presented in Section 3.2 of this report.

Site personnel noted ongoing Highway 418 construction on the north and south sides of Highway 401 between Courtice and Crago Roads during Quarter 2, 2018.

The following observations and conclusions were made from a review of the measured ambient air quality monitoring data:

1. Measured concentrations of NO_2, SO_2, and $PM_{2.5}$ were below the applicable air quality evaluation criteria or human health risk assessment (HHRA) health-based criteria presented in **Table 2-2** of this report.

2. Since the Canadian Ambient Air Quality Standard (CAAQS) for $PM_{2.5}$ is based on a 98^{th} percentile level over 3 years, whereas the $PM_{2.5}$ measurement period at both stations for this quarterly report was 3 months, there is insufficient data collected to determine with any certainty if exceedances of the CAAQS would occur. Therefore, no comparison of the measured $PM_{2.5}$ data during this quarter to the CAAQS was conducted for this report, as it would not be scientifically accurate or representative.

3. The maximum measured concentrations of TSP and all metals with MECP air quality Standards, were below their applicable Standards (as presented in **Table 2-3** in this report) with the exception of four TSP measurements at the Rundle Road Station on May 2, May 14, June 1, and June 19, 2018. As required by the Ambient Air Quality Monitoring Plan, a written notice of exceedance was submitted to the Region of Durham, Region of York, MECP, and the local Medical Officer of Health for the May 2 exceedance. Stantec's root cause analysis determined that the likely cause of the TSP exceedance was heavy truck and construction activities occurring adjacent to the Rundle Road Station. Construction activities were ongoing and therefore subsequent notifications were not submitted since the root cause was unchanged and unrelated to the DYEC.

4. The maximum measured concentrations of PAHs with MECP air quality Standards were well below their applicable criteria shown in **Table 2-4**, with the exception of 24-hour benzo(a)pyrene (B(a)P) concentrations measured on May 2 and May 26 at both the Courtice WPCP Station and the Rundle Road Station. Measured concentrations of B(a)P in these four samples exceeded the applicable Ontario Ambient Air Quality Criteria (AAQC) by between 3.6% and 261%. The current Ontario 24-hour B(a)P AAQC was introduced in 2011 and levels above this AAQC are commonly measured throughout Ontario. The measurements were however, well below the MECP Schedule 6 Upper Risk Threshold, the MECP O. Reg. 419/05 24-hour average guideline, and the HHRA health-based criterion.

5. The maximum measured toxic equivalent dioxin and furan concentration was below the applicable Standard presented in **Table 2-4 ,** except for one measurement on May 26 at the Courtice WPCP Station. A notification of a potential exceedance was prepared by Stantec and submitted to the Regions of Durham and York, MECP, and the Region's Medical Officer of Health, in accordance with Section 9 of the Ambient Air Quality Monitoring Plan (Stantec, 2012). A root cause analysis was prepared and the potential impact on human health was evaluated by a toxicologist. The measured D/F concentrations are not expected to have resulted in an adverse effect on human health or the environment. Winds were generally southwesterly over the 24-hour measurement period, for which the Courtice WPCP Station is upwind of the DYEC. D/F concentrations were also elevated at the Rundle Road Station (but not above the applicable AAQC), suggesting that D/F concentrations were elevated regionally and likely due to a regional emissions source.

In summary, the measured concentrations of the air contaminants monitored were below their applicable MECP Standards during the April to June 2018 monitoring period with the exception of TSP, benzo(a)pyrene and dioxins and furans. Furthermore, measured levels of the monitored contaminants were below their applicable HHRA health-based criteria except for TSP (which used the same criteria as the MECP standard).

6.0 REFERENCES

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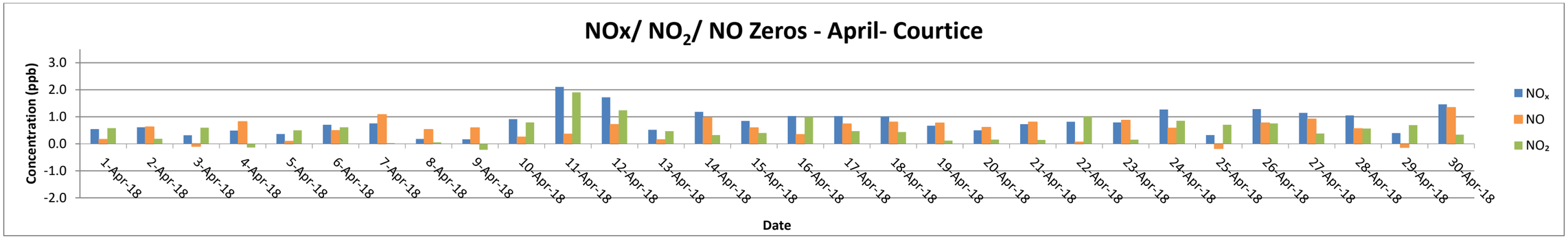
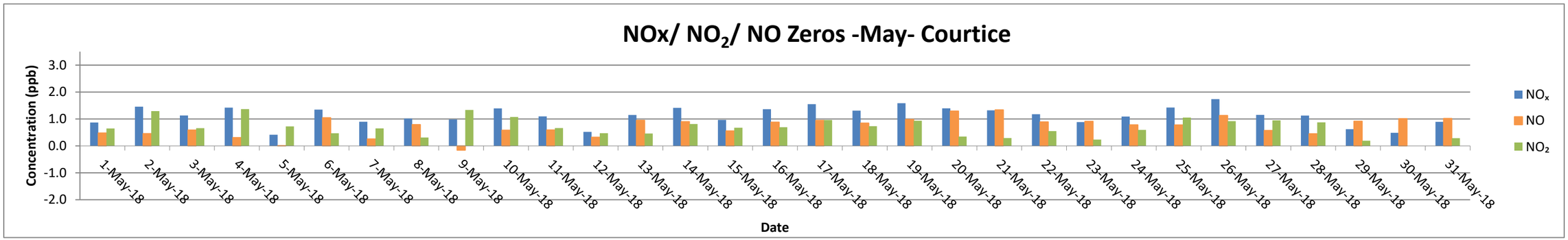
APPENDIX A: SO_2 AND NO_X INSTRUMENT DAILY INTERNAL ZERO CALIBRATION SUMMARIES

Figure A-1 Daily NOx/ NO_2/ NO Internal Zero Calibrations – Courtice WPCP Station





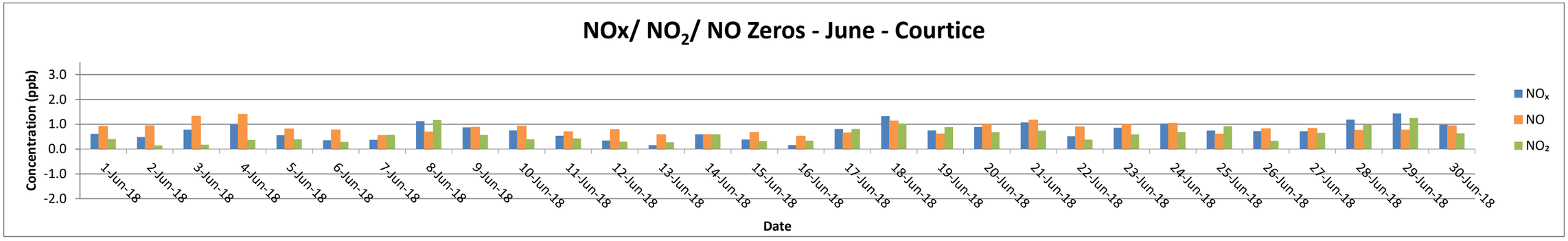
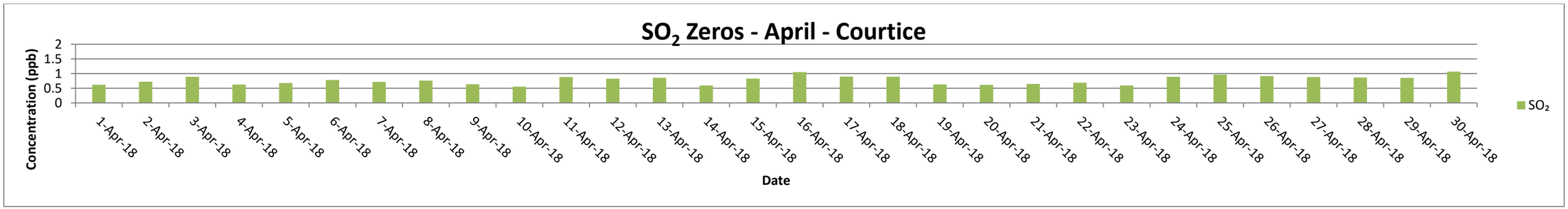
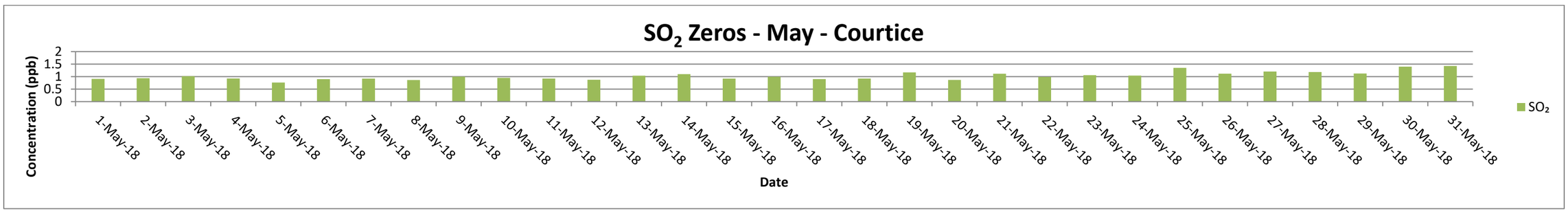


Figure A-2 Daily SO_2 Internal Zero Calibrations – Courtice WPCP Station





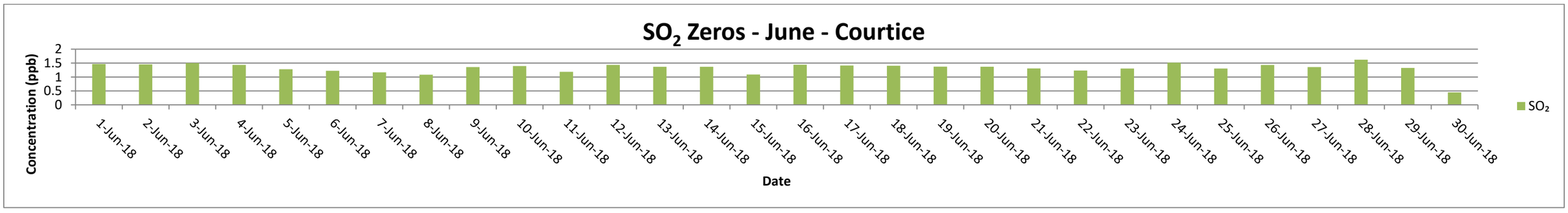
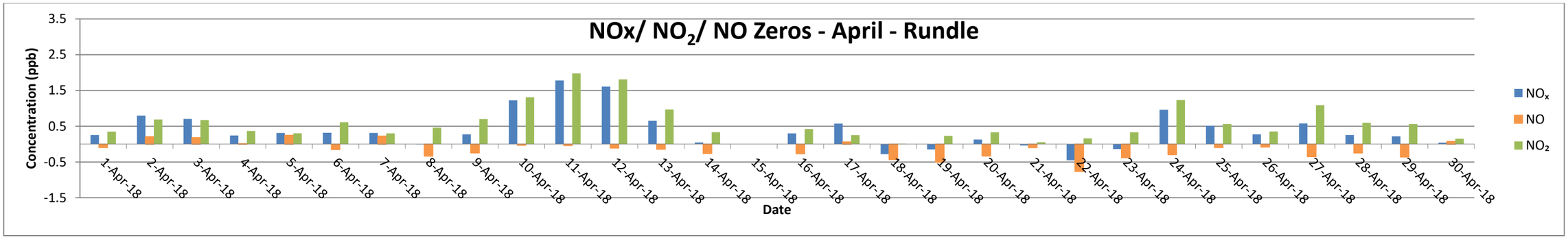
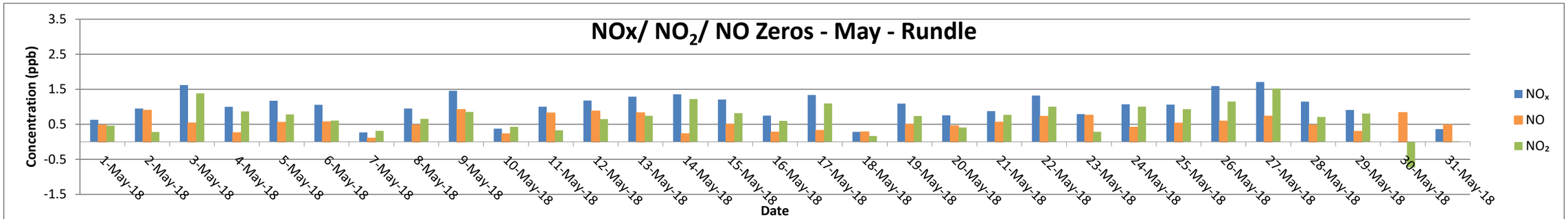


Figure A-3 Daily NOx/ NO_2/ NO Internal Zero Calibrations – Rundle Road Station





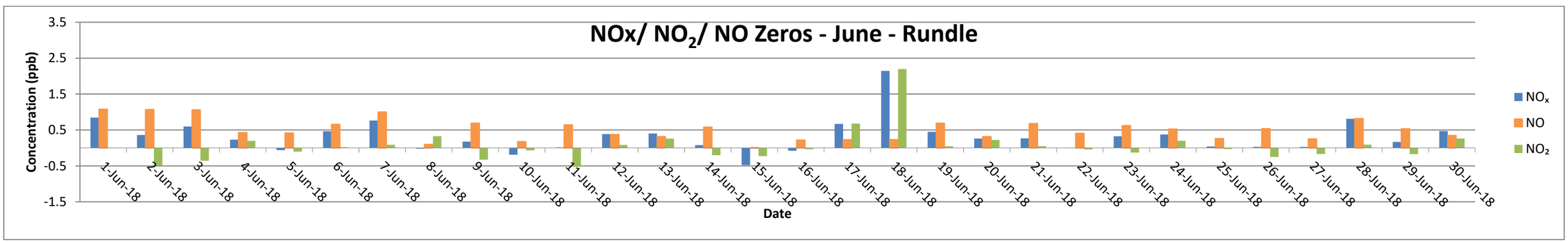
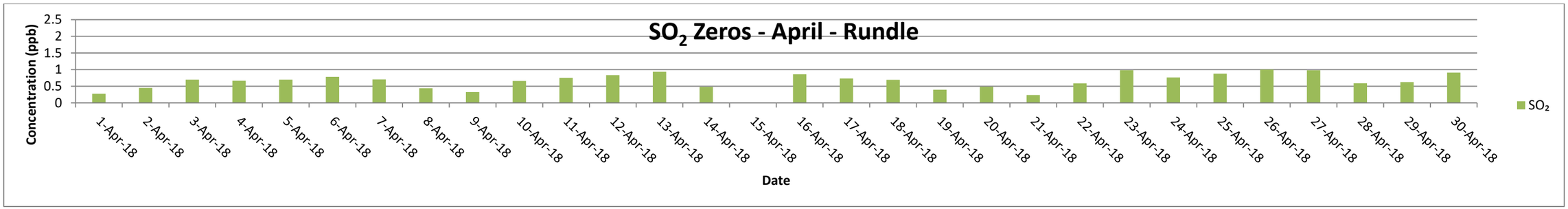
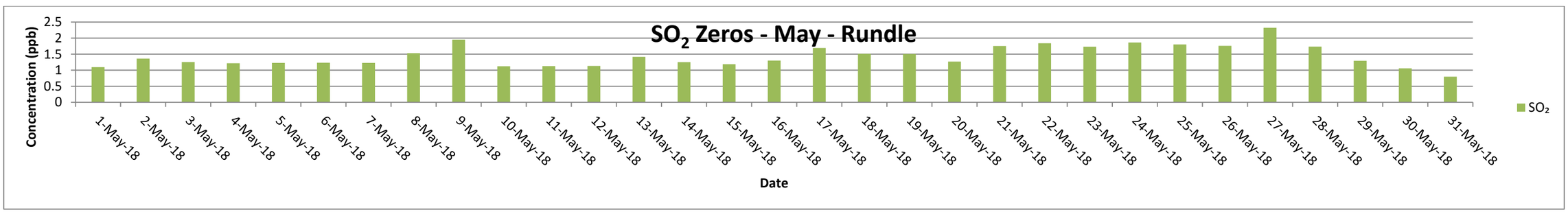
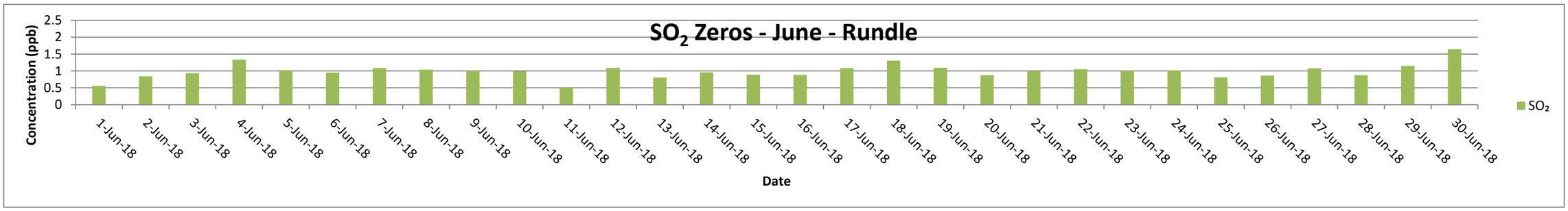


Figure A-4 Daily SO_2 Internal Zero Calibrations – Rundle Road Station







APPENDIX B:
SO_2 DATA SUMMARIES AND TIME HISTORY PLOTS

SO_2 - April (ppb) COURTICE 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>250	Days>100
1	0.2	0.5	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.3	0.5	0.4	0.3	0.5	0.4	0.4	3.1	10.9	3.4	1.2	24	10.9	0.2	1.1	0.0	0.0
2	0.7	3.8	1.0	0.9	2.3	1.3	1.2	1.3	1.3	1.8	1.7	0.9	0.8	0.9	1.1	2.0	1.3	0.9	0.9	0.7	0.5	0.6	0.6	17.3	24	17.3	0.5	1.9	0.0	0.0
3	8.8	6.6	3.1	1.4	0.9	0.8	0.8	2.9	3.1	1.0	2.4	11.0	2.5	1.7	1.1	4.2	1.4	0.7	4.1	13.7	2.1	1.0	0.9	0.9	24	13.7	0.7	3.2	0.0	0.0
4	0.7	3.6	15.8	20.8	5.8	2.6	1.3	1.6	1.3	1.6	1.4	1.1	1.0	0.9	0.8	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.4	0.5	24	20.8	0.4	2.7	0.0	0.0
5	0.5	0.5	0.6	1.0	0.8	0.9	1.0	1.1	1.3	1.4	1.1	0.8	0.7	0.5	0.4	0.5	0.5	0.5	0.5	0.4	3.7	9.6	10.8	0.9	24	10.8	0.4	1.6	0.0	0.0
6	0.6	0.7	0.7	0.6	0.7	0.9	2.1	1.5	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.9	0.9	0.7	0.7	0.6	0.6	0.6	0.6	24	2.1	0.6	0.9	0.0	0.0
7	0.7	0.6	0.5	0.6	0.5	0.6	0.4	0.7	0.5	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.6	24	0.7	0.4	0.5	0.0	0.0
8	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.5	0.5	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	24	0.7	0.3	0.4	0.0	0.0
9	0.4	0.4	2.9	8.0	0.9	0.7	0.9	0.9	0.9	0.9	0.7	0.6	0.5	0.6	0.5	0.5	0.7	0.8	0.7	0.6	0.7	0.7	4.2	3.1	24	8.0	0.4	1.3	0.0	0.0
10	7.8	4.9	2.6	0.7	0.7	0.5	0.6	0.6	0.7	0.9	0.5	0.7	0.9	0.9	1.5	2.4	1.2	0.7	0.7	0.6	0.7	0.6	0.8	1.2	24	7.8	0.5	1.4	0.0	0.0
11	2.9	1.1	1.2	1.1	1.0	0.8	0.8	0.8	1.0	1.1	0.8	0.8	0.9	1.1	1.0	0.9	0.8	1.0	0.9	0.7	1.4	1.0	1.0	0.8	24	2.9	0.7	1.0	0.0	0.0
12	0.7	0.8	1.2	2.4	1.0	0.6	0.7	1.0	0.6	0.7	0.8	0.8	10.3	9.8	5.3	2.0	2.2	1.2	3.9	1.5	1.1	0.9	0.8	0.8	24	10.3	0.6	2.1	0.0	0.0
13	0.8	0.7	1.0	0.8	0.7	1.2	0.8	3.5	1.3	1.5	1.1	0.8	0.8	0.8	0.7	3.0	2.2	1.8	2.9	1.1	2.1	3.2	1.8	4.4	24	4.4	0.7	1.6	0.0	0.0
14	2.3	3.2	3.0	3.4	1.0	1.1	0.8	0.8	1.5	0.7	0.6	0.6	0.5	0.6	0.7	0.6	0.7	0.8	1.1	0.9	0.6	0.6	0.7	0.5	24	3.4	0.5	1.1	0.0	0.0
15	0.6	0.5	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.7	0.6	0.7	0.7	1.2	1.6	2.6	1.4	0.7	0.8	11.5	39.3	36.3	36.3	24	39.3	0.5	5.8	0.0	0.0
16	38.7	35.6	45.7	49.7	42.1	41.9	33.4	19.1	1.8	1.3	1.2	1.3	1.1	1.0	1.1	1.1	1.2	1.2	1.5	1.0	0.9	0.9	0.9	0.9	24	49.7	0.9	13.5	0.0	0.0
17	0.9	0.9	1.2	0.9	1.2	1.0	0.9	1.0	1.1	1.0	0.9	1.0	0.8	0.9	0.8	0.9	0.8	0.9	1.1	0.9	0.8	0.9	1.0	0.8	24	1.2	0.8	0.9	0.0	0.0
18	0.7	0.7	0.7	0.7	0.6	0.8	0.7	0.8	0.9	0.7	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.6	0.9	0.7	24	0.9	0.6	0.7	0.0	0.0
19	0.7	0.7	0.6	0.6	0.7	0.8	0.9	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.4	0.5	0.4	0.5	24	0.9	0.4	0.6	0.0	0.0
20	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.8	0.8	24	0.8	0.3	0.5	0.0	0.0
21	0.6	0.6	0.5	0.5	0.5	1.7	0.5	0.5	0.5	0.6	2.1	6.1	2.8	1.5	1.3	1.2	1.8	1.3	0.5	0.3	0.4	0.4	0.5	1.7	24	6.1	0.3	1.2	0.0	0.0
22	9.0	13.1	13.1	5.3	3.7	14.8	15.0	1.1	1.3	1.0	0.9	0.9	0.9	1.0	0.9	0.7	0.6	0.5	0.4	10.5	24.6	10.2	8.8	6.8	24	24.6	0.4	6.0	0.0	0.0
23	8.8	11.7	1.6	6.3	1.8	7.2	3.1	1.6	0.9	0.7	0.7	0.6	0.6	0.6	2.9	12.3	2.0	2.7	2.4	21.3	5.4	16.1	11.4	8.0	24	21.3	0.6	5.4	0.0	0.0
24	8.8	15.3	13.0	24.6	6.8	12.8	4.1	1.5	1.3	1.2	1.5	1.7	1.5	1.3	1.1	0.9	0.8	1.3	2.1	2.2	4.7	9.7	4.6	1.3	24	24.6	0.8	5.2	0.0	0.0
25	0.5	2.2	1.4	1.1	0.9	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	1.0	0.8	0.8	0.8	0.8	0.8	0.7	0.6	0.8	0.8	24	2.2	0.5	0.9	0.0	0.0
26	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.8	0.8	0.9	1.3	3.4	3.8	8.2	9.0	9.0	24	9.0	0.7	2.1	0.0	0.0
27	8.0	11.6	21.9	17.5	21.1	12.6	9.5	2.3	2.1	2.0	1.7	1.4	1.3	1.3	1.6	1.8	1.5	1.3	1.1	5.1	6.0	14.7	1.9	10.9	24	21.9	1.1	6.7	0.0	0.0
28	1.1	1.1	1.1	1.0	0.9	0.9	0.9	0.9	1.3	0.9	0.8	0.9	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.7	24	1.3	0.6	0.9	0.0	0.0
29	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.7	0.6	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.6	24	0.7	0.6	0.6	0.0	0.0
30	0.7	0.6	0.6	0.6	0.7	0.6	1.3	1.2	0.7	0.8	0.9	0.9	C	C	0.9	0.6	0.7	0.7	1.0	6.9	6.5	25.1	12.9	14.0	22	25.1	0.6	3.6	0.0	0.0
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	718					
Maximum	38.7	35.6	45.7	49.7	42.1	41.9	33.4	19.1	3.1	2.0	2.4	11.0	10.3	9.8	5.3	12.3	2.6	2.7	4.1	21.3	24.6	39.3	36.3	36.3	24					
Minimum	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	22					
Average	3.6	4.1	4.6	5.1	3.3	3.7	2.9	1.7	1.0	0.9	1.0	1.3	1.2	1.1	1.1	1.5	1.0	0.9	1.1	2.6	2.9	5.3	3.9	4.2						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.5	0.6	0.6	0.7	0.8	0.9	1.1	1.7	5.5	11.6	36.1	49.7

Maximum Hourly	49.7
Maximum Daily	13.5
Monthly Average	2.5

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down

SO_2 - May (ppb) COURTICE 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>250	Days>100
1	3.3	12.6	18.4	21.0	12.8	3.7	11.8	2.6	2.2	2.8	3.1	2.5	2.4	2.3	2.0	1.8	1.5	1.7	1.3	1.0	1.3	1.8	1.8	1.0	24	21.0	1.0	4.9	0.0	0.0
2	1.0	1.2	1.3	1.2	1.2	1.2	1.1	1.2	1.5	2.1	1.8	1.7	1.9	2.0	1.8	1.2	1.2	1.5	2.4	15.7	30.7	11.5	16.9	22.4	24	30.7	1.0	5.2	0.0	0.0
3	3.3	9.8	2.5	1.4	1.1	1.0	0.9	0.9	0.9	1.2	1.3	0.9	0.8	0.8	1.0	2.0	2.2	7.2	3.1	1.2	2.6	2.6	1.4	2.1	24	9.8	0.8	2.2	0.0	0.0
4	4.6	11.8	11.0	1.7	8.5	1.6	1.5	1.1	1.9	20.6	2.8	1.6	1.6	1.7	1.3	1.4	1.5	1.2	1.0	0.9	0.8	0.7	0.8	0.7	24	20.6	0.7	3.4	0.0	0.0
5	0.7	0.8	1.0	1.1	0.9	19.2	2.1	1.2	1.3	2.9	4.0	2.8	1.7	1.4	1.7	1.5	1.6	1.5	3.4	4.5	11.6	6.6	8.5	11.6	24	19.2	0.7	3.9	0.0	0.0
6	19.7	12.1	40.3	37.8	36.8	10.4	6.2	1.5	1.3	6.5	1.3	1.2	1.1	1.1	1.0	2.2	1.6	1.2	17.4	9.5	5.1	32.2	32.7	11.5	24	40.3	1.0	12.1	0.0	0.0
7	21.5	6.7	13.1	26.4	21.0	10.1	8.5	2.2	2.3	1.2	0.9	0.9	0.9	0.9	0.7	0.8	0.7	0.8	3.0	13.5	26.6	28.8	15.5	10.2	24	28.8	0.7	9.0	0.0	0.0
8	18.0	31.6	21.8	21.6	28.0	14.1	10.6	3.9	1.3	1.2	1.0	0.8	0.8	0.8	0.7	0.6	0.8	1.2	0.8	2.6	19.6	22.0	18.4	13.1	24	31.6	0.6	9.8	0.0	0.0
9	16.1	20.7	18.6	13.2	22.1	11.6	3.0	14.9	11.1	1.7	1.6	1.3	1.2	1.3	1.2	1.2	1.6	1.5	1.5	1.9	1.9	1.5	1.5	1.1	24	22.1	1.1	6.4	0.0	0.0
10	0.7	7.2	4.2	4.5	2.0	3.1	1.0	1.0	1.1	1.2	1.2	1.3	1.1	1.0	1.0	1.0	0.9	0.9	0.8	0.9	0.8	0.7	0.7	0.8	24	7.2	0.7	1.6	0.0	0.0
11	0.7	0.9	4.7	7.5	9.0	13.4	7.5	6.0	3.3	2.1	1.1	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	17.1	21.6	13.7	6.4	24	21.6	0.7	5.1	0.0	0.0
12	16.6	13.6	3.4	1.5	4.8	1.6	2.3	3.4	1.4	2.0	1.4	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.8	6.8	42.9	3.1	2.1	4.7	24	42.9	0.8	4.9	0.0	0.0
13	4.4	16.3	19.8	11.1	6.1	1.8	3.5	1.3	7.8	6.1	1.4	1.9	1.0	1.0	1.0	1.0	1.0	0.8	0.8	0.8	3.4	14.0	27.0	3.0	24	27.0	0.8	5.7	0.0	0.0
14	9.6	12.7	7.9	15.6	3.9	28.8	5.4	1.8	1.9	1.7	1.6	2.4	2.6	2.2	2.3	2.0	2.6	2.1	1.5	1.3	1.3	1.2	1.1	1.1	24	28.8	1.1	4.8	0.0	0.0
15	9.3	2.3	1.6	1.2	1.2	1.1	3.0	3.0	3.2	2.4	1.2	1.1	1.1	1.1	1.0	1.0	1.3	1.3	1.1	1.0	1.0	0.9	3.2	4.3	24	9.3	0.9	2.0	0.0	0.0
16	9.0	10.3	9.7	1.1	2.6	8.8	21.5	4.2	1.2	1.1	1.1	1.1	1.1	1.0	0.9	1.0	1.1	1.0	0.9	0.9	0.8	6.6	6.9	4.8	24	21.5	0.8	4.1	0.0	0.0
17	16.0	24.9	9.7	4.9	10.7	4.8	1.6	1.6	1.6	1.6	1.4	1.6	2.4	2.5	2.3	1.9	1.7	1.5	1.3	3.7	6.1	5.0	2.6	1.1	24	24.9	1.1	4.7	0.0	0.0
18	0.8	0.7	0.8	0.8	0.9	0.7	0.7	8.9	18.0	14.8	18.9	1.2	0.9	0.9	0.8	0.9	0.9	1.0	0.9	4.0	5.4	1.3	1.4	2.6	24	18.9	0.7	3.7	0.0	0.0
19	1.8	34.9	35.4	12.5	5.6	2.1	1.3	1.1	0.9	0.9	1.0	1.5	8.9	24.7	46.0	62.9	16.3	15.3	6.6	3.6	6.8	1.5	1.2	1.1	24	62.9	0.9	12.3	0.0	0.0
20	0.9	1.1	1.1	1.3	1.3	1.1	1.1	1.2	1.2	1.1	1.0	1.0	0.9	1.1	1.1	0.9	0.9	0.9	0.9	0.9	1.0	0.9	0.9	0.8	24	1.3	0.8	1.0	0.0	0.0
21	0.8	0.7	0.9	1.2	0.9	1.2	1.2	0.8	0.9	0.9	1.0	0.9	0.9	0.8	0.8	0.8	0.9	0.9	12.7	47.5	29.0	20.2	16.3	4.1	24	47.5	0.7	6.1	0.0	0.0
22	1.5	2.1	1.0	1.4	1.2	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.4	1.7	1.0	0.9	0.9	0.9	2.5	1.0	0.9	0.9	0.9	5.1	24	5.1	0.9	1.4	0.0	0.0
23	1.2	1.0	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.3	1.9	1.9	1.3	1.2	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.3	2.3	24	2.3	0.9	1.2	0.0	0.0
24	21.9	19.9	7.8	4.7	2.4	12.2	2.2	1.9	2.0	1.8	1.8	1.9	6.9	6.6	2.9	1.8	1.7	1.7	1.1	1.1	1.1	2.4	24.2	14.4	24	24.2	1.1	6.1	0.0	0.0
25	44.1	13.9	10.8	27.5	22.6	2.9	3.2	2.8	2.6	2.4	4.5	2.3	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.5	1.2	1.2	1.3	1.5	24	44.1	1.1	6.5	0.0	0.0
26	1.0	1.5	2.3	2.0	4.3	8.4	2.0	1.6	3.1	2.1	2.3	3.2	5.8	9.3	4.7	4.5	4.2	5.2	6.1	2.0	20.5	14.2	1.5	3.8	24	20.5	1.0	4.8	0.0	0.0
27	2.8	3.0	1.4	3.5	12.3	7.5	4.7	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.2	1.3	1.5	5.8	17.4	10.9	24	17.4	1.2	3.7	0.0	0.0
28	3.2	1.4	1.2	2.1	1.5	1.2	1.2	1.2	1.1	1.1	1.1	1.8	5.3	4.0	2.5	1.6	1.4	1.5	1.9	1.4	1.6	18.1	10.7	1.9	24	18.1	1.1	2.9	0.0	0.0
29	3.1	3.8	18.1	15.6	14.4	16.7	5.1	2.1	1.5	C	C	C	C	C	C	1.3	1.2	2.8	1.0	1.8	1.3	1.2	1.2	1.2	18	18.1	1.0	5.2	0.0	0.0
30	3.8	1.2	1.3	1.2	1.2	1.4	1.7	1.7	1.5	1.4	1.4	1.4	2.1	3.0	1.4	1.8	1.8	1.5	2.3	4.5	4.1	1.7	1.2	1.2	24	4.5	1.2	1.9	0.0	0.0
31	0.9	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.1	1.9	1.4	1.2	1.2	24	2.1	0.9	1.3	0.0	0.0
Count	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	31	31	31	31	31	31	31	31	31	738					
Maximum	44.1	34.9	40.3	37.8	36.8	28.8	21.5	14.9	18.0	20.6	18.9	3.2	8.9	24.7	46.0	62.9	16.3	15.3	17.4	47.5	42.9	32.2	32.7	22.4	24					
Minimum	0.7	0.7	0.8	0.8	0.9	0.7	0.7	0.8	0.9	0.9	0.9	0.8	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	18					
Average	7.8	9.1	8.8	8.0	7.9	6.3	3.8	2.6	2.7	3.0	2.2	1.5	2.1	2.7	2.9	3.4	1.9	2.0	2.7	4.5	8.1	7.5	7.6	4.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.9	1.0	1.2	1.3	1.5	2.0	3.0	6.2	14.2	20.7	36.3	62.9

Maximum Hourly	62.9
Maximum Daily	12.3
Monthly Average	4.8

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down

SO_2 - June (ppb) COURTICE 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>250	Days>100
1	20.4	11.6	7.9	12.9	6.4	4.7	2.5	1.8	1.6	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.6	1.8	1.4	1.8	2.6	3.4	3.1	24	20.4	1.4	4.0	0.0	0.0
2	2.8	4.3	5.7	5.4	5.8	7.6	3.2	6.0	5.8	4.1	1.3	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	4.9	28.4	2.0	2.3	24	28.4	1.1	4.2	0.0	0.0
3	10.8	19.5	5.2	7.6	29.2	2.4	1.7	1.5	1.6	28.0	32.8	74.4	65.5	22.2	14.9	2.5	1.9	1.6	2.1	3.8	19.7	31.5	19.9	8.1	24	74.4	1.5	17.0	0.0	0.0
4	5.7	2.1	2.3	1.7	1.6	1.8	1.8	1.7	1.5	1.3	1.3	11.3	C	1.4	1.3	1.3	1.2	1.1	1.2	1.2	1.1	1.2	1.3	1.1	23	11.3	1.1	2.1	0.0	0.0
5	1.1	1.2	1.1	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.9	1.1	24	1.9	1.1	1.2	0.0	0.0
6	1.1	1.1	1.4	1.1	1.1	1.3	1.4	3.0	3.5	A	2.1	1.3	1.1	1.1	1.1	1.2	1.3	1.4	1.2	1.1	1.1	1.1	1.1	1.1	23	3.5	1.1	1.4	0.0	0.0
7	1.4	1.5	1.4	1.5	1.7	2.2	1.4	1.5	1.5	1.3	1.3	1.3	1.6	1.9	2.0	1.7	2.0	1.7	1.3	1.4	1.8	8.3	15.6	8.9	24	15.6	1.3	2.8	0.0	0.0
8	11.8	15.2	5.5	3.3	11.1	9.0	4.3	1.8	3.5	2.1	1.2	1.2	1.2	1.0	1.0	1.0	1.0	1.0	1.0	5.1	23.0	7.6	5.5	2.5	24	23.0	1.0	5.0	0.0	0.0
9	1.6	1.7	8.8	20.0	38.7	15.9	3.7	3.0	2.0	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.0	1.1	26.1	20.0	3.2	1.5	1.4	24	38.7	1.0	6.6	0.0	0.0
10	8.6	2.0	1.4	1.4	1.2	5.7	33.8	56.1	3.3	1.2	2.0	1.4	1.3	1.1	1.1	1.0	1.1	1.1	1.2	8.8	4.9	17.4	20.6	14.8	24	56.1	1.0	8.0	0.0	0.0
11	22.6	21.9	5.5	13.1	22.7	19.2	12.1	6.8	1.4	2.5	1.2	1.2	1.4	1.4	1.5	1.3	1.3	1.6	1.3	1.1	13.6	16.1	10.7	19.2	24	22.7	1.1	8.3	0.0	0.0
12	2.9	21.5	15.9	6.5	10.1	9.2	2.2	1.7	1.5	1.4	1.4	1.4	1.6	3.0	5.6	2.7	2.6	1.6	1.6	2.0	2.2	1.6	1.7	1.8	24	21.5	1.4	4.3	0.0	0.0
13	4.5	5.9	2.8	2.4	1.6	1.9	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.2	1.2	1.7	24	5.9	1.2	1.8	0.0	0.0
14	1.6	1.3	1.2	1.3	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.2	1.1	1.2	1.2	1.4	1.7	1.5	1.1	1.1	1.2	1.8	1.3	1.8	24	1.8	1.1	1.3	0.0	0.0
15	2.1	3.1	2.4	1.7	2.0	2.3	1.7	1.4	1.3	1.2	1.2	1.1	1.3	2.8	4.1	1.6	1.1	1.1	1.1	1.1	17.2	5.4	6.7	4.6	24	17.2	1.1	2.9	0.0	0.0
16	32.2	15.5	16.9	21.5	10.7	10.0	10.1	3.2	3.9	2.9	2.5	3.1	7.5	6.8	4.0	2.9	1.9	2.0	2.1	4.4	5.4	5.5	13.9	12.2	24	32.2	1.9	8.4	0.0	0.0
17	12.1	18.0	8.5	14.4	7.0	4.7	3.6	2.5	2.2	1.8	1.7	4.2	16.9	6.0	4.3	6.4	3.4	2.7	2.5	2.4	3.8	10.7	2.5	2.3	24	18.0	1.7	6.0	0.0	0.0
18	2.5	4.5	3.4	3.1	2.6	2.4	2.1	2.3	2.5	2.3	1.9	1.5	1.5	1.4	1.3	1.9	1.8	1.4	1.4	1.4	1.3	1.3	1.3	1.3	24	4.5	1.3	2.0	0.0	0.0
19	1.3	1.3	1.8	2.9	3.1	3.9	3.8	3.4	3.3	2.4	1.1	0.9	1.0	1.1	1.3	1.1	1.1	1.1	1.1	1.6	1.4	1.3	1.7	9.8	24	9.8	0.9	2.2	0.0	0.0
20	1.8	2.5	9.3	24.5	17.7	14.3	9.2	2.4	1.8	2.5	2.4	1.9	1.7	1.7	1.3	1.4	1.4	1.7	1.7	1.5	4.5	17.5	3.1	7.0	24	24.5	1.3	5.6	0.0	0.0
21	1.5	1.9	4.2	11.8	6.6	5.8	2.2	1.5	2.6	2.5	1.4	1.2	1.2	1.2	1.2	1.1	1.2	1.4	1.6	7.1	21.8	20.6	3.8	7.2	24	21.8	1.1	4.7	0.0	0.0
22	10.7	5.9	7.5	4.8	2.9	3.9	18.1	13.7	2.3	2.1	8.8	3.9	2.3	6.8	4.8	1.4	1.3	1.3	4.0	12.3	20.3	7.9	1.4	1.4	24	20.3	1.3	6.2	0.0	0.0
23	1.5	2.8	1.8	1.4	1.3	1.3	1.3	1.3	5.6	11.5	4.2	1.9	2.2	6.0	7.3	2.4	2.2	1.8	1.5	1.4	3.4	3.5	4.2	3.5	24	11.5	1.3	3.1	0.0	0.0
24	2.8	5.6	1.8	2.2	5.0	8.1	4.9	2.6	1.7	1.4	2.2	2.4	2.5	2.7	2.5	2.4	2.5	2.7	2.6	2.5	2.4	2.4	2.3	1.9	24	8.1	1.4	2.9	0.0	0.0
25	2.1	2.0	2.0	2.1	2.3	2.8	3.9	4.0	2.1	3.0	2.6	1.8	2.3	2.1	1.4	1.1	1.2	1.1	1.2	1.2	3.0	3.6	5.3	2.7	24	5.3	1.1	2.4	0.0	0.0
26	1.6	5.4	8.1	10.1	9.3	5.8	2.5	1.9	1.7	1.5	1.4	1.2	1.1	1.1	1.1	1.1	1.1	1.7	1.2	7.4	9.8	13.8	9.6	14.5	24	14.5	1.1	4.8	0.0	0.0
27	8.0	4.1	3.2	4.7	6.1	2.0	2.3	2.2	2.2	2.1	2.0	2.0	2.1	2.5	2.8	2.7	2.8	2.9	2.6	2.4	2.2	2.1	2.1	2.2	24	8.0	2.0	2.9	0.0	0.0
28	2.0	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.6	1.6	1.6	1.7	9.1	3.5	7.5	12.1	24	12.1	1.5	2.8	0.0	0.0
29	15.5	6.7	7.2	2.5	1.9	2.0	2.1	1.8	1.6	1.7	1.7	C	1.8	1.8	0.9	1.0	0.4	0.3	0.5	1.0	0.4	0.2	0.3	0.4	23	15.5	0.2	2.3	0.0	0.0
30	0.4	0.9	0.7	27.0	26.3	7.9	1.5	1.2	1.3	1.5	1.6	1.4	1.3	1.0	0.4	0.3	0.3	0.3	0.2	0.4	0.6	0.6	0.4	3.9	24	27.0	0.2	3.4	0.0	0.0
31																														
Count	30	30	30	30	30	30	30	30	30	29	30	29	29	30	30	30	30	30	30	30	30	30	30	30	717					
Maximum	32.2	21.9	16.9	27.0	38.7	19.2	33.8	56.1	5.8	28.0	32.8	74.4	65.5	22.2	14.9	6.4	3.4	2.9	4.0	26.1	23.0	31.5	20.6	19.2	24					
Minimum	0.4	0.9	0.7	1.1	1.1	1.2	1.1	1.1	1.1	1.1	1.1	0.9	1.0	1.0	0.4	0.3	0.3	0.3	0.2	0.4	0.4	0.2	0.3	0.4	23					
Average	6.5	6.4	4.9	7.2	8.0	5.4	4.8	4.5	2.3	3.1	3.0	4.5	4.5	2.9	2.6	1.7	1.5	1.5	1.5	3.6	6.8	7.5	5.1	5.2						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.1	1.2	1.4	1.6	1.8	2.3	3.0	5.5	10.8	17.8	31.1	74.4

Maximum Hourly	74.4
Maximum Daily	17.0
Monthly Average	4.4

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down

SO_2 - Rundle Road
April 2018
(ppb)

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>250	Days>100
1	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.0	24	0.4	0.0	0.2	0	0
2	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.9	1.1	0.5	0.5	0.5	0.7	1.5	1.2	0.7	0.5	0.3	0.3	0.3	0.2	0.3	24	1.5	0.2	0.5	0	0
3	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.5	0.5	0.8	0.7	0.8	0.6	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.5	24	0.8	0.2	0.4	0	0
4	0.5	0.5	0.6	0.6	0.5	0.7	0.7	0.7	1.1	1.0	0.9	1.0	0.8	0.8	1.5	0.6	0.7	0.5	0.5	0.4	0.4	0.4	0.4	0.4	24	1.5	0.4	0.7	0	0
5	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.7	1.0	1.0	0.8	0.7	0.6	0.4	0.4	0.4	0.4	0.4	0.2	0.3	0.4	0.4	0.4	0.5	24	1.0	0.2	0.5	0	0
6	0.8	0.4	0.5	0.5	0.5	0.6	0.9	0.8	0.7	0.7	1.8	0.8	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.6	24	1.8	0.4	0.7	0	0
7	0.6	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	24	0.6	0.3	0.4	0	0
8	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.2	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.3	24	0.5	0.2	0.4	0	0
9	0.3	0.2	0.2	0.3	0.4	0.3	0.4	0.5	0.8	1.6	0.5	0.4	0.4	0.5	0.5	0.6	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.4	24	1.6	0.2	0.5	0	0
10	0.4	0.2	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.7	0.6	0.5	0.7	0.7	1.1	1.6	1.0	0.6	0.5	0.5	0.5	0.5	0.6	0.7	24	1.6	0.2	0.6	0	0
11	1.3	1.0	0.9	0.8	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.7	0.7	0.7	0.8	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.6	24	1.3	0.6	0.7	0	0
12	0.7	0.8	0.6	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	1.4	1.1	1.1	1.0	1.0	0.9	0.8	0.6	0.6	24	1.4	0.6	0.8	0	0
13	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.9	0.6	0.6	0.5	0.6	0.5	0.5	0.6	0.6	24	0.9	0.5	0.6	0	0
14	0.7	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	24	0.7	0.3	0.4	0	0
15	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.5	1.3	0.8	0.4	0.4	1.8	1.1	1.2	0.0	24	1.8	0.0	0.6	0	0
16	0.0	0.0	0.0	0.8	0.7	0.6	0.6	0.7	0.5	0.6	0.5	0.5	0.5	1.8	0.7	1.3	1.0	0.6	0.7	0.7	0.7	0.5	0.7	0.5	24	1.8	0.0	0.6	0	0
17	0.8	0.6	0.7	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.5	24	0.8	0.5	0.6	0	0
18	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.5	24	0.5	0.4	0.5	0	0
19	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	0.5	0.2	0.3	0	0
20	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.3	24	0.3	0.0	0.1	0	0
21	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.3	0.7	3.1	2.9	1.9	1.7	1.2	1.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	3.1	0.0	0.6	0	0
22	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.7	0.7	0.5	0.4	0.4	0.4	0.2	0.3	0.3	0.2	0.3	0.9	0.5	0.2	0.2	24	0.9	0.2	0.4	0	0
23	0.0	0.2	0.3	0.3	0.4	0.3	0.4	0.6	3.6	8.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.8	24	8.6	0.0	0.9	0	0
24	0.9	0.7	0.6	0.5	0.5	0.5	0.6	0.8	1.0	1.2	1.3	1.2	1.0	1.0	1.1	1.0	1.0	0.9	1.1	0.9	0.7	0.8	0.9	0.9	24	1.3	0.5	0.9	0	0
25	0.8	0.8	0.7	0.8	0.8	0.7	1.2	0.9	0.9	0.9	0.9	0.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.8	0.9	24	1.2	0.7	0.9	0	0
26	0.4	0.7	0.8	0.8	0.8	0.7	0.8	0.7	0.7	0.7	0.9	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.0	0.9	0.8	0.7	0.7	24	1.1	0.4	0.9	0	0
27	0.8	0.8	1.0	0.8	0.8	0.9	0.9	1.1	3.1	4.4	5.2	2.2	1.9	2.8	29.1	17.3	24.3	9.7	2.0	1.5	1.3	1.2	1.2	1.0	24	29.1	0.8	4.8	0	0
28	1.1	1.0	1.0	1.1	1.0	1.0	0.9	1.0	0.9	0.9	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	24	1.1	0.7	0.9	0	0
29	0.2	0.6	0.7	0.7	0.6	0.5	0.6	0.6	0.7	0.7	0.7	0.8	0.7	0.8	0.9	0.8	0.7	0.8	0.8	0.6	0.5	0.5	0.5	0.5	24	0.9	0.2	0.6	0	0
30	0.5	0.3	0.0	0.5	0.5	0.5	0.4	0.4	0.5	0.7	1.3	1.4	0.7	0.6	C	C	0.8	0.8	0.9	1.1	1.0	0.9	0.8	0.7	22	1.4	0.0	0.7	0	0
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	718					
Maximum	1.3	1.0	1.0	1.1	1.0	1.0	1.2	1.1	3.6	8.6	5.2	3.1	2.9	2.8	29.1	17.3	24.3	9.7	2.0	1.5	1.8	1.2	1.2	1.0	24					
Minimum	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.0	22					
Average	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.8	1.0	0.8	0.8	0.7	0.7	1.7	1.3	1.5	0.9	0.6	0.6	0.6	0.5	0.5	0.5						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.8	1.0	1.2	3.6	29.1

Maximum Hourly	29.1
Maximum Daily	4.8
Monthly Average	0.7

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down; R - Rate of Change

SO_2 - May (ppb) Rundle Road 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>250	Days>100
1	0.8	0.7	0.8	0.9	0.8	0.9	1.1	1.3	1.5	2.1	2.3	2.2	2.3	2.1	2.0	1.9	1.7	2.0	1.6	1.3	1.9	2.6	2.4	1.4	24	2.6	0.7	1.6	0	0
2	1.5	1.4	1.4	1.2	1.2	1.2	1.2	1.4	1.8	2.3	2.0	2.1	2.1	2.0	2.2	1.5	1.5	1.8	1.8	1.4	1.2	1.2	1.2	1.3	24	2.3	1.2	1.6	0	0
3	1.3	1.4	1.5	1.4	1.4	1.3	1.3	1.4	1.3	1.3	1.4	1.2	1.2	1.2	1.3	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	24	1.5	1.2	1.3	0	0
4	1.2	1.2	1.0	1.1	1.1	1.2	1.2	1.1	1.0	1.0	1.2	1.6	1.5	1.4	1.4	1.3	2.4	1.4	1.2	1.1	0.8	0.9	1.0	1.0	24	2.4	0.8	1.2	0	0
5	0.5	0.9	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.6	2.1	1.8	1.5	1.6	1.8	1.6	1.8	1.5	1.3	1.2	1.2	1.1	1.3	1.2	24	2.1	0.5	1.3	0	0
6	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.5	4.0	3.4	2.5	14.6	1.6	1.4	1.5	1.4	1.2	1.4	1.3	1.3	1.2	24	14.6	1.2	2.1	0	0
7	1.2	1.3	1.2	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.7	1.0	1.1	1.0	1.1	1.0	1.0	1.2	1.3	1.4	1.3	1.3	1.2	1.1	24	1.7	1.0	1.1	0	0
8	1.0	1.0	1.1	1.1	1.0	1.1	1.2	1.3	1.7	4.0	12.9	1.7	2.2	1.7	1.4	1.3	8.0	1.5	1.5	1.5	1.6	1.4	1.3	1.3	24	12.9	1.0	2.2	0	0
9	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.7	1.7	2.4	1.8	2.4	4.9	10.1	5.8	4.6	2.9	2.3	2.2	1.9	1.9	1.9	2.0	2.0	24	10.1	1.2	2.6	0	0
10	2.1	1.9	1.9	2.0	2.1	2.0	1.9	1.7	1.6	1.6	1.7	1.7	1.6	1.6	1.5	1.4	1.5	1.3	1.3	1.4	1.3	1.2	1.1	1.1	24	2.1	1.1	1.6	0	0
11	1.0	0.9	1.0	0.8	0.8	0.8	0.9	0.9	1.0	1.1	1.4	1.4	1.3	1.0	1.1	1.1	1.2	1.1	1.1	1.1	1.1	0.9	0.9	1.0	24	1.4	0.8	1.0	0	0
12	1.0	0.9	0.9	1.0	0.9	0.9	1.0	1.0	1.1	1.2	1.3	2.7	9.8	1.4	1.2	1.2	1.1	1.1	1.2	1.2	1.1	1.1	1.1	1.0	24	9.8	0.9	1.5	0	0
13	1.0	1.1	1.0	1.0	1.0	1.0	1.1	16.3	4.4	1.9	1.5	1.4	1.4	1.3	1.4	6.5	2.5	1.7	1.6	1.4	1.4	1.4	1.4	1.2	24	16.3	1.0	2.3	0	0
14	1.3	1.2	1.2	1.2	1.2	1.2	1.5	1.5	1.6	1.7	1.9	3.3	3.1	2.4	2.3	2.2	2.3	1.6	1.4	1.3	1.2	1.2	1.3	1.3	24	3.3	1.2	1.7	0	0
15	1.3	1.4	1.4	1.3	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.3	1.2	1.3	1.2	1.2	1.2	1.2	1.1	24	1.4	1.1	1.3	0	0
16	0.6	0.9	1.0	1.0	0.9	0.9	1.0	1.1	1.1	1.0	1.0	2.4	5.3	6.4	8.1	2.3	2.0	1.9	1.5	1.3	1.3	1.2	1.2	1.2	24	8.1	0.6	2.0	0	0
17	1.4	1.3	1.3	1.3	1.4	1.5	1.9	2.1	2.0	1.9	2.1	2.2	2.1	1.9	1.9	1.7	1.8	1.9	2.5	1.8	1.7	1.6	1.7	1.7	24	2.5	1.3	1.8	0	0
18	1.5	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.4	1.3	1.3	7.6	11.9	6.5	1.8	1.6	1.6	1.5	1.5	1.4	1.4	24	11.9	1.2	2.3	0	0
19	1.5	1.5	1.6	1.5	1.4	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.3	24	1.6	1.2	1.3	0	0
20	1.5	1.4	1.4	1.4	1.4	1.4	1.7	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.0	1.2	1.2	1.1	1.1	1.2	1.1	1.1	1.0	24	1.7	1.0	1.2	0	0
21	0.5	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.1	1.0	1.0	1.1	1.4	1.4	1.4	1.3	1.6	1.5	1.6	24	1.6	0.5	1.1	0	0
22	1.5	1.5	1.6	1.6	1.6	1.5	1.5	1.5	1.6	1.5	1.4	1.4	1.4	1.4	1.6	1.7	1.6	1.5	1.5	1.6	1.6	1.7	1.7	1.7	24	1.7	1.4	1.6	0	0
23	1.6	1.6	1.6	1.6	1.4	1.5	1.5	1.6	1.6	1.5	1.5	1.6	1.8	1.7	1.5	1.4	1.4	1.3	1.4	1.3	1.4	1.5	1.6	1.6	24	1.8	1.3	1.5	0	0
24	1.5	1.6	1.5	1.6	1.5	1.4	1.6	1.8	1.8	1.9	2.1	2.5	2.6	3.1	2.3	2.0	2.2	2.0	1.7	1.6	1.6	1.7	1.8	1.8	24	3.1	1.4	1.9	0	0
25	1.8	1.8	2.0	1.9	1.9	2.1	2.3	2.5	2.6	2.8	4.1	3.1	2.3	2.2	2.0	2.1	1.9	1.9	1.9	2.0	1.9	2.2	2.1	2.0	24	4.1	1.8	2.2	0	0
26	2.0	1.9	2.0	2.5	2.6	2.1	2.1	2.0	2.1	2.4	3.0	2.8	3.1	4.0	3.8	3.5	3.3	2.2	1.7	1.8	1.7	1.6	1.7	1.8	24	4.0	1.6	2.4	0	0
27	2.1	1.7	1.7	1.7	1.6	1.7	1.6	1.6	1.9	15.5	10.8	14.4	38.0	5.4	10.7	39.1	7.7	3.3	2.4	2.2	2.2	2.1	2.0	1.9	24	39.1	1.6	7.2	0	0
28	1.5	1.9	2.4	2.0	1.9	1.9	2.3	2.2	1.9	2.0	2.1	2.5	4.6	3.8	3.1	2.5	2.2	1.9	1.9	1.6	1.6	1.6	1.7	1.6	24	4.6	1.5	2.2	0	0
29	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.4	1.4	3.0	1.9	1.6	1.6	C	C	9.7	44.7	3.2	2.2	1.3	0.9	0.8	0.7	0.6	22	44.7	0.6	3.9	0	0
30	0.4	0.5	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.6	0.7	0.6	C	C	1.2	1.1	1.1	1.1	1.1	0.9	0.9	1.1	1.0	1.0	22	1.2	0.4	0.8	0	0
31	1.0	0.9	0.9	1.4	1.0	0.9	0.9	2.1	2.4	1.2	1.2	1.2	1.1	1.0	0.9	0.8	0.9	1.2	1.3	1.0	0.8	0.9	1.0	0.8	24	2.4	0.8	1.1	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	31	30	29	30	31	31	31	31	31	31	31	31	31	740					
Maximum	2.1	1.9	2.4	2.5	2.6	2.1	2.3	16.3	4.4	15.5	12.9	14.4	38.0	10.1	14.6	39.1	44.7	3.3	2.5	2.2	2.2	2.6	2.4	2.0	24					
Minimum	0.4	0.5	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.6	0.7	0.6	1.0	1.0	0.9	0.8	0.9	1.1	1.1	0.9	0.8	0.8	0.7	0.6	22					
Average	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.9	1.6	2.1	2.3	2.3	3.6	2.4	2.9	3.6	3.6	1.7	1.5	1.4	1.4	1.4	1.4	1.3						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.0	1.1	1.2	1.3	1.4	1.5	1.7	1.9	2.3	3.3	12.5	44.7

Maximum Hourly	44.7
Maximum Daily	7.2
Monthly Average	1.9

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down; R - Rate of Change

SO_2 - Rundle Road
June 2018
(ppb)

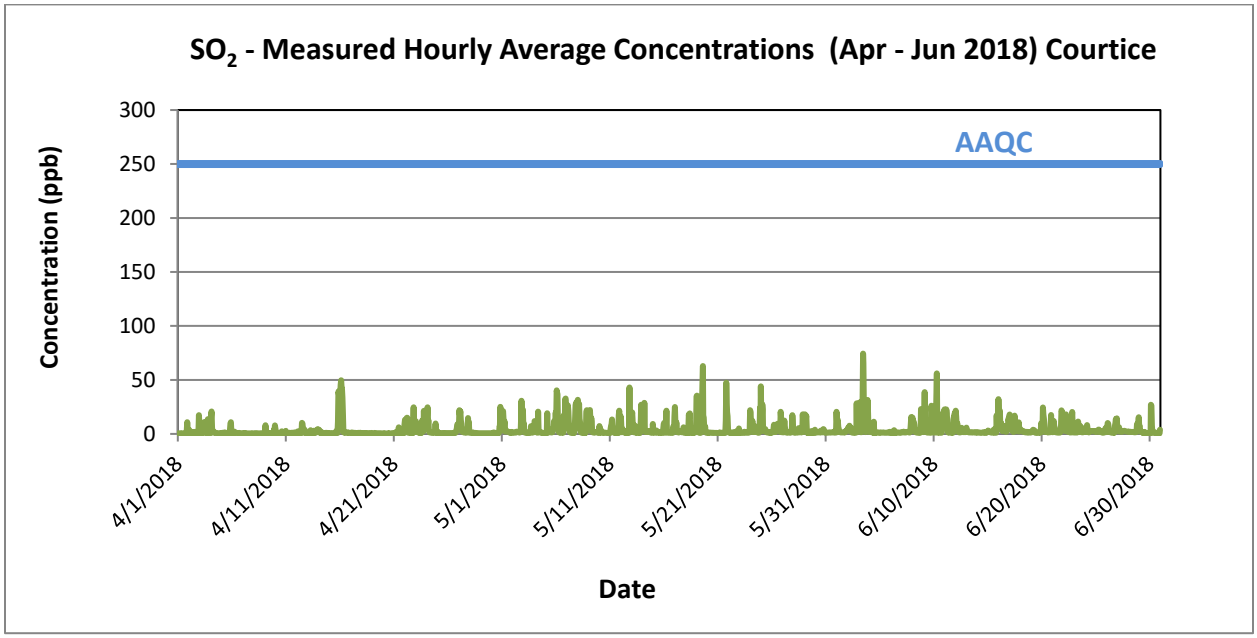
Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>250	Days>100
1	0.9	0.8	0.9	0.8	0.9	0.9	1.0	0.9	0.9	1.1	0.9	1.0	0.6	0.7	0.9	0.7	0.7	0.8	0.9	1.0	0.9	0.7	0.7	0.6	24	1.1	0.6	0.8	0	0
2	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	2.8	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	24	2.8	0.5	0.7	0	0
3	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.7	1.4	2.4	2.1	1.9	10.4	2.4	1.3	1.1	0.9	0.9	24	10.4	0.6	1.4	0	0
4	1.1	0.9	1.1	0.9	0.9	0.9	1.3	1.5	1.2	1.2	0.9	0.8	1.0	C	1.4	1.3	1.0	1.4	1.1	1.1	1.1	1.0	1.1	1.1	23	1.5	0.8	1.1	0	0
5	1.0	1.1	1.0	1.0	1.0	1.0	1.2	1.7	1.4	1.2	1.3	1.5	1.3	1.3	1.2	1.0	0.7	0.9	0.9	1.0	1.0	1.0	0.9	0.9	24	1.7	0.7	1.1	0	0
6	1.0	1.0	1.0	0.9	0.8	0.7	0.9	1.0	0.8	0.9	0.9	A	0.8	0.9	0.8	1.0	0.9	0.9	1.0	0.9	0.9	0.8	0.8	1.0	23	1.0	0.7	0.9	0	0
7	0.7	1.3	1.1	1.1	1.2	1.1	1.1	1.2	1.1	1.2	1.2	1.4	1.6	1.3	1.2	1.3	1.6	1.9	1.5	1.2	1.1	1.0	0.9	0.9	24	1.9	0.7	1.2	0	0
8	0.8	0.9	1.0	1.0	0.7	0.8	0.9	0.7	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.9	1.0	0.9	0.8	24	1.0	0.7	0.8	0	0
9	0.9	0.8	0.8	0.8	0.8	0.8	1.9	0.8	0.8	0.8	2.9	1.2	1.1	0.9	0.8	0.9	0.8	0.8	1.0	0.8	0.8	1.0	0.8	1.0	24	2.9	0.8	1.0	0	0
10	1.0	0.9	0.9	1.0	0.7	1.0	1.0	0.9	0.7	0.7	1.2	2.2	47.9	66.0	15.6	32.4	12.6	1.5	1.2	1.1	1.1	1.1	1.0	1.1	24	66.0	0.7	8.1	0	0
11	0.9	0.8	0.7	0.7	0.7	0.7	0.9	1.0	0.9	0.7	1.6	10.9	2.6	1.4	1.2	0.7	0.9	15.9	8.9	1.1	0.9	0.8	0.9	0.8	24	15.9	0.7	2.4	0	0
12	0.5	0.7	0.7	0.7	0.8	0.8	1.0	1.0	1.0	0.9	0.9	1.1	2.9	3.9	2.7	1.5	1.4	1.3	1.1	1.1	0.9	0.9	0.9	0.9	24	3.9	0.5	1.2	0	0
13	1.1	0.9	0.9	0.9	0.9	0.9	1.0	0.9	1.0	0.9	0.8	0.9	1.0	1.0	1.1	1.2	1.1	0.9	0.8	0.7	0.8	0.9	0.9	0.9	24	1.2	0.7	0.9	0	0
14	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.1	1.1	0.9	0.9	0.8	0.8	0.7	0.7	24	1.1	0.7	0.9	0	0
15	0.7	0.6	0.8	0.7	0.7	0.9	0.9	0.8	0.9	1.4	1.0	0.7	0.9	1.4	1.6	0.9	0.8	0.9	0.8	0.8	0.9	0.9	0.9	0.9	24	1.6	0.6	0.9	0	0
16	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.3	2.4	1.8	4.2	10.7	8.1	2.4	1.6	1.5	1.6	1.6	1.9	1.2	1.0	1.0	1.0	24	10.7	0.9	2.1	0	0
17	1.1	0.9	0.9	0.9	0.9	0.9	1.1	1.4	1.5	1.8	1.4	6.2	10.8	2.4	3.1	2.8	2.5	2.4	2.7	1.9	1.5	1.3	1.3	1.3	24	10.8	0.9	2.2	0	0
18	1.6	1.6	1.7	1.6	1.5	1.4	1.4	1.5	1.6	1.5	2.3	1.2	1.0	0.8	1.2	2.0	0.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	24	2.3	0.4	1.3	0	0
19	1.1	1.0	0.9	0.9	1.0	1.0	0.9	0.9	1.0	0.8	0.9	0.8	0.9	1.2	1.1	1.0	1.1	1.0	1.0	1.3	1.1	1.1	0.8	1.0	24	1.3	0.8	1.0	0	0
20	1.1	1.0	1.1	1.1	1.0	1.0	1.1	0.9	1.1	1.1	1.1	1.0	1.5	1.2	1.1	1.1	1.1	1.2	1.2	1.2	1.1	1.1	1.0	1.2	24	1.5	0.9	1.1	0	0
21	1.1	1.0	0.9	1.1	0.9	1.1	0.8	0.9	0.7	0.8	0.8	4.0	1.0	1.0	1.0	0.9	0.9	1.1	1.1	1.0	0.9	1.0	1.0	1.0	24	4.0	0.7	1.1	0	0
22	1.0	0.9	0.8	0.8	0.9	1.0	1.2	1.1	1.2	1.2	1.2	1.0	1.0	0.9	4.2	7.9	1.9	1.2	1.1	1.1	1.0	1.1	1.0	0.9	24	7.9	0.8	1.5	0	0
23	1.1	0.9	0.9	0.9	1.0	1.0	1.0	1.3	1.0	1.0	1.0	0.9	0.9	0.9	1.0	0.9	0.9	1.0	1.0	0.9	1.0	0.9	0.9	0.9	24	1.3	0.9	1.0	0	0
24	1.0	0.9	0.9	1.0	0.9	0.9	0.9	0.8	0.9	1.0	0.9	0.9	0.9	0.8	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	24	1.0	0.8	0.9	0	0
25	1.0	0.7	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.4	0.6	0.8	0.9	0.8	0.8	0.8	0.7	0.9	24	1.0	0.4	0.7	0	0
26	0.8	0.8	0.8	0.8	0.8	0.8	0.9	5.3	5.9	4.2	14.1	18.8	12.8	2.6	1.2	1.0	0.9	0.9	1.1	1.1	1.1	1.0	1.1	1.1	24	18.8	0.8	3.3	0	0
27	1.2	1.1	1.1	1.1	1.1	1.5	1.1	1.6	1.0	0.9	1.0	0.9	0.9	1.1	0.9	0.9	0.9	1.1	1.0	1.1	1.1	0.9	0.9	1.0	24	1.6	0.9	1.1	0	0
28	1.2	1.0	0.9	0.9	1.0	1.2	1.1	1.1	1.2	1.2	1.1	1.0	C	C	0.7	1.0	0.9	1.0	1.1	1.1	0.8	0.7	0.9	0.8	22	1.2	0.7	1.0	0	0
29	1.1	0.9	0.9	0.9	0.9	0.9	1.2	1.1	1.1	1.0	0.9	1.1	1.5	1.7	1.4	1.7	1.2	1.1	1.3	1.2	1.0	1.0	1.0	1.1	24	1.7	0.9	1.1	0	0
30	1.3	1.1	1.2	1.2	1.1	1.2	1.3	1.2	1.3	1.3	1.3	1.1	1.0	1.0	0.9	0.9	1.0	1.1	1.1	1.1	1.1	1.2	1.0	1.1	24	1.3	0.9	1.1	0	0
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	29	29	28	30	30	30	30	30	30	30	30	30	30	716					
Maximum	1.6	1.6	1.7	1.6	1.5	1.5	1.9	5.3	5.9	4.2	14.1	18.8	47.9	66.0	15.6	32.4	12.6	15.9	10.4	2.4	1.5	1.3	1.3	1.3	24					
Minimum	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.4	0.4	0.6	0.6	0.6	0.6	0.6	0.7	0.6	22					
Average	1.0	0.9	0.9	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.6	2.4	3.8	3.8	1.8	2.4	1.5	1.6	1.7	1.1	1.0	0.9	0.9	0.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.5	2.4	12.8	66.0

Maximum Hourly	66.0
Maximum Daily	8.1
Monthly Average	1.5

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down R - Rate of Change

Figure B-1 Time History Plots of Measured Hourly Average and 24 Hour Average SO_2 Concentrations – Courtice WPCP Station



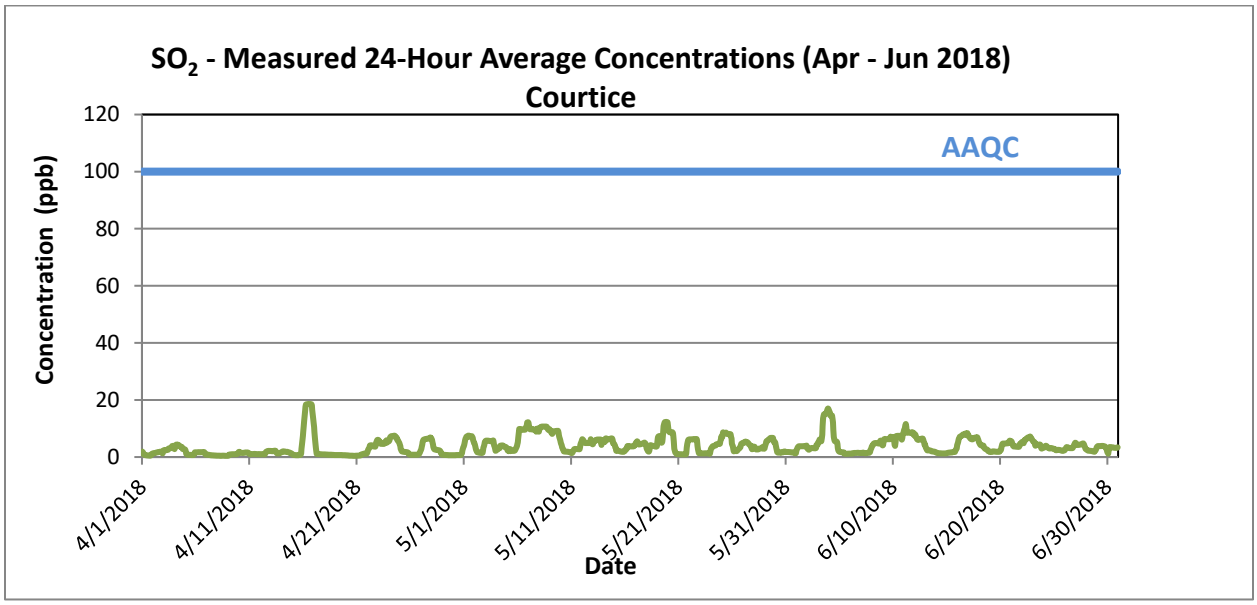
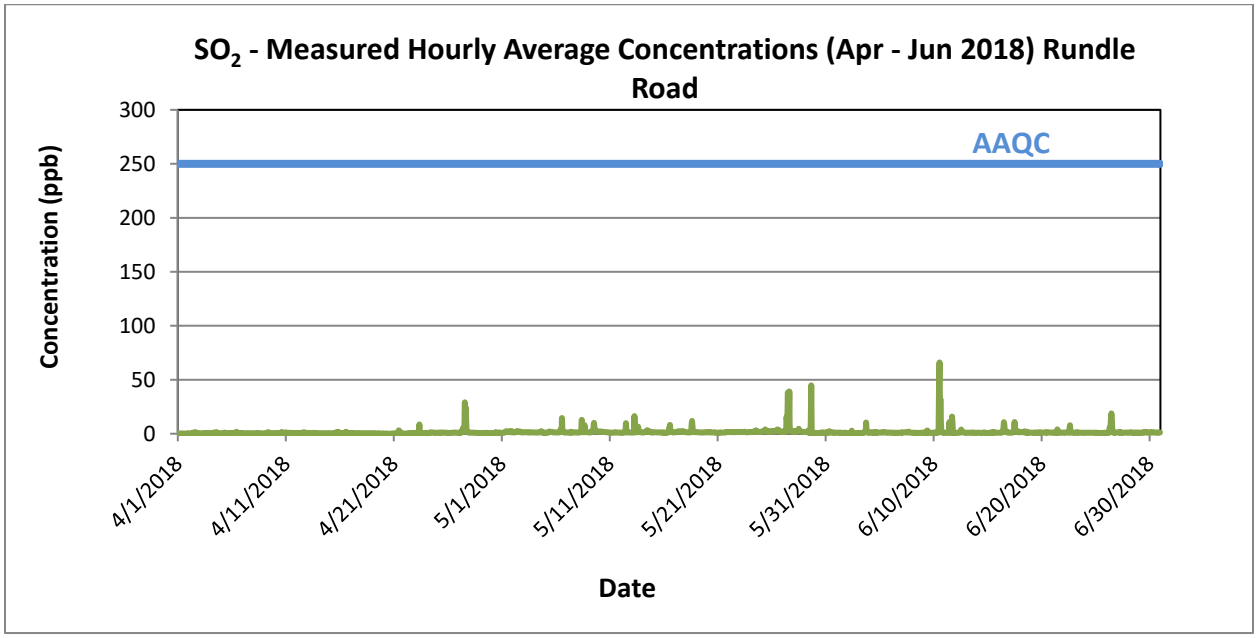
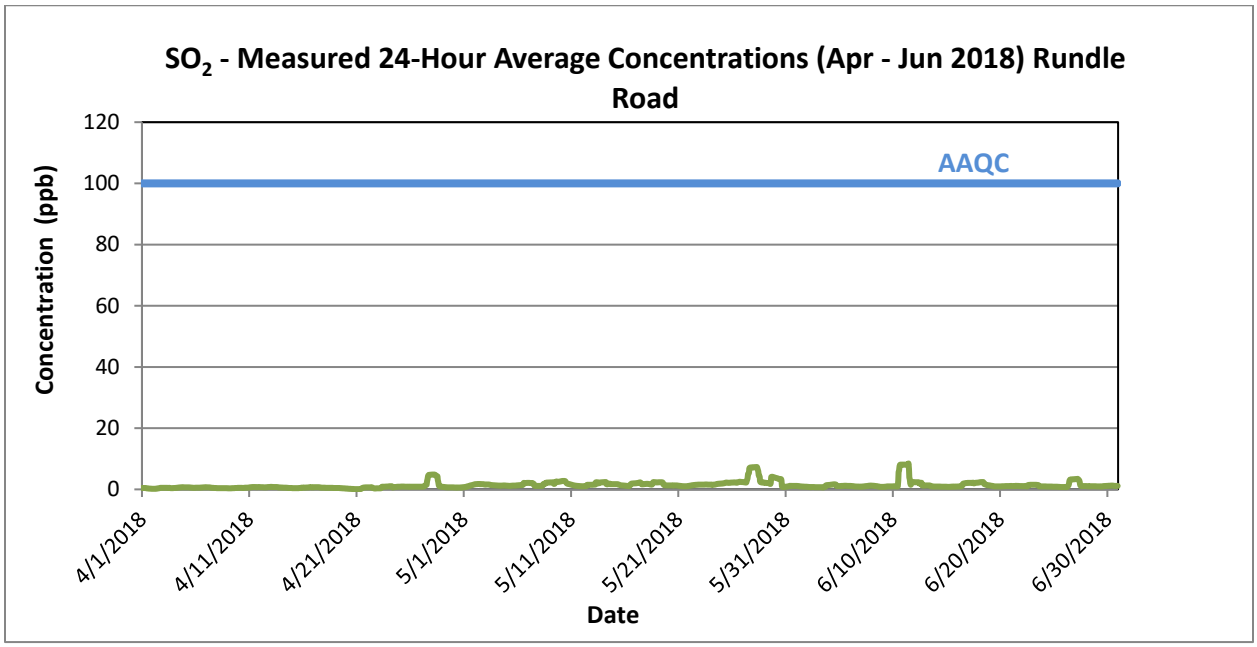


Figure B-2 **Time History Plots of Measured Hourly Average and 24 Hour Average SO_2 Concentrations – Rundle Road Station**





APPENDIX C:
NO_2 DATA SUMMARIES AND TIME HISTORY PLOTS

NO_2 - April (ppb) COURTICE 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	1.3	1.5	0.8	0.9	1.3	1.1	1.9	1.4	1.0	1.0	1.1	1.0	0.9	1.0	1.1	1.3	1.2	1.9	2.4	6.5	11.4	6.0	7.9	11.0	24	11.4	0.8	2.8	0.0	0.0
2	11.0	9.7	9.1	2.8	8.1	1.7	8.0	15.7	7.7	6.8	3.8	3.3	5.2	6.1	3.6	4.2	3.4	2.4	2.0	1.5	1.3	1.2	1.3	14.3	24	15.7	1.2	5.6	0.0	0.0
3	10.4	6.6	7.0	15.8	10.4	8.2	8.0	8.6	8.0	5.1	6.7	11.3	5.4	5.2	5.2	13.3	7.9	7.0	10.1	18.9	6.5	5.2	4.8	3.5	24	18.9	3.5	8.3	0.0	0.0
4	3.6	8.0	18.8	19.1	14.1	7.9	2.3	3.6	3.0	2.4	1.8	1.4	1.6	1.7	1.6	1.8	2.5	2.3	1.8	2.1	3.3	2.7	3.3	3.2	24	19.1	1.4	4.7	0.0	0.0
5	4.5	3.8	6.0	3.1	4.1	7.5	10.1	4.5	3.3	1.8	1.5	1.3	1.5	1.3	1.6	1.8	2.2	2.5	3.7	9.4	23.7	31.1	15.4	1.4	24	31.1	1.3	6.1	0.0	0.0
6	1.3	1.4	2.0	2.5	3.5	2.7	3.6	3.4	2.6	2.2	2.3	2.7	2.4	2.3	1.8	1.8	4.0	4.2	3.7	3.4	4.0	2.4	1.7	1.4	24	4.2	1.3	2.6	0.0	0.0
7	1.5	1.3	0.9	1.2	1.8	2.2	3.1	4.4	1.8	1.4	1.0	1.1	0.9	0.9	1.1	1.6	1.9	2.0	2.3	2.9	1.9	3.2	4.4	9.6	24	9.6	0.9	2.3	0.0	0.0
8	6.4	3.9	4.6	2.7	2.8	3.8	3.7	2.2	0.9	1.1	1.0	1.1	1.0	0.9	0.9	1.2	0.8	1.7	1.8	2.5	2.8	2.7	4.0	2.7	24	6.4	0.8	2.4	0.0	0.0
9	3.7	6.3	10.8	18.0	17.7	24.1	29.2	18.0	5.8	5.9	4.9	2.4	0.7	0.8	0.7	0.6	1.0	0.6	0.7	1.5	2.1	20.1	30.7	33.5	24	33.5	0.6	10.0	0.0	0.0
10	27.0	16.8	13.5	13.4	7.7	9.5	14.8	12.6	10.2	8.3	7.8	5.8	3.2	2.3	3.5	3.8	2.0	1.9	2.7	3.0	2.6	2.2	2.4	3.5	24	27.0	1.9	7.5	0.0	0.0
11	6.7	3.3	3.0	2.6	2.5	2.4	2.6	2.9	3.2	3.5	3.5	3.1	3.1	3.9	4.0	3.3	3.2	4.1	4.6	7.8	27.5	30.0	28.6	24.3	24	30.0	2.4	7.6	0.0	0.0
12	20.5	18.4	19.3	21.4	21.2	18.0	14.1	15.0	6.8	6.0	6.6	5.5	16.6	14.3	13.5	9.1	7.9	4.2	19.4	27.7	24.6	6.5	5.1	5.6	24	27.7	4.2	13.6	0.0	0.0
13	4.0	3.0	3.9	3.0	5.7	6.9	10.1	5.3	4.3	4.8	4.2	2.8	7.2	4.6	3.1	6.4	7.9	4.6	5.4	6.1	6.5	7.3	8.8	3.7	24	10.1	2.8	5.4	0.0	0.0
14	2.3	1.8	1.8	1.5	1.8	1.4	2.4	2.3	1.4	1.6	2.2	1.5	1.6	2.0	1.8	1.4	2.2	2.2	2.0	1.2	1.2	1.8	0.9	1.6	24	2.4	0.9	1.8	0.0	0.0
15	1.1	1.3	1.4	1.7	1.2	0.9	2.2	1.3	1.4	3.4	2.2	1.9	1.9	1.8	2.2	4.1	3.2	2.6	2.1	2.5	8.4	23.3	22.8	22.5	24	23.3	0.9	4.9	0.0	0.0
16	22.4	22.7	24.8	26.1	24.9	22.7	24.7	15.6	1.7	2.5	3.9	15.9	7.5	1.3	2.8	6.1	8.7	21.3	17.8	10.7	7.7	6.9	7.0	5.4	24	26.1	1.3	13.0	0.0	0.0
17	7.4	9.5	8.2	6.8	6.2	5.6	4.4	4.1	3.6	2.9	2.3	2.6	2.5	3.1	3.7	3.0	3.4	3.5	5.3	3.7	4.5	6.5	9.8	6.6	24	9.8	2.3	5.0	0.0	0.0
18	3.0	2.0	2.8	2.7	3.4	9.5	12.4	6.8	6.6	2.6	3.7	6.2	3.9	2.6	1.9	2.4	3.5	3.4	4.6	5.4	8.0	4.5	6.2	9.1	24	12.4	1.9	4.9	0.0	0.0
19	6.2	4.8	4.8	4.0	2.9	3.0	7.7	4.0	2.3	2.0	1.7	1.5	1.7	2.2	1.9	1.8	1.7	2.2	2.3	3.2	3.2	3.5	2.6	2.2	24	7.7	1.5	3.1	0.0	0.0
20	4.6	5.6	5.5	4.9	6.2	8.1	7.8	2.5	2.2	1.6	1.5	1.5	1.2	1.0	1.0	1.8	2.2	1.6	2.5	4.9	6.5	6.6	9.5	8.9	24	9.5	1.0	4.1	0.0	0.0
21	2.7	1.5	1.6	1.5	3.7	3.3	5.6	5.9	7.0	10.5	11.3	8.6	6.7	3.8	2.2	1.3	1.5	1.8	9.1	3.7	6.1	3.7	3.5	2.2	24	11.3	1.3	4.5	0.0	0.0
22	17.4	22.0	11.0	13.3	8.2	15.5	15.0	12.2	12.9	9.9	10.2	11.7	10.5	9.2	6.2	3.6	3.3	1.9	1.2	25.4	34.1	30.5	25.9	18.6	24	34.1	1.2	13.7	0.0	0.0
23	28.6	16.3	6.2	11.2	12.6	21.0	12.4	9.5	2.9	1.8	2.3	2.6	1.3	1.4	2.9	5.2	3.2	5.8	5.4	19.7	14.8	19.1	16.4	8.6	24	28.6	1.3	9.6	0.0	0.0
24	5.3	16.9	23.5	19.6	12.9	25.4	20.3	5.2	3.0	3.0	2.7	2.4	2.2	2.1	2.4	3.8	2.1	2.4	11.8	12.6	11.5	24.3	23.7	17.8	24	25.4	2.1	10.7	0.0	0.0
25	3.4	10.5	6.9	4.1	4.2	9.3	3.7	2.3	2.3	3.8	3.9	3.8	2.7	4.3	1.5	1.0	1.0	0.8	2.7	3.5	2.7	2.5	2.5	2.1	24	10.5	0.8	3.6	0.0	0.0
26	1.6	1.7	2.1	1.6	2.1	3.9	3.1	2.5	2.2	1.6	1.5	1.3	2.0	1.7	1.3	1.4	1.5	1.7	1.6	16.2	14.8	12.6	22.2	21.2	24	22.2	1.3	5.1	0.0	0.0
27	20.1	21.0	13.8	20.7	19.1	13.4	12.8	6.8	3.8	4.9	3.3	2.2	2.3	4.2	2.5	2.0	1.9	2.5	8.3	7.3	13.1	18.7	12.1	11.3	24	21.0	1.9	9.5	0.0	0.0
28	3.3	4.9	4.8	2.8	4.2	4.1	3.0	2.5	1.8	1.9	3.7	2.4	2.4	2.1	2.0	1.9	1.8	1.7	1.9	1.6	1.7	1.7	1.9	1.4	24	4.9	1.4	2.6	0.0	0.0
29	0.6	1.2	1.2	1.0	1.4	1.1	1.1	1.6	1.2	0.8	1.0	0.8	0.9	0.8	1.1	1.1	1.2	1.7	1.4	3.4	2.0	1.9	1.5	1.6	24	3.4	0.6	1.3	0.0	0.0
30	2.1	1.2	1.7	1.5	3.2	5.3	4.1	2.2	1.7	1.8	3.8	5.0	C	C	3.4	2.3	2.6	2.5	2.7	17.6	23.3	35.7	30.3	29.5	22	35.7	1.2	8.3	0.0	0.0
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	718					
Maximum	28.6	22.7	24.8	26.1	24.9	25.4	29.2	18.0	12.9	10.5	11.3	15.9	16.6	14.3	13.5	13.3	8.7	21.3	19.4	27.7	34.1	35.7	30.7	33.5	24					
Minimum	0.6	1.2	0.8	0.9	1.2	0.9	1.1	1.3	0.9	0.8	1.0	0.8	0.7	0.8	0.7	0.6	0.8	0.6	0.7	1.2	1.2	1.2	0.9	1.4	22					
Average	7.8	7.6	7.4	7.7	7.3	8.3	8.5	6.2	3.9	3.6	3.6	3.8	3.5	3.1	2.8	3.1	3.0	3.3	4.8	7.8	9.4	10.8	10.6	9.6						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.3	1.7	2.2	2.6	3.4	4.2	6.2	9.1	16.4	22.3	29.9	35.7

Maximum Hourly	35.7
Maximum Daily	13.7
Monthly Average	6.2

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down

NO_2 - May (ppb)	COURTICE 2018																													
Hour																														
Day	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	21.9	27.5	19.2	12.9	23.2	16.7	18.4	5.1	4.3	5.2	5.3	4.7	4.4	4.3	3.8	3.5	2.4	2.2	2.3	2.4	1.7	1.8	1.9	2.4	24	27.5	1.7	8.2	0.0	0.0
2	1.5	1.6	2.0	1.9	2.3	2.2	1.9	2.1	2.6	2.7	2.7	2.4	2.2	2.5	2.1	1.7	2.0	2.7	6.8	12.9	18.8	13.8	18.2	28.0	24	28.0	1.5	5.7	0.0	0.0
3	8.5	3.7	2.9	2.8	2.1	1.6	1.6	1.9	1.9	2.3	2.5	3.0	2.5	2.4	7.1	5.1	3.6	4.6	7.2	11.6	9.3	7.3	4.8	3.6	24	11.6	1.6	4.3	0.0	0.0
4	3.5	4.0	15.5	14.1	14.9	12.7	6.2	3.8	5.1	13.4	3.5	3.9	1.7	1.5	1.5	1.8	1.7	2.1	2.1	2.0	1.7	2.4	2.9	3.2	24	15.5	1.5	5.2	0.0	0.0
5	2.4	2.4	2.1	2.2	3.4	8.9	7.0	1.8	2.1	2.7	2.8	2.1	3.2	1.8	3.6	2.7	3.2	3.1	4.2	5.2	11.5	12.0	10.0	15.9	24	15.9	1.8	4.8	0.0	0.0
6	10.7	7.8	9.4	7.8	8.0	6.1	2.9	2.6	2.0	3.3	1.2	1.0	1.1	1.2	1.1	1.5	7.7	6.9	9.0	11.2	4.8	8.1	8.8	3.9	24	11.2	1.0	5.3	0.0	0.0
7	2.3	3.3	1.9	3.9	3.8	3.9	4.8	3.5	1.7	1.6	1.4	1.0	0.8	1.4	1.0	1.1	0.8	0.6	0.9	9.0	17.8	25.8	20.1	18.6	24	25.8	0.6	5.5	0.0	0.0
8	16.9	16.4	17.5	18.2	20.5	17.1	16.5	11.4	6.6	3.2	2.7	2.0	2.0	1.6	1.3	0.9	1.4	3.0	2.1	4.0	15.0	17.3	22.2	17.5	24	22.2	0.9	9.9	0.0	0.0
9	13.8	15.3	10.8	13.8	14.6	12.6	9.9	13.5	7.7	3.4	3.9	2.9	2.3	2.4	2.4	3.1	3.3	4.3	4.0	11.4	7.7	4.3	3.0	1.7	24	15.3	1.7	7.2	0.0	0.0
10	2.3	11.3	9.4	3.6	8.0	2.4	2.4	1.9	1.8	1.6	2.2	2.3	2.6	2.5	2.6	2.5	3.1	3.4	2.7	3.5	3.3	2.4	2.7	1.8	24	11.3	1.6	3.4	0.0	0.0
11	1.8	2.8	1.2	1.6	2.2	3.7	2.5	2.0	1.0	1.1	1.5	1.0	0.7	0.7	0.6	0.7	1.0	1.4	1.5	2.1	2.1	5.9	15.8	19.0	24	19.0	0.6	3.1	0.0	0.0
12	14.3	12.5	10.8	8.7	7.1	6.7	6.4	6.1	3.8	4.1	2.0	1.9	2.6	2.1	1.6	1.5	1.2	1.3	1.7	2.3	9.7	6.5	5.9	4.1	24	14.3	1.2	5.2	0.0	0.0
13	4.7	7.3	7.9	2.8	1.8	3.3	4.4	1.7	4.2	3.7	1.8	1.9	1.5	1.7	1.9	2.6	1.5	1.1	1.2	1.4	4.1	18.4	24.3	22.7	24	24.3	1.1	5.3	0.0	0.0
14	16.0	12.6	12.6	10.7	18.0	18.0	11.6	2.0	3.3	4.1	4.3	3.6	3.4	2.9	1.7	1.6	1.7	1.6	1.9	2.6	2.9	2.3	1.8	1.7	24	18.0	1.6	6.0	0.0	0.0
15	3.4	2.2	2.7	2.3	1.6	2.0	8.8	7.5	5.8	6.1	4.2	3.2	5.7	3.7	2.8	2.9	4.0	6.2	5.6	7.8	7.7	7.3	11.7	21.8	24	21.8	1.6	5.7	0.0	0.0
16	3.3	2.9	4.9	6.1	10.1	10.1	12.3	3.1	2.9	4.1	3.7	1.7	2.3	2.0	2.1	1.7	1.6	1.1	1.1	1.0	1.0	5.6	8.5	3.0	24	12.3	1.0	4.0	0.0	0.0
17	14.2	14.1	12.3	16.3	12.2	11.4	4.9	4.9	5.3	3.8	3.6	3.9	6.6	5.3	3.6	2.6	2.3	1.9	1.6	3.2	22.1	26.9	15.1	3.4	24	26.9	1.6	8.4	0.0	0.0
18	3.2	2.1	2.4	2.8	5.2	3.8	3.0	4.8	6.6	5.0	6.7	1.3	1.1	1.2	1.2	1.0	1.5	2.7	5.1	3.7	10.3	13.8	6.9	5.9	24	13.8	1.0	4.2	0.0	0.0
19	3.9	22.5	20.8	9.9	6.3	3.6	2.7	2.4	3.0	3.3	2.3	2.5	9.4	17.5	19.3	18.4	5.8	9.2	8.3	8.6	6.0	2.7	1.9	2.0	24	22.5	1.9	8.0	0.0	0.0
20	1.2	1.9	5.0	1.7	2.4	1.3	1.9	1.6	1.8	1.2	1.3	3.9	1.7	1.2	1.6	2.1	1.6	1.9	3.1	2.7	4.6	5.3	3.8	5.3	24	5.3	1.2	2.5	0.0	0.0
21	2.2	1.8	1.6	1.4	1.2	1.5	1.7	1.8	1.3	1.7	2.9	3.2	4.2	1.6	1.7	1.2	1.1	1.5	4.3	19.7	22.3	18.0	10.4	11.4	24	22.3	1.1	5.0	0.0	0.0
22	4.3	6.9	2.8	2.8	3.1	3.6	9.3	8.2	7.6	3.9	3.6	2.6	8.5	2.2	1.3	1.4	1.3	1.3	5.1	1.1	1.3	1.3	1.3	9.0	24	9.3	1.1	3.9	0.0	0.0
23	8.8	3.3	2.9	4.6	4.9	4.2	2.4	3.6	5.7	6.2	6.4	5.5	5.3	3.6	3.0	3.9	3.0	3.0	4.2	7.2	8.1	8.1	6.1	5.3	24	8.8	2.4	5.0	0.0	0.0
24	23.2	19.8	14.4	6.3	5.4	12.3	7.3	3.6	4.9	4.8	5.2	6.2	6.5	4.3	3.4	3.4	2.6	2.5	2.3	2.0	2.6	2.0	8.4	4.8	24	23.2	2.0	6.6	0.0	0.0
25	27.4	12.7	3.1	9.1	15.6	4.6	6.5	5.5	5.3	5.2	5.5	3.2	2.4	1.9	1.5	1.7	1.5	1.5	2.0	2.3	2.8	2.3	2.4	3.0	24	27.4	1.5	5.4	0.0	0.0
26	2.1	2.5	2.6	2.6	2.7	5.5	3.0	3.0	4.1	5.8	3.8	3.8	4.4	4.9	3.5	3.4	4.8	5.0	6.1	4.1	16.8	8.5	1.6	3.5	24	16.8	1.6	4.5	0.0	0.0
27	1.7	3.3	3.8	6.7	3.3	6.0	6.0	3.1	2.4	2.2	2.0	1.8	2.0	1.8	2.1	2.2	1.8	3.5	5.6	6.3	2.9	5.6	10.4	8.4	24	10.4	1.7	3.9	0.0	0.0
28	2.8	2.5	2.5	6.4	5.5	3.0	1.9	1.5	1.3	1.1	1.5	1.6	2.6	3.4	2.6	2.4	2.3	1.8	1.9	2.6	4.0	8.9	16.3	8.2	24	16.3	1.1	3.7	0.0	0.0
29	7.0	5.6	8.6	5.7	5.2	8.0	5.1	2.9	2.4	C	C	C	C	C	C	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	18	8.6	0.2	3.0	0.0	0.0
30	12.5	9.5	7.9	7.7	8.9	9.9	9.8	4.4	3.0	2.2	2.5	2.3	3.0	3.7	2.3	3.4	4.1	3.8	6.4	6.7	5.1	5.2	1.5	1.6	24	12.5	1.5	5.3	0.0	0.0
31	1.4	1.4	1.1	6.2	3.0	2.4	6.1	2.2	2.7	4.4	1.5	1.7	1.1	1.0	1.5	1.3	1.4	2.2	4.7	8.9	3.4	2.3	1.5	1.5	24	8.9	1.0	2.7	0.0	0.0
Count	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	31	31	31	31	31	31	31	31	31	738					
Maximum	27.4	27.5	20.8	18.2	23.2	18.0	18.4	13.5	7.7	13.4	6.7	6.2	9.4	17.5	19.3	18.4	7.7	9.2	9.0	19.7	22.3	26.9	24.3	28.0	24					
Minimum	1.2	1.4	1.1	1.4	1.2	1.3	1.6	1.5	1.0	1.1	1.2	1.0	0.7	0.7	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	18					
Average	7.8	7.9	7.2	6.6	7.3	6.7	6.1	4.0	3.7	3.8	3.1	2.7	3.3	2.9	2.9	2.7	2.4	2.8	3.7	5.5	7.5	8.1	8.1	7.8						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.4	1.8	2.2	2.6	3.3	4.0	5.3	7.7	12.5	17.3	23.0	28.0

Maximum Hourly	28.0
Maximum Daily	9.9
Monthly Average	5.2

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down

NO_2 - June (ppb) COURTICE 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	3.0	13.9	26.8	22.7	20.6	13.4	8.3	1.5	1.0	1.2	3.6	2.0	1.2	1.3	2.9	2.5	3.4	3.0	2.9	4.5	4.8	2.1	2.3	1.0	24	26.8	1.0	6.3	0.0	0.0
2	1.5	1.0	1.0	1.2	1.3	1.8	1.4	1.1	1.0	1.0	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.3	2.7	7.2	13.6	11.9	7.7	24	13.6	0.0	2.4	0.0	0.0
3	7.2	6.0	2.6	2.4	15.0	3.7	2.3	2.3	2.5	10.0	11.7	17.3	18.5	9.8	8.8	2.4	1.0	0.9	2.7	6.0	16.1	18.1	14.3	7.1	24	18.5	0.9	7.9	0.0	0.0
4	10.1	1.7	1.7	1.8	4.6	5.0	5.7	6.1	1.9	2.2	2.2	1.4	C	2.1	2.0	2.0	2.0	1.8	2.3	3.4	2.8	3.7	4.1	4.4	23	10.1	1.4	3.3	0.0	0.0
5	3.0	4.0	2.2	3.2	2.7	4.4	2.7	2.6	2.4	2.2	1.9	1.9	1.9	2.3	2.4	2.6	2.0	2.2	3.9	4.3	3.6	2.5	3.9	3.7	24	4.4	1.9	2.9	0.0	0.0
6	4.6	2.0	2.3	4.9	6.9	5.1	2.9	2.4	1.8	A	1.7	1.3	1.1	2.2	3.4	5.2	5.8	5.3	4.7	5.1	5.2	3.9	3.4	2.4	23	6.9	1.1	3.6	0.0	0.0
7	2.0	1.9	1.8	1.8	2.0	2.4	2.6	2.1	2.5	2.8	2.8	2.0	2.5	2.5	2.3	6.8	7.9	7.8	6.9	7.6	9.8	12.6	30.5	28.7	24	30.5	1.8	6.4	0.0	0.0
8	24.5	25.5	14.3	6.5	7.1	13.6	10.3	4.0	2.9	1.7	1.5	1.1	1.1	1.1	1.1	0.9	0.8	0.8	0.7	1.5	13.8	25.4	24.1	16.1	24	25.5	0.7	8.3	0.0	0.0
9	6.9	5.4	5.2	6.5	18.6	10.7	4.9	3.3	4.4	1.8	1.4	1.4	1.5	1.5	1.4	1.3	0.9	0.8	1.2	4.1	15.8	17.8	15.1	8.1	24	18.6	0.8	5.8	0.0	0.0
10	12.0	5.6	5.0	3.4	3.1	4.6	12.3	20.4	4.1	2.2	1.4	1.2	0.8	0.8	0.7	0.7	2.7	1.9	4.9	7.6	16.6	20.2	23.2	21.3	24	23.2	0.7	7.4	0.0	0.0
11	11.5	8.8	6.9	9.6	15.0	10.8	9.1	5.6	3.4	2.0	0.9	0.9	0.8	0.9	0.9	0.7	0.9	1.6	3.0	5.7	27.9	31.9	37.9	27.1	24	37.9	0.7	9.3	0.0	0.0
12	25.4	19.1	17.1	14.6	19.9	21.7	8.7	3.6	3.1	2.0	1.6	2.2	1.8	1.6	1.4	1.4	1.9	1.0	1.5	1.6	10.2	5.3	4.0	11.7	24	25.4	1.0	7.6	0.0	0.0
13	9.4	11.9	10.9	14.0	5.0	10.9	12.7	6.6	8.4	2.8	2.4	1.5	1.5	1.6	2.4	2.0	3.2	2.8	2.3	4.0	3.4	2.7	3.0	6.9	24	14.0	1.5	5.5	0.0	0.0
14	4.4	4.8	3.4	3.8	2.9	4.4	2.4	1.9	2.0	1.9	2.5	3.2	2.5	2.6	2.3	2.8	1.9	2.8	2.3	3.8	6.0	5.7	7.7	4.9	24	7.7	1.9	3.5	0.0	0.0
15	10.6	9.8	11.6	10.8	8.7	9.5	9.8	6.5	5.1	5.2	6.3	6.7	8.4	5.0	7.7	2.2	0.8	0.6	1.7	2.3	13.0	16.0	27.6	25.0	24	27.6	0.6	8.8	0.0	0.0
16	25.7	20.6	19.0	17.6	17.0	12.2	11.8	10.4	5.6	4.3	5.3	6.5	5.5	3.1	2.4	1.8	1.3	1.6	4.5	9.5	14.4	10.6	13.3	13.8	24	25.7	1.3	9.9	0.0	0.0
17	11.6	9.6	11.9	12.8	12.6	7.9	5.8	4.1	2.7	3.2	2.6	3.7	5.4	2.3	1.8	2.5	1.9	2.6	3.5	13.1	18.1	16.6	5.4	2.9	24	18.1	1.8	6.9	0.0	0.0
18	2.4	3.6	2.6	2.8	3.2	3.8	4.1	4.1	4.7	4.8	4.3	3.8	2.4	2.1	1.8	3.5	4.7	5.9	4.8	4.1	3.6	4.5	2.9	3.6	24	5.9	1.8	3.7	0.0	0.0
19	2.7	2.8	3.8	2.7	2.7	3.6	3.5	3.0	2.9	2.0	1.0	0.9	0.9	0.8	1.0	1.0	0.6	0.8	0.9	1.2	2.9	25.8	37.4	37.1	24	37.4	0.6	5.9	0.0	0.0
20	24.6	20.4	17.8	14.3	15.7	16.3	14.6	11.9	11.3	11.2	12.4	11.5	10.2	8.5	4.9	4.3	5.2	3.1	2.4	2.1	3.1	39.4	39.7	34.2	24	39.7	2.1	14.1	0.0	0.0
21	24.1	5.5	5.0	6.8	5.6	5.4	3.7	2.1	2.5	2.1	1.1	0.9	1.2	1.4	0.8	0.8	0.7	1.3	2.2	3.9	9.9	27.2	19.7	16.3	24	27.2	0.7	6.3	0.0	0.0
22	12.6	11.3	9.9	8.9	10.1	11.0	15.2	13.0	3.1	3.1	6.3	4.1	3.4	5.7	4.2	1.6	4.9	3.6	6.3	12.4	20.4	7.6	4.5	9.4	24	20.4	1.6	8.0	0.0	0.0
23	5.7	8.6	4.4	2.7	2.2	2.8	3.7	5.1	9.3	11.0	6.0	6.2	4.6	8.2	9.0	5.7	4.0	2.8	3.7	5.5	5.9	4.3	3.5	4.1	24	11.0	2.2	5.4	0.0	0.0
24	3.9	4.0	3.7	3.5	4.7	4.2	4.0	4.3	3.0	2.8	3.0	4.8	4.5	3.3	3.3	5.3	6.4	6.7	5.8	6.8	8.2	4.9	3.8	4.4	24	8.2	2.8	4.6	0.0	0.0
25	4.2	4.0	3.2	3.1	3.8	4.3	4.9	4.8	1.9	1.7	1.9	1.6	1.5	1.4	1.8	0.9	0.9	1.0	1.1	1.2	1.2	15.3	18.9	12.8	24	18.9	0.9	4.1	0.0	0.0
26	7.4	13.2	13.2	15.8	13.4	11.8	9.6	6.0	3.7	3.0	2.5	2.0	2.4	2.3	1.9	1.9	1.9	5.2	8.1	10.2	11.5	20.3	21.1	20.4	24	21.1	1.9	8.7	0.0	0.0
27	10.8	5.1	4.3	10.7	14.4	4.7	3.7	10.5	11.8	6.6	5.5	6.5	12.9	19.7	15.1	9.9	15.5	11.0	10.7	8.5	9.1	10.2	9.6	10.7	24	19.7	3.7	9.9	0.0	0.0
28	9.0	6.6	5.9	5.6	4.3	4.0	3.9	3.8	4.2	4.2	4.8	3.0	4.3	2.3	2.6	2.7	2.7	2.4	2.3	6.1	7.4	35.3	24.2	31.9	24	35.3	2.3	7.7	0.0	0.0
29	26.7	24.7	26.3	19.6	16.4	16.5	11.2	9.2	8.2	3.9	3.8	C	C	4.3	2.6	2.1	1.4	1.3	1.3	1.5	2.3	1.6	1.9	2.2	22	26.7	1.3	8.6	0.0	0.0
30	8.2	3.0	3.9	6.1	6.3	9.3	5.6	3.2	2.8	2.9	2.8	2.4	2.2	2.0	1.5	1.7	1.7	1.5	1.9	1.9	2.1	1.8	1.8	4.5	24	9.3	1.5	3.4	0.0	0.0
31																														
Count	30	30	30	30	30	30	30	30	30	29	30	29	28	30	30	30	30	30	30	30	30	30	30	30	716					
Maximum	26.7	25.5	26.8	22.7	20.6	21.7	15.2	20.4	11.8	11.2	12.4	17.3	18.5	19.7	15.1	9.9	15.5	11.0	10.7	13.1	27.9	39.4	39.7	37.1	24					
Minimum	1.5	1.0	1.0	1.2	1.3	1.8	1.4	1.1	1.0	1.0	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.3	1.2	1.2	1.6	1.8	1.0	22					
Average	10.5	8.8	8.3	8.0	8.9	8.0	6.7	5.5	4.1	3.7	3.5	3.5	3.7	3.4	3.2	2.6	3.0	2.8	3.4	5.1	9.2	13.6	14.0	12.8						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.3	1.9	2.4	3.0	3.9	4.9	6.8	10.6	15.6	20.6	31.9	39.7

	Maximum
Maximum Hourly	39.7
Maximum Daily	14.1
Monthly Average	6.5

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down

NO_2 - Rundle Road April 2018 (ppb)

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	1.5	1.1	0.8	0.7	0.9	0.9	0.9	0.9	0.7	0.7	0.6	0.7	0.8	1.3	1.0	1.1	1.0	1.0	1.0	2.1	2.4	1.3	2.5	7.4	24	7.4	0.6	1.4	0	0
2	6.1	6.5	5.6	6.9	4.4	5.2	14.6	11.5	7.9	7.2	5.4	4.8	5.8	7.7	5.2	6.8	5.8	5.8	7.7	8.3	10.8	12.4	12.3	4.6	24	14.6	4.4	7.5	0	0
3	3.0	4.0	14.5	10.7	12.1	5.0	4.9	4.8	5.8	3.5	4.0	5.9	4.3	4.0	4.3	5.9	5.2	6.2	6.6	9.6	4.9	5.1	2.6	2.3	24	14.5	2.3	5.8	0	0
4	2.6	2.8	6.6	5.1	4.5	13.5	5.7	6.4	5.9	6.2	3.7	4.0	4.6	4.3	4.3	2.5	2.1	1.6	1.2	1.3	1.4	0.9	1.6	1.3	24	13.5	0.9	3.9	0	0
5	1.2	2.0	2.2	0.9	0.8	1.3	3.2	2.7	1.7	1.5	1.0	1.1	1.4	2.2	2.1	4.8	4.4	2.0	1.2	1.9	2.8	4.0	12.7	9.4	24	12.7	0.8	2.9	0	0
6	6.5	3.8	4.4	6.5	11.2	10.8	11.2	12.0	7.4	4.7	6.4	5.9	7.1	6.5	6.3	7.4	7.3	6.3	4.5	3.9	3.0	1.7	1.3	1.1	24	12.0	1.1	6.1	0	0
7	1.0	0.9	0.8	0.9	1.1	1.5	4.5	4.2	1.7	0.9	1.0	0.8	0.8	0.7	1.4	1.9	1.8	1.9	1.8	1.7	1.5	1.7	4.5	6.3	24	6.3	0.7	1.9	0	0
8	3.9	3.7	3.7	2.1	1.6	1.6	2.1	1.3	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.5	0.7	0.6	0.7	0.9	0.9	0.6	0.7	0.7	24	3.9	0.5	1.3	0	0
9	0.7	1.9	4.2	5.4	18.6	27.2	21.7	12.2	8.4	8.2	5.4	3.5	2.0	1.7	1.8	2.1	3.0	3.3	6.5	5.1	6.0	8.8	10.3	8.9	24	27.2	0.7	7.4	0	0
10	6.7	5.3	4.6	3.1	2.8	3.3	8.5	5.7	7.0	10.9	9.5	8.6	5.4	5.2	7.0	8.1	5.9	6.2	11.1	13.6	14.9	17.2	10.7	11.0	24	17.2	2.8	8.0	0	0
11	14.3	12.9	12.4	9.8	7.6	12.8	10.2	8.7	7.8	6.2	9.6	7.0	7.8	8.1	8.2	7.7	8.2	9.3	13.1	27.6	24.6	16.3	12.6	11.0	24	27.6	6.2	11.4	0	0
12	8.5	11.5	9.4	12.1	15.5	14.3	10.4	11.3	10.4	8.1	6.5	6.2	8.8	8.4	10.4	11.6	15.5	17.7	15.3	12.6	14.0	5.8	4.6	5.0	24	17.7	4.6	10.6	0	0
13	2.9	2.4	2.1	2.0	2.2	2.6	4.0	4.1	3.7	3.7	5.7	7.1	5.9	7.5	5.0	4.8	4.2	4.0	3.5	7.5	2.7	2.5	5.7	1.6	24	7.5	1.6	4.1	0	0
14	1.7	1.2	1.3	1.3	1.2	1.4	1.2	1.3	1.3	1.5	6.3	1.5	1.3	1.5	1.6	1.7	2.0	1.1	1.1	1.2	1.3	1.6	1.0	1.1	24	6.3	1.0	1.6	0	0
15	1.2	2.1	1.3	1.5	1.9	1.6	1.4	4.5	2.2	1.5	5.9	1.7	3.5	2.4	1.9	2.3	4.8	3.1	2.3	2.2	4.7	4.1	3.6	1.3	24	5.9	1.2	2.6	0	0
16	0.0	0.0	0.0	4.1	3.7	2.5	2.8	2.5	1.9	2.6	1.8	2.0	2.5	8.3	4.1	5.4	8.5	17.4	26.7	23.5	16.2	12.0	12.7	10.1	24	26.7	0.0	7.1	0	0
17	13.1	14.4	15.1	8.3	8.4	7.7	9.5	9.1	5.4	3.5	2.4	2.6	2.4	3.1	4.9	4.0	7.2	8.9	9.7	11.0	11.1	12.2	12.0	5.7	24	15.1	2.4	8.0	0	0
18	4.4	2.4	3.4	2.3	2.6	6.4	13.0	8.2	7.7	3.9	4.0	2.2	2.3	2.2	2.3	5.8	11.6	3.1	1.2	1.4	2.0	11.8	11.6	4.0	24	13.0	1.2	5.0	0	0
19	1.7	0.9	0.8	0.5	0.4	0.5	0.8	0.6	0.4	0.9	0.6	0.6	0.7	0.5	0.6	0.6	0.5	0.6	0.6	0.4	0.5	0.5	0.5	0.5	24	1.7	0.4	0.6	0	0
20	0.3	0.3	0.6	0.8	1.0	1.7	1.5	0.6	0.7	0.6	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.6	0.7	1.2	1.7	1.8	1.2	1.2	24	1.8	0.3	0.8	0	0
21	0.4	0.5	0.6	0.7	0.7	1.9	19.6	8.8	3.3	6.1	11.1	10.2	9.9	5.0	3.6	2.5	2.5	0.6	0.7	1.1	1.1	0.8	0.6	1.3	24	19.6	0.4	3.9	0	0
22	7.3	2.2	2.3	2.5	2.8	13.4	8.2	6.1	5.9	7.2	5.5	5.2	4.0	3.3	3.5	2.9	2.9	3.2	6.9	6.3	7.0	7.7	11.2	11.0	24	13.4	2.2	5.8	0	0
23	10.0	6.6	5.5	4.8	4.7	3.3	6.5	8.3	8.3	12.2	2.5	3.4	3.1	2.0	2.7	2.5	5.6	5.8	15.4	9.1	3.6	3.5	2.3	9.0	24	15.4	2.0	5.9	0	0
24	10.4	8.5	9.0	5.2	6.3	7.9	16.6	15.2	8.2	8.6	7.7	5.0	5.6	8.3	10.7	15.6	15.5	11.7	7.5	19.8	27.6	14.4	15.8	12.0	24	27.6	5.0	11.4	0	0
25	7.2	9.0	4.4	4.5	5.5	3.4	4.5	4.9	5.8	7.7	3.5	3.3	4.0	6.0	5.6	3.8	9.0	13.1	11.8	2.0	1.6	1.3	1.2	1.0	24	13.1	1.0	5.2	0	0
26	0.9	0.9	0.9	0.9	0.9	1.0	1.3	1.3	1.4	1.0	1.1	1.3	2.9	5.2	4.9	3.9	5.0	6.3	10.4	7.2	13.6	4.9	4.6	2.8	24	13.6	0.9	3.5	0	0
27	5.8	6.9	12.1	8.1	5.1	3.6	7.0	15.0	14.9	14.8	11.0	4.6	4.6	9.1	23.4	15.3	16.9	12.6	7.2	11.0	10.6	7.8	4.8	2.6	24	23.4	2.6	9.8	0	0
28	1.9	2.1	2.7	2.1	1.9	1.8	1.8	1.6	1.5	1.8	1.9	1.5	1.6	1.5	1.5	1.2	1.1	1.1	1.0	1.0	0.9	0.9	0.9	0.8	24	2.7	0.8	1.5	0	0
29	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.6	0.8	0.8	0.8	0.9	0.8	0.9	0.9	1.0	1.2	1.0	1.0	0.8	0.6	0.6	24	1.2	0.6	0.8	0	0
30	0.7	0.6	0.7	0.6	0.7	0.8	1.4	1.3	1.5	1.3	1.8	1.9	1.6	1.4	C	C	0.8	0.7	2.5	12.2	5.0	4.8	6.0	11.3	22	12.2	0.6	2.7	0	0
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	718					
Maximum	14.3	14.4	15.1	12.1	18.6	27.2	21.7	15.2	14.9	14.8	11.1	10.2	9.9	9.1	23.4	15.6	16.9	17.7	26.7	27.6	27.6	17.2	15.8	12.0	24					
Minimum	0.0	0.0	0.0	0.5	0.4	0.5	0.8	0.6	0.4	0.6	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.6	0.6	0.4	0.5	0.5	0.5	0.5	22					
Average	4.2	3.9	4.4	3.8	4.4	5.3	6.7	5.9	4.7	4.6	4.3	3.5	3.5	4.0	4.5	4.6	5.4	5.2	6.0	6.9	6.7	5.6	5.8	4.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.7	1.1	1.5	2.2	3.5	4.8	6.2	8.3	11.6	14.3	21.4	27.6

Maximum Hourly	27.6
Maximum Daily	11.4
Monthly Average	4.9

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down; R - Rate of Change

NO_2 - May (ppb) Rundle Road 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	21.0	16.8	11.5	22.3	14.8	10.9	16.9	30.5	12.2	14.6	11.3	8.2	9.4	8.7	7.1	7.8	6.4	6.6	6.2	11.6	13.6	14.1	14.1	14.1	24	30.5	6.2	12.9	0	0
2	7.7	6.7	6.9	8.3	10.1	12.7	18.5	11.0	10.5	8.1	8.4	6.1	9.6	10.2	7.6	5.8	6.2	6.0	14.6	24.6	7.6	4.2	15.5	20.3	24	24.6	4.2	10.3	0	0
3	6.3	18.4	12.4	7.1	6.6	8.6	8.7	8.7	10.4	7.6	9.0	8.1	12.3	11.9	11.4	22.6	9.3	1.6	2.0	2.3	2.6	1.6	1.5	1.3	24	22.6	1.3	8.0	0	0
4	6.2	19.1	11.9	7.5	12.6	6.3	9.4	7.3	4.5	3.3	3.9	7.1	7.6	5.6	4.9	3.5	5.2	3.8	2.5	1.8	1.4	1.5	1.5	2.2	24	19.1	1.4	5.9	0	0
5	9.7	5.7	7.5	8.0	8.7	8.8	9.0	5.0	4.6	4.3	3.8	2.9	4.3	5.4	7.2	4.7	5.2	5.2	7.6	6.2	7.4	12.0	18.7	9.8	24	18.7	2.9	7.2	0	0
6	2.9	7.0	6.9	5.3	4.5	3.8	2.3	1.7	2.6	1.4	3.1	6.3	9.3	2.8	9.8	4.6	4.0	16.8	14.0	9.4	3.0	2.6	1.6	1.0	24	16.8	1.0	5.3	0	0
7	0.5	0.9	0.8	0.5	0.9	1.5	1.9	1.3	1.2	1.0	5.5	2.0	3.5	2.9	4.1	2.1	4.0	4.5	6.3	14.4	8.2	9.8	6.1	4.0	24	14.4	0.5	3.7	0	0
8	3.9	2.5	5.7	5.1	4.0	4.2	7.8	5.3	11.0	11.2	13.6	4.7	5.8	3.4	5.7	4.8	6.8	4.4	9.5	11.8	6.0	6.3	4.8	3.2	24	13.6	2.5	6.3	0	0
9	2.1	1.9	2.3	1.9	2.1	4.8	6.0	8.7	8.7	8.6	5.3	5.6	8.1	10.0	8.6	7.1	7.8	7.3	6.8	10.4	6.9	8.5	7.4	9.0	24	10.4	1.9	6.5	0	0
10	4.5	6.7	28.0	26.0	17.0	10.3	6.7	7.8	6.4	6.3	7.5	7.0	5.0	5.0	4.8	3.9	2.1	1.7	1.4	1.5	1.2	0.9	0.9	0.7	24	28.0	0.7	6.8	0	0
11	0.5	0.6	0.3	0.4	0.4	0.8	0.9	1.3	1.4	1.0	6.2	3.5	3.5	2.8	2.2	2.7	4.4	5.9	9.5	12.6	14.2	9.6	7.3	9.1	24	14.2	0.3	4.2	0	0
12	6.1	5.7	5.5	6.2	5.5	4.6	6.3	6.2	7.0	4.8	5.3	4.5	8.1	2.6	2.0	1.8	2.2	8.7	3.4	4.3	3.8	4.2	3.5	1.9	24	8.7	1.8	4.8	0	0
13	1.4	9.0	6.7	5.3	5.1	2.9	3.0	15.8	3.3	3.2	3.6	2.4	1.9	1.9	2.8	8.1	3.4	2.8	4.8	14.1	7.6	6.7	16.3	3.7	24	16.3	1.4	5.7	0	0
14	4.2	5.4	3.7	13.5	10.0	7.4	16.5	14.8	9.1	8.3	10.3	10.1	8.7	12.2	8.1	8.1	9.2	8.7	9.8	11.6	7.1	10.4	16.0	9.5	24	16.5	3.7	9.7	0	0
15	8.8	9.8	7.5	8.4	6.4	14.2	11.1	4.9	2.7	4.0	2.1	2.7	3.2	7.1	2.4	4.7	10.2	11.1	1.8	1.9	1.9	2.6	3.4	1.5	24	14.2	1.5	5.6	0	0
16	1.3	1.3	2.2	8.1	2.5	8.3	7.4	4.2	4.4	3.9	2.5	4.2	9.4	12.2	12.9	7.1	7.0	6.3	11.0	20.5	16.9	11.5	5.9	5.5	24	20.5	1.3	7.4	0	0
17	5.3	4.2	2.7	3.9	13.3	16.9	22.7	23.7	21.8	19.7	19.0	14.0	8.5	4.8	4.3	3.8	3.8	4.3	9.1	13.3	8.8	10.7	11.1	1.7	24	23.7	1.7	10.5	0	0
18	6.8	1.1	1.9	1.1	2.9	1.4	1.4	1.9	2.8	2.4	2.3	3.2	5.6	3.4	5.9	8.7	5.1	2.5	3.8	5.6	7.4	3.5	2.2	3.4	24	8.7	1.1	3.6	0	0
19	1.5	1.9	5.7	3.0	3.0	3.1	2.5	2.2	2.2	1.8	1.8	2.1	2.3	2.7	3.6	3.8	2.3	2.7	3.6	5.6	5.8	8.5	9.7	9.7	24	9.7	1.5	3.8	0	0
20	13.0	13.5	12.5	1.5	1.4	1.3	1.6	1.1	0.9	1.0	1.0	2.6	1.6	1.0	1.1	1.1	1.1	1.1	1.3	2.1	2.6	2.4	1.7	2.0	24	13.5	0.9	2.9	0	0
21	1.7	1.4	0.8	0.8	1.0	1.0	0.9	3.0	2.4	2.4	2.9	2.1	2.6	2.6	3.5	2.3	3.7	4.4	4.4	5.3	3.3	4.4	4.4	2.9	24	5.3	0.8	2.7	0	0
22	8.5	5.1	7.1	5.5	9.4	6.1	8.5	8.9	5.2	2.6	4.6	2.3	3.3	3.5	6.6	7.2	12.8	11.4	20.1	20.5	17.6	26.6	28.6	20.7	24	28.6	2.3	10.5	0	0
23	3.7	1.6	1.6	1.7	5.0	16.6	17.8	16.5	13.3	12.4	14.2	11.2	10.1	10.0	1.8	2.5	1.9	1.5	1.6	2.2	2.3	2.0	1.7	11.1	24	17.8	1.5	6.8	0	0
24	2.5	8.7	10.7	24.9	20.2	8.5	12.5	13.4	16.4	16.4	12.6	11.5	10.0	9.8	9.8	13.8	9.7	9.0	5.9	14.0	17.9	17.2	20.8	19.1	24	24.9	2.5	13.1	0	0
25	12.4	14.3	23.3	17.2	26.7	20.9	22.2	20.5	16.5	14.2	13.9	7.9	7.6	7.9	4.4	3.8	4.5	6.0	4.9	5.1	5.7	5.9	6.9	7.0	24	26.7	3.8	11.7	0	0
26	6.6	6.9	6.8	8.5	5.4	12.8	13.0	12.1	14.4	18.3	14.0	8.7	6.8	6.4	5.1	4.5	4.9	4.8	2.9	6.2	3.5	3.2	4.1	7.4	24	18.3	2.9	7.8	0	0
27	3.5	5.4	5.5	3.5	3.3	5.3	5.0	5.1	5.3	11.1	7.2	9.8	15.8	3.0	9.0	17.8	4.4	3.8	4.7	4.6	3.2	5.5	7.0	8.1	24	17.8	3.0	6.5	0	0
28	3.4	4.4	6.7	4.1	5.5	6.1	17.6	17.9	10.3	13.0	11.2	17.8	15.9	13.6	11.4	7.7	7.4	10.6	6.0	2.6	5.0	4.0	5.0	2.0	24	17.9	2.0	8.7	0	0
29	2.0	6.2	3.4	2.4	4.0	2.7	3.0	2.0	2.2	3.5	2.6	2.4	3.0	C	C	7.6	16.1	5.2	5.8	6.5	9.0	10.7	9.1	11.2	22	16.1	2.0	5.5	0	0
30	7.1	4.5	3.3	2.4	3.2	3.8	7.4	4.9	4.9	4.2	4.5	3.5	C	C	C	3.0	2.6	1.8	2.7	2.9	5.3	5.7	3.6	4.3	21	7.4	1.8	4.1	0	0
31	2.2	2.7	2.8	4.6	6.4	5.0	4.8	6.6	7.5	7.5	9.4	6.5	3.6	4.1	2.8	3.3	3.6	4.9	5.7	6.8	6.7	13.8	9.9	15.4	24	15.4	2.2	6.1	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	31	30	29	29	31	31	31	31	31	31	31	31	31	739					
Maximum	21.0	19.1	28.0	26.0	26.7	20.9	22.7	30.5	21.8	19.7	19.0	17.8	15.9	13.6	12.9	22.6	16.1	16.8	20.1	24.6	17.9	26.6	28.6	20.7	24					
Minimum	0.5	0.6	0.3	0.4	0.4	0.8	0.9	1.1	0.9	1.0	1.0	2.0	1.6	1.0	1.1	1.1	1.1	1.1	1.3	1.5	1.2	0.9	0.9	0.7	21					
Average	5.4	6.4	6.9	7.1	7.2	7.1	8.8	8.9	7.3	7.2	7.2	6.2	6.9	6.1	5.9	6.1	5.7	5.7	6.2	8.5	6.9	7.4	8.1	7.2						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.7	2.6	3.5	4.5	5.6	6.9	8.5	10.3	14.1	17.8	24.3	30.5

Maximum Hourly	30.5
Maximum Daily	13.1
Monthly Average	6.9

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down; R - Rate of Change

NO_2 - Rundle Road
June 2018
(ppb)

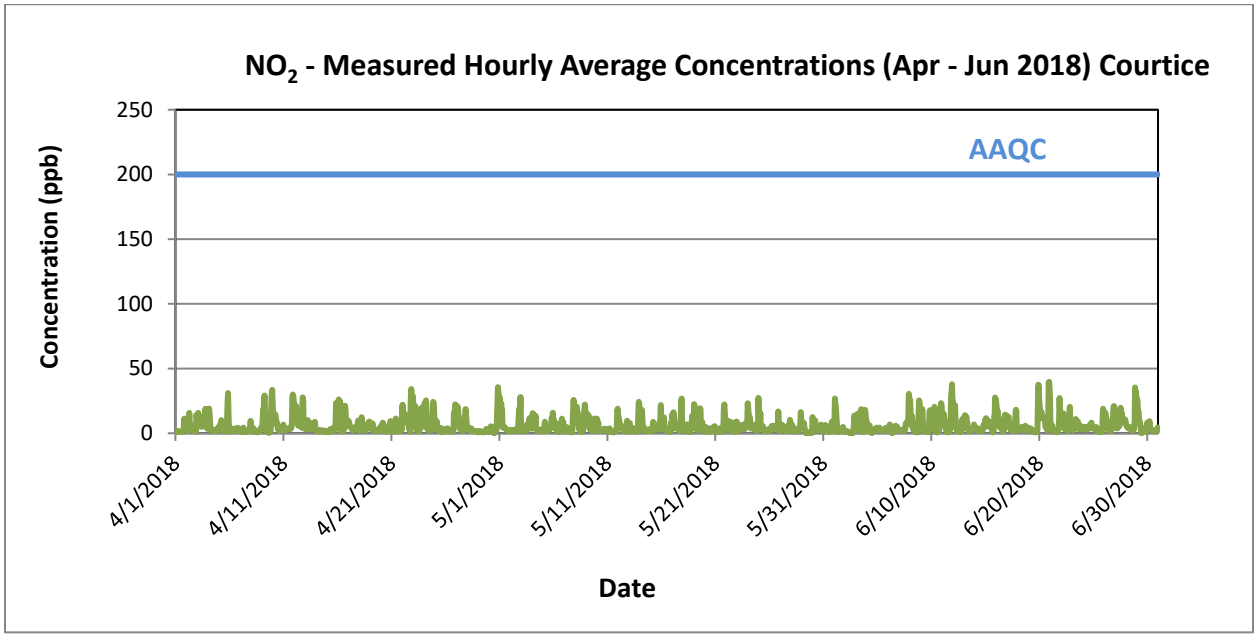
Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	22.1	10.7	9.6	8.0	5.1	10.4	14.6	7.1	8.2	13.6	8.0	6.0	2.4	1.7	2.0	1.5	1.0	0.8	0.7	0.8	1.4	0.2	0.2	0.0	24	22.1	0.0	5.7	0	0
2	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.4	0.1	1.1	0.0	0.0	0.0	1.3	0.0	0.3	0.2	0.9	0.9	2.3	4.8	6.4	5.1	24	6.4	0.0	1.0	0	0
3	3.6	4.0	4.1	1.8	1.8	2.9	2.2	4.5	0.7	2.8	1.3	1.5	1.7	2.6	3.8	3.6	3.8	5.4	9.5	1.9	2.6	2.5	3.8	4.3	24	9.5	0.7	3.2	0	0
4	4.3	8.2	9.3	10.1	11.9	16.3	30.1	17.4	16.8	17.3	7.2	4.0	10.0	C	22.5	12.0	1.3	1.1	1.2	1.3	1.3	1.4	3.1	3.1	23	30.1	1.1	9.2	0	0
5	1.8	3.7	3.2	2.4	1.0	4.6	9.3	27.3	11.1	9.7	13.9	22.4	14.4	18.3	18.7	4.3	0.7	0.8	0.6	0.6	0.8	0.7	0.5	0.4	24	27.3	0.4	7.1	0	0
6	0.2	0.4	0.3	0.5	0.6	0.6	0.6	0.6	1.0	1.7	2.6	A	4.4	4.4	4.2	6.5	9.0	7.9	7.3	10.4	14.5	8.2	8.8	9.9	23	14.5	0.2	4.5	0	0
7	4.1	8.2	7.1	7.8	9.8	11.0	12.4	8.7	6.8	5.3	12.3	8.1	7.1	9.4	6.5	5.7	3.6	8.0	11.5	6.5	12.1	12.3	10.1	6.7	24	12.4	3.6	8.4	0	0
8	8.9	5.6	1.4	1.5	2.4	3.8	8.0	1.8	1.0	1.5	2.8	1.4	1.8	4.7	1.9	1.5	0.7	2.6	4.1	6.0	5.3	5.9	6.8	5.2	24	8.9	0.7	3.6	0	0
9	1.6	1.5	1.2	2.3	2.5	1.8	3.2	6.5	5.4	3.6	2.1	6.1	1.0	0.6	0.9	0.9	0.9	0.9	2.6	3.7	4.6	5.6	6.4	4.8	24	6.5	0.6	3.0	0	0
10	3.5	1.8	4.4	3.3	0.6	0.6	2.0	4.1	0.8	0.8	1.2	1.5	12.5	15.1	4.9	6.5	3.2	0.7	3.7	5.6	7.5	3.7	4.2	12.3	24	15.1	0.6	4.4	0	0
11	2.9	2.2	2.2	1.6	2.0	3.5	2.4	3.2	2.8	1.9	1.4	4.8	2.3	1.9	1.0	1.2	2.0	11.0	6.8	4.9	9.2	9.6	17.7	4.8	24	17.7	1.0	4.3	0	0
12	3.3	1.7	1.5	2.3	3.3	2.8	8.8	7.6	5.2	5.7	5.0	3.3	4.1	6.3	4.0	3.8	5.9	6.7	6.6	10.4	7.1	9.2	7.5	8.1	24	10.4	1.5	5.4	0	0
13	6.9	8.5	5.6	13.3	11.8	14.2	19.4	14.4	13.4	6.2	7.0	5.5	4.0	4.9	6.3	6.0	3.8	1.0	0.7	0.8	1.2	1.2	1.6	6.8	24	19.4	0.7	6.9	0	0
14	6.5	2.8	2.5	3.0	1.7	1.3	1.7	1.2	1.2	1.1	0.6	0.8	0.7	1.1	0.9	0.4	0.6	0.3	0.2	0.6	0.7	0.5	0.8	0.7	24	6.5	0.2	1.3	0	0
15	0.8	0.8	0.8	1.0	1.2	13.5	13.2	7.3	7.5	6.7	6.5	6.4	6.6	5.1	4.8	1.5	1.4	2.9	3.1	5.0	4.5	6.0	8.9	8.1	24	13.5	0.8	5.2	0	0
16	4.9	7.7	5.4	4.4	3.7	3.8	4.3	5.6	9.2	8.4	5.3	12.1	8.3	4.0	1.9	2.1	4.6	1.7	5.2	4.6	4.1	5.2	7.0	6.6	24	12.1	1.7	5.4	0	0
17	5.1	4.1	4.0	3.8	5.6	3.3	5.4	5.3	6.5	6.4	6.1	7.2	5.3	1.3	1.5	2.5	2.3	4.2	3.9	11.2	6.8	8.6	10.8	7.6	24	11.2	1.3	5.4	0	0
18	3.8	6.4	3.6	6.7	8.0	14.8	12.7	13.6	12.6	12.7	9.4	4.6	6.0	5.8	6.3	5.9	8.1	9.2	1.6	1.1	1.2	0.9	1.1	1.1	24	14.8	0.9	6.6	0	0
19	2.6	2.4	1.8	1.5	1.4	1.3	1.6	1.6	4.6	1.9	2.8	3.2	5.1	6.3	6.0	4.6	3.8	2.3	5.0	8.1	8.2	12.0	15.3	13.4	24	15.3	1.3	4.9	0	0
20	10.3	8.5	15.3	10.9	8.5	5.8	9.9	7.2	13.9	17.8	11.9	11.4	11.2	8.1	6.1	10.3	7.7	7.1	7.6	16.3	13.0	8.6	9.5	12.0	24	17.8	5.8	10.4	0	0
21	5.1	2.4	1.7	1.9	1.2	1.3	2.3	1.2	1.6	1.3	2.6	2.6	1.7	1.6	1.7	3.0	1.7	1.8	3.4	4.4	3.8	5.6	5.9	4.1	24	5.9	1.2	2.7	0	0
22	2.6	2.4	3.0	3.0	2.3	2.6	5.0	5.2	3.0	2.1	1.7	3.4	2.1	2.4	5.0	4.2	1.6	1.3	5.2	3.2	3.5	4.5	7.9	4.1	24	7.9	1.3	3.4	0	0
23	2.3	5.9	3.2	2.0	1.7	1.7	2.3	5.1	2.0	6.6	2.5	2.6	1.6	1.5	1.9	1.8	3.1	1.6	2.2	3.2	5.6	1.9	1.8	2.2	24	6.6	1.5	2.8	0	0
24	1.8	2.8	3.7	2.6	2.9	2.2	2.5	2.8	1.1	4.5	2.9	2.9	2.8	3.3	4.0	2.6	3.1	4.3	10.7	5.1	0.9	0.3	0.2	0.2	24	10.7	0.2	2.9	0	0
25	0.4	0.3	0.2	0.5	0.4	0.6	1.1	0.7	0.6	0.7	0.5	0.6	0.8	1.1	1.3	2.2	2.4	3.8	3.2	8.2	12.9	6.4	4.8	3.6	24	12.9	0.2	2.4	0	0
26	12.3	6.0	2.4	3.9	3.9	4.9	4.8	9.3	4.9	6.0	7.0	7.9	9.8	2.3	1.1	2.6	1.6	2.2	5.9	8.8	17.8	7.1	6.8	9.2	24	17.8	1.1	6.2	0	0
27	9.3	5.6	5.4	4.7	5.8	12.1	10.0	9.1	9.6	8.7	3.1	2.4	4.6	6.3	7.5	5.9	4.9	4.7	8.0	6.1	5.3	6.1	6.2	3.3	24	12.1	2.4	6.4	0	0
28	2.9	1.9	2.6	6.6	12.4	14.1	15.9	16.5	13.0	9.8	8.5	1.9	C	C	4.6	5.4	5.1	8.0	7.8	6.9	5.4	8.4	9.6	6.5	22	16.5	1.9	7.9	0	0
29	4.3	4.8	11.9	3.5	3.0	8.6	26.4	14.4	13.5	1.6	1.7	5.7	8.4	8.1	5.1	5.4	2.7	3.3	4.3	3.5	4.5	6.9	7.3	4.5	24	26.4	1.6	6.8	0	0
30	9.8	6.1	4.2	9.1	3.9	7.4	5.9	4.1	3.4	4.7	4.7	2.9	2.7	3.7	1.8	2.5	2.2	1.7	4.9	3.3	2.2	4.4	3.2	3.0	24	9.8	1.7	4.2	0	0
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	29	29	28	30	30	30	30	30	30	30	30	30	30	716					
Maximum	22.1	10.7	15.3	13.3	12.4	16.3	30.1	27.3	16.8	17.8	13.9	22.4	14.4	18.3	22.5	12.0	9.0	11.0	11.5	16.3	17.8	12.3	17.7	13.4	24					
Minimum	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.4	0.1	0.5	0.0	0.0	0.0	0.9	0.0	0.3	0.2	0.2	0.6	0.7	0.2	0.2	0.0	22					
Average	4.9	4.2	4.1	4.1	4.0	5.7	7.9	7.1	6.1	5.7	4.8	4.9	4.9	4.7	4.7	3.9	3.1	3.6	4.6	5.1	5.7	5.3	6.1	5.4						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.8	1.5	2.2	3.0	4.0	5.0	6.3	8.0	10.8	13.4	18.7	30.1

Maximum Hourly	30.1
Maximum Daily	10.4
Monthly Average	5.0

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down R - Rate of Change

Figure C-1 Time History Plots of Measured Hourly Average and 24 Hour Average NO_2 Concentrations – Courtice (WPCP) Station



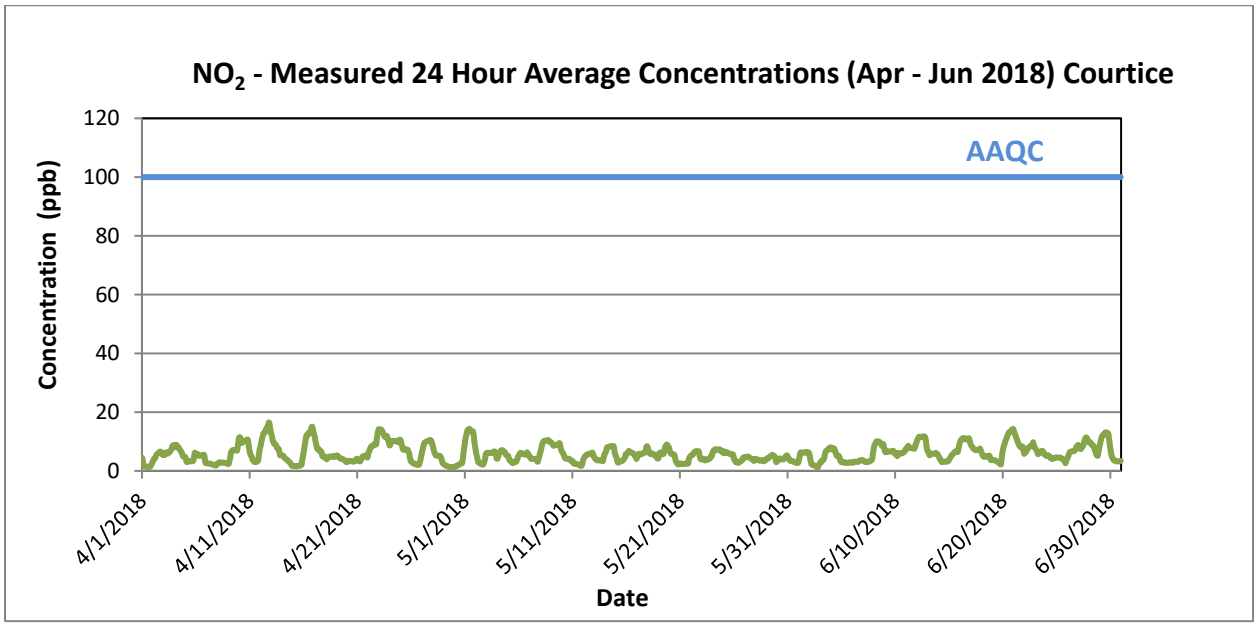
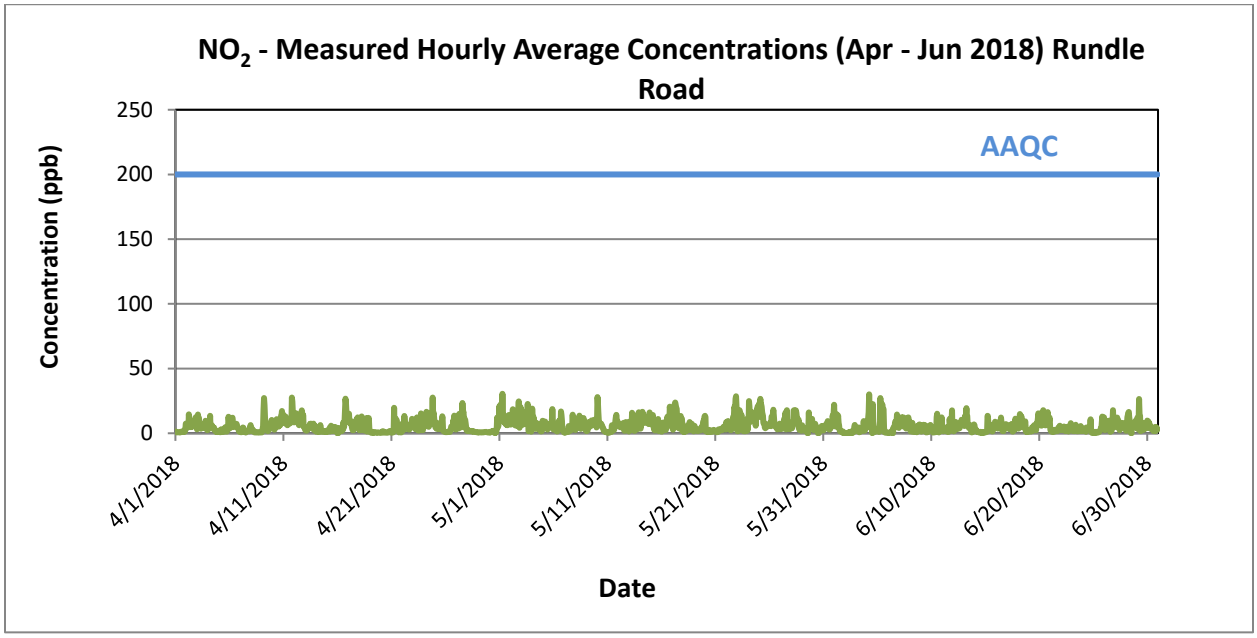
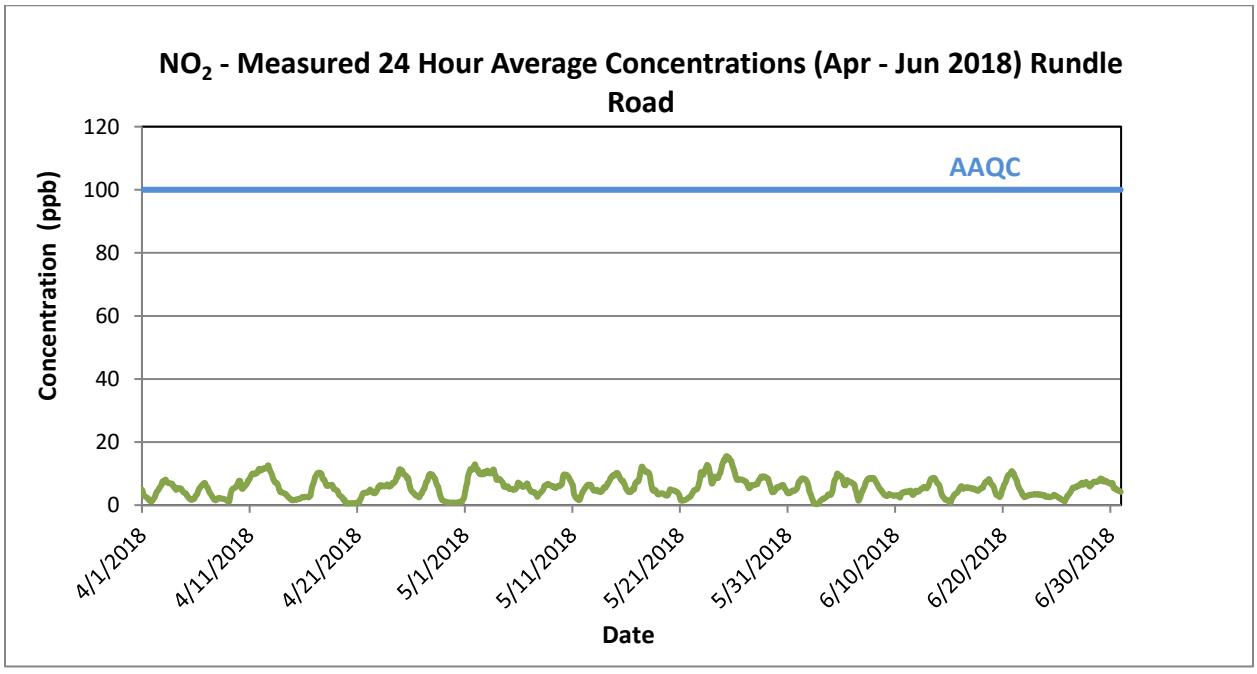


Figure C-2 Time History Plots of Measured Hourly Average and 24 Hour Average NO_2 Concentrations – Rundle Road Station





APPENDIX D:
NO_X DATA SUMMARIES AND TIME HISTORY PLOTS

NOx - April (ppb) **COURTICE 2018**

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	1.9	1.8	1.2	0.9	1.6	1.3	2.0	2.0	1.4	1.2	1.5	1.3	1.4	1.4	1.3	1.6	1.7	2.3	2.5	6.9	12.7	6.6	9.1	12.0	24	12.7	0.9	3.2	0.0	0.0
2	11.7	10.3	10.9	3.8	8.8	2.2	9.8	19.8	10.8	9.6	5.1	4.6	7.3	9.1	4.7	5.7	4.1	3.0	2.2	1.6	1.6	1.2	1.6	15.0	24	19.8	1.2	6.9	0.0	0.0
3	11.4	7.0	7.6	17.7	11.0	9.1	9.5	10.1	9.5	6.3	8.4	14.5	6.9	6.8	6.4	17.7	9.1	8.3	11.4	23.1	7.5	5.9	5.4	4.3	24	23.1	4.3	9.8	0.0	0.0
4	4.3	9.8	27.6	29.0	15.5	8.7	2.9	4.3	3.7	3.3	2.7	1.9	2.3	2.3	2.3	2.1	3.1	3.1	2.3	2.8	3.8	3.2	3.8	3.8	24	29.0	1.9	6.2	0.0	0.0
5	5.4	4.4	6.9	3.8	4.9	8.3	12.5	6.4	5.5	2.7	2.2	1.8	2.0	1.9	2.1	2.5	2.9	3.1	4.2	9.7	25.0	35.1	17.0	1.7	24	35.1	1.7	7.2	0.0	0.0
6	2.0	2.0	2.5	3.0	4.1	3.1	4.5	4.1	3.0	2.9	2.8	3.3	3.0	2.9	2.3	2.3	5.0	5.0	4.2	3.6	4.5	2.5	1.9	1.7	24	5.0	1.7	3.2	0.0	0.0
7	2.2	1.9	1.4	1.4	2.1	2.4	3.9	5.8	2.8	2.0	1.8	1.5	1.5	1.4	1.7	2.1	2.3	2.6	2.6	3.2	2.1	3.5	4.8	10.2	24	10.2	1.4	2.8	0.0	0.0
8	7.3	4.4	5.1	3.2	3.4	4.0	4.4	3.1	1.2	1.3	1.6	1.4	1.8	1.4	1.5	1.7	1.2	2.8	2.3	3.0	3.1	2.9	4.9	3.2	24	7.3	1.2	2.9	0.0	0.0
9	4.6	6.8	12.5	19.5	18.9	32.1	54.5	28.4	8.4	9.1	7.4	4.0	1.0	1.3	1.0	0.7	1.4	1.1	1.0	1.8	2.8	23.5	33.7	40.1	24	54.5	0.7	13.2	0.0	0.0
10	31.1	19.8	14.9	14.5	8.4	10.0	17.0	16.7	14.9	12.5	11.2	8.5	4.3	3.3	4.6	4.9	2.7	2.3	2.9	3.2	3.1	2.4	2.7	3.6	24	31.1	2.3	9.2	0.0	0.0
11	7.6	3.7	3.6	3.3	2.9	2.8	3.0	3.6	3.8	4.3	4.0	3.9	3.4	4.5	4.6	3.8	3.8	4.8	5.3	8.3	32.4	49.2	52.7	39.7	24	52.7	2.8	10.8	0.0	0.0
12	27.5	22.8	25.6	41.5	37.4	25.3	17.4	19.2	8.1	7.2	8.0	7.1	27.3	22.1	18.8	12.6	10.2	4.9	21.5	41.6	27.1	7.0	5.4	6.2	24	41.6	4.9	18.8	0.0	0.0
13	4.8	3.4	4.9	3.8	6.6	7.6	13.4	6.6	5.0	5.7	5.4	3.6	9.4	5.7	3.8	7.7	8.8	5.3	6.7	6.8	7.7	8.1	11.4	4.7	24	13.4	3.4	6.5	0.0	0.0
14	3.0	2.4	1.9	1.9	2.5	1.6	3.5	3.4	2.2	2.1	3.1	2.2	2.7	2.9	3.3	1.9	3.2	3.9	3.5	1.7	1.4	2.5	1.3	2.6	24	3.9	1.3	2.5	0.0	0.0
15	2.0	2.1	2.7	2.6	1.8	1.3	3.6	1.8	2.1	7.9	3.4	2.8	2.4	2.8	3.0	6.0	4.2	4.5	4.0	3.4	11.6	34.6	33.6	33.8	24	34.6	1.3	7.4	0.0	0.0
16	34.2	35.4	37.6	39.9	35.9	32.0	35.7	22.8	2.3	3.7	7.3	33.4	14.5	1.8	3.9	7.7	10.5	24.6	19.5	11.6	8.3	7.4	7.3	5.6	24	39.9	1.8	18.5	0.0	0.0
17	8.5	10.4	8.8	7.5	6.8	6.1	5.1	5.3	5.3	4.8	3.9	4.0	3.5	4.3	5.4	4.5	4.4	4.2	5.9	4.1	5.1	6.9	10.2	7.1	24	10.4	3.5	5.9	0.0	0.0
18	3.9	2.3	3.3	3.2	3.8	10.3	14.3	8.2	8.5	3.6	5.6	8.0	5.4	3.4	2.8	3.0	4.1	3.9	5.0	6.0	8.5	4.9	6.8	9.6	24	14.3	2.3	5.8	0.0	0.0
19	7.5	5.5	5.6	4.9	3.6	3.8	9.5	5.2	3.4	2.9	2.9	2.0	2.6	2.9	2.6	2.4	2.4	2.9	2.8	4.1	3.6	4.0	3.1	2.7	24	9.5	2.0	3.9	0.0	0.0
20	5.4	6.6	6.1	5.5	6.5	8.8	9.3	3.6	3.4	2.7	2.2	2.4	2.0	1.7	1.5	2.7	3.1	2.2	3.2	5.3	6.9	7.0	10.6	9.5	24	10.6	1.5	4.9	0.0	0.0
21	3.6	1.9	2.1	1.9	4.9	3.6	7.0	8.1	10.5	16.1	17.8	13.3	10.2	5.2	3.2	1.6	1.9	2.1	13.5	4.1	6.7	4.0	3.8	2.7	24	17.8	1.6	6.3	0.0	0.0
22	20.1	23.8	11.8	14.0	8.8	17.0	18.2	16.8	19.3	14.7	15.7	18.0	15.6	13.2	8.3	4.7	4.4	2.7	1.6	38.1	39.1	36.2	29.1	20.9	24	39.1	1.6	17.2	0.0	0.0
23	37.1	17.9	6.7	12.7	13.4	22.8	15.3	12.9	4.1	2.7	3.4	3.8	1.9	1.8	4.0	6.8	4.3	7.1	6.1	21.6	15.9	21.8	18.3	9.4	24	37.1	1.8	11.3	0.0	0.0
24	6.2	17.9	27.6	26.6	14.0	38.5	29.1	6.6	3.8	3.7	3.5	3.2	3.0	2.5	3.0	4.7	2.4	2.8	12.6	13.0	12.3	26.6	24.9	18.7	24	38.5	2.4	12.8	0.0	0.0
25	3.8	11.1	7.3	4.8	4.9	10.5	4.3	3.0	3.2	4.8	4.9	5.7	3.5	5.3	1.8	1.3	1.4	1.1	3.3	4.0	3.8	3.2	3.3	2.6	24	11.1	1.1	4.3	0.0	0.0
26	2.5	2.5	3.0	1.9	2.7	5.9	4.2	3.0	3.2	2.7	2.0	2.1	3.1	2.9	1.8	1.9	1.8	2.3	2.0	19.4	15.5	18.4	32.0	27.5	24	32.0	1.8	6.8	0.0	0.0
27	33.4	43.5	15.9	50.9	33.4	17.0	22.6	11.4	5.8	7.5	4.9	3.4	2.7	6.2	3.3	2.6	2.3	2.9	10.1	8.2	13.8	19.9	12.8	11.7	24	50.9	2.3	14.4	0.0	0.0
28	4.2	5.6	5.1	3.3	4.6	5.1	3.9	3.3	2.2	2.2	5.1	3.3	3.4	2.7	2.8	3.0	2.7	2.4	3.1	2.2	2.0	2.3	3.1	2.2	24	5.6	2.0	3.3	0.0	0.0
29	1.5	2.0	1.4	1.4	2.1	1.7	1.5	2.4	2.0	1.3	1.6	1.4	1.6	1.4	2.0	1.8	1.9	2.5	2.0	4.2	2.6	2.4	1.9	2.7	24	4.2	1.3	2.0	0.0	0.0
30	4.0	1.8	2.3	1.8	3.8	6.3	5.6	2.8	2.8	2.7	5.7	8.0	C	C	4.8	2.7	3.6	3.3	3.3	21.1	24.0	61.6	53.1	51.3	22	61.6	1.8	12.6	0.0	0.0
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	718					
Maximum	37.1	43.5	37.6	50.9	37.4	38.5	54.5	28.4	19.3	16.1	17.8	33.4	27.3	22.1	18.8	17.7	10.5	24.6	21.5	41.6	39.1	61.6	53.1	51.3	24					
Minimum	1.5	1.8	1.2	0.9	1.6	1.3	1.5	1.8	1.2	1.2	1.5	1.3	1.0	1.3	1.0	0.7	1.2	1.1	1.0	1.6	1.4	1.2	1.3	1.7	22					
Average	10.1	9.7	9.1	11.0	9.3	10.3	11.6	8.4	5.4	5.2	5.2	5.8	5.2	4.3	3.7	4.2	3.8	4.1	5.7	9.6	10.5	13.8	13.7	12.2						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.8	2.3	2.9	3.4	4.1	5.3	7.4	10.9	19.6	31.2	43.1	61.6

Maximum Hourly	61.6
Maximum Daily	18.8
Monthly Average	8.0

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down

NOx - May (ppb) COURTICE 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	36.5	29.6	20.4	13.9	37.1	22.9	27.2	6.2	5.2	6.4	7.0	6.0	5.3	5.3	4.3	4.2	3.0	2.8	3.1	3.0	2.1	2.3	2.1	2.7	24	37.1	2.1	10.8	0.0	0.0
2	1.9	1.9	2.1	2.8	2.9	2.6	2.2	2.8	3.5	3.7	3.5	3.1	2.8	3.0	2.3	2.1	2.3	3.2	7.3	15.5	20.4	15.1	20.9	31.8	24	31.8	1.9	6.7	0.0	0.0
3	9.8	4.1	3.6	3.0	2.6	1.9	1.9	2.4	2.2	3.1	3.6	3.8	2.9	3.1	8.7	6.1	4.5	5.5	8.0	13.7	10.0	8.5	6.0	3.9	24	13.7	1.9	5.1	0.0	0.0
4	4.5	4.3	18.4	16.4	18.0	14.4	7.3	4.6	6.1	27.7	5.7	7.5	2.2	2.3	2.0	2.3	1.9	2.8	2.5	2.4	1.9	2.6	3.4	3.8	24	27.7	1.9	6.9	0.0	0.0
5	3.4	3.0	2.4	2.6	4.0	10.9	8.8	3.0	3.1	3.9	3.8	2.7	4.2	1.8	4.2	3.0	4.0	3.5	4.8	5.9	12.7	12.6	10.4	17.0	24	17.0	1.8	5.7	0.0	0.0
6	12.3	8.4	9.8	8.0	9.6	6.8	3.5	3.6	3.0	5.2	1.6	1.2	1.5	1.5	1.1	1.9	8.9	7.5	9.8	14.5	5.5	11.5	11.2	5.2	24	14.5	1.1	6.4	0.0	0.0
7	3.2	4.1	2.4	4.8	4.2	4.7	7.1	5.6	2.8	2.4	2.3	1.3	1.0	2.0	1.4	1.3	1.1	1.1	1.3	11.1	23.9	35.2	35.7	36.8	24	36.8	1.0	8.2	0.0	0.0
8	22.3	21.8	24.4	21.5	35.0	29.2	25.7	16.9	10.1	5.2	3.8	3.0	2.5	2.0	1.7	1.4	1.8	3.8	2.5	4.3	18.0	18.1	23.4	19.3	24	35.0	1.4	13.2	0.0	0.0
9	14.9	16.3	11.2	14.3	15.2	14.2	12.4	18.9	10.8	4.7	5.3	3.5	3.2	2.9	2.8	3.7	3.9	4.9	4.5	12.2	8.3	4.4	3.4	2.1	24	18.9	2.1	8.2	0.0	0.0
10	3.2	12.0	9.6	4.2	8.6	3.1	2.6	2.0	2.2	1.8	2.9	3.0	3.0	3.0	3.2	3.3	3.9	4.3	3.2	4.2	4.0	3.1	3.0	2.2	24	12.0	1.8	4.0	0.0	0.0
11	2.8	3.5	1.7	1.8	2.7	4.7	3.8	3.5	1.5	1.6	2.6	1.6	1.2	1.4	1.0	1.0	1.3	1.8	1.9	2.6	2.3	6.5	18.4	23.9	24	23.9	1.0	4.0	0.0	0.0
12	17.8	16.1	12.8	10.4	7.7	8.0	7.5	8.7	5.3	5.8	2.8	2.8	3.9	2.9	2.2	2.2	1.5	1.7	2.1	2.5	10.2	6.9	6.3	4.5	24	17.8	1.5	6.4	0.0	0.0
13	6.1	7.6	8.9	3.5	2.1	4.0	5.4	2.4	6.4	5.8	2.5	3.1	2.3	2.2	2.7	3.4	1.8	1.3	1.7	1.6	4.7	20.5	32.3	33.6	24	33.6	1.3	6.9	0.0	0.0
14	20.1	13.9	13.6	12.4	39.4	39.7	24.9	3.1	5.1	6.2	5.8	4.8	5.1	3.8	2.3	2.0	2.3	2.1	2.5	3.1	3.3	2.4	1.9	2.2	24	39.7	1.9	9.2	0.0	0.0
15	4.4	2.7	3.2	2.9	1.9	2.6	12.2	8.8	6.5	7.7	5.4	4.1	7.3	4.9	3.2	3.7	5.3	7.6	6.8	8.9	8.6	8.1	13.2	28.8	24	28.8	1.9	7.0	0.0	0.0
16	5.1	3.6	6.0	6.8	11.7	13.3	19.2	4.9	4.6	6.8	5.9	2.3	3.5	2.5	3.0	2.1	1.7	1.0	1.3	1.1	1.2	6.7	9.4	3.6	24	19.2	1.0	5.3	0.0	0.0
17	46.4	23.9	12.8	17.8	12.7	14.4	6.2	6.8	7.6	4.9	4.8	5.1	8.8	6.6	4.0	3.0	2.6	2.0	2.0	3.5	23.9	32.6	16.7	4.5	24	46.4	2.0	11.4	0.0	0.0
18	4.6	2.7	2.7	3.7	6.1	5.1	4.5	8.3	11.3	8.7	11.7	1.9	1.5	1.5	2.0	1.3	2.0	4.0	6.0	4.2	11.0	16.0	7.8	6.5	24	16.0	1.3	5.6	0.0	0.0
19	5.0	28.1	26.9	11.4	7.4	4.5	3.3	3.1	3.9	4.5	3.6	3.5	14.0	27.1	41.5	43.2	9.8	13.6	10.4	10.5	6.6	2.7	2.1	2.4	24	43.2	2.1	12.0	0.0	0.0
20	2.0	2.1	5.4	2.0	3.6	1.7	2.5	2.3	3.0	1.8	1.5	7.0	1.9	1.7	1.8	2.5	1.9	2.6	3.8	3.2	5.1	5.8	4.5	6.0	24	7.0	1.5	3.2	0.0	0.0
21	3.0	2.2	2.1	1.8	1.5	2.5	2.8	2.8	2.2	2.6	4.5	4.9	6.3	2.3	2.4	1.6	1.1	1.8	5.4	29.1	30.7	24.8	11.4	14.7	24	30.7	1.1	6.9	0.0	0.0
22	5.2	7.5	3.3	3.3	4.0	4.2	11.5	11.4	11.0	5.4	4.5	3.3	14.9	3.5	1.7	1.6	1.7	1.7	6.6	1.7	1.6	1.9	1.4	10.0	24	14.9	1.4	5.1	0.0	0.0
23	13.2	4.0	3.8	5.1	5.3	5.2	3.6	4.8	8.8	10.7	11.2	8.4	7.6	5.0	3.8	4.5	3.7	3.6	5.0	8.2	9.1	9.0	6.6	5.9	24	13.2	3.6	6.5	0.0	0.0
24	35.6	28.4	23.9	6.6	5.5	18.0	11.2	6.5	7.6	7.6	8.4	9.3	8.6	5.3	4.4	4.2	3.0	3.3	2.6	2.5	2.7	2.1	8.6	5.3	24	35.6	2.1	9.2	0.0	0.0
25	36.8	16.1	3.2	10.4	17.4	5.2	8.0	6.8	7.1	6.9	6.8	3.9	2.6	2.4	1.7	1.9	1.8	1.5	2.6	2.5	3.1	2.5	2.7	3.5	24	36.8	1.5	6.6	0.0	0.0
26	2.9	2.8	2.7	2.9	3.3	6.0	3.8	3.9	4.8	7.6	4.6	4.5	5.4	6.1	3.8	3.8	5.2	5.7	7.4	4.8	17.7	9.1	2.1	3.7	24	17.7	2.1	5.2	0.0	0.0
27	2.3	4.1	4.1	7.5	4.2	7.1	8.0	4.3	3.5	3.2	2.8	2.6	2.4	2.4	2.2	2.7	1.8	4.2	6.7	7.3	3.4	6.5	11.0	9.5	24	11.0	1.8	4.7	0.0	0.0
28	3.7	2.8	2.7	8.8	6.0	3.4	2.5	2.1	1.7	1.5	1.6	1.9	3.5	4.1	2.9	2.8	2.6	2.0	2.3	3.1	4.2	9.2	21.6	9.1	24	21.6	1.5	4.4	0.0	0.0
29	7.5	6.2	9.6	6.6	6.1	10.4	6.8	4.1	3.5	C	C	C	C	C	C	0.9	0.8	0.6	0.7	0.7	0.6	0.6	0.6	0.5	18	10.4	0.5	3.7	0.0	0.0
30	12.8	10.0	8.3	8.1	9.3	10.6	12.4	5.8	4.4	3.2	3.2	3.0	3.7	4.6	2.9	3.9	4.8	4.3	7.3	7.3	5.3	5.7	1.9	2.0	24	12.8	1.9	6.0	0.0	0.0
31	1.6	1.7	1.3	7.1	3.6	2.8	9.3	2.8	3.2	6.3	1.6	2.2	1.2	1.0	1.7	1.3	1.5	2.5	4.9	9.2	3.4	2.5	1.6	1.3	24	9.3	1.0	3.2	0.0	0.0
Count	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	31	31	31	31	31	31	31	31	31	738					
Maximum	46.4	29.6	26.9	21.5	39.4	39.7	27.2	18.9	11.3	27.7	11.7	9.3	14.9	27.1	41.5	43.2	9.8	13.6	10.4	29.1	30.7	35.2	35.7	36.8	24					
Minimum	1.6	1.7	1.3	1.8	1.5	1.7	1.9	2.0	1.5	1.5	1.5	1.2	1.0	1.0	1.0	0.9	0.8	0.6	0.7	0.7	0.6	0.6	0.6	0.5	18					
Average	11.3	9.5	8.5	7.5	9.6	9.2	8.7	5.6	5.2	5.8	4.5	3.8	4.5	3.9	4.1	4.0	3.0	3.5	4.4	6.6	8.6	9.5	9.7	9.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.8	2.3	2.8	3.3	4.1	5.1	6.7	9.1	14.8	23.5	36.7	46.4

Maximum Hourly	46.4
Maximum Daily	13.2
Monthly Average	6.7

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down

NOx - June (ppb) COURTICE 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	3.2	16.1	35.9	23.7	23.4	17.0	11.2	1.8	1.3	1.5	4.8	2.6	1.2	1.5	3.6	3.1	4.0	3.6	3.7	5.7	5.3	2.5	3.0	1.7	24	35.9	1.2	7.6	0.0	0.0
2	3.0	1.5	1.4	1.9	1.9	3.0	2.3	1.8	2.1	2.2	0.8	0.7	0.6	0.6	0.6	0.6	0.5	0.7	0.6	3.1	7.8	14.7	14.1	8.5	24	14.7	0.5	3.1	0.0	0.0
3	7.8	7.4	3.1	3.2	19.3	4.6	2.9	3.4	3.6	14.1	17.2	33.7	30.5	14.7	13.0	3.6	1.6	1.4	3.7	7.9	22.6	29.3	20.1	8.4	24	33.7	1.4	11.5	0.0	0.0
4	11.1	2.3	2.3	2.5	5.2	5.7	7.0	9.2	3.5	3.8	3.7	2.6	C	2.7	2.7	3.0	2.8	2.3	2.6	3.7	2.9	3.8	4.1	4.4	23	11.1	2.3	4.1	0.0	0.0
5	3.1	4.1	2.3	3.3	2.9	5.9	3.3	3.6	4.1	3.4	2.7	2.8	2.9	3.4	3.4	4.0	2.5	2.5	5.1	5.8	4.3	2.8	5.4	4.0	24	5.9	2.3	3.7	0.0	0.0
6	7.4	2.2	2.9	5.8	8.6	6.8	4.9	4.1	2.5	A	2.8	1.9	1.4	3.4	5.2	7.4	7.7	7.0	5.9	5.4	5.4	3.9	3.4	2.4	23	8.6	1.4	4.7	0.0	0.0
7	2.1	1.9	2.0	1.9	2.0	2.6	3.3	2.9	3.6	3.9	4.2	2.7	3.2	3.0	2.5	8.4	9.7	9.1	7.5	8.0	10.0	12.8	33.7	35.0	24	35.0	1.9	7.3	0.0	0.0
8	33.3	29.9	14.5	6.7	7.4	15.5	16.2	8.1	4.5	2.3	1.9	1.4	1.4	1.4	1.3	0.9	0.9	0.9	1.0	1.7	21.9	33.5	40.2	16.7	24	40.2	0.9	11.0	0.0	0.0
9	7.4	5.9	5.5	6.9	25.8	14.2	6.4	4.6	6.8	2.5	1.8	1.7	1.8	1.9	1.7	1.6	1.2	1.1	1.6	4.4	16.4	21.7	16.4	8.3	24	25.8	1.1	7.0	0.0	0.0
10	12.4	6.4	5.4	3.8	3.9	5.5	17.8	37.1	6.5	3.4	1.9	1.5	1.0	1.1	1.1	1.1	3.6	2.5	6.1	9.1	17.1	21.2	27.7	27.0	24	37.1	1.0	9.3	0.0	0.0
11	11.8	9.1	7.2	10.7	16.1	13.0	13.0	8.4	5.1	2.8	1.4	1.1	1.1	1.0	1.1	0.9	1.1	2.0	3.7	6.2	32.7	41.0	69.5	35.2	24	69.5	0.9	12.3	0.0	0.0
12	37.6	20.4	17.4	14.7	21.4	28.3	11.2	4.6	4.2	2.6	1.7	2.8	2.0	1.6	1.5	1.4	2.1	0.9	1.4	1.5	10.3	5.2	4.0	11.7	24	37.6	0.9	8.8	0.0	0.0
13	9.6	11.9	10.9	14.4	5.1	13.6	14.1	7.2	9.1	3.0	2.6	1.5	1.4	1.7	2.3	2.1	3.6	3.0	2.5	4.2	3.5	2.8	3.1	7.1	24	14.4	1.4	5.9	0.0	0.0
14	4.5	5.1	3.7	4.1	3.1	4.9	3.2	2.5	2.9	2.6	3.6	4.1	3.1	3.5	3.2	4.1	2.6	4.0	2.7	4.4	6.6	6.1	11.5	5.1	24	11.5	2.5	4.2	0.0	0.0
15	14.5	10.4	12.2	14.6	9.1	12.5	16.0	10.7	8.2	8.2	9.7	9.3	12.2	6.9	11.8	2.9	1.0	0.7	2.0	2.3	13.1	16.1	29.7	26.6	24	29.7	0.7	10.9	0.0	0.0
16	31.8	32.2	23.1	24.4	27.6	17.1	15.3	15.1	8.4	6.5	7.6	8.9	7.1	3.4	2.8	1.8	1.3	1.7	4.6	9.6	14.8	10.5	13.2	13.7	24	32.2	1.3	12.6	0.0	0.0
17	11.6	9.6	12.1	13.1	13.0	8.9	7.1	4.9	3.0	3.5	2.8	3.9	5.9	2.2	1.9	2.4	1.7	2.5	3.4	13.3	17.9	16.5	5.5	3.0	24	17.9	1.7	7.1	0.0	0.0
18	2.5	3.8	2.8	2.8	3.3	3.9	4.3	4.4	5.2	5.4	4.5	4.1	2.6	2.0	1.9	3.9	5.3	6.5	5.2	4.3	3.8	5.0	3.1	4.4	24	6.5	1.9	4.0	0.0	0.0
19	3.0	3.1	6.7	3.2	3.2	4.6	5.8	4.6	4.3	2.8	1.4	1.2	1.3	1.2	1.3	1.4	1.0	1.0	1.1	1.4	3.1	29.5	47.3	47.2	24	47.3	1.0	7.5	0.0	0.0
20	27.5	23.6	19.8	24.0	47.4	40.6	34.3	20.0	19.3	17.4	24.1	22.4	18.8	13.6	6.7	5.3	6.1	3.4	2.5	2.4	3.4	41.7	48.6	35.9	24	48.6	2.4	21.2	0.0	0.0
21	25.0	5.9	5.5	7.2	5.9	6.2	5.4	3.2	3.9	3.5	1.6	1.1	1.7	2.0	1.1	1.1	0.9	1.7	2.8	4.5	11.0	36.9	24.1	20.4	24	36.9	0.9	7.6	0.0	0.0
22	13.1	12.6	10.8	9.3	11.0	13.2	23.0	21.4	4.5	4.3	9.2	5.8	4.6	7.8	6.0	1.9	6.1	4.2	7.0	13.1	21.6	8.0	4.9	10.6	24	23.0	1.9	9.7	0.0	0.0
23	5.9	8.8	4.5	3.0	2.5	3.1	4.1	6.0	11.0	13.9	7.5	8.7	6.0	11.1	12.4	7.7	5.0	3.5	4.3	6.4	6.2	5.2	4.0	4.5	24	13.9	2.5	6.5	0.0	0.0
24	4.3	4.4	3.9	3.9	5.4	5.2	5.4	6.5	4.0	3.5	3.8	6.1	5.9	4.2	4.1	6.7	7.8	7.9	6.5	9.3	10.1	6.1	4.8	5.6	24	10.1	3.5	5.6	0.0	0.0
25	5.1	5.0	4.1	3.8	5.0	5.3	6.8	11.0	3.2	2.7	3.0	2.7	2.0	2.1	2.7	1.1	1.2	1.3	1.2	1.6	1.4	16.0	21.0	13.4	24	21.0	1.1	5.1	0.0	0.0
26	8.1	19.4	14.7	17.1	16.5	15.0	14.4	8.9	5.7	4.2	3.4	2.7	3.3	3.6	3.0	2.9	2.8	7.8	10.0	11.2	11.9	21.4	21.5	21.0	24	21.5	2.7	10.4	0.0	0.0
27	11.7	5.3	4.6	11.0	16.0	5.0	3.9	11.3	13.5	6.9	5.8	7.0	14.4	24.8	17.6	10.9	18.7	11.9	11.8	9.2	9.7	11.0	10.1	11.1	24	24.8	3.9	11.0	0.0	0.0
28	9.7	7.4	6.7	6.4	5.0	4.6	4.5	4.5	4.9	4.9	5.5	3.3	5.8	2.4	2.9	3.0	2.7	2.7	2.5	6.3	7.8	43.6	26.7	52.5	24	52.5	2.4	9.4	0.0	0.0
29	58.9	37.4	36.7	24.8	16.8	18.8	14.7	12.5	10.9	4.8	4.5	C	C	4.6	2.8	2.4	1.5	1.3	1.4	1.7	2.4	1.9	2.0	2.5	22	58.9	1.3	12.1	0.0	0.0
30	8.4	2.9	4.0	6.3	6.3	10.1	6.2	3.7	3.0	3.2	2.9	2.3	2.2	2.1	1.5	1.6	1.7	1.6	1.9	2.0	2.2	1.9	1.8	4.6	24	10.1	1.5	3.5	0.0	0.0
31																														
Count	30	30	30	30	30	30	30	30	30	29	30	29	28	30	30	30	30	30	30	30	30	30	30	30	716					
Maximum	58.9	37.4	36.7	24.8	47.4	40.6	34.3	37.1	19.3	17.4	24.1	33.7	30.5	24.8	17.6	10.9	18.7	11.9	11.8	13.3	32.7	43.6	69.5	52.5	24					
Minimum	2.1	1.5	1.4	1.9	1.9	2.6	2.3	1.8	1.3	1.5	0.8	0.7	0.6	0.6	0.6	0.6	0.5	0.7	0.6	1.4	1.4	1.9	1.8	1.7	22					
Average	13.2	10.5	9.5	9.3	11.3	10.5	9.6	8.3	5.8	5.0	4.9	5.2	5.2	4.5	4.1	3.3	3.6	3.4	3.9	5.6	10.2	15.7	17.5	15.1						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.5	2.4	3.0	3.7	4.6	6.0	8.3	12.2	19.4	27.7	43.3	69.5

Maximum Hourly	69.5
Maximum Daily	21.2
Monthly Average	8.2

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down

NOx April (ppb) Rundle Road 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	1.5	1.1	0.7	0.5	0.7	0.9	0.8	0.8	0.5	0.6	0.5	0.7	0.7	1.4	1.0	1.3	0.9	0.8	0.8	2.1	2.5	1.3	2.5	9.6	24	9.6	0.5	1.4	0	0
2	6.2	6.6	5.6	9.5	4.6	5.4	17.3	13.9	10.5	9.5	7.5	6.3	7.9	10.7	6.6	8.9	6.7	6.3	10.7	8.9	11.6	13.0	12.9	4.5	24	17.3	4.5	8.8	0	0
3	3.1	4.0	16.4	10.7	21.3	4.9	5.2	4.9	6.4	3.6	4.4	9.5	4.7	4.2	4.3	5.9	5.1	8.7	8.3	9.8	4.8	6.6	2.3	2.2	24	21.3	2.2	6.7	0	0
4	4.0	3.0	8.4	5.0	4.3	15.1	6.5	7.4	7.4	9.4	5.0	5.2	5.5	5.2	4.8	2.7	2.2	1.5	1.0	1.3	1.5	0.8	1.6	1.1	24	15.1	0.8	4.6	0	0
5	1.2	1.8	2.2	0.8	0.8	1.1	4.7	3.6	2.1	1.8	1.3	1.3	1.7	3.1	2.6	5.8	5.3	2.2	1.1	1.7	2.7	4.2	13.3	10.1	24	13.3	0.8	3.2	0	0
6	6.6	3.9	4.4	9.0	13.1	10.8	12.0	13.1	8.1	5.1	8.0	10.7	7.5	6.9	6.7	10.6	8.3	7.4	6.4	4.7	3.3	1.5	1.3	0.9	24	13.1	0.9	7.1	0	0
7	1.3	0.9	0.7	0.7	0.9	1.5	5.4	5.3	2.0	1.0	1.1	0.8	0.6	0.4	1.3	2.0	2.0	1.8	1.8	1.6	1.3	1.6	4.5	6.2	24	6.2	0.4	2.0	0	0
8	4.0	3.8	3.7	2.0	1.3	1.5	2.2	1.3	0.4	0.6	0.6	0.7	0.5	0.7	0.4	0.3	0.6	0.5	0.4	0.7	0.8	0.3	0.4	0.4	24	4.0	0.3	1.2	0	0
9	0.6	1.7	4.1	5.8	27.3	30.3	27.2	17.1	11.4	12.2	7.7	5.0	2.5	2.0	2.0	2.4	4.0	3.5	6.6	5.0	5.9	8.8	10.6	9.1	24	30.3	0.6	8.9	0	0
10	7.0	5.3	4.7	3.1	2.9	3.2	10.0	6.7	9.1	16.7	13.0	11.9	7.0	6.7	8.6	9.8	7.1	6.6	11.8	14.0	17.3	17.7	11.3	12.0	24	17.7	2.9	9.3	0	0
11	15.1	14.0	15.4	9.9	7.8	14.4	12.1	9.8	9.9	7.7	15.5	8.1	9.0	9.1	9.4	8.6	9.4	10.4	13.7	30.4	26.9	16.6	14.5	11.5	24	30.4	7.7	12.9	0	0
12	8.6	22.3	12.7	15.0	16.4	14.7	13.2	13.2	11.3	9.3	6.7	6.5	10.1	9.4	10.9	16.3	19.0	21.5	16.3	13.0	14.5	5.7	4.4	5.0	24	22.3	4.4	12.3	0	0
13	2.8	2.3	1.9	1.9	2.1	2.7	4.5	4.9	4.4	4.0	8.5	12.5	6.6	8.0	5.3	5.3	4.1	4.1	3.3	9.1	2.6	2.3	6.3	1.5	24	12.5	1.5	4.6	0	0
14	1.8	1.2	1.1	1.1	1.0	1.3	1.2	1.0	1.2	1.4	9.0	1.5	1.0	1.6	1.7	2.3	1.9	1.1	1.0	1.0	1.4	1.5	1.0	1.1	24	9.0	1.0	1.6	0	0
15	1.1	2.4	1.2	1.8	2.0	1.5	1.3	8.3	2.4	1.6	11.7	1.8	5.5	2.6	1.8	2.3	4.8	3.0	2.3	2.1	4.6	4.3	3.5	0.3	24	11.7	0.3	3.1	0	0
16	0.0	0.0	0.0	6.8	3.6	2.6	2.8	2.5	1.8	3.2	1.9	2.2	2.8	11.1	5.4	6.7	9.6	19.5	30.2	26.4	18.4	12.9	13.6	10.4	24	30.2	0.0	8.1	0	0
17	14.0	15.1	16.0	8.5	8.7	9.2	11.9	12.3	8.4	6.1	4.1	4.2	3.5	4.4	7.5	6.1	9.7	10.7	10.5	12.3	12.4	12.9	12.4	5.9	24	16.0	3.5	9.4	0	0
18	4.9	2.3	3.6	2.2	2.6	6.9	15.6	10.6	10.8	5.4	5.7	2.8	2.9	2.6	3.0	6.9	14.0	3.5	1.2	1.3	2.2	13.4	12.2	3.7	24	15.6	1.2	5.8	0	0
19	1.9	0.8	0.8	0.2	0.3	0.4	0.9	0.7	0.5	1.1	0.8	0.7	0.8	0.6	0.7	0.5	0.5	0.5	0.3	0.1	0.2	0.3	0.3	0.2	24	1.9	0.1	0.6	0	0
20	0.5	0.3	0.4	0.8	0.7	1.6	1.7	0.7	0.7	0.9	0.5	0.6	0.7	0.8	0.4	0.6	0.7	0.7	0.6	1.0	1.6	1.7	1.1	0.8	24	1.7	0.3	0.8	0	0
21	0.5	0.5	0.5	0.4	0.6	2.1	24.8	11.3	4.2	9.0	16.1	14.6	15.6	6.4	4.7	2.7	2.6	0.3	0.8	0.9	1.0	0.6	0.5	1.3	24	24.8	0.3	5.1	0	0
22	7.4	2.1	2.3	2.5	2.8	13.6	9.2	7.2	7.6	9.6	7.2	6.9	4.9	3.9	4.2	3.2	3.3	3.5	7.0	6.4	6.9	10.0	11.1	11.0	24	13.6	2.1	6.4	0	0
23	10.3	6.5	5.6	5.2	4.7	3.3	7.9	10.3	10.6	17.4	2.9	4.2	3.8	2.2	3.3	3.1	8.7	6.4	16.0	9.1	3.4	3.4	2.3	8.9	24	17.4	2.2	6.7	0	0
24	11.9	8.3	9.1	5.2	8.1	8.2	21.3	19.4	9.9	10.1	9.2	6.1	6.3	9.2	12.1	17.6	16.2	12.1	7.5	22.7	28.1	14.4	17.2	12.2	24	28.1	5.2	12.6	0	0
25	9.0	10.1	4.4	4.5	5.3	3.4	4.5	4.9	6.0	10.7	3.5	3.3	4.2	6.6	6.0	3.8	9.8	14.3	12.1	1.8	1.6	1.2	1.0	0.9	24	14.3	0.9	5.5	0	0
26	0.9	0.7	0.7	0.7	0.8	1.0	1.4	1.4	1.7	1.2	1.2	1.6	4.0	7.9	6.6	4.7	6.0	7.1	11.0	7.2	17.4	4.7	5.1	2.6	24	17.4	0.7	4.1	0	0
27	7.7	7.4	26.0	8.4	5.1	4.0	10.3	27.1	27.8	24.5	16.1	5.4	5.2	12.0	47.8	21.8	26.7	15.4	7.5	13.5	10.5	8.1	4.5	2.2	24	47.8	2.2	14.4	0	0
28	2.0	2.0	2.7	2.2	1.8	1.7	1.9	1.5	1.4	1.9	1.8	1.4	1.4	1.4	1.2	1.1	0.9	1.2	0.7	0.9	0.9	0.8	0.6	0.7	24	2.7	0.6	1.4	0	0
29	0.7	0.5	0.5	0.4	0.4	0.6	0.6	0.8	0.7	0.6	0.6	0.5	0.9	0.8	0.9	0.9	0.8	0.8	1.1	0.8	0.9	0.8	0.3	0.3	24	1.1	0.3	0.7	0	0
30	0.6	0.3	0.5	0.4	0.7	0.9	1.7	1.5	1.8	1.5	2.7	2.9	1.6	1.6	C	C	1.3	1.1	2.8	12.9	5.4	5.1	7.1	13.9	22	13.9	0.3	3.1	0	0
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	718					
Maximum	15.1	22.3	26.0	15.0	27.3	30.3	27.2	27.1	27.8	24.5	16.1	14.6	15.6	12.0	47.8	21.8	26.7	21.5	30.2	30.4	28.1	17.7	17.2	13.9	24					
Minimum	0.0	0.0	0.0	0.2	0.3	0.4	0.6	0.7	0.4	0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.5	0.3	0.3	0.1	0.2	0.3	0.3	0.2	22					
Average	4.6	4.4	5.2	4.2	5.1	5.6	8.0	7.5	6.0	6.2	5.8	4.7	4.3	4.8	5.9	5.7	6.4	5.9	6.5	7.4	7.1	5.9	6.0	5.0						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.7	1.0	1.6	2.3	4.0	5.3	7.4	9.9	13.2	16.4	27.2	47.8

Maximum Hourly	47.8
Maximum Daily	14.4
Monthly Average	5.7

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down; R - Rate of Change

NOx May (ppb) Rundle Road 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	24.7	17.7	13.1	24.4	17.0	16.8	26.4	43.4	15.5	18.4	15.5	10.8	12.3	10.6	8.7	9.4	7.7	7.9	7.1	12.6	14.5	15.2	15.1	14.5	24	43.4	7.1	15.8	0	0
2	8.4	7.3	7.7	8.8	10.5	13.8	21.5	13.7	14.4	11.2	11.2	7.7	11.4	12.2	8.8	7.3	7.3	6.7	15.4	25.4	7.8	4.7	16.6	21.0	24	25.4	4.7	11.7	0	0
3	7.3	23.1	13.9	8.2	7.1	9.3	9.7	10.6	12.9	10.8	13.1	9.4	14.5	14.2	13.5	27.4	12.1	2.0	2.3	2.8	4.1	2.0	2.0	1.6	24	27.4	1.6	9.7	0	0
4	8.9	33.4	13.7	8.4	16.6	7.1	10.3	8.3	5.1	4.2	5.8	10.4	10.9	7.6	6.9	4.4	6.0	4.5	3.0	2.6	1.9	1.8	1.8	2.5	24	33.4	1.8	7.8	0	0
5	10.4	6.2	8.2	8.7	9.1	10.1	11.8	6.9	7.4	6.2	5.3	3.9	5.6	6.5	8.3	5.4	6.0	5.7	8.0	6.5	8.0	12.4	21.4	10.9	24	21.4	3.9	8.3	0	0
6	3.6	8.6	7.4	5.6	4.9	4.2	2.9	2.0	4.5	1.9	4.6	10.0	16.6	4.5	17.1	5.4	4.7	19.0	15.0	9.8	3.4	3.5	2.0	1.2	24	19.0	1.2	6.8	0	0
7	1.2	1.3	1.1	1.0	1.3	2.2	3.0	2.1	1.7	1.7	8.1	3.1	5.6	4.6	7.2	3.3	6.5	5.8	7.3	16.7	8.7	10.4	7.0	4.5	24	16.7	1.0	4.8	0	0
8	4.6	3.1	6.3	6.3	4.8	5.7	12.0	7.6	17.3	17.6	23.1	6.4	8.2	4.9	8.7	6.6	9.4	5.5	10.7	13.1	6.3	6.6	5.3	3.4	24	23.1	3.1	8.5	0	0
9	2.9	2.5	2.9	2.3	2.7	5.5	7.6	15.9	11.4	12.6	6.7	7.3	14.9	13.3	16.2	8.7	9.1	8.3	7.2	11.6	7.3	8.9	7.9	10.3	24	16.2	2.3	8.5	0	0
10	5.2	8.1	31.7	30.0	18.5	10.9	7.4	9.8	8.4	8.3	10.5	11.0	6.9	7.9	7.4	5.4	2.6	2.2	1.7	1.8	1.5	1.0	1.2	0.8	24	31.7	0.8	8.3	0	0
11	0.9	1.1	0.7	0.7	0.5	1.2	1.8	2.7	2.6	1.6	10.9	5.8	5.1	4.2	3.5	3.8	5.4	7.0	10.4	13.2	16.2	10.0	7.8	9.9	24	16.2	0.5	5.3	0	0
12	6.6	7.6	5.9	10.0	6.0	5.0	7.3	10.8	10.0	6.4	8.5	7.6	14.2	3.7	2.8	2.4	2.9	12.0	3.9	5.3	4.2	4.6	3.8	2.4	24	14.2	2.4	6.4	0	0
13	2.1	13.2	7.4	5.9	5.5	3.3	3.9	27.1	4.8	5.0	4.5	3.1	2.5	2.3	4.0	13.9	4.7	3.4	5.4	15.1	8.2	8.2	25.2	4.6	24	27.1	2.1	7.6	0	0
14	4.9	7.1	4.2	15.0	13.5	11.2	33.7	25.9	14.0	12.3	15.0	14.1	11.8	15.4	10.1	10.5	11.4	10.1	10.7	12.3	7.7	10.8	18.8	10.0	24	33.7	4.2	12.9	0	0
15	9.5	10.5	8.0	8.7	6.7	15.4	12.9	6.0	3.2	5.1	2.7	3.6	3.9	9.4	2.9	5.5	12.3	13.2	2.2	2.1	2.3	3.1	4.1	1.8	24	15.4	1.8	6.5	0	0
16	2.0	1.7	3.7	13.7	3.1	9.4	9.6	8.4	8.0	6.3	4.0	8.2	17.3	21.7	21.9	10.0	9.1	7.5	12.3	24.0	18.0	12.4	6.7	8.7	24	24.0	1.7	10.3	0	0
17	11.8	4.8	3.3	4.6	18.3	27.6	49.2	54.6	45.0	32.5	33.6	19.9	10.8	5.7	5.0	4.3	4.5	5.0	9.9	13.9	9.2	11.3	11.7	1.7	24	54.6	1.7	16.6	0	0
18	9.7	1.5	2.2	1.4	3.7	1.9	2.1	2.7	5.4	3.6	3.4	4.8	11.2	7.2	10.3	16.7	7.2	3.0	4.3	7.6	7.6	3.9	2.6	6.5	24	16.7	1.4	5.4	0	0
19	2.1	2.3	9.0	3.4	3.3	3.4	3.0	2.6	3.9	2.2	2.1	2.8	3.5	4.3	9.7	5.0	3.1	3.3	4.1	8.2	6.6	9.6	13.3	10.1	24	13.3	2.1	5.0	0	0
20	18.6	16.0	13.4	1.9	1.8	1.6	2.3	1.4	1.4	1.6	1.4	3.8	2.3	1.4	1.6	1.5	1.6	1.4	1.7	2.7	3.0	2.9	2.2	2.4	24	18.6	1.4	3.7	0	0
21	2.3	1.7	1.1	1.2	1.4	1.6	1.4	4.9	3.7	3.9	4.5	3.0	4.0	3.7	5.1	3.2	4.6	5.1	5.1	5.8	3.9	5.2	5.2	3.2	24	5.8	1.1	3.5	0	0
22	11.0	5.3	7.3	5.8	9.8	6.6	9.3	13.7	6.9	3.2	7.9	2.9	4.2	4.3	8.0	9.0	14.7	12.9	23.2	23.5	18.2	29.0	33.7	21.4	24	33.7	2.9	12.2	0	0
23	4.4	2.1	1.9	1.9	6.2	24.9	25.7	26.7	23.7	21.7	25.2	17.3	14.8	15.2	2.4	3.4	2.4	1.8	1.9	2.8	2.6	2.4	2.1	13.5	24	26.7	1.8	10.3	0	0
24	3.3	19.7	17.8	30.7	23.0	11.0	20.4	22.2	26.2	27.6	21.4	16.9	13.6	12.1	12.3	17.8	11.3	10.1	6.5	14.7	18.4	18.6	22.2	19.9	24	30.7	3.3	17.4	0	0
25	13.0	16.8	31.7	18.4	28.1	23.0	29.9	28.0	23.3	19.2	19.7	10.2	9.9	10.9	5.5	4.6	5.2	6.7	5.6	5.4	6.0	6.2	7.2	7.4	24	31.7	4.6	14.2	0	0
26	6.9	7.4	7.2	9.1	5.9	17.6	15.8	15.5	19.2	26.7	26.5	10.5	8.0	7.4	5.7	5.0	5.4	5.4	3.2	9.4	3.9	3.4	4.5	8.5	24	26.7	3.2	9.9	0	0
27	4.2	6.2	6.0	3.9	3.8	5.9	6.1	6.6	8.6	22.3	10.5	13.8	26.8	3.6	12.7	24.4	5.1	4.3	5.3	5.0	3.5	7.1	7.4	8.6	24	26.8	3.5	8.8	0	0
28	4.0	4.9	13.4	4.6	6.1	9.7	46.0	40.5	20.0	27.4	22.6	26.9	22.4	18.2	14.9	8.8	8.5	11.7	6.4	2.9	5.2	4.3	6.3	2.4	24	46.0	2.4	14.1	0	0
29	2.5	12.7	3.9	2.9	5.3	3.4	4.6	2.7	3.5	5.5	3.6	3.4	5.2	C	C	12.9	26.8	7.3	6.5	7.0	9.3	11.1	9.6	11.6	22	26.8	2.5	7.3	0	0
30	7.5	5.0	3.9	3.0	3.5	4.3	8.4	6.2	6.4	5.2	5.7	4.5	C	C	C	4.0	3.3	2.3	3.3	3.6	6.0	6.4	4.6	5.1	21	8.4	2.3	4.9	0	0
31	3.2	3.4	3.5	5.2	7.2	5.9	5.7	8.0	9.5	11.2	14.5	11.9	6.0	6.6	4.2	4.9	5.3	6.6	6.6	7.5	7.3	14.5	11.5	16.0	24	16.0	3.2	7.8	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	31	30	29	29	31	31	31	31	31	31	31	31	31	739					
Maximum	24.7	33.4	31.7	30.7	28.1	27.6	49.2	54.6	45.0	32.5	33.6	26.9	26.8	21.7	21.9	27.4	26.8	19.0	23.2	25.4	18.4	29.0	33.7	21.4	24					
Minimum	0.9	1.1	0.7	0.7	0.5	1.2	1.4	1.4	1.4	1.6	1.4	2.8	2.3	1.4	1.6	1.5	1.6	1.4	1.7	1.8	1.5	1.0	1.2	0.8	21					
Average	6.7	8.5	8.4	8.2	8.2	9.0	13.3	14.1	11.2	11.1	11.4	8.9	10.1	8.4	8.5	8.2	7.3	6.7	7.0	9.5	7.4	8.1	9.4	7.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	2.2	3.4	4.5	5.5	7.0	8.3	10.5	13.4	18.6	24.9	33.6	54.6

Maximum Hourly	54.6
Maximum Daily	17.4
Monthly Average	9.0

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down; R - Rate of Change

NOx Rundle Road
June 2018
(ppb)

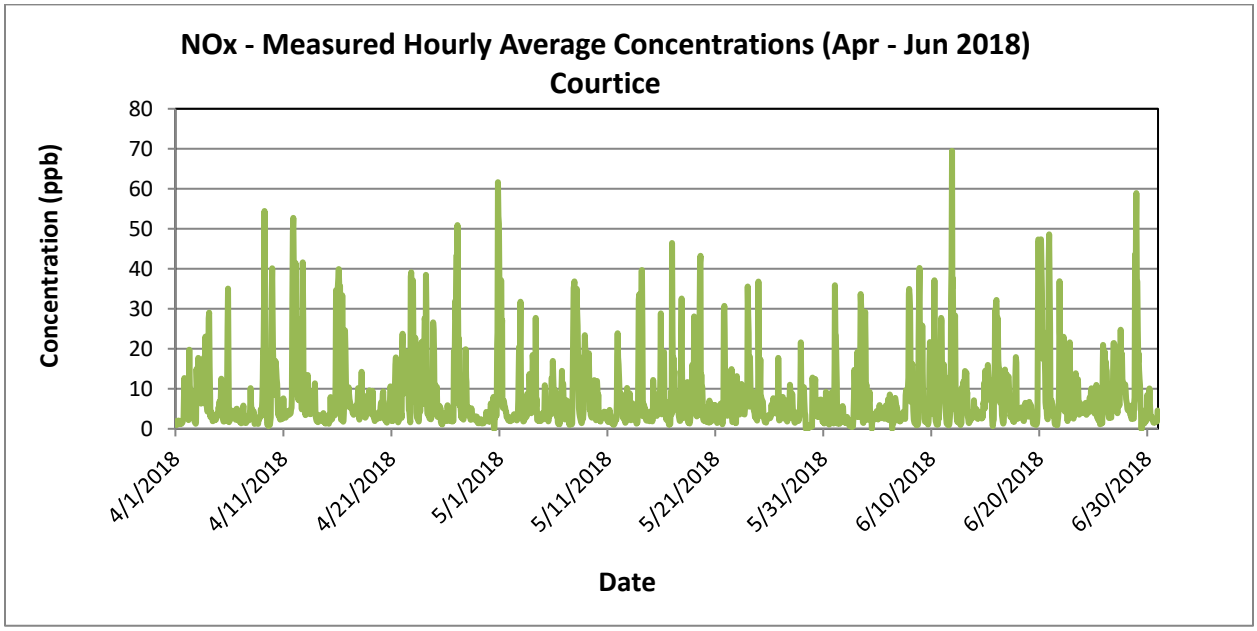
Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	27.1	13.0	15.4	12.0	7.1	17.6	23.3	9.4	12.3	26.2	11.9	9.1	3.7	2.6	3.4	2.4	2.0	1.6	1.3	1.7	2.8	0.9	0.9	0.7	24	27.1	0.7	8.7	0	0
2	1.1	0.9	0.8	0.8	0.9	0.8	0.8	1.0	3.1	1.2	3.1	1.0	0.8	0.9	4.4	0.7	1.3	1.0	1.8	1.5	3.3	5.7	8.3	6.3	24	8.3	0.7	2.2	0	0
3	5.1	4.9	5.1	2.4	2.5	3.6	3.0	8.2	1.6	5.5	2.1	3.3	2.5	6.2	9.2	5.5	6.1	9.2	14.5	2.7	3.3	3.2	6.6	5.1	24	14.5	1.6	5.1	0	0
4	6.1	10.3	11.6	11.5	13.8	20.2	68.2	71.7	40.7	42.1	18.9	12.4	22.9	C	47.5	27.8	1.8	2.0	1.5	1.6	1.8	1.7	3.6	3.6	23	71.7	1.5	19.3	0	0
5	2.6	4.3	3.4	2.9	1.2	11.7	20.5	62.7	40.0	26.8	40.2	57.8	34.8	42.9	42.2	9.0	1.2	1.2	0.9	1.0	1.1	1.0	1.0	0.7	24	62.7	0.7	17.1	0	0
6	0.9	0.7	0.5	1.0	1.1	1.2	2.0	1.6	3.0	5.5	6.8	A	7.6	7.9	7.1	10.2	13.6	11.0	9.9	12.0	15.7	9.1	17.6	16.9	23	17.6	0.5	7.1	0	0
7	4.8	9.1	7.6	8.8	10.8	13.1	19.4	13.8	11.7	8.1	18.7	12.2	11.1	14.4	8.8	7.3	4.4	9.5	14.9	7.1	12.5	12.7	11.1	7.2	24	19.4	4.4	10.8	0	0
8	19.1	8.1	1.6	1.8	2.8	4.5	11.5	2.8	1.7	2.4	6.1	2.3	2.9	10.0	3.0	2.6	1.3	3.4	5.1	6.7	5.8	6.4	7.3	5.9	24	19.1	1.3	5.2	0	0
9	2.1	1.9	1.5	2.6	2.9	2.3	4.1	10.7	10.0	5.7	3.3	13.5	1.6	1.0	1.3	1.4	1.4	1.2	3.3	4.5	5.1	6.1	8.5	5.3	24	13.5	1.0	4.2	0	0
10	4.2	2.2	8.3	3.7	0.8	1.1	5.8	6.7	1.2	1.2	4.2	2.1	23.5	27.5	8.1	10.0	4.8	1.2	5.6	6.0	9.5	3.9	4.3	32.4	24	32.4	0.8	7.4	0	0
11	3.4	2.8	2.5	1.8	2.3	5.1	3.8	5.5	5.3	3.1	2.1	7.8	3.5	3.0	1.4	1.7	3.1	16.6	8.7	5.6	11.3	13.6	28.2	5.5	24	28.2	1.4	6.2	0	0
12	4.5	2.2	2.0	2.7	4.0	3.8	12.7	14.1	7.5	9.3	7.2	4.5	6.1	8.6	5.5	5.1	7.0	7.6	7.2	10.9	7.5	9.7	9.1	8.5	24	14.1	2.0	7.0	0	0
13	7.3	8.9	5.8	17.0	12.3	15.9	21.4	16.1	19.1	7.3	8.6	7.7	5.9	7.2	8.4	8.4	4.7	1.3	1.0	1.1	1.6	1.5	2.0	7.7	24	21.4	1.0	8.3	0	0
14	7.3	3.5	2.8	3.4	2.0	1.6	2.8	1.9	2.0	2.3	1.3	1.5	1.1	2.1	1.7	1.1	1.2	0.8	0.6	1.1	1.6	0.8	1.1	0.9	24	7.3	0.6	1.9	0	0
15	1.4	1.0	1.0	1.5	1.7	26.0	25.9	13.7	14.0	10.9	10.8	9.5	10.4	7.8	7.7	2.5	2.4	5.8	3.6	5.5	5.0	7.0	10.1	8.7	24	26.0	1.0	8.1	0	0
16	5.7	12.0	6.0	5.2	4.3	4.6	5.8	7.8	16.3	13.4	7.5	18.2	11.4	5.0	2.3	2.8	7.5	2.2	5.8	5.1	4.3	5.5	7.4	7.0	24	18.2	2.2	7.2	0	0
17	5.8	4.6	4.8	4.1	6.0	3.8	6.8	6.7	8.2	8.5	8.5	8.4	6.2	1.7	1.8	2.9	2.8	4.8	4.3	13.1	7.2	8.9	11.0	7.9	24	13.1	1.7	6.2	0	0
18	4.5	6.8	4.0	7.1	8.4	16.3	14.8	17.3	16.4	16.4	11.3	6.3	8.6	7.5	7.5	7.6	10.1	10.8	1.9	1.5	1.5	1.3	1.5	1.4	24	17.3	1.3	7.9	0	0
19	3.3	3.0	2.1	2.0	2.0	1.9	2.5	2.9	12.9	3.3	4.6	5.5	9.2	10.9	9.9	7.3	7.5	3.2	5.9	8.9	8.6	13.4	18.0	15.5	24	18.0	1.9	6.8	0	0
20	11.9	9.6	25.2	23.0	14.8	11.2	21.2	12.1	27.1	38.6	24.0	21.9	18.5	12.9	8.9	16.4	10.1	8.3	8.6	17.8	13.6	9.4	10.7	12.7	24	38.6	8.3	16.2	0	0
21	5.8	2.8	2.1	2.2	1.2	1.9	3.7	2.3	2.8	2.0	5.3	4.8	2.8	2.7	3.0	5.7	2.7	2.4	4.3	4.9	4.0	6.1	6.4	4.6	24	6.4	1.2	3.6	0	0
22	3.5	2.8	3.6	4.2	3.3	3.4	7.1	10.4	5.6	3.0	2.5	5.3	2.8	3.3	6.3	6.1	2.2	1.6	8.0	3.7	3.9	4.8	10.2	4.4	24	10.4	1.6	4.7	0	0
23	2.7	9.0	3.5	2.4	2.0	1.7	2.8	8.3	2.5	13.0	6.0	5.6	1.8	1.8	2.3	2.2	5.6	2.1	2.8	3.7	5.7	2.3	2.2	2.6	24	13.0	1.7	3.9	0	0
24	2.6	3.3	4.6	3.2	3.3	2.9	3.3	5.3	1.5	7.5	4.1	4.2	4.1	4.4	5.6	3.8	6.1	5.9	13.4	5.9	1.1	0.6	0.5	0.6	24	13.4	0.5	4.1	0	0
25	1.0	0.8	0.6	0.9	0.9	1.4	2.4	2.0	1.3	1.6	1.0	1.4	1.4	1.8	2.1	3.5	3.8	5.5	3.9	9.7	14.1	7.1	5.2	4.7	24	14.1	0.6	3.3	0	0
26	14.8	7.6	2.9	5.2	5.3	7.2	6.8	15.4	7.7	10.8	11.2	12.6	17.1	3.8	2.2	6.0	2.4	3.1	9.3	9.5	18.1	7.3	9.2	11.1	24	18.1	2.2	8.6	0	0
27	11.3	6.0	6.0	5.1	6.3	13.2	10.9	10.4	12.4	14.2	4.9	3.0	5.6	7.6	9.4	7.4	6.3	5.6	9.4	8.7	5.6	6.5	6.6	3.7	24	14.2	3.0	7.8	0	0
28	3.4	2.4	3.9	7.9	18.3	24.4	32.4	33.1	27.0	17.6	16.0	2.9	C	C	6.4	7.9	6.0	9.1	8.3	7.9	5.8	9.3	15.1	7.5	22	33.1	2.4	12.4	0	0
29	6.1	6.1	13.7	3.9	3.6	11.5	48.1	22.3	21.4	2.4	2.5	8.0	10.3	9.3	5.9	6.7	3.3	3.9	4.7	3.9	4.9	7.3	7.6	4.9	24	48.1	2.4	9.3	0	0
30	18.7	6.4	4.7	12.6	4.2	7.9	6.4	5.1	4.4	5.8	5.5	3.6	3.2	4.7	2.1	3.0	2.9	2.0	5.4	3.7	2.5	5.0	3.8	3.3	24	18.7	2.0	5.3	0	0
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	29	29	28	30	30	30	30	30	30	30	30	30	30	716					
Maximum	27.1	13.0	25.2	23.0	18.3	26.0	68.2	71.7	40.7	42.1	40.2	57.8	34.8	42.9	47.5	27.8	13.6	16.6	14.9	17.8	18.1	13.6	28.2	32.4	24					
Minimum	0.9	0.7	0.5	0.8	0.8	0.8	0.8	1.0	1.2	1.2	1.0	1.0	0.8	0.9	1.3	0.7	1.2	0.8	0.6	1.0	1.1	0.6	0.5	0.6	22					
Average	6.6	5.2	5.3	5.4	5.0	8.1	13.3	13.4	11.4	10.5	8.7	8.8	8.3	7.8	7.9	6.2	4.5	4.8	5.9	5.9	6.3	5.9	7.8	6.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.4	2.1	2.9	3.9	5.4	6.4	8.2	10.8	15.4	21.6	42.2	71.7

Maximum Hourly	71.7
Maximum Daily	19.3
Monthly Average	7.5

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down; R - Rate of Change

Figure D-1 Time History Plots of Measured Hourly Average and 24 Hour Average NO_X Concentrations – Courtice (WPCP) Station



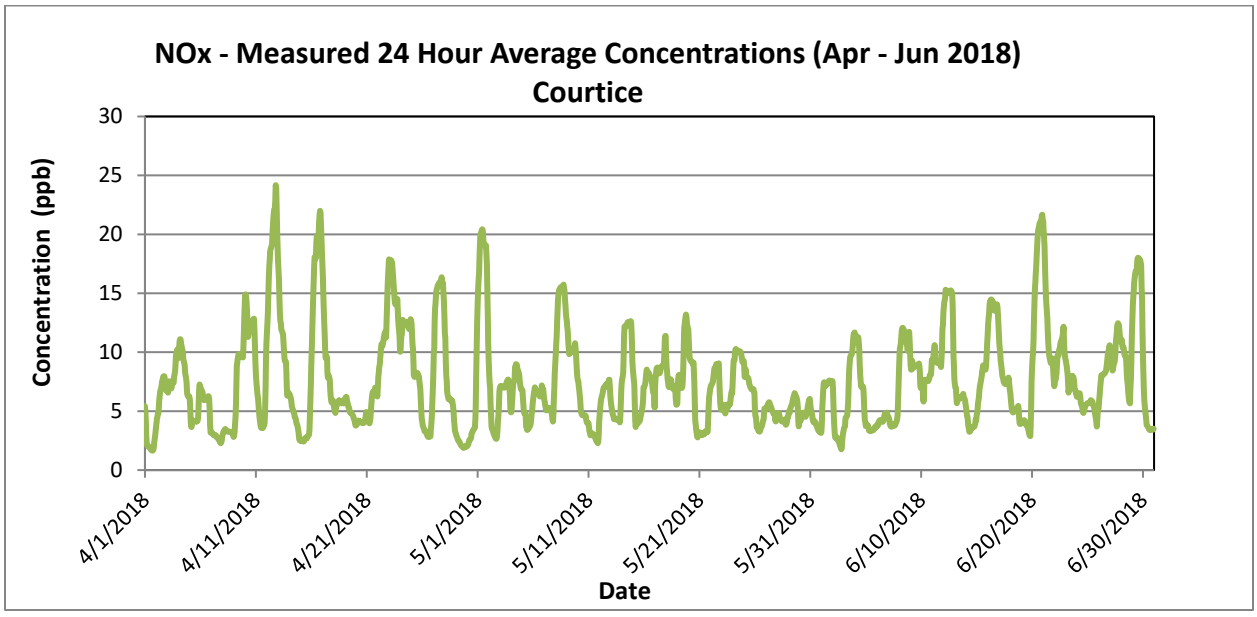
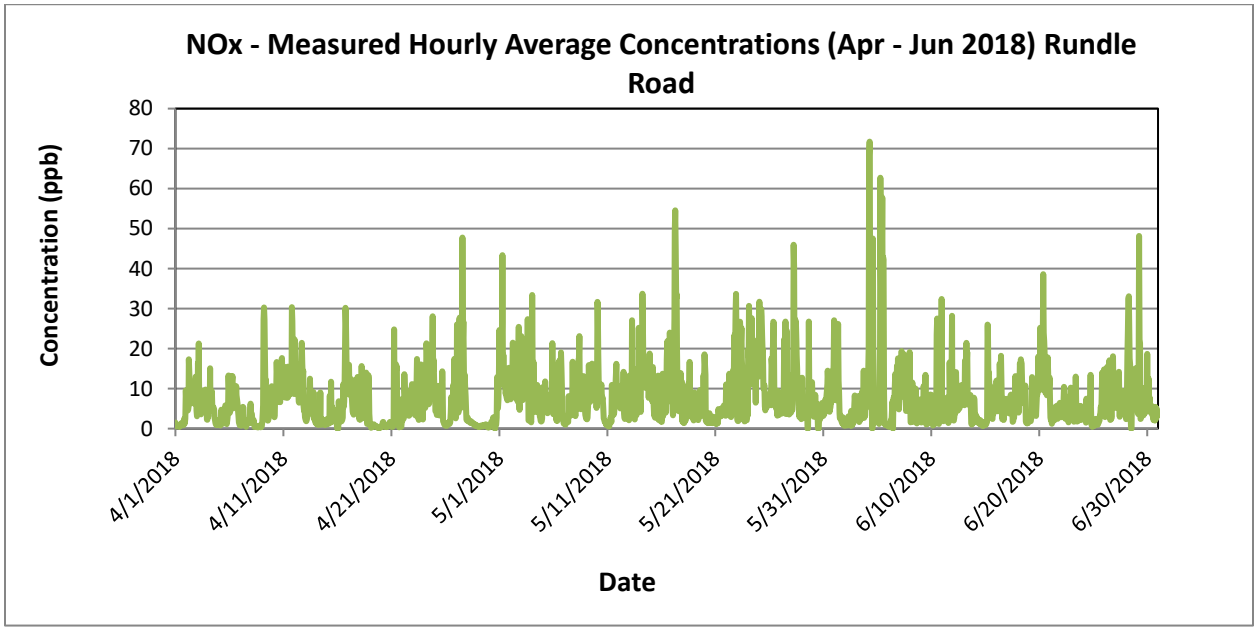
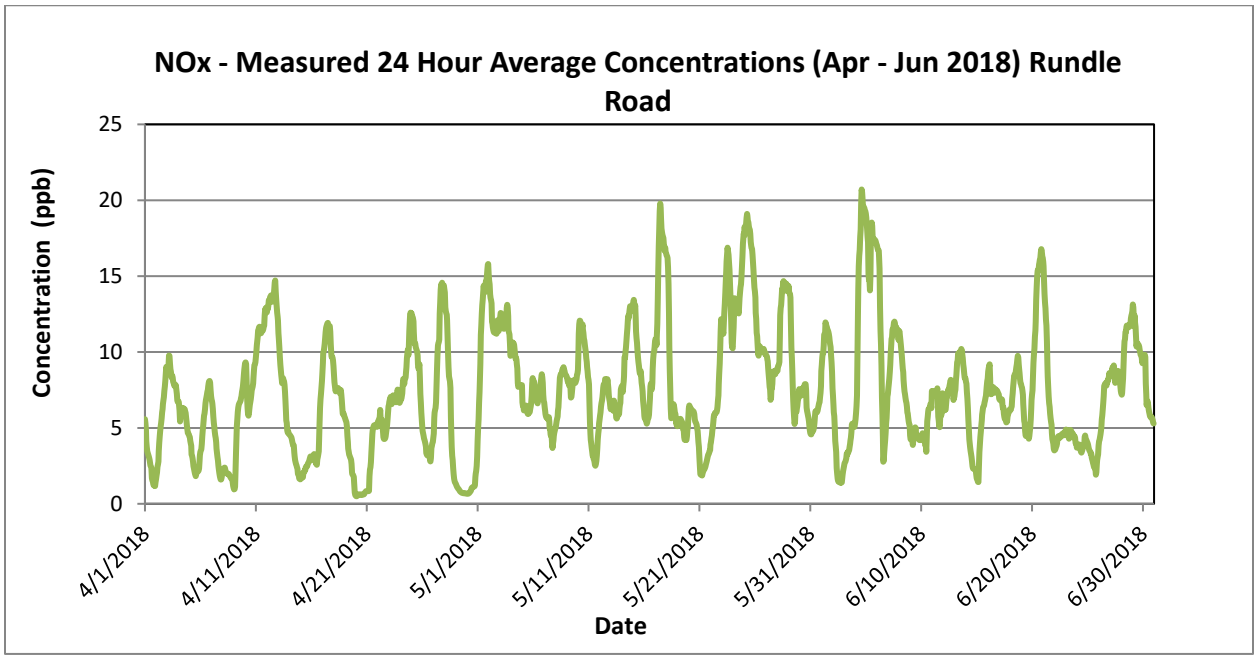


Figure D-2 Time History Plots of Measured Hourly Average and 24 Hour Average NO_X Concentrations – Rundle Road Station





APPENDIX E:
$PM_{2.5}$ DATA SUMMARIES AND TIME HISTORY PLOTS

$PM_{2.5}$ - COURTICE
April 2018
(µg/m³)

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	1.8	1.7	0.9	0.7	0.7	0.9	1.1	1.1	1.1	1.0	1.1	1.0	1.0	1.4	1.7	2.0	1.9	1.8	2.2	3.2	4.5	4.6	4.6	5.0	24	5.0	0.7	1.9
2	5.9	7.2	7.5	4.8	7.8	9.1	8.4	11.6	11.5	9.7	8.0	6.6	6.9	6.7	4.2	3.5	3.2	3.1	3.8	3.2	2.6	2.6	2.6	4.2	24	11.6	2.6	6.0
3	6.3	6.7	6.3	7.0	6.0	7.8	8.0	7.3	9.6	9.2	9.9	9.7	7.3	7.1	7.3	19.7	8.2	4.4	8.7	18.4	1.4	0.4	0.4	0.2	24	19.7	0.2	7.4
4	0.2	4.0	13.2	15.4	2.7	1.0	1.2	1.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.7	24	15.4	0.2	1.9
5	0.9	1.1	1.5	1.6	1.5	1.9	2.1	1.7	1.6	1.4	1.4	1.4	1.6	1.6	1.6	2.5	3.0	2.0	1.8	3.0	4.7	6.1	4.6	3.2	24	6.1	0.9	2.2
6	3.2	4.6	6.2	5.9	7.4	7.8	9.8	9.8	10.4	12.0	10.8	10.8	10.3	8.5	7.2	6.5	6.3	4.6	4.0	4.5	2.5	1.1	0.7	0.6	24	12.0	0.6	6.5
7	0.6	0.6	0.5	0.7	0.9	0.9	1.2	1.8	0.9	0.6	0.5	0.5	0.5	0.5	0.7	1.1	1.2	1.3	1.5	1.8	1.6	1.9	2.2	2.8	24	2.8	0.5	1.1
8	2.3	2.2	2.4	2.4	2.0	2.0	2.2	1.4	0.9	0.6	0.7	0.8	0.7	0.7	0.8	0.8	0.5	0.3	0.4	0.8	0.8	0.8	1.0	1.0	24	2.4	0.3	1.2
9	1.7	2.2	3.3	4.0	3.6	4.0	5.5	4.4	2.3	2.7	2.6	2.2	1.1	0.9	0.8	0.8	1.2	1.0	1.1	2.0	3.3	6.9	7.8	9.3	24	9.3	0.8	3.1
10	9.4	9.0	9.7	8.5	8.8	10.3	10.2	6.6	5.7	7.2	7.1	5.9	5.9	3.7	5.6	5.2	6.6	6.6	8.7	9.0	10.3	15.0	17.5	18.6	24	18.6	3.7	8.8
11	20.0	19.9	18.9	18.7	17.0	12.2	14.6	14.7	12.8	13.4	13.1	11.7	10.8	11.8	12.7	12.3	13.3	14.0	14.9	20.2	26.9	29.0	31.9	35.2	24	35.2	10.8	17.5
12	34.7	36.2	29.2	24.9	19.6	18.8	20.0	18.6	19.3	17.9	20.3	19.5	24.9	19.7	18.4	13.4	10.7	9.1	12.1	15.5	21.8	15.0	11.0	6.0	24	36.2	6.0	19.0
13	3.5	2.3	2.3	2.5	1.4	1.4	1.5	1.0	0.7	0.8	0.8	0.4	1.6	1.8	1.8	2.5	6.3	4.0	4.4	5.4	5.1	4.2	3.5	2.4	24	6.3	0.4	2.6
14	2.5	2.3	2.9	4.2	3.7	3.9	3.5	2.8	2.3	2.6	2.7	2.5	2.4	2.6	2.9	2.9	3.7	4.4	3.9	3.7	3.6	3.8	3.3	3.2	24	4.4	2.3	3.2
15	3.3	3.3	3.4	3.8	3.9	3.7	3.5	3.4	3.6	4.2	3.1	3.1	2.6	2.3	2.4	2.6	2.5	1.8	2.0	2.3	7.9	14.8	10.8	6.9	24	14.8	1.8	4.2
16	4.8	4.9	6.2	7.0	4.7	5.1	3.6	1.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.2	3.8	5.7	4.7	3.6	3.1	3.3	2.6	24	7.0	0.2	2.8
17	3.8	5.1	5.5	1.6	1.1	0.9	0.4	0.5	1.2	1.3	1.5	1.7	1.8	1.7	2.1	1.3	2.2	4.2	2.7	1.4	1.7	2.5	2.8	1.0	24	5.5	0.4	2.1
18	0.5	0.5	0.4	0.3	0.6	2.0	2.2	1.3	1.6	0.7	1.3	1.8	0.7	0.4	0.3	1.6	2.4	0.7	0.6	0.8	1.2	1.6	2.1	1.8	24	2.4	0.3	1.1
19	2.2	3.7	2.7	2.0	2.0	1.8	2.0	1.4	1.5	1.8	2.2	3.1	3.5	3.1	3.3	3.1	2.6	2.3	2.2	1.6	1.9	2.5	2.1	1.4	24	3.7	1.4	2.3
20	1.9	1.7	1.6	2.0	2.1	2.6	2.6	1.7	2.0	2.7	2.6	2.0	1.8	2.0	1.9	2.0	2.5	2.5	2.8	4.1	5.4	5.1	6.4	6.6	24	6.6	1.6	2.9
21	5.3	5.0	4.9	4.7	4.5	4.5	4.7	4.5	8.4	12.2	11.1	9.4	10.3	7.0	3.9	3.0	4.5	3.6	2.4	2.6	3.8	3.8	3.6	3.6	24	12.2	2.4	5.5
22	5.2	5.7	5.7	6.9	6.3	6.3	5.7	3.3	5.0	5.1	7.1	9.4	8.4	7.9	5.2	2.8	2.4	1.4	0.9	3.8	7.3	9.0	8.4	6.8	24	9.4	0.9	5.7
23	10.3	9.4	5.1	5.8	4.3	5.4	4.2	4.4	2.0	2.3	1.6	1.7	1.6	1.6	2.1	3.4	2.4	3.1	4.9	7.5	7.8	7.9	8.0	7.7	24	10.3	1.6	4.8
24	9.0	11.3	11.2	13.5	10.6	13.4	11.0	7.5	5.9	6.0	5.9	5.6	5.2	6.8	7.7	9.2	9.0	10.4	16.3	18.4	20.9	24.5	26.6	22.4	24	26.6	5.2	12.0
25	12.0	15.5	13.5	8.3	5.5	5.5	5.4	3.5	2.5	1.1	1.4	1.5	1.5	1.7	1.1	0.6	0.3	0.5	0.7	0.5	0.5	0.5	0.4	0.4	24	15.5	0.3	3.5
26	0.3	0.2	0.2	0.2	0.4	0.6	0.6	0.8	1.1	1.2	1.0	0.7	1.3	2.7	2.7	2.2	1.9	1.8	1.9	6.1	10.9	11.6	15.0	15.8	24	15.8	0.2	3.4
27	10.6	10.4	15.6	12.3	9.2	4.3	5.5	11.4	10.6	9.1	7.8	6.3	6.8	7.2	6.6	4.5	4.3	6.6	9.9	10.8	12.2	12.3	11.3	10.5	24	15.6	4.3	9.0
28	9.8	10.1	11.3	10.9	9.2	7.7	7.9	6.4	4.7	7.0	7.7	5.8	5.2	4.2	4.5	5.3	4.9	5.7	5.8	5.0	4.2	4.5	4.0	3.1	24	11.3	3.1	6.4
29	2.8	3.4	3.5	3.1	2.9	2.8	2.3	2.0	2.3	2.3	2.1	1.9	1.9	2.1	1.9	1.7	2.1	2.7	3.1	3.7	4.2	4.0	3.7	3.5	24	4.2	1.7	2.8
30	3.5	3.3	3.9	3.9	4.1	4.2	3.7	2.6	1.7	1.6	2.0	3.6	C	C	3.6	1.9	2.2	3.0	6.1	7.8	15.7	20.3	17.9	14.1	22	20.3	1.6	5.9
31																												
Count	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	718			
Maximum	34.7	36.2	29.2	24.9	19.6	18.8	20.0	18.6	19.3	17.9	20.3	19.5	24.9	19.7	18.4	19.7	13.3	14.0	16.3	20.2	26.9	29.0	31.9	35.2	24			
Minimum	0.2	0.2	0.2	0.2	0.4	0.6	0.4	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.4	0.4	0.2	22			
Average	5.9	6.5	6.7	6.3	5.1	5.1	5.2	4.7	4.4	4.6	4.6	4.4	4.4	4.1	3.8	4.0	3.8	3.7	4.5	5.7	6.6	7.3	7.3	6.7				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.7	1.4	1.9	2.5	3.4	4.4	5.9	8.1	11.8	17.1	26.3	36.2

Maximum Hourly	36.2
Maximum Daily	19.0
Monthly Average	5.2

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down

$PM_{2.5}$ - May (µg/m³) COURTICE 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	13.1	12.2	9.5	12.0	12.9	18.4	18.5	15.5	13.8	12.4	11.4	13.5	14.4	15.2	13.8	11.0	4.3	2.8	2.8	3.1	4.0	4.5	4.8	4.6	24	18.5	2.8	10.4
2	4.2	4.5	4.8	5.5	6.3	7.0	6.7	6.6	7.1	7.6	9.0	10.7	11.6	11.0	9.9	9.9	9.4	9.7	10.1	11.0	12.7	16.1	19.5	19.7	24	19.7	4.2	9.6
3	29.3	36.1	35.7	33.8	17.0	11.0	6.5	9.6	13.1	11.1	10.6	5.7	6.5	9.8	18.5	10.3	9.1	3.6	3.0	3.1	3.6	2.3	4.2	5.4	24	36.1	2.3	12.4
4	6.0	7.5	8.6	7.1	6.9	5.9	5.1	5.4	5.4	17.3	3.9	4.3	5.0	5.3	5.4	4.4	2.4	16.2	0.7	0.2	0.2	0.2	0.3	1.7	24	17.3	0.2	5.2
5	2.4	4.0	4.9	7.7	8.1	12.3	8.9	2.5	1.6	1.9	2.6	4.9	7.3	8.5	12.2	13.7	10.9	12.0	11.9	11.2	15.2	20.0	21.7	16.2	24	21.7	1.6	9.3
6	12.2	28.8	21.6	19.0	13.7	9.1	4.9	3.1	3.2	3.0	2.9	2.7	3.4	2.9	3.2	3.8	5.2	9.2	11.5	12.7	8.8	9.5	2.7	1.2	24	28.8	1.2	8.3
7	1.0	1.0	1.0	1.1	1.5	1.6	2.1	1.7	0.8	0.3	3.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	2.3	6.4	10.3	12.8	24	12.8	0.2	2.0
8	9.8	9.3	9.0	6.5	7.9	7.4	6.1	5.0	1.1	1.0	1.5	2.3	1.9	0.7	0.2	0.3	0.8	1.6	1.5	2.9	5.4	7.7	9.0	9.8	24	9.8	0.2	4.5
9	8.7	9.2	9.5	9.7	12.2	11.3	8.2	6.1	4.4	4.7	6.3	8.2	7.8	7.8	9.9	20.1	10.9	8.7	9.0	14.8	16.4	15.1	12.9	12.6	24	20.1	4.4	10.2
10	10.3	10.0	8.7	7.0	8.8	14.7	8.9	7.2	9.5	10.8	10.1	2.1	0.3	0.2	0.2	0.2	0.7	0.6	0.5	0.4	0.2	0.2	0.2	0.2	24	14.7	0.2	4.7
11	0.3	0.4	0.2	0.2	0.3	0.5	0.5	0.6	0.7	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.7	2.2	2.7	4.3	5.1	4.4	8.8	14.1	24	14.1	0.2	2.0
12	16.5	17.4	13.9	10.6	7.1	7.4	5.4	5.1	4.7	4.2	2.6	1.7	2.2	2.6	1.6	1.9	1.1	0.9	1.4	5.8	9.3	9.6	6.6	6.3	24	17.4	0.9	6.1
13	4.6	4.7	5.5	4.9	4.0	3.6	3.1	2.4	2.9	4.8	10.7	4.6	3.0	6.0	3.3	3.8	3.2	2.5	2.3	3.4	5.9	9.4	10.7	14.5	24	14.5	2.3	5.2
14	19.3	18.9	17.0	17.6	18.6	20.8	18.4	14.6	13.6	13.4	15.0	17.0	18.4	15.5	8.7	5.4	4.9	5.0	4.4	7.3	16.0	16.4	16.0	20.7	24	20.8	4.4	14.3
15	34.6	41.3	31.5	22.4	7.1	3.2	5.5	10.7	7.5	8.7	7.5	6.9	9.2	9.8	8.2	8.1	9.6	12.8	8.3	8.0	3.6	3.1	3.1	3.3	24	41.3	3.1	11.4
16	2.4	2.2	2.3	2.3	3.3	6.1	2.7	1.1	1.0	1.4	1.5	2.1	5.9	6.6	4.4	6.6	9.4	7.3	4.8	2.2	9.2	12.3	13.7	9.1	24	13.7	1.0	5.0
17	17.9	26.9	27.0	20.8	19.4	18.2	7.2	3.9	6.2	13.4	9.2	14.0	25.5	30.0	23.7	16.9	14.8	10.4	9.1	9.6	13.8	17.8	11.5	0.7	24	30.0	0.7	15.3
18	0.5	0.5	0.6	0.7	1.1	1.4	1.1	2.0	2.4	1.6	2.1	1.2	1.4	1.3	0.9	1.2	1.3	1.1	1.0	1.4	2.3	2.7	2.0	1.6	24	2.7	0.5	1.4
19	1.9	6.0	6.8	5.6	7.1	9.6	12.5	11.0	6.0	6.5	6.0	7.2	18.6	30.0	25.3	16.4	3.5	2.9	2.7	2.6	3.5	2.7	2.8	3.8	24	30.0	1.9	8.4
20	3.9	4.9	10.9	2.4	1.5	0.9	0.8	0.8	0.6	0.7	1.7	8.2	9.4	3.5	1.9	2.0	1.8	1.4	1.2	2.5	4.4	13.6	6.9	7.1	24	13.6	0.6	3.9
21	5.4	5.6	3.9	3.5	4.1	3.8	3.2	2.1	1.1	1.1	1.0	2.2	2.0	1.2	2.0	0.8	0.8	0.7	0.9	3.5	6.5	9.0	9.2	9.0	24	9.2	0.7	3.4
22	4.0	5.5	3.0	2.5	3.7	4.7	8.9	10.2	8.9	5.8	5.8	6.3	8.5	8.4	6.7	5.3	3.6	3.0	3.2	3.1	5.0	6.7	5.2	6.3	24	10.2	2.5	5.6
23	9.7	8.0	6.3	6.0	5.3	5.1	4.2	4.4	3.3	2.7	4.0	5.1	6.9	6.7	4.8	4.3	4.3	4.7	5.6	5.7	5.8	8.0	6.7	7.8	24	9.7	2.7	5.6
24	10.4	12.2	12.3	23.7	42.9	39.2	29.6	19.5	19.4	19.5	17.7	22.5	19.8	15.6	15.9	12.8	10.7	9.6	8.8	8.6	10.7	12.1	11.4	11.2	24	42.9	8.6	17.3
25	15.5	17.8	21.4	21.9	19.8	16.8	11.2	9.2	9.6	12.3	16.0	15.5	15.3	13.2	10.2	11.6	8.6	6.8	6.8	8.1	9.6	9.6	7.6	8.0	24	21.9	6.8	12.6
26	9.7	10.9	13.6	17.8	20.1	23.4	22.7	20.7	18.7	19.5	18.9	22.3	24.8	23.5	18.7	16.0	13.3	8.0	5.9	6.9	7.9	6.6	5.5	7.0	24	24.8	5.5	15.1
27	19.8	22.0	23.5	22.6	22.8	19.6	12.0	6.4	3.9	4.9	7.0	7.7	9.8	11.3	11.5	14.4	9.9	8.2	9.1	11.8	12.5	14.1	18.2	14.3	24	23.5	3.9	13.2
28	12.1	12.2	13.4	11.3	10.7	10.0	8.0	5.3	4.3	3.3	3.8	3.8	10.8	21.1	18.0	13.9	10.0	9.3	8.4	9.3	5.2	6.4	8.2	7.1	24	21.1	3.3	9.4
29	7.9	9.5	11.1	10.4	9.4	9.2	7.2	5.5	5.4	C	C	C	C	C	C	7.0	6.9	6.1	5.3	4.2	4.0	6.0	7.1	9.4	18	11.1	4.0	7.3
30	9.0	7.2	6.3	6.4	7.1	7.0	8.4	9.3	8.2	5.7	6.7	9.1	10.3	10.0	9.2	12.2	11.0	9.7	10.8	11.7	11.5	10.3	10.9	11.8	24	12.2	5.7	9.1
31	12.5	10.9	6.4	6.4	5.6	4.0	3.2	2.5	2.7	2.1	1.1	1.4	1.4	2.1	3.0	4.0	3.4	2.9	2.9	2.2	3.1	3.2	4.3	4.7	24	12.5	1.1	4.0
Count	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	31	31	31	31	31	31	31	31	31	738			
Maximum	34.6	41.3	35.7	33.8	42.9	39.2	29.6	20.7	19.4	19.5	18.9	22.5	25.5	30.0	25.3	20.1	14.8	16.2	11.9	14.8	16.4	20.0	21.7	20.7	24			
Minimum	0.3	0.4	0.2	0.2	0.3	0.5	0.5	0.6	0.6	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	18			
Average	10.2	11.9	11.3	10.6	10.2	10.1	8.1	6.8	6.2	6.7	6.7	7.1	8.7	9.3	8.4	7.7	6.0	5.8	5.1	5.9	7.2	8.6	8.5	8.5				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.1	2.4	3.8	5.3	6.8	8.7	10.0	12.3	17.6	20.8	31.0	42.9

Maximum Hourly	42.9
Maximum Daily	17.3
Monthly Average	8.1

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down

$PM_{2.5}$ - COURTICE
June 2018
(µg/m³)

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	4.8	5.3	11.4	10.4	9.9	12.7	8.6	4.2	4.9	1.6	2.7	1.3	1.8	4.2	2.5	2.5	1.8	2.6	5.7	6.4	7.4	5.9	4.1	3.2	24	12.7	1.3	5.3
2	1.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	3.1	5.3	5.7	5.5	7.2	8.9	14.6	13.8	24	14.6	0.2	2.9
3	8.4	4.1	2.8	2.5	5.6	2.8	3.1	3.1	4.3	6.5	6.9	9.5	10.3	6.5	7.0	2.3	1.9	1.1	1.7	2.6	3.4	3.9	3.0	2.0	24	10.3	1.1	4.4
4	2.1	2.2	4.2	8.0	14.3	7.6	2.8	0.8	0.2	0.2	0.2	0.2	C	0.4	0.3	0.4	1.0	1.4	1.5	2.9	3.3	3.4	3.0	2.6	23	14.3	0.2	2.7
5	1.9	1.7	1.4	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.9	1.5	1.9	2.1	2.5	2.0	2.2	5.4	9.3	6.1	3.3	2.4	2.0	2.1	24	9.3	0.8	2.3
6	2.5	1.9	2.0	2.4	2.5	2.2	1.6	1.3	1.1	A	2.5	2.6	2.0	3.7	4.9	8.0	11.1	11.8	9.3	9.3	9.1	8.9	13.5	16.2	23	16.2	1.1	5.7
7	8.9	8.1	9.3	11.4	11.8	11.0	8.8	6.6	4.7	4.7	4.4	4.8	6.4	7.0	6.7	8.9	7.6	5.2	6.0	8.0	10.1	10.8	15.5	15.3	24	15.5	4.4	8.4
8	13.8	12.3	8.8	6.1	5.6	5.8	4.0	2.5	2.8	3.9	4.8	4.6	4.4	4.8	3.8	2.5	1.8	1.5	1.5	2.2	6.5	10.4	15.3	11.7	24	15.3	1.5	5.9
9	5.9	5.4	5.1	7.1	7.5	6.1	4.5	3.5	3.0	3.4	2.6	3.5	3.4	4.3	4.1	4.3	3.0	2.7	5.5	11.0	8.8	18.1	17.8	15.4	24	18.1	2.6	6.5
10	14.5	9.1	7.9	7.0	5.1	4.6	4.7	3.8	2.4	2.5	3.3	2.7	2.2	2.3	2.0	2.2	3.0	2.9	3.6	5.4	6.5	8.1	9.6	8.2	24	14.5	2.0	5.1
11	5.6	4.7	3.9	3.7	6.3	4.9	5.6	3.6	3.0	3.2	2.8	3.0	3.7	4.1	4.0	3.4	3.2	3.0	3.6	3.3	12.1	20.5	23.6	18.9	24	23.6	2.8	6.4
12	8.7	7.0	5.6	6.4	6.7	8.1	4.4	3.5	3.2	3.4	3.4	4.6	4.2	3.5	3.4	3.4	3.2	2.6	3.2	3.5	4.4	4.0	4.4	5.8	24	8.7	2.6	4.6
13	5.5	6.2	6.0	6.6	8.0	10.0	7.6	7.5	7.2	6.4	5.2	5.1	12.4	8.5	21.0	20.4	7.8	1.7	1.3	1.8	2.1	2.3	2.0	2.7	24	21.0	1.3	6.9
14	2.3	1.9	1.9	2.3	2.1	2.2	2.7	3.1	4.2	3.5	5.5	4.4	4.3	3.9	4.0	5.7	3.8	3.5	4.5	4.6	5.5	6.4	6.6	6.5	24	6.6	1.9	4.0
15	7.8	8.6	8.6	8.0	6.8	7.2	5.2	3.8	2.9	2.5	2.7	4.0	4.7	3.0	2.5	1.5	1.7	1.8	2.1	4.0	10.1	12.8	16.9	17.1	24	17.1	1.5	6.1
16	18.6	19.0	17.5	13.7	13.5	12.2	9.3	8.9	6.2	6.9	9.0	13.8	9.9	6.3	6.1	5.9	4.8	5.0	6.9	9.4	10.7	12.7	14.1	13.1	24	19.0	4.8	10.6
17	18.2	19.5	19.0	17.9	16.4	13.6	11.5	9.9	8.9	10.9	10.3	17.6	13.9	8.7	9.2	15.2	12.8	14.2	14.4	15.5	15.5	16.1	15.1	12.8	24	19.5	8.7	14.0
18	12.6	13.8	17.4	20.5	23.5	24.2	24.2	22.7	24.6	25.0	18.5	4.7	6.3	6.4	6.5	11.4	9.4	6.9	4.6	1.0	0.7	1.8	2.0	0.6	24	25.0	0.6	12.0
19	0.2	0.2	0.9	1.5	2.5	3.7	3.6	2.9	1.6	1.0	0.6	0.9	1.0	1.3	1.2	1.1	1.1	1.1	1.5	2.1	2.1	6.0	9.7	12.0	24	12.0	0.2	2.5
20	11.5	12.3	11.6	12.7	12.8	7.0	5.5	5.0	4.7	4.7	5.4	7.1	7.5	8.8	4.5	4.2	7.9	6.7	5.2	4.3	4.7	10.1	12.2	14.5	24	14.5	4.2	7.9
21	12.6	6.0	6.6	8.9	8.4	6.7	4.5	2.9	3.3	2.5	2.2	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.7	3.2	6.4	11.4	8.8	6.1	24	12.6	2.0	4.9
22	4.0	3.2	3.0	3.1	2.9	2.8	2.7	2.9	4.0	4.3	5.6	4.8	4.1	4.9	4.0	4.4	3.9	3.8	5.6	6.1	7.3	5.7	7.3	7.6	24	7.6	2.7	4.5
23	8.6	11.2	10.6	10.6	9.9	8.4	8.6	8.3	9.3	10.2	7.3	6.1	6.2	6.0	5.9	4.9	4.6	4.8	5.1	5.9	6.3	8.8	7.5	7.7	24	11.2	4.6	7.6
24	7.3	7.1	7.5	7.4	7.5	7.8	7.4	5.4	3.8	3.7	5.7	4.7	3.4	2.4	3.2	3.5	4.1	4.6	3.7	4.6	4.2	3.1	2.2	2.7	24	7.8	2.2	4.9
25	1.8	1.3	1.3	1.3	1.6	1.7	1.6	1.7	1.6	2.1	1.9	1.9	1.9	2.3	2.7	3.4	3.3	1.8	1.4	1.4	2.3	2.8	4.5	4.5	24	4.5	1.3	2.2
26	6.0	6.7	7.5	7.4	6.7	5.1	3.4	3.1	1.8	1.4	1.8	1.7	1.7	2.0	1.8	3.0	3.9	4.9	5.0	7.7	7.7	7.6	8.9	8.2	24	8.9	1.4	4.8
27	6.7	6.6	6.5	6.5	5.8	5.5	6.6	6.0	5.2	4.2	6.2	7.5	11.6	11.6	8.7	6.5	6.5	4.9	4.5	4.6	4.6	5.3	4.6	3.6	24	11.6	3.6	6.3
28	5.6	5.9	5.4	6.7	2.9	3.4	4.2	3.1	6.4	8.1	11.8	7.3	7.9	6.7	7.3	6.3	4.6	3.8	3.7	4.5	9.3	13.4	20.5	12.9	24	20.5	2.9	7.2
29	13.3	12.0	12.0	10.0	7.7	8.6	8.6	8.0	7.6	4.1	13.3	18.2	24.8	16.8	8.0	6.2	5.4	4.3	5.0	6.7	7.2	7.4	7.4	8.6	24	24.8	4.1	9.6
30	8.9	9.0	13.0	14.5	15.8	15.8	14.8	14.1	14.8	16.1	16.9	15.3	15.7	15.9	17.8	20.6	21.0	19.3	16.9	16.0	16.2	15.4	17.3	18.0	24	21.0	8.9	15.8
31																												
Count	30	30	30	30	30	30	30	30	30	29	30	30	29	30	30	30	30	30	30	30	30	30	30	30	718			
Maximum	18.6	19.5	19.0	20.5	23.5	24.2	24.2	22.7	24.6	25.0	18.5	18.2	24.8	16.8	21.0	20.6	21.0	19.3	16.9	16.0	16.2	20.5	23.6	18.9	24			
Minimum	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	1.0	1.1	1.3	1.0	0.7	1.8	2.0	0.6	23			
Average	7.7	7.1	7.3	7.5	7.7	7.1	6.0	5.1	5.0	5.1	5.5	5.5	6.2	5.4	5.3	5.6	5.0	4.7	5.0	5.7	6.8	8.5	9.8	9.2				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.6	2.4	3.2	4.1	5.0	6.3	7.5	9.3	13.8	16.9	22.4	25.0

Maximum Hourly	25.0
Maximum Daily	15.8
Monthly Average	6.4

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down

$PM_{2.5}$ - April ($\mu g/m^3$) Rundle Road 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	2.3	2.0	1.3	1.0	1.1	1.2	1.4	1.3	1.2	1.1	1.1	1.3	1.5	1.6	1.6	1.8	1.9	1.8	1.8	2.0	2.4	2.2	3.2	4.4	24	4.4	1.0	1.8
2	4.5	6.0	6.3	4.5	4.6	6.7	8.3	9.2	11.9	10.2	9.0	7.0	8.6	8.3	5.6	4.2	3.4	3.1	3.3	3.3	3.2	3.2	3.3	4.3	24	11.9	3.1	5.9
3	5.9	6.1	6.5	6.1	5.6	6.8	8.1	6.6	7.1	8.2	9.0	7.9	7.0	7.0	7.6	9.2	9.7	8.2	4.9	3.2	2.3	2.0	2.0	1.3	24	9.7	1.3	6.2
4	1.1	1.3	1.9	2.0	1.9	3.4	5.6	4.1	2.2	1.6	1.2	1.5	3.1	2.5	2.3	1.9	2.0	1.9	1.8	2.1	2.1	1.9	2.1	2.1	24	5.6	1.1	2.2
5	2.2	2.4	2.4	2.4	2.3	2.3	2.8	2.9	2.8	2.7	2.4	2.6	2.8	2.9	2.6	3.1	3.2	2.6	2.6	3.8	5.4	7.3	9.6	5.1	24	9.6	2.2	3.4
6	3.7	4.2	6.5	6.5	7.1	8.1	11.1	10.7	9.2	8.0	8.1	8.9	9.1	8.1	7.6	7.2	8.8	7.9	5.6	6.0	8.7	2.5	1.5	1.6	24	11.1	1.5	6.9
7	3.1	1.4	1.2	1.5	1.6	1.8	2.3	2.0	1.9	1.3	1.2	1.4	1.2	1.2	1.6	2.1	2.1	2.3	4.8	3.7	3.3	3.9	4.1	3.7	24	4.8	1.2	2.3
8	3.6	3.9	3.9	3.9	3.4	3.3	3.7	2.2	1.3	1.2	1.5	1.7	1.4	1.6	1.6	1.6	1.0	0.9	0.9	1.2	1.6	2.2	2.0	1.9	24	3.9	0.9	2.1
9	1.9	1.9	2.2	2.9	4.7	4.9	4.8	3.4	2.7	3.0	1.9	1.9	1.2	0.9	0.9	1.2	1.1	1.0	1.9	2.8	4.4	6.5	9.3	8.6	24	9.3	0.9	3.2
10	9.1	12.7	11.2	8.2	8.1	8.5	10.3	5.2	3.4	5.1	5.4	5.2	5.3	3.8	5.4	5.8	10.3	12.8	17.4	17.9	18.9	22.4	23.5	25.1	24	25.1	3.4	10.9
11	27.2	24.1	22.5	21.4	20.7	15.5	16.0	16.0	15.1	16.7	15.9	13.6	12.9	13.4	15.1	14.5	15.2	16.0	17.4	22.0	30.1	29.6	31.8	31.3	24	31.8	12.9	19.7
12	32.2	34.0	31.1	27.9	23.8	18.9	20.3	19.6	21.5	21.3	23.3	22.1	20.4	15.6	14.0	12.5	9.1	7.3	7.7	11.7	16.4	11.1	10.0	6.0	24	34.0	6.0	18.2
13	3.3	2.3	2.5	2.7	2.0	2.1	2.6	2.0	1.4	1.5	1.8	1.4	2.1	2.2	2.2	2.6	5.2	3.5	4.0	4.7	4.1	3.2	2.6	2.1	24	5.2	1.4	2.7
14	2.0	1.8	2.1	3.0	3.0	3.6	4.0	3.9	3.4	3.7	3.8	3.8	3.6	3.4	3.8	3.8	4.2	4.4	4.8	4.6	4.2	3.9	3.9	3.9	24	4.8	1.8	3.6
15	3.9	4.2	4.3	4.7	4.6	4.2	4.2	3.8	3.9	4.2	3.8	3.5	2.9	2.7	2.8	3.7	2.8	3.0	3.3	3.5	4.7	4.8	3.4	2.2	24	4.8	2.2	3.7
16	0.0	0.0	2.7	2.8	2.3	2.1	2.1	2.2	2.4	2.7	2.5	2.4	2.3	13.1	1.8	3.8	5.1	3.5	8.9	11.4	9.8	6.4	7.3	6.0	24	13.1	0.0	4.3
17	8.4	7.5	8.4	3.2	2.0	1.9	2.4	2.2	2.2	2.0	2.1	2.1	2.4	2.4	2.8	1.9	2.7	4.7	3.3	3.4	3.2	4.3	3.1	1.9	24	8.4	1.9	3.3
18	2.3	2.8	2.8	2.3	2.4	3.0	3.3	2.9	1.9	1.5	1.9	1.1	0.9	1.3	1.7	3.0	5.6	1.8	1.4	1.4	1.9	5.0	7.5	2.1	24	7.5	0.9	2.6
19	2.4	3.8	3.1	2.3	2.1	2.1	2.1	2.0	2.3	2.7	3.4	4.0	4.0	3.9	4.1	4.4	4.6	5.0	3.8	2.6	2.9	3.2	2.9	2.1	24	5.0	2.0	3.2
20	2.0	2.0	2.2	2.6	3.0	3.7	3.7	2.3	2.3	2.3	2.3	2.5	2.7	2.5	1.8	1.8	1.7	1.5	1.4	1.9	2.3	3.4	3.2	3.7	24	3.7	1.4	2.4
21	3.7	4.3	4.8	5.0	4.5	4.6	6.2	4.2	2.4	4.5	6.4	7.2	10.1	5.8	3.7	4.0	3.4	1.3	1.3	1.3	1.7	1.9	1.9	3.0	24	10.1	1.3	4.0
22	2.9	2.9	3.0	3.6	4.4	6.9	5.3	2.8	2.1	2.8	3.4	3.5	2.6	2.3	2.3	1.5	1.2	0.6	0.7	1.8	4.5	7.6	8.7	12.2	24	12.2	0.6	3.7
23	16.8	9.6	8.0	7.0	4.7	4.1	4.9	2.3	1.6	2.2	1.5	1.8	2.1	2.5	2.8	2.3	3.0	2.8	4.5	6.6	7.3	6.3	5.9	4.9	24	16.8	1.5	4.8
24	6.7	6.2	10.3	11.0	13.7	14.6	13.7	10.2	7.3	7.7	7.2	5.4	5.3	6.2	10.7	12.7	11.8	12.7	18.0	23.8	20.4	24.1	20.6	17.8	24	24.1	5.3	12.4
25	7.9	9.5	9.1	5.4	3.3	2.1	4.3	4.4	3.7	2.5	2.7	2.5	2.2	3.2	1.5	1.2	0.6	1.1	1.7	0.2	0.2	0.2	0.2	0.3	24	9.5	0.2	2.9
26	0.3	0.3	0.3	0.4	0.5	0.7	0.8	1.0	1.3	1.6	1.4	1.1	1.5	2.5	3.0	1.8	1.4	1.2	1.3	2.5	5.8	4.7	10.9	7.3	24	10.9	0.3	2.2
27	6.7	5.1	7.3	5.9	4.4	3.7	4.8	9.7	12.2	11.0	10.8	6.4	5.4	8.2	11.7	7.6	7.6	7.3	8.5	10.7	12.8	9.8	10.9	9.3	24	12.8	3.7	8.2
28	10.1	11.2	11.6	11.0	8.5	6.5	6.2	5.0	3.0	3.8	3.6	3.2	3.1	2.3	2.8	3.6	4.0	5.6	6.1	5.8	5.2	5.4	5.0	3.8	24	11.6	2.3	5.7
29	3.6	4.3	4.3	3.9	3.5	3.4	3.0	2.2	1.8	1.2	1.0	0.9	0.8	0.7	0.7	0.7	0.5	0.4	0.5	0.5	0.7	0.9	0.9	1.2	24	4.3	0.4	1.7
30	1.3	1.9	2.1	2.3	2.5	2.5	2.3	1.8	1.6	1.6	1.6	1.0	1.1	1.1	C	C	2.4	3.0	4.0	9.1	9.6	12.7	14.0	16.4	22	16.4	1.0	4.4
31																												
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	718			
Maximum	32.2	34.0	31.1	27.9	23.8	18.9	20.3	19.6	21.5	21.3	23.3	22.1	20.4	15.6	15.1	14.5	15.2	16.0	18.0	23.8	30.1	29.6	31.8	31.3	24			
Minimum	0.0	0.0	0.3	0.4	0.5	0.7	0.8	1.0	1.2	1.1	1.0	0.9	0.8	0.7	0.7	0.7	0.5	0.4	0.5	0.2	0.2	0.2	0.2	0.3	22			
Average	6.0	6.0	6.2	5.6	5.2	5.1	5.7	4.9	4.6	4.7	4.7	4.3	4.3	4.4	4.3	4.3	4.5	4.3	4.9	5.9	6.7	6.8	7.2	6.5				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.3	1.9	2.2	2.7	3.4	4.1	5.4	7.7	11.6	16.9	27.8	34.0

Maximum Hourly	34.0
Maximum Daily	19.7
Monthly Average	5.3

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down; R - Rate of Change

$PM_{2.5}$ - May ($\mu g/m^3$) Rundle Road 2018

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	15.9	16.8	14.6	17.5	15.5	15.9	19.1	C	21.2	18.8	18.2	18.5	18.2	18.1	15.7	11.7	6.4	6.9	4.3	4.8	6.0	6.2	5.8	6.1	23	21.2	4.3	13.1
2	5.5	5.8	5.9	6.7	7.9	9.1	10.2	7.9	8.0	8.9	10.9	11.1	11.9	11.4	10.0	10.1	11.2	12.3	11.4	14.8	10.6	8.9	10.5	11.0	24	14.8	5.5	9.7
3	10.3	14.1	17.1	17.1	9.3	5.3	3.5	5.5	7.4	5.9	6.2	4.5	4.2	5.2	7.0	7.7	2.1	0.4	0.5	0.3	0.2	0.2	1.3	2.0	24	17.1	0.2	5.7
4	2.3	2.8	3.1	3.0	3.2	3.2	3.5	3.2	3.0	2.1	1.6	2.7	3.5	3.4	4.1	3.9	3.1	1.0	0.8	1.8	2.1	2.3	2.9	3.6	24	4.1	0.8	2.8
5	5.0	10.3	10.6	11.8	12.7	13.2	9.6	3.3	2.4	2.6	3.1	4.3	4.2	4.3	6.3	6.8	5.2	6.5	7.4	8.5	16.0	14.4	14.1	13.0	24	16.0	2.4	8.2
6	13.1	15.6	18.5	16.6	12.6	10.0	6.1	3.9	3.6	3.5	4.3	4.2	4.0	3.7	4.3	5.1	6.5	6.8	9.2	8.9	3.5	3.6	2.6	2.0	24	18.5	2.0	7.2
7	2.4	3.0	3.2	3.9	3.6	3.9	6.0	2.9	3.0	3.4	3.5	3.4	5.0	5.9	3.4	2.9	2.3	2.1	1.9	5.2	7.8	12.8	15.2	16.2	24	16.2	1.9	5.1
8	19.1	14.2	14.8	12.5	9.6	7.8	23.1	2.7	2.1	2.3	3.4	3.1	2.6	2.1	2.5	2.3	2.6	1.9	2.7	5.4	7.4	10.6	15.4	12.4	24	23.1	1.9	7.6
9	9.6	9.0	10.3	11.0	10.8	8.9	6.1	2.8	2.1	2.8	4.3	5.9	7.0	7.0	6.9	14.0	10.8	8.0	7.4	11.8	12.4	12.2	11.2	9.1	24	14.0	2.1	8.4
10	7.2	9.0	9.6	9.2	9.7	12.0	7.7	6.3	7.8	8.9	7.4	2.8	1.4	1.3	3.9	3.8	2.3	2.1	2.1	2.0	1.0	0.7	0.9	1.1	24	12.0	0.7	5.0
11	1.4	2.3	2.3	2.1	2.1	2.8	3.4	4.0	6.3	2.3	2.6	2.2	1.6	1.7	1.9	3.4	4.1	5.4	6.6	7.5	8.2	9.3	12.1	16.3	24	16.3	1.4	4.7
12	17.3	19.4	19.4	10.8	8.6	8.7	7.1	5.7	5.8	4.7	3.1	1.9	2.1	2.0	1.3	1.2	1.2	1.1	1.4	3.0	6.8	9.4	8.3	6.0	24	19.4	1.1	6.5
13	4.8	5.2	6.5	7.2	6.1	5.4	4.2	2.9	2.5	4.3	11.4	5.6	3.0	3.7	3.5	3.8	2.6	3.5	4.4	4.6	6.3	8.1	12.9	9.8	24	12.9	2.5	5.5
14	12.8	16.7	16.6	16.7	14.3	12.6	12.5	9.9	8.8	8.1	9.7	11.6	9.5	7.4	4.7	2.9	2.3	2.0	2.0	3.7	7.6	6.6	6.3	7.4	24	16.7	2.0	8.9
15	10.5	15.2	12.9	9.0	4.1	4.4	1.6	2.7	1.5	1.1	0.3	1.3	1.6	1.9	1.3	2.3	6.1	4.9	2.9	2.5	1.2	1.4	1.6	0.6	24	15.2	0.3	3.9
16	0.7	0.3	0.6	0.8	1.1	2.1	1.7	1.1	1.1	1.1	1.3	4.5	9.9	10.1	6.8	4.0	3.7	3.5	5.9	4.1	5.1	8.3	9.1	10.8	24	10.8	0.3	4.1
17	11.2	12.4	10.4	9.1	10.3	11.3	8.7	8.6	8.4	9.4	9.0	9.1	8.6	7.2	6.0	4.7	6.0	5.0	6.3	6.8	7.9	8.4	7.1	0.0	24	12.4	0.0	8.0
18	0.0	0.0	0.0	0.0	0.3	0.5	0.8	1.1	1.3	1.4	1.8	2.6	2.4	2.0	2.4	2.5	1.6	1.1	1.2	1.8	3.3	3.0	2.1	1.7	24	3.3	0.0	1.4
19	1.3	1.0	1.9	2.8	5.1	6.7	6.1	3.7	1.6	1.3	1.1	1.2	1.1	1.0	0.7	0.7	0.4	0.2	0.1	1.0	0.9	0.8	0.3	0.6	24	6.7	0.1	1.7
20	1.1	2.3	2.5	0.0	0.0	0.0	0.0	0.4	1.0	1.2	1.2	2.2	2.1	1.4	4.2	7.2	6.3	4.4	4.3	5.2	13.2	11.5	10.1	12.3	24	13.2	0.0	3.9
21	10.2	9.9	6.4	7.0	7.6	6.6	4.5	3.2	3.5	4.8	5.0	4.6	3.4	3.0	2.5	2.7	2.9	3.0	5.2	6.6	10.1	12.6	9.7	7.5	24	12.6	2.5	5.9
22	6.5	6.4	6.3	3.8	5.2	6.4	8.7	8.2	5.8	3.6	3.5	2.5	2.7	3.0	5.8	5.2	4.2	3.5	4.0	4.7	6.5	6.8	5.4	8.2	24	8.7	2.5	5.3
23	3.9	2.5	2.3	2.3	3.3	3.3	2.6	2.6	2.8	2.2	3.5	4.1	4.6	4.5	3.6	4.8	4.7	3.2	4.3	5.2	6.2	6.3	6.9	9.4	24	9.4	2.2	4.1
24	8.3	11.1	12.6	19.3	28.0	19.9	14.6	11.8	14.2	12.5	9.9	10.8	8.3	9.7	9.9	7.6	7.7	7.9	8.4	8.7	12.6	15.2	14.2	14.0	24	28.0	7.6	12.4
25	13.9	15.5	18.5	23.1	18.0	16.2	13.6	11.1	12.8	14.7	17.5	17.1	15.5	12.3	9.7	10.5	9.2	7.9	7.7	8.3	9.2	8.5	7.2	8.6	24	23.1	7.2	12.8
26	9.6	12.2	16.3	21.8	24.8	27.3	20.2	16.8	16.1	17.5	16.0	18.9	16.1	16.9	13.6	9.9	10.8	6.9	3.9	4.6	3.7	3.6	3.2	4.2	24	27.3	3.2	13.1
27	7.6	16.2	20.5	18.6	18.0	15.5	12.9	10.6	10.5	13.1	13.7	14.2	14.9	1.8	2.7	4.7	3.9	3.1	3.8	4.6	4.8	5.1	5.9	5.4	24	20.5	1.8	9.7
28	4.9	5.3	6.9	3.0	6.9	9.3	15.1	12.7	7.2	6.3	10.6	16.9	22.7	20.1	11.5	8.9	6.1	6.2	4.8	3.8	5.0	6.0	5.1	4.9	24	22.7	3.0	8.8
29	4.7	4.9	4.8	6.1	6.3	6.1	6.1	4.9	6.9	5.2	6.3	6.4	6.0	C	C	5.5	6.0	2.7	2.9	0.5	0.3	1.1	1.1	1.2	22	6.9	0.3	4.4
30	1.5	0.2	0.2	0.4	0.4	0.3	1.1	1.7	2.3	3.0	3.6	4.7	C	C	C	9.9	11.6	9.9	6.1	5.2	5.7	5.6	4.1	4.2	21	11.6	0.2	3.9
31	5.0	4.2	2.7	3.1	2.5	1.8	1.4	1.3	2.3	2.8	3.0	2.5	2.7	3.8	4.4	3.9	3.8	3.0	2.4	1.3	3.5	2.9	3.7	4.7	24	5.0	1.3	3.0
Count	31	31	31	31	31	31	31	30	31	31	31	31	30	29	29	31	31	31	31	31	31	31	31	31	738			
Maximum	19.1	19.4	20.5	23.1	28.0	27.3	23.1	16.8	21.2	18.8	18.2	18.9	22.7	20.1	15.7	14.0	11.6	12.3	11.4	14.8	16.0	15.2	15.4	16.3	24			
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.0	1.1	0.3	1.2	1.1	1.0	0.7	0.7	0.4	0.2	0.1	0.3	0.2	0.2	0.3	0.0	21			
Average	7.3	8.5	9.0	8.9	8.6	8.3	7.8	5.5	5.9	5.8	6.4	6.6	6.7	6.1	5.5	5.6	5.1	4.4	4.4	5.1	6.3	6.9	7.0	6.9				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.3	2.3	3.1	4.1	5.2	6.5	8.5	10.6	14.2	16.8	21.0	28.0

Maximum Hourly	28.0
Maximum Daily	13.1
Monthly Average	6.6

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down; R - Rate of Change

$PM_{2.5}$ - Rundle Road June 2018 (µg/m³)

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	5.4	4.8	5.2	5.0	5.7	5.3	11.7	5.7	7.8	4.9	4.0	10.4	7.5	5.0	4.4	3.7	2.0	2.7	5.5	5.3	6.9	3.8	2.5	0.8	24	11.7	0.8	5.2
2	0.4	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.7	0.2	0.4	0.3	0.2	0.4	0.7	2.2	6.6	8.9	4.8	5.4	4.5	12.1	19.9	10.5	24	19.9	0.1	3.3
3	6.1	3.3	2.5	1.9	1.9	2.2	3.2	3.8	4.1	3.5	4.1	4.6	4.7	4.5	4.9	3.6	2.0	1.2	2.0	1.8	1.6	1.4	1.2	1.1	24	6.1	1.1	3.0
4	1.4	1.8	4.3	3.9	2.6	3.6	2.4	1.6	2.7	2.7	1.1	0.8	1.1	2.7	2.6	2.7	0.5	0.3	0.2	0.2	0.4	0.5	0.4	0.3	24	4.3	0.2	1.7
5	0.5	0.8	0.3	0.6	0.3	1.4	1.7	6.2	8.6	3.0	4.3	8.5	9.0	8.3	7.5	4.5	2.7	5.4	8.8	5.7	3.4	2.5	2.5	2.4	24	9.0	0.3	4.1
6	2.2	1.8	1.9	2.2	2.1	3.2	2.7	1.7	1.6	4.4	3.3	A	3.2	3.9	3.0	4.1	6.4	6.6	6.0	6.8	7.7	8.5	13.6	15.0	23	15.0	1.6	4.9
7	6.6	5.1	5.4	7.7	8.7	9.4	8.3	6.0	3.7	3.0	2.7	4.5	4.7	5.0	4.3	5.3	6.0	6.2	6.4	8.6	9.8	11.3	10.8	8.8	24	11.3	2.7	6.6
8	8.2	4.9	3.1	3.8	5.0	5.0	3.9	2.7	3.0	1.7	1.4	1.2	1.8	2.9	1.9	1.1	0.7	0.9	1.0	1.7	3.0	5.1	8.0	6.5	24	8.2	0.7	3.3
9	3.7	2.7	2.8	3.2	4.1	4.7	3.1	4.1	5.1	4.6	3.2	3.2	2.7	2.2	2.2	1.6	1.8	2.3	2.6	4.4	5.8	8.3	16.5	19.9	24	19.9	1.6	4.8
10	10.1	5.2	5.0	4.2	2.9	2.4	2.0	1.7	1.8	2.2	3.5	3.7	3.3	3.7	2.7	3.0	2.5	2.5	3.1	3.9	8.2	9.8	11.7	11.1	24	11.7	1.7	4.6
11	6.6	6.1	4.4	4.2	4.0	4.6	2.5	1.8	2.4	3.1	2.7	2.6	3.5	3.6	3.4	3.3	3.2	4.0	3.4	8.0	9.9	17.0	22.7	10.3	24	22.7	1.8	5.7
12	7.9	6.9	5.8	5.4	6.2	6.2	3.6	2.5	2.3	3.6	3.6	3.1	2.6	2.4	1.9	1.6	2.1	2.6	2.7	5.6	4.0	3.6	4.1	4.0	24	7.9	1.6	3.9
13	2.8	2.8	3.4	4.1	4.1	6.0	6.2	5.7	5.6	4.6	4.6	7.4	7.8	10.1	16.6	17.1	6.4	1.7	0.3	0.1	0.3	0.5	0.3	0.6	24	17.1	0.1	5.0
14	0.3	0.2	0.2	0.3	0.2	0.3	0.6	0.9	0.9	0.9	1.0	1.1	1.4	1.2	1.0	0.8	0.8	0.3	0.2	0.4	0.6	0.9	1.4	1.7	24	1.7	0.2	0.7
15	1.9	2.1	2.4	3.0	2.4	5.8	5.4	4.2	2.5	3.3	4.1	4.7	6.4	6.6	4.5	3.4	3.7	2.5	3.5	4.6	6.5	8.2	11.9	13.5	24	13.5	1.9	4.9
16	14.7	12.0	13.0	14.1	12.7	12.5	13.2	16.2	6.7	5.5	4.6	6.0	4.8	4.3	4.1	3.7	3.3	2.6	5.1	7.0	9.2	11.7	11.9	13.2	24	16.2	2.6	8.8
17	9.7	15.5	14.6	12.9	13.1	10.9	7.5	7.0	9.4	8.1	7.7	14.4	8.8	5.6	6.4	8.6	8.8	10.3	12.4	12.4	13.1	12.6	10.9	9.9	24	15.5	5.6	10.4
18	10.1	10.3	12.5	15.0	16.5	18.6	20.5	23.9	27.1	26.4	19.6	9.3	13.8	12.3	10.3	12.4	7.7	4.6	3.5	0.3	0.2	0.5	0.4	0.1	24	27.1	0.1	11.5
19	0.2	0.1	0.2	0.6	0.8	1.3	1.8	2.4	1.5	1.3	0.9	1.4	1.6	2.3	6.4	2.3	0.7	0.4	0.7	1.4	2.2	2.9	4.3	4.2	24	6.4	0.1	1.7
20	4.2	4.1	6.5	7.5	9.1	10.6	14.5	8.9	7.8	12.0	8.0	5.3	5.8	5.5	4.0	4.8	5.6	3.7	3.2	3.6	5.0	6.5	7.9	9.1	24	14.5	3.2	6.8
21	6.8	4.4	5.0	7.2	6.1	4.6	4.3	2.3	3.7	3.6	2.4	2.1	2.3	2.4	3.2	3.1	5.0	4.7	5.2	6.6	9.0	21.5	14.7	6.7	24	21.5	2.1	5.7
22	6.4	6.2	7.3	13.2	7.0	6.2	6.0	3.9	3.7	5.1	5.6	5.8	4.2	4.1	4.5	4.5	4.5	5.7	6.8	6.4	6.8	6.9	7.3	6.1	24	13.2	3.7	6.0
23	6.0	6.2	6.1	5.6	5.1	4.7	4.9	4.9	4.6	4.4	4.0	3.4	3.7	3.7	3.4	2.9	2.3	1.9	2.2	2.9	3.6	5.0	5.1	5.1	24	6.2	1.9	4.2
24	4.7	4.8	5.2	5.2	5.6	6.4	6.4	4.8	2.4	2.6	3.3	2.9	2.5	2.1	2.4	2.3	2.0	2.6	3.5	3.0	2.3	1.7	1.0	0.8	24	6.4	0.8	3.3
25	0.5	0.4	0.5	0.4	0.3	0.3	0.6	1.6	1.6	0.8	0.7	1.1	1.1	1.2	1.4	2.8	2.5	2.1	1.8	2.5	2.9	2.6	3.7	3.4	24	3.7	0.3	1.5
26	2.4	2.9	2.6	4.4	4.6	3.6	2.5	2.1	1.8	2.8	2.8	2.4	2.2	1.6	4.5	1.8	2.1	2.3	3.5	4.6	5.7	6.8	7.2	6.2	24	7.2	1.6	3.5
27	6.2	5.9	6.4	6.6	6.4	7.4	7.2	5.8	11.8	12.4	13.6	14.7	14.5	15.0	14.1	11.4	10.3	9.8	8.8	7.5	5.1	5.4	5.0	5.5	24	15.0	5.0	9.0
28	6.7	6.3	6.0	6.1	3.0	2.9	3.8	4.9	7.3	9.9	10.8	4.2	C	C	4.7	5.4	4.9	3.5	3.7	4.7	5.6	8.1	11.9	8.1	22	11.9	2.9	6.0
29	6.9	7.1	9.3	8.0	6.0	7.5	16.4	7.6	7.2	4.6	5.6	8.9	12.8	11.0	7.4	5.4	4.4	3.8	4.8	5.0	5.8	6.0	6.2	6.7	24	16.4	3.8	7.3
30	8.8	11.2	14.1	14.9	13.9	16.3	16.3	16.1	17.8	18.4	18.8	18.7	19.7	19.1	20.6	21.4	20.6	17.7	15.6	14.9	14.9	15.9	15.7	15.0	24	21.4	8.8	16.5
31																												
Count	30	30	30	30	30	30	30	30	30	30	30	29	29	29	30	30	30	30	30	30	30	30	30	30	717			
Maximum	14.7	15.5	14.6	15.0	16.5	18.6	20.5	23.9	27.1	26.4	19.6	18.7	19.7	19.1	20.6	21.4	20.6	17.7	15.6	14.9	14.9	21.5	22.7	19.9	24			
Minimum	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.7	0.2	0.4	0.3	0.2	0.4	0.7	0.8	0.5	0.3	0.2	0.1	0.2	0.5	0.3	0.1	22			
Average	5.3	4.9	5.2	5.7	5.3	5.8	6.1	5.4	5.6	5.4	5.1	5.4	5.4	5.3	5.3	5.0	4.4	4.1	4.4	4.8	5.5	6.9	8.0	6.9				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.8	2.0	2.7	3.5	4.4	5.1	6.2	8.0	12.4	15.0	20.6	27.1

Maximum Hourly	27.1
Maximum Daily	16.5
Monthly Average	5.5

Notes C - Calibration / Span Cycle; NA - No Data Available; T - Test; A- MOE Audit; M - Equipment Malfunction / Down; R - Rate of Change

Figure E-1 Time History Plot of Measured 24 Hour Average $PM_{2.5}$ Concentrations – Courtice WPCP Station

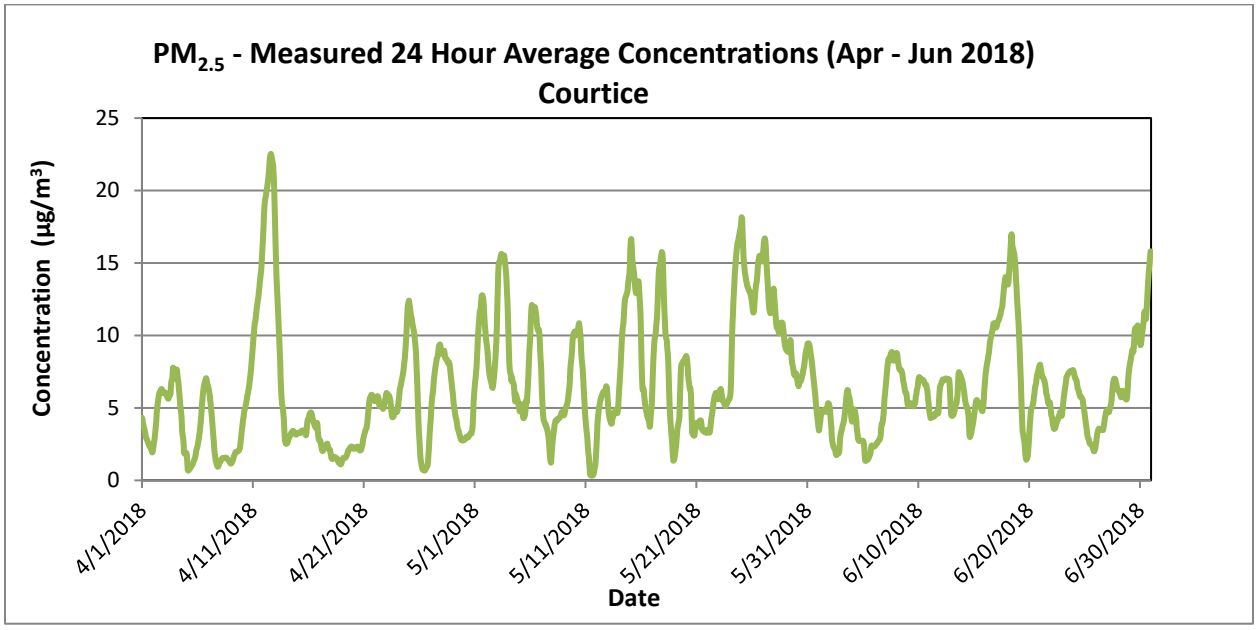
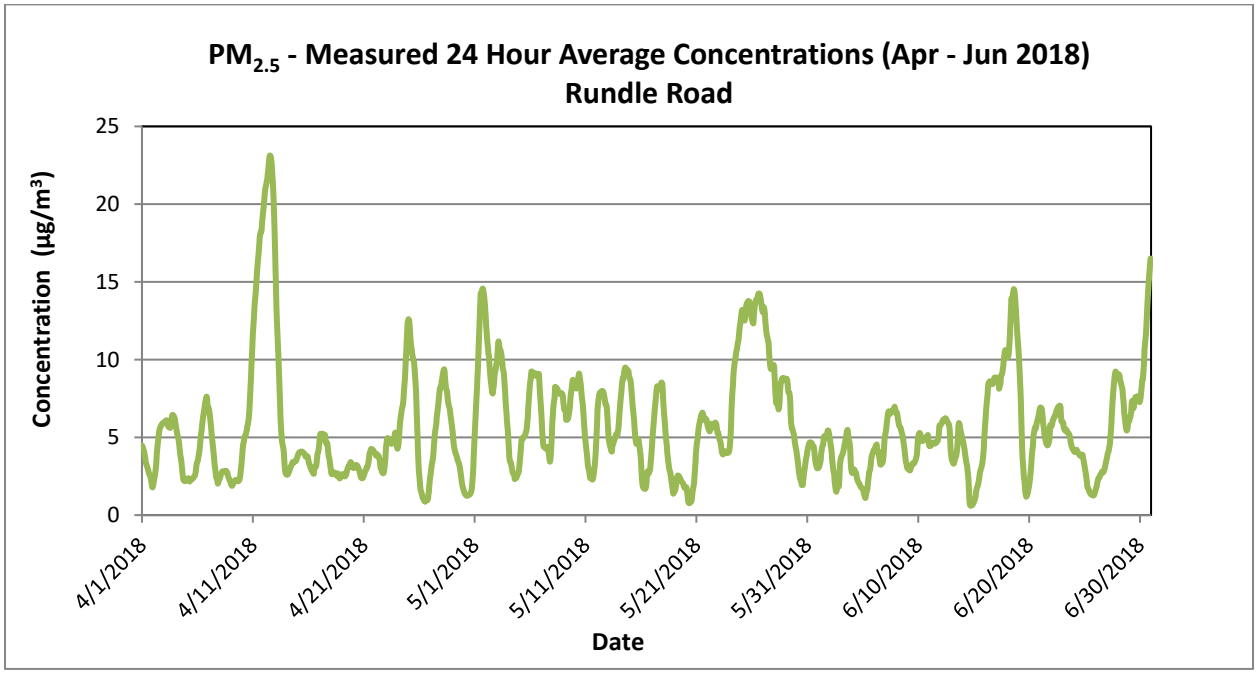


Figure E-2 Time History Plot of Measured 24 Hour Average $PM_{2.5}$ Concentrations – Rundle Road Station



APPENDIX F:
CONTINUOUS PARAMETER EDIT LOGS

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Brian Bylhouwer**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com**		
Station number:	**N/A**		**Station Name:**	**Courtice WPCP Station (Upwind)**				
Station address:	**Courtice Water Pollution Control Plant**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**SO_2**	**Instrument make & model:**		**Teledyne Monitor Labs Sulphur Dioxide Analyzer Model T100**		**Serial Number:**	**565**	
Data edit period	**Start date:**	**1-Apr-18**	**End date:**	**30-Jun-18**		**Time Zone : EST**		
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	
11	13-Jul-18	BB	Data Review	15-Apr-18	21:00	16-Apr-18	06:00	An elevated SO_2 level of 49.7 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the east - potential emission sources in this direction include St. Mary's Cement, a CN railroad, and the Courtice WPCP. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
12	13-Jul-18	BB	Data Review	12-May-18	19:00	12-May-18	21:00	An elevated SO_2 level of 42.9 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Winds were from the north - potential emission sources in this direction include a CN railroad and the Courtice WPCP. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
13	13-Jul-18	BB	Data Review	21-May-18	19:00	21-May-18	22:00	An elevated SO_2 level of 47.5 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the north - potential emission sources in this direction include a CN railroad and the Courtice WPCP. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
14	13-Jul-18	BB	Data Review	24-May-18	23:00	25-May-18	04:00	An elevated SO_2 level of 44.1 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were light and from the west - potential emission sources in this direction include a CN railroad and the Courtice WPCP. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
15	13-Jul-18	BB	Data Review	3-Jun-18	09:00	3-Jun-18	13:00	An elevated SO_2 level of 74.4 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Slightly elevated NOx levels were also measured, suggesting a local combustion source. Winds were light and from the east - potential emission sources in this direction include St. Mary's Cement, a CN railroad and the Courtice WPCP. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
16	13-Jul-18	BB	Invalidate	30-Apr-17	12:00	30-Apr-17	13:00	Monthly calibration
17	13-Jul-18	BB	Invalidate	29-May-18	09:00	29-May-18	14:00	Monthly calibration
18	13-Jul-18	BB	Invalidate	4-Jun-18	12:00	4-Jun-18	12:00	Calibration
19	13-Jul-18	BB	Invalidate	6-Jun-18	09:00	6-Jun-18	09:00	MOECC Audit

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range
Test

Project Name	Durham York Energy Centre Ambient Air Monitoring Program							
Contact	Greg Crooks / Connie Lim / Brian Bylhouwer		Phone:	905-944-7777	E-mail:	greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com		
Station number:	N/A		Station Name:	Courtice WPCP Station (Upwind)				
Station address:	Courtice Water Pollution Control Plant		Emitter Address:	The Region of Durham, 605 Rossland Rd, Whitby, ON				
Pollutant or parameter:	NOx	Instrument make & model:		API Model 200E Chemiluminescence Analyzer		Serial Number:	675	
Data edit period	Start date:	1-Apr-18	End date:	30-Jun-18	Time Zone : EST			
Edit #	Edit date	Editor's Name	Edit Action	Starting		Ending		Reason
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	
15	13-Jul-18	BB	Data Review	15-Apr-18	21:00	16-Apr-18	06:00	An elevated NOx level of 39.9 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was less than NO_2 which suggests a more distant emission source. Winds were blowing from the east - potential sources in that direction include a CN railroad, the Darlington NGS, and St. Mary's Cement. The data was deemed valid.
16	13-Jul-18	BB	Data Review	30-Apr-18	20:00	1-May-18	03:00	An elevated NOx level of 61.6 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was similar to NO_2 which suggests a intermediate distance emission source. Winds were blowing from the northwest - potential sources in that direction include a CN railroad and Highway 401. The data was deemed valid.
17	13-Jul-18	BB	Data Review	7-May-18	20:00	8-May-18	06:00	An elevated NOx level of 36.8 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was lower than NO_2 which suggests a more distant emission source. Winds were blowing from the north - potential sources in that direction include a CN railroad and Highway 401. The data was deemed valid.
18	13-Jul-18	BB	Data Review	11-Jun-18	20:00	12-Jun-18	02:00	An elevated NOx level of 69.5 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was similar to NO_2 which suggests an intermediate distance emission source. Winds were blowing from the north - potential sources in that direction include a CN railroad and Highway 401. The data was deemed valid.
19	13-Jul-18	BB	Data Review	28-Jun-18	21:00	29-Jun-18	04:00	An elevated NOx level of 58.9 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was similar to NO_2 which suggests an intermediate distance emission source. Winds were blowing from the west - potential sources in that direction include a CN railroad. The data was deemed valid.
20	13-Jul-18	BB	Invalidate	30-Apr-17	12:00	30-Apr-17	13:00	Monthly calibration
21	13-Jul-18	BB	Invalidate	29-May-18	09:00	29-May-18	14:00	Monthly calibration
22	13-Jul-18	BB	Invalidate	4-Jun-18	12:00	4-Jun-18	12:00	Calibration
23	13-Jul-18	BB	Invalidate	6-Jun-18	09:00	6-Jun-18	09:00	MOECC Audit
24	13-Apr-18	BB	Data Review	29-May-18	19:00	29-May-18	23:00	Instances of repeating measurements were due to rounding. Data was reviewed and did vary for each hour.
25	13-Apr-18	BB	Data Review	8-Jun-18	12:00	8-Jun-18	17:00	
26	13-Apr-18	BB	Data Review	30-Jun-18	13:00	30-Jun-18	23:00	

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range
Test

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**						
Contact	**Greg Crooks / Connie Lim / Brian Bylhouwer**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com**	
Station number:	**N/A**		**Station Name:**	**Courtice WPCP Station**			
Station address:	**Courtice Water Pollution Control Plant**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**			
Pollutant or parameter:	**$PM_{2.5}$**	**Instrument make & model:**		**Thermo Sharp 5030 Synchronized Hybrid Ambient Real-time Particulate Monitor**	**Serial Number:**	**E-1569**	
Data edit period	**Start date:**	**1-Apr-18**	**End date:**	**30-Jun-18**	**Time Zone : EST**		

Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	
24	13-Jul-18	BB	Data review	15-Apr-18	20:00	15-Apr-18	23:00	Elevated levels of up to 10.8 µg/m³ were measured without a corresponding trend at the Rundle or Oshawa Stations. Winds were from the east - potential emission sources in this direction include a CN railroad and St. Mary's Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
25	13-Jul-18	BB	Data review	3-May-18	00:00	3-May-18	04:00	Elevated levels of up to 36.4 µg/m³ were measured without a corresponding trend at the Rundle or Oshawa Stations. Winds were from the north - potential emission sources in this direction include a CN railroad and Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
26	13-Jul-18	BB	Data review	24-May-18	00:00	24-May-18	07:00	Elevated levels of up to 42.9 µg/m³ were measured without a corresponding trend at the Rundle or Oshawa Stations. Winds were from the northwest - potential emission sources in this direction include a CN railroad and Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
27	13-Jul-18	BB	Invalidate	30-Apr-17	12:00	30-Apr-17	13:00	Monthly calibration
28	13-Jul-18	BB	Invalidate	29-May-18	09:00	29-May-18	14:00	Monthly calibration
29	13-Jul-18	BB	Invalidate	4-Jun-18	12:00	4-Jun-18	12:00	Calibration
30	13-Jul-18	BB	Invalidate	6-Jun-18	09:00	6-Jun-18	09:00	MOECC Audit
31	13-Jul-18	BB	Data review	11-May-18	12:00	11-May-18	15:00	Instances of repeating measurements. Data was reviewed - measurements were varying but were repeating due to rounding.
32	13-Jul-18	BB	Data review	2-Jun-18	02:00	2-Jun-18	14:00	
33	13-Jul-18	BB	Data review	5-Jun-18	05:00	5-Jun-18	09:00	
34	13-Jul-18	BB	Invalidate Minute Data	9-Apr-18	12:57	9-Apr-18	13:07	Zero check
35	13-Jul-18	BB	Invalidate Minute Data	18-Apr-18	14:28	18-Apr-18	14:35	Zero check
36	13-Jul-18	BB	Invalidate Minute Data	23-Apr-18	09:58	23-Apr-18	10:03	Zero check
37	13-Jul-18	BB	Invalidate Minute Data	1-May-18	13:53	1-May-18	14:00	Zero check
38	13-Jul-18	BB	Invalidate Minute Data	4-May-18	09:38	4-May-18	09:48	Zero check
39	13-Jul-18	BB	Invalidate Minute Data	11-May-18	10:44	11-May-18	10:51	Zero check
40	13-Jul-18	BB	Invalidate Minute Data	15-May-18	09:28	15-May-18	09:35	Zero check
41	13-Jul-18	BB	Invalidate Minute Data	25-May-18	10:23	25-May-18	10:29	Zero check
42	13-Jul-18	BB	Zero correction	1-May-18	14:00	4-May-18	10:00	Offset of 0.373 µg/m³ applied due to zero drift

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range
Test

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Brian Bylhouwer**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com**		
Station number:	**N/A**		**Station Name:**	**Courtice WPCP Station**				
Station address:	**Courtice Water Pollution Control Plant**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Temperature**	**Instrument make & model:**		**Campbell Scientific Model HMP60**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-18**	**End date:**	**30-Jun-18**		**Time Zone : EST**		
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Brian Bylhouwer**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com**		
Station number:	**N/A**		**Station Name:**	**Courtice WPCP Station**				
Station address:	**Courtice Water Pollution Control Plant**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Rainfall**	**Instrument make & model:**		**Texas Electronic TE525M**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-18**	**End date:**	**30-Jun-18**		**Time Zone : EST**		
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	
1	13-Jul-18	BB	Invalidate	14-Apr-18	11:00	15-Apr-18	22:00	Data invalidated due to ice build up during ice storm.

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Brian Bylhouwer**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com**		
Station number:	**N/A**		**Station Name:**	**Courtice WPCP Station**				
Station address:	**Courtice Water Pollution Control Plant**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Relative Humidity**	**Instrument make & model:**		**Campbell Scientific Model HMP60**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-18**	**End date:**	**30-Jun-18**	**Time Zone : EST**			
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Brian Bylhouwer**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com**		
Station number:	**N/A**		**Station Name:**	**Courtice WPCP Station**				
Station address:	**Courtice Water Pollution Control Plant**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Atmospheric Pressure**	**Instrument make & model:**		**Campbell Scientific Model CS106**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-18**	**End date:**	**30-Jun-18**	**Time Zone : EST**			
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Lisa Heatherington**		**Phone:**	**N/A**	**E-mail:**	**Lisa.Hetherington@Durham.ca**		
Station number:	**N/A**		**Station Name:**	**Courtice WPCP Station**				
Station address:	**Courtice Water Pollution Control Plant**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Wind Speed/Wind direction**	**Instrument make & model:**		**N/A**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-18**	**End date:**	**30-Jun-18**		**Time Zone : EST**		
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd/mm/yyyy)	**Hour (xx:xx)**	**Date (dd/mm/yyyy)**	**Hour (xx:xx)**	

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range

Project Name	Durham York Energy Centre Ambient Air Monitoring Program							
Contact	Greg Crooks / Connie Lim / Brian Bylhouwer		Phone:	905-944-7777	E-mail:	greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com		
Station number:	45200		Station Name:	Rundle Road Station				
Station address:	Rundle Road / Baseline Road		Emitter Address:	The Region of Durham, 605 Rossland Rd, Whitby, ON				
Pollutant or parameter:	SO_2	Instrument make & model:		Teledyne Monitor Labs Sulphur Dioxide Analyzer		Serial Number:	565	
Data edit period	Start date:	1-Apr-18	End date:	30-Jun-18	Time Zone : EST			

Edit #	Edit date	Editor's Name	Edit Action	Starting		Ending		Reason
				Date (dd-mm-yy)	Hour (xx:xx)	Date (dd-mm-yy)	Hour (xx:xx)	
8	14-Jul-18	BB	Data Review	27-Apr-18	14:00	27-Apr-18	18:00	Elevated levels of up to 29.1 ppb were measured without a corresponding trend at the Courtice WPCP. Elevated NOx levels were also measured in the same time period suggesting a combustion source. Winds were easterly during this time. Potential emission sources in this direction include the CP railroad and St. Mary's Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
9	14-Jul-18	BB	Data Review	27-May-18	11:00	27-May-18	16:00	Elevated levels of up to 39.1 ppb were measured without a corresponding trend at the Courtice WPCP. Elevated NOx levels were also measured in the same time period suggesting a combustion source. Winds were easterly during this time. Potential emission sources in this direction include the CP railroad and St. Mary's Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
10	14-Jul-18	BB	Data Review	29-May-18	15:00	29-May-18	17:00	Elevated levels of up to 44.7 ppb were measured without a corresponding trend at the Courtice WPCP. Elevated NOx levels were also measured in the same time period suggesting a combustion source. Winds were easterly during this time. Potential emission sources in this direction include the CP railroad and St. Mary's Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
11	14-Jul-18	BB	Data Review	10-Jun-18	12:00	10-Jun-18	16:00	Elevated levels of up to 66.0 ppb were measured without a corresponding trend at the Courtice WPCP. Elevated NOx levels were also measured in the same time period suggesting a combustion source. Winds were easterly during this time. Potential emission sources in this direction include the CP railroad and St. Mary's Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
12	14-Jul-18	BB	Invalidate	30-Apr-18	14:00	30-Apr-18	15:00	Monthly calibration
13	14-Jul-18	BB	Invalidate	29-May-18	13:00	29-May-18	14:00	Monthly calibration
14	14-Jul-18	BB	Invalidate	30-May-18	12:00	30-May-18	13:00	Calibration
15	14-Jul-18	BB	Invalidate	4-Jun-18	13:00	4-Jun-18	13:00	Calibration
16	14-Jul-18	BB	Invalidate	28-Jun-18	12:00	28-Jun-18	13:00	Monthly calibration
17	14-Jul-18	BB	Invalidate	6-Jun-18	13:00	6-Jun-18	13:00	MOECC Quarterly Audit
18	14-Jul-18	BB	Data Review	1-Apr-18	02:00	1-Apr-18	17:00	Instances of repeating zero values in these timeframes were due to rounding. Review of data showed that measurements were varying over these time frames.
19	14-Jul-18	BB	Data Review	3-Apr-18	16:00	4-Apr-18	01:00	
20	14-Jul-18	BB	Data Review	4-Apr-18	20:00	5-Apr-18	04:00	
21	14-Jul-18	BB	Data Review	7-Apr-18	00:00	8-Apr-18	05:00	
22	14-Jul-18	BB	Data Review	14-Apr-18	07:00	15-Apr-18	05:00	
23	14-Jul-18	BB	Data Review	17-Apr-18	13:00	20-Apr-18	00:00	
24	14-Jul-18	BB	Data Review	6-May-18	00:00	6-May-18	09:00	
25	14-Jul-18	BB	Data Review	19-May-18	08:00	20-May-18	14:00	
26	14-Jul-18	BB	Data Review	2-Jun-18	02:00	3-Jun-18	12:00	

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range
Test

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Brian Bylhouwer**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**NOx**	**Instrument make & model:**		**API Model 200E Chemiluminescence Analyzer**			**Serial Number:**	**675**
Data edit period	**Start date:**	**1-Apr-18**	**End date:**	**30-Jun-18**				**Time Zone : EST**
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd-mm-yy)	**Hour (xx:xx)**	**Date (dd-mm-yy)**	**Hour (xx:xx)**	
9	14-Jul-18	BB	Data review	27-Apr-18	13:00	27-Apr-18	18:00	An elevated NOx level of 47.8 ppb was measured without a corresponding trend at the Courtice station. For this hour, the measured NO concentration was similar to NO_2 which suggests an intermediate emission source. Winds were blowing from the east - potential emission sources in this direction include a CP railroad and local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
10	14-Jul-18	BB	Data review	17-May-18	02:00	17-May-18	12:00	An elevated NOx level of 54.6 ppb was measured without a corresponding trend at the Courtice station. For this hour, the measured NO concentration was similar to NO_2 which suggests an intermediate emission source. Winds were blowing from the west - potential emission sources in this direction include nearby construction and local traffic. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
11	14-Jul-18	BB	Data review	4-Jun-18	04:00	4-Jun-18	16:00	An elevated NOx level of 71.7 ppb was measured without a corresponding trend at the Courtice station. For this hour, the measured NO concentration was more than NO_2 which suggests a nearby emission source. Winds were blowing from the west - potential emission sources in this direction include nearby construction and local traffic. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
12	14-Jul-18	BB	Data review	5-Jun-18	04:00	5-Jun-18	15:00	An elevated NOx level of 62.7 ppb was measured without a corresponding trend at the Courtice station. For this hour, the measured NO concentration was more than NO_2 which suggests a nearby emission source. Winds were blowing from the west - potential emission sources in this direction include nearby construction and local traffic. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
13	14-Jul-18	BB	Invalidate	30-Apr-18	14:00	30-Apr-18	15:00	Monthly calibration
14	14-Jul-18	BB	Invalidate	29-May-18	13:00	29-May-18	14:00	Monthly calibration
15	14-Jul-18	BB	Invalidate	30-May-18	12:00	30-May-18	14:00	Calibration
16	14-Jul-18	BB	Invalidate	4-Jun-18	13:00	4-Jun-18	13:00	Calibration
17	14-Jul-18	BB	Invalidate	28-Jun-18	12:00	28-Jun-18	13:00	Monthly calibration
18	14-Jul-18	BB	Invalidate	6-Jun-18	13:00	6-Jun-18	13:00	MOECC Quarterly Audit
19	14-Jul-18	BB	Data review	1-Apr-18	02:00	1-Apr-18	18:00	
20	14-Jul-18	BB	Data review	19-Apr-18	00:00	21-Apr-18	05:00	Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied
21	14-Jul-18	BB	Data review	28-Apr-18	05:00	29-Apr-18	11:00	
22	14-Jul-18	BB	Data review	29-Apr-18	21:00	30-Apr-18	04:00	

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range
Test

Project Name	Durham York Energy Centre Ambient Air Monitoring Program							
Contact	Greg Crooks / Connie Lim / Brian Bylhouwer		Phone:	905-944-7777	E-mail:	greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com		
Station number:	45200		Station Name:	Rundle Road Station				
Station address:	Rundle Road / Baseline Road		Emitter Address:	The Region of Durham, 605 Rossland Rd, Whitby, ON				
Pollutant or parameter:	$PM_{2.5}$	Instrument make & model:		Thermo Sharp 5030 Synchronized Hybrid Ambient Real-time		Serial Number:	E-1569	
Data edit period	Start date:	1-Apr-18	End date:	30-Jun-18			Time Zone : EST	
Edit #	Edit date	Editor's Name	Edit Action	Starting		Ending		Reason
				Date (dd-mm-yy)	Hour (xx:xx)	Date (dd-mm-yy)	Hour (xx:xx)	
17	14-Jul-18	BB	Data review	8-May-18	06:00	8-May-18	07:00	Elevated levelsof 23.1 µg/m³ were measured without a corresponding trend at the Courtice or Oshawa Stations. Winds were easterly during this time. Potential emission sources in this direction include Highway 401 and St. Mary's Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
18	14-Jul-18	BB	Invalidate	30-Apr-18	14:00	30-Apr-18	15:00	Monthly calibration
19	14-Jul-18	BB	Invalidate	29-May-18	13:00	29-May-18	14:00	Monthly calibration
20	14-Jul-18	BB	Invalidate	30-May-18	12:00	30-May-18	14:00	Calibration
21	14-Jul-18	BB	Invalidate	4-Jun-18	13:00	4-Jun-18	13:00	Calibration
22	14-Jul-18	BB	Invalidate	28-Jun-18	12:00	28-Jun-18	13:00	Monthly calibration
23	14-Jul-18	BB	Invalidate	6-Jun-18	13:00	6-Jun-18	13:00	MOECC Quarterly Audit
24	14-Jul-18	BB	Invalidate Minute Data	9-Apr-18	15:30	9-Apr-18	15:44	Zero check
25	14-Jul-18	BB	Invalidate Minute Data	18-Apr-18	08:09	18-Apr-18	08:21	Zero check
26	14-Jul-18	BB	Invalidate Minute Data	23-Apr-18	11:16	23-Apr-18	11:21	Zero check
27	14-Jul-18	BB	Invalidate Minute Data	1-May-18	06:47	1-May-18	08:01	Zero check
28	14-Jul-18	BB	Invalidate Minute Data	4-May-18	10:15	4-May-18	10:34	Zero check
29	14-Jul-18	BB	Invalidate Minute Data	11-May-18	06:47	11-May-18	06:56	Zero check
30	14-Jul-18	BB	Invalidate Minute Data	15-May-18	10:14	15-May-18	10:20	Zero check
31	14-Jul-18	BB	Invalidate Minute Data	25-May-18	06:57	25-May-18	07:21	Zero check
32	14-Jul-18	BB	Zero Correction	1-May-18	08:00	4-May-18	10:00	Offset of 0.727 µg/m³ applied due to zero drift
33	14-Jul-18	BB	Zero Correction	15-May-18	10:00	25-May-18	07:00	Offset of 0.847 µg/m³ applied due to zero drift

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range
Test

EDIT LOG TABLE

Project Name	Durham York Energy Centre Ambient Air Monitoring Program							
Contact	Greg Crooks / Connie Lim / Brian Bylhouwer		Phone:	905-944-7777	E-mail:	greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com		
Station number:	45200		Station Name:	Rundle Road Station				
Station address:	Rundle Road / Baseline Road		Emitter Address:	The Region of Durham, 605 Rossland Rd, Whitby, ON				
Pollutant or parameter:	Temperature	Instrument make & model:		Campbell Scientific Model HMP60		Serial Number:		
Data edit period	Start date:	1-Apr-18	End date:	30-Jun-18		Time Zone : EST		
Edit #	Edit date	Editor's Name	Edit Action	Starting		Ending		Reason
				Date (dd-mm-yy)	Hour (xx:xx)	Date (dd-mm-yy)	Hour (xx:xx)	

EDIT LOG TABLE

Project Name	Durham York Energy Centre Ambient Air Monitoring Program							
Contact	Greg Crooks / Connie Lim / Brian Bylhouwer		Phone:	905-944-7777	E-mail:	greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com		
Station number:	45200		Station Name:	Rundle Road Station				
Station address:	Rundle Road / Baseline Road		Emitter Address:	The Region of Durham, 605 Rossland Rd, Whitby, ON				
Pollutant or parameter:	Rainfall	Instrument make & model:		Texas Electronic TE525M		Serial Number:		
Data edit period	Start date:	1-Apr-18	End date:	30-Jun-18		Time Zone : EST		
Edit #	Edit date	Editor's Name	Edit Action	Starting		Ending		Reason
				Date (dd-mm-yy)	Hour (xx:xx)	Date (dd-mm-yy)	Hour (xx:xx)	
2	14-Jul-18	BB	Invalidate	14-Apr-18	11:00	15-Apr-18	23:00	Ice build up during rain storm. Data invalidated.

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Brian Bylhouwer**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Relative Humidity**	**Instrument make & model:**		**Campbell Scientific Model HMP60**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-18**	**End date:**	**30-Jun-18**		**Time Zone : EST**		
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd-mm-yy)	**Hour (xx:xx)**	**Date (dd-mm-yy)**	**Hour (xx:xx)**	

EDIT LOG TABLE

Contact	**Greg Crooks / Connie Lim / Brian Bylhouwer**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, brian.bylhouwer@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Wind Speed/Wind Direction**	**Instrument make & model:**		**Met One Instruments Inc. Model 034B**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-18**	**End date:**	**30-Jun-18**		**Time Zone : EST**		
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd-mm-yy)	**Hour (xx:xx)**	**Date (dd-mm-yy)**	**Hour (xx:xx)**	
4	14-Jul-18	BB	Invalidate	14-Apr-18	10:00	16-Apr-18	02:00	Anemometer frozen. Data invalidated

Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range

APPENDIX G:
METALS DATA SUMMARY

Metals and Total Particulates	Courtice WPCP Station	Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice	
Location		02/04/2018		08/04/2018		14/04/2018		20/04/2018		26/04/2018		02/05/2018		08/05/2018		14/05/2018		20/05/2018		26/05/2018		01/06/2018		07/06/2018		13/06/2018		19/06/2018		25/06/2018	
Date	dd/mm/yyyy																												
Start Time	hh:mm	0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00	
Sample Duration	Hours	23.38		23.4		23.35		23.34		23.35		23.3		23.45		23.44		23.36		23.34		23.37		23.29		23.34		23.4	
Technician		AE, TZ, AW		TZ, AW		TZ, AW		AW		AW		AW		AW		AW		AW		AW		AW		AW		AW		AW	
Filter Number		18030508		18030969		18030973		18032259		18032262		18032265		18041303		18032270		18032273		18042477		18042480		18043084		18043089		18051729		18052305	
Analytical Report #		B877682		B879675		B881163		B893080		B8A1608		B8A3895		B8B2808		B8B3890		B8C9301		B8C6373		B8D8007		B8D9120		B8E9628		B8F1289		B8G3717	
Total Volumetric Flow	Am^3/sample	1465.28		1455.62		1476.02		1449.55		1469.75		1475.60		1491.63		1537.99		1558.63		1562.98		1559.34		1506.08		1522.74		1558.15		1529.44	
Analytical Results	**Units**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**
Particulate	mg	33.2	5.0	14.9	5.0	26.4	5.0	19.5	5.0	43.2	5.0	125	5.0	63.1	5.0	52.3	5.0	45.2	5.0	74.4	5.0	67.5	5.0	58.1	5.0	81.9	5.0	43.1	5.0	51.7	5.0
Total Mercury (Hg)	µg	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.03	0.02	0.03	0.02	<0.02	0.02	<0.02	0.02	0.03	0.02	<0.02	0.02	0.03	0.02	0.03	0.02	<0.02	0.02	<0.02	0.02
Aluminum (Al)	µg	109	50	<50	50	87	50	128	50	236	50	1320	50	383	50	285	50	139	50	366	50	254	50	324	50	351	50	134	50	207	50
Antimony (Sb)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Arsenic (As)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0
Barium (Ba)	µg	7.9	1.0	4.0	1.0	3.0	1.0	8.0	1.0	17.6	1.0	27.9	1.0	17.8	1.0	17.5	1.0	17.1	1.0	12.2	1.0	10.3	1.0	11.0	1.0	9.0	1.0	14.0	1.0	8.6	1.0
Beryllium (Be)	µg	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0
Bismuth (Bi)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0
Boron (B)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	6.2	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0
Cadmium (Cd)	µg	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	2.8	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0
Chromium (Cr)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	5.2	5.0	6.9	5.0	5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	5.7	5.0	<5.0	5.0	<5.0	5.0
Cobalt (Co)	µg	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0
Copper (Cu)	µg	31.7	5.0	13.8	5.0	9.3	5.0	15.4	5.0	20.7	5.0	38.1	5.0	26.6	5.0	37.0	5.0	29.5	5.0	50.9	5.0	35.2	5.0	39.8	5.0	33.2	5.0	24.7	5.0	29.3	5.0
Iron (Fe)	µg	367	50	202	50	166	50	417	50	876	50	2550	50	1010	50	806	50	413	50	809	50	599	50	945	50	812	50	454	50	549	50
Lead (Pb)	µg	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	3.2	3.0	9.6	3.0	<3.0	3.0	5.8	3.0	3.2	3.0	22.4	3.0	3.4	3.0	5.6	3.0	3.5	3.0	<3.0	3.0	<3.0	3.0
Magnesium (Mg)	µg	242	50	74	50	94	50	181	50	555	50	1780	50	429	50	468	50	209	50	471	50	297	50	469	50	408	50	161	50	240	50
Manganese (Mn)	µg	12.3	1.0	4.3	1.0	5.7	1.0	11.4	1.0	23.6	1.0	107	1.0	26.8	1.0	23.1	1.0	15.5	1.0	24.1	1.0	22.9	1.0	27.0	1.0	30.5	1.0	11.2	1.0	16.6	1.0
Molybdenum (Mo)	µg	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0
Nickel (Ni)	µg	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	3.4	3.0	<3.0	3.0	<3.0	3.0	6.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0
Phosphorus (P)	µg	<25	25	<25	25	<25	25	<25	25	46	25	241	25	77	25	65	25	95	25	86	25	110	25	72	25	116	25	57	25	78	25
Selenium (Se)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Silver (Ag)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Strontium (Sr)	µg	5.1	1.0	1.5	1.0	1.9	1.0	5.0	1.0	10.4	1.0	23.6	1.0	14.3	1.0	6.4	1.0	8.4	1.0	6.7	1.0	7.5	1.0	7.7	1.0	8.1	1.0	4.3	1.0	7.3	1.0
Thallium (Tl)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Tin (Sn)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Titanium (Ti)	µg	<10	10	<10	10	<10	10	<10	10	17	10	47	10	22	10	15	10	<10	10	16	10	12	10	15	10	18	10	<10	10	12	10
Vanadium (V)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Zinc (Zn)	µg	33.2	5.0	10.6	5.0	274	5.0	19.4	5.0	62.9	5.0	117	5.0	44.1	5.0	45.1	5.0	32.4	5.0	168	5.0	30.8	5.0	36.9	5.0	46.5	5.0	16.2	5.0	20.8	5.0
Zirconium (Zr)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Total Uranium (U)	µg	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45

Calculated Concentrations	Units	Quarter 2 Maximum	Quarter 2 Minimum	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
				02/04/2018	08/04/2018	14/04/2018	20/04/2018	26/04/2018	02/05/2018	08/05/2018	14/05/2018	20/05/2018	26/05/2018	01/06/2018	07/06/2018	13/06/2018	19/06/2018	25/06/2018
Particulate	$µg/m^3$	84.71	10.24	22.66	10.24	17.89	13.45	29.39	84.71	42.30	34.01	29.00	47.60	43.29	38.58	53.78	27.66	33.80
Total Mercury (Hg)	$µg/m^3$	2.03E-05	6.41E-06	6.82E-06	6.87E-06	6.77E-06	6.90E-06	6.80E-06	2.03E-05	2.01E-05	6.50E-06	6.42E-06	1.92E-05	6.41E-06	1.99E-05	1.97E-05	1.93E-05	6.54E-06
Aluminum (Al)	$µg/m^3$	8.95E-01	1.72E-02	7.44E-02	1.72E-02	5.89E-02	8.83E-02	1.61E-01	8.95E-01	2.57E-01	1.85E-01	8.92E-02	2.34E-01	1.63E-01	2.15E-01	2.31E-01	8.60E-02	1.35E-01
Antimony (Sb)	$µg/m^3$	3.45E-03	3.20E-03	3.41E-03	3.43E-03	3.39E-03	3.45E-03	3.40E-03	3.39E-03	3.35E-03	3.25E-03	3.21E-03	3.20E-03	3.21E-03	3.32E-03	3.28E-03	3.21E-03	3.27E-03
Arsenic (As)	$µg/m^3$	2.07E-03	1.92E-03	2.05E-03	2.06E-03	2.03E-03	2.07E-03	2.04E-03	2.03E-03	2.01E-03	1.95E-03	1.92E-03	1.92E-03	1.92E-03	1.99E-03	1.97E-03	1.93E-03	1.96E-03
Barium (Ba)	$µg/m^3$	1.89E-02	2.03E-03	5.39E-03	2.75E-03	2.03E-03	5.52E-03	1.20E-02	1.89E-02	1.19E-02	1.14E-02	1.10E-02	7.81E-03	6.61E-03	7.30E-03	5.91E-03	8.99E-03	5.62E-03
Beryllium (Be)	$µg/m^3$	3.45E-04	3.20E-04	3.41E-04	3.43E-04	3.39E-04	3.45E-04	3.40E-04	3.39E-04	3.35E-04	3.25E-04	3.21E-04	3.20E-04	3.21E-04	3.32E-04	3.28E-04	3.21E-04	3.27E-04
Bismuth (Bi)	$µg/m^3$	2.07E-03	1.92E-03	2.05E-03	2.06E-03	2.03E-03	2.07E-03	2.04E-03	2.03E-03	2.01E-03	1.95E-03	1.92E-03	1.92E-03	1.92E-03	1.99E-03	1.97E-03	1.93E-03	1.96E-03
Boron (B)	$µg/m^3$	4.20E-03	1.92E-03	2.05E-03	2.06E-03	2.03E-03	2.07E-03	2.04E-03	4.20E-03	2.01E-03	1.95E-03	1.92E-03	1.92E-03	1.92E-03	1.99E-03	1.97E-03	1.93E-03	1.96E-03
Cadmium (Cd)	$µg/m^3$	1.90E-03	6.40E-04	6.82E-04	6.87E-04	6.77E-04	6.90E-04	6.80E-04	1.90E-03	6.70E-04	6.50E-04	6.42E-04	6.40E-04	6.41E-04	6.64E-04	6.57E-04	6.42E-04	6.54E-04
Chromium (Cr)	$µg/m^3$	4.68E-03	1.60E-03	1.71E-03	1.72E-03	1.69E-03	1.72E-03	3.54E-03	4.68E-03	3.35E-03	1.63E-03	1.60E-03	1.60E-03	1.60E-03	1.66E-03	3.74E-03	1.60E-03	1.63E-03
Cobalt (Co)	$µg/m^3$	6.90E-04	6.40E-04	6.82E-04	6.87E-04	6.77E-04	6.90E-04	6.80E-04	6.78E-04	6.70E-04	6.50E-04	6.42E-04	6.40E-04	6.41E-04	6.64E-04	6.57E-04	6.42E-04	6.54E-04
Copper (Cu)	$µg/m^3$	3.26E-02	6.30E-03	2.16E-02	9.48E-03	6.30E-03	1.06E-02	1.41E-02	2.58E-02	1.78E-02	2.41E-02	1.89E-02	3.26E-02	2.26E-02	2.64E-02	2.18E-02	1.59E-02	1.92E-02
Iron (Fe)	$µg/m^3$	1.73E+00	1.12E-01	2.50E-01	1.39E-01	1.12E-01	2.88E-01	5.96E-01	1.73E+00	6.77E-01	5.24E-01	2.65E-01	5.18E-01	3.84E-01	6.27E-01	5.33E-01	2.91E-01	3.59E-01
Lead (Pb)	$µg/m^3$	1.43E-02	9.63E-04	1.02E-03	1.03E-03	1.02E-03	1.03E-03	2.18E-03	6.51E-03	1.01E-03	3.77E-03	2.05E-03	1.43E-02	2.18E-03	3.72E-03	2.30E-03	9.63E-04	9.81E-04
Magnesium (Mg)	$µg/m^3$	1.21E+00	5.08E-02	1.65E-01	5.08E-02	6.37E-02	1.25E-01	3.78E-01	1.21E+00	2.88E-01	3.04E-01	1.34E-01	3.01E-01	1.90E-01	3.11E-01	2.68E-01	1.03E-01	1.57E-01
Manganese (Mn)	$µg/m^3$	7.25E-02	2.95E-03	8.39E-03	2.95E-03	3.86E-03	7.86E-03	1.61E-02	7.25E-02	1.80E-02	1.50E-02	9.94E-03	1.54E-02	1.47E-02	1.79E-02	2.00E-02	7.19E-03	1.09E-02
Molybdenum (Mo)	$µg/m^3$	1.03E-03	9.60E-04	1.02E-03	1.03E-03	1.02E-03	1.03E-03	1.02E-03	1.02E-03	1.01E-03	9.75E-04	9.62E-04	9.60E-04	9.62E-04	9.96E-04	9.85E-04	9.63E-04	9.81E-04
Nickel (Ni)	$µg/m^3$	3.85E-03	9.60E-04	1.02E-03	1.03E-03	1.02E-03	1.03E-03	1.02E-03	2.30E-03	1.01E-03	9.75E-04	3.85E-03	9.60E-04	9.62E-04	9.96E-04	9.85E-04	9.63E-04	9.81E-04
Phosphorus (P)	$µg/m^3$	1.63E-01	8.47E-03	8.53E-03	8.59E-03	8.47E-03	8.62E-03	3.13E-02	1.63E-01	5.16E-02	4.23E-02	6.10E-02	5.50E-02	7.05E-02	4.78E-02	7.62E-02	3.66E-02	5.10E-02
Selenium (Se)	$µg/m^3$	3.45E-03	3.20E-03	3.41E-03	3.43E-03	3.39E-03	3.45E-03	3.40E-03	3.39E-03	3.35E-03	3.25E-03	3.21E-03	3.20E-03	3.21E-03	3.32E-03	3.28E-03	3.21E-03	3.27E-03
Silver (Ag)	$µg/m^3$	1.72E-03	1.60E-03	1.71E-03	1.72E-03	1.69E-03	1.72E-03	1.70E-03	1.69E-03	1.68E-03	1.63E-03	1.60E-03	1.60E-03	1.60E-03	1.66E-03	1.64E-03	1.60E-03	1.63E-03
Strontium (Sr)	$µg/m^3$	1.60E-02	1.03E-03	3.48E-03	1.03E-03	1.29E-03	3.45E-03	7.08E-03	1.60E-02	9.59E-03	4.16E-03	5.39E-03	4.29E-03	4.81E-03	5.11E-03	5.32E-03	2.76E-03	4.77E-03
Thallium (Tl)	$µg/m^3$	3.45E-03	3.20E-03	3.41E-03	3.43E-03	3.39E-03	3.45E-03	3.40E-03	3.39E-03	3.35E-03	3.25E-03	3.21E-03	3.20E-03	3.21E-03	3.32E-03	3.28E-03	3.21E-03	3.27E-03
Tin (Sn)	$µg/m^3$	3.45E-03	3.20E-03	3.41E-03	3.43E-03	3.39E-03	3.45E-03	3.40E-03	3.39E-03	3.35E-03	3.25E-03	3.21E-03	3.20E-03	3.21E-03	3.32E-03	3.28E-03	3.21E-03	3.27E-03
Titanium (Ti)	$µg/m^3$	3.19E-02	3.21E-03	3.41E-03	3.43E-03	3.39E-03	3.45E-03	1.16E-02	3.19E-02	1.47E-02	9.75E-03	3.21E-03	1.02E-02	7.70E-03	9.96E-03	1.18E-02	3.21E-03	7.85E-03
Vanadium (V)	$µg/m^3$	1.72E-03	1.60E-03	1.71E-03	1.72E-03	1.69E-03	1.72E-03	1.70E-03	1.69E-03	1.68E-03	1.63E-03	1.60E-03	1.60E-03	1.60E-03	1.66E-03	1.64E-03	1.60E-03	1.63E-03
Zinc (Zn)	$µg/m^3$	1.86E-01	7.28E-03	2.27E-02	7.28E-03	1.86E-01	1.34E-02	4.28E-02	7.93E-02	2.96E-02	2.93E-02	2.08E-02	1.07E-01	1.98E-02	2.45E-02	3.05E-02	1.04E-02	1.36E-02
Zirconium (Zr)	$µg/m^3$	1.72E-03	1.60E-03	1.71E-03	1.72E-03	1.69E-03	1.72E-03	1.70E-03	1.69E-03	1.68E-03	1.63E-03	1.60E-03	1.60E-03	1.60E-03	1.66E-03	1.64E-03	1.60E-03	1.63E-03
Total Uranium (U)	$µg/m^3$	1.55E-04	1.44E-04	1.54E-04	1.55E-04	1.52E-04	1.55E-04	1.53E-04	1.52E-04	1.51E-04	1.46E-04	1.44E-04	1.44E-04	1.44E-04	1.49E-04	1.48E-04	1.44E-04	1.47E-04

Notes:

Metals and Total Particulates	Fence Line Station		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line	
Location			02/04/2018		08/04/2018		14/04/2018		20/04/2018		26/04/2018		02/05/2018		08/05/2018		14/05/2018		20/05/2018		26/05/2018		01/06/2018		07/06/2018	
Date	dd/mm/yyyy																									
Start Time	hh:mm		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00	
Sample Duration	Hours		23.78		23.79		23.72		23.74		23.74		23.75		23.72		23.76		23.73		0		23.73		23.72	
Technician			AE, AW, TZ		AW, TZ		AW, TZ		AW		AW		AW		AW		AW		AW		AW		AW		AW	
Filter Number			18030514		18030970		18030974		18032258		18032263		18032267		18041304		18032269		18032274		-		18042476		18043085	
Analytical Report #			B877682		B879675		B889163		B893080		B8A1608		B8A3895		B882808		B883890		B8C9301		-		B8D8007		B8D9120	
Total Volumetric Flow	Am^3/sample		1439.59		1389.82		1313.22		1545.27		1566.04		1639.63		1642.58		1504.71		1511.77		-		1496.32		1445.52	
Analytical Results	**Units**		**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**
Particulate	mg		45.6	5.0	18.8	5.0	28.0	5.0	40.8	5.0	58.4	5.0	144	5.0	136	5.0	59.0	5.0	43.8	5.0			96.0	5.0	90.5	5.0
Total Mercury (Hg)	µg		<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.05	0.02	0.04	0.02	<0.02	0.02	<0.02	0.02			<0.02	0.02	0.03	0.02
Aluminum (Al)	µg		215	50	52	50	104	50	201	50	364	50	1520	50	901	50	327	50	161	50			516	50	576	50
Antimony (Sb)	µg		<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10			<10	10	<10	10
Arsenic (As)	µg		<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0			<6.0	6.0	<6.0	6.0
Barium (Ba)	µg		10.2	1.0	4.5	1.0	3.0	1.0	12.4	1.0	21.7	1.0	28.9	1.0	32.0	1.0	19.2	1.0	19.8	1.0			24.7	1.0	14.9	1.0
Beryllium (Be)	µg		<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0			<1.0	1.0	<1.0	1.0
Bismuth (Bi)	µg		<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0			<6.0	6.0	<6.0	6.0
Boron (B)	µg		<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	6.6	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0			<6.0	6.0	<6.0	6.0
Cadmium (Cd)	µg		<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	2.6	2.0	2.1	2.0	<2.0	2.0	<2.0	2.0			<2.0	2.0	<2.0	2.0
Chromium (Cr)	µg		<5.0	5.0	<5.0	5.0	5.8	5.0	<5.0	5.0	7.3	5.0	8.4	5.0	19.2	5.0	5.0	5.0	<5.0	5.0			10.2	5.0	6.8	5.0
Cobalt (Co)	µg		<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0			<2.0	2.0	<2.0	2.0
Copper (Cu)	µg		12.2	5.0	9.9	5.0	6.2	5.0	14.8	5.0	17.7	5.0	34.8	5.0	22.1	5.0	19.4	5.0	15.8	5.0			56.0	5.0	27.9	5.0
Iron (Fe)	µg		623	50	235	50	188	50	542	50	1180	50	2950	50	2400	50	949	50	428	50			1250	50	1240	50
Lead (Pb)	µg		6.8	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	4.3	3.0	14.2	3.0	7.4	3.0	7.1	3.0	<3.0	3.0			4.1	3.0	7.2	3.0
Magnesium (Mg)	µg		455	50	118	50	103	50	388	50	909	50	2140	50	1190	50	520	50	234	50			666	50	687	50
Manganese (Mn)	µg		22.1	1.0	6.0	1.0	5.6	1.0	20.2	1.0	37.8	1.0	128	1.0	105	1.0	27.3	1.0	18.0	1.0			48.8	1.0	45.2	1.0
Molybdenum (Mo)	µg		<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0			3.6	3.0	<3.0	3.0
Nickel (Ni)	µg		3.8	3.0	<3.0	3.0	4.6	3.0	<3.0	3.0	<3.0	3.0	5.2	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0			<3.0	3.0	3.4	3.0
Phosphorus (P)	µg		27	25	<25	25	<25	25	<25	25	71	25	263	25	112	25	74	25	71	25			150	25	113	25
Selenium (Se)	µg		<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10			<10	10	<10	10
Silver (Ag)	µg		<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0			<5.0	5.0	<5.0	5.0
Strontium (Sr)	µg		9.2	1.0	2.7	1.0	2.4	1.0	11.8	1.0	18.2	1.0	31.2	1.0	43.3	1.0	8.1	1.0	10.0	1.0			16.1	1.0	14.1	1.0
Thallium (Tl)	µg		<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10			<10	10	<10	10
Tin (Sn)	µg		<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10			<10	10	<10	10
Titanium (Ti)	µg		14	10	<10	10	<10	10	13	10	28	10	53	10	44	10	19	10	<10	10			28	10	27	10
Vanadium (V)	µg		<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0			<5.0	5.0	<5.0	5.0
Zinc (Zn)	µg		45.9	5.0	14.1	5.0	15.8	5.0	28.1	5.0	52.7	5.0	120	5.0	65.6	5.0	60.1	5.0	24.1	5.0			45.0	5.0	47.0	5.0
Zirconium (Zr)	µg		<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0			<5.0	5.0	<5.0	5.0
Total Uranium (U)	µg		<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45			<0.45	0.45	<0.45	0.45

Power trip during sampling. Invalidated

Notes:

Metals and Total Particulates	Fence Line Station	Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line		Fence Line	
Location		13/06/2018		19/06/2018		25/06/2018																	
Date	dd/mm/yyyy																						
Start Time	hh:mm	0:00		0:00		0:00																	
Sample Duration	Hours	23.63		23.67		23.66																	
Technician		AW		AW		AW																	
Filter Number		18043088		18051730		18051734																	
Analytical Report #		B8E9628		B8F1289		B8G3717																	
Total Volumetric Flow	Am^3/sample	1458.91		1554.54		1548.67																	
Analytical Results	**Units**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**																
Particulate	mg	102	5.0	46.0	5.0	66.5	5.0																
Total Mercury (Hg)	µg	0.02	0.02	0.03	5.0	0.02	0.02																
Aluminum (Al)	µg	502	50	164	50	409	50																
Antimony (Sb)	µg	<10	10	<10	10	<10	10																
Arsenic (As)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0																
Barium (Ba)	µg	13.9	1.0	11.6	1.0	17.3	1.0																
Beryllium (Be)	µg	<1.0	1.0	<1.0	1.0	<1.0	1.0																
Bismuth (Bi)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0																
Boron (B)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0																
Cadmium (Cd)	µg	<2.0	2.0	<2.0	2.0	<2.0	2.0																
Chromium (Cr)	µg	7.4	5.0	<5.0	5.0	5.8	5.0																
Cobalt (Co)	µg	<2.0	2.0	<2.0	2.0	<2.0	2.0																
Copper (Cu)	µg	26.3	5.0	16.6	5.0	21.9	5.0																
Iron (Fe)	µg	1120	50	512	50	851	50																
Lead (Pb)	µg	7.0	3.0	<3.0	3.0	4.8	3.0																
Magnesium (Mg)	µg	627	50	224	50	419	50																
Manganese (Mn)	µg	43.2	1.0	16.5	1.0	27.3	1.0																
Molybdenum (Mo)	µg	<3.0	3.0	<3.0	3.0	<3.0	3.0																
Nickel (Ni)	µg	<3.0	3.0	<3.0	3.0	<3.0	3.0																
Phosphorus (P)	µg	124	25	71	25	101	25																
Selenium (Se)	µg	<10	10	<10	10	<10	10																
Silver (Ag)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0																
Strontium (Sr)	µg	14.2	1.0	6.0	1.0	12.9	1.0																
Thallium (Tl)	µg	<10	10	<10	10	<10	10																
Tin (Sn)	µg	<10	10	<10	10	<10	10																
Titanium (Ti)	µg	28	10	11	10	28	10																
Vanadium (V)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0																
Zinc (Zn)	µg	50.7	5.0	24.8	5.0	43.3	5.0																
Zirconium (Zr)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0																
Total Uranium (U)	µg	<0.45	0.45	<0.45	0.45	<0.45	0.45																

Calculated Concentrations	Quarter 2			16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	Units	Maximum	Minimum	02/04/2018	08/04/2018	14/04/2018	20/04/2018	26/04/2018	02/05/2018	08/05/2018	14/05/2018	20/05/2018	26/05/2018	01/06/2018	07/06/2018	13/06/2018	19/06/2018	25/06/2018
Particulate	$µg/m^3$	87.82	13.53	31.68	13.53	21.32	26.40	37.29	87.82	82.80		28.97		64.16	62.61	69.92	29.59	42.94
Total Mercury (Hg)	$µg/m^3$	3.05E-05	6.39E-06	6.95E-06	7.20E-06	7.61E-06	6.47E-06	6.39E-06	3.05E-05	2.44E-05		6.61E-06		6.68E-06	2.08E-05	1.37E-05	1.93E-05	1.29E-05
Aluminum (Al)	$µg/m^3$	9.27E-01	3.74E-02	1.49E-01	3.74E-02	7.92E-02	1.30E-01	2.32E-01	9.27E-01	5.49E-01		1.06E-01		3.45E-01	3.98E-01	3.44E-01	1.05E-01	2.64E-01
Antimony (Sb)	$µg/m^3$	3.81E-03	3.04E-03	3.47E-03	3.60E-03	3.81E-03	3.24E-03	3.19E-03	3.05E-03	3.04E-03		3.31E-03		3.34E-03	3.46E-03	3.43E-03	3.22E-03	3.23E-03
Arsenic (As)	$µg/m^3$	2.28E-03	1.83E-03	2.08E-03	2.16E-03	2.28E-03	1.94E-03	1.92E-03	1.83E-03	1.83E-03		1.98E-03		2.00E-03	2.08E-03	2.06E-03	1.93E-03	1.94E-03
Barium (Ba)	$µg/m^3$	1.95E-02	2.28E-03	7.09E-03	3.24E-03	2.28E-03	8.02E-03	1.39E-02	1.76E-02	1.95E-02		1.31E-02		1.65E-02	1.03E-02	9.53E-03	7.46E-03	1.12E-02
Beryllium (Be)	$µg/m^3$	3.81E-04	3.04E-04	3.47E-04	3.60E-04	3.81E-04	3.24E-04	3.19E-04	3.05E-04	3.04E-04		3.31E-04		3.34E-04	3.46E-04	3.43E-04	3.22E-04	3.23E-04
Bismuth (Bi)	$µg/m^3$	2.28E-03	1.83E-03	2.08E-03	2.16E-03	2.28E-03	1.94E-03	1.92E-03	1.83E-03	1.83E-03		1.98E-03		2.00E-03	2.08E-03	2.06E-03	1.93E-03	1.94E-03
Boron (B)	$µg/m^3$	4.03E-03	1.83E-03	2.08E-03	2.16E-03	2.28E-03	1.94E-03	1.92E-03	4.03E-03	1.83E-03		1.98E-03		2.00E-03	2.08E-03	2.06E-03	1.93E-03	1.94E-03
Cadmium (Cd)	$µg/m^3$	1.59E-03	6.39E-04	6.95E-04	7.20E-04	7.61E-04	6.47E-04	6.39E-04	1.59E-03	1.28E-03		6.61E-04		6.68E-04	6.92E-04	6.85E-04	6.43E-04	6.46E-04
Chromium (Cr)	$µg/m^3$	1.17E-02	1.61E-03	1.74E-03	1.80E-03	4.42E-03	1.62E-03	4.66E-03	5.12E-03	1.17E-02		1.65E-03		6.82E-03	4.70E-03	5.07E-03	1.61E-03	3.75E-03
Cobalt (Co)	$µg/m^3$	7.61E-04	6.09E-04	6.95E-04	7.20E-04	7.61E-04	6.47E-04	6.39E-04	6.10E-04	6.09E-04		6.61E-04		6.68E-04	6.92E-04	6.85E-04	6.43E-04	6.46E-04
Copper (Cu)	$µg/m^3$	3.74E-02	4.72E-03	8.47E-03	7.12E-03	4.72E-03	9.58E-03	1.13E-02	2.12E-02	1.35E-02		1.05E-02		3.74E-02	1.93E-02	1.80E-02	1.07E-02	1.41E-02
Iron (Fe)	$µg/m^3$	1.80E+00	1.43E-01	4.33E-01	1.69E-01	1.43E-01	3.51E-01	7.53E-01	1.80E+00	1.46E+00		2.83E-01		8.35E-01	8.58E-01	7.68E-01	3.29E-01	5.50E-01
Lead (Pb)	$µg/m^3$	8.66E-03	9.65E-04	4.72E-03	1.08E-03	1.14E-03	9.71E-04	2.75E-03	8.66E-03	4.51E-03		9.92E-04		2.74E-03	4.98E-03	4.80E-03	9.65E-04	3.10E-03
Magnesium (Mg)	$µg/m^3$	1.31E+00	7.84E-02	3.16E-01	8.49E-02	7.84E-02	2.51E-01	5.80E-01	1.31E+00	7.24E-01		1.55E-01		4.45E-01	4.75E-01	4.30E-01	1.44E-01	2.71E-01
Manganese (Mn)	$µg/m^3$	7.81E-02	4.26E-03	1.54E-02	4.32E-03	4.26E-03	1.31E-02	2.41E-02	7.81E-02	6.39E-02		1.19E-02		3.26E-02	3.13E-02	2.96E-02	1.06E-02	1.76E-02
Molybdenum (Mo)	$µg/m^3$	2.41E-03	9.13E-04	1.04E-03	1.08E-03	1.14E-03	9.71E-04	9.58E-04	9.15E-04	9.13E-04		9.92E-04		2.41E-03	1.04E-03	1.03E-03	9.65E-04	9.69E-04
Nickel (Ni)	$µg/m^3$	3.50E-03	9.13E-04	2.64E-03	1.08E-03	3.50E-03	9.71E-04	9.58E-04	3.17E-03	9.13E-04		9.92E-04		1.00E-03	2.35E-03	1.03E-03	9.65E-04	9.69E-04
Phosphorus (P)	$µg/m^3$	1.60E-01	8.09E-03	1.88E-02	8.99E-03	9.52E-03	8.09E-03	4.53E-02	1.60E-01	6.82E-02		4.70E-02		1.00E-01	7.82E-02	8.50E-02	4.57E-02	6.52E-02
Selenium (Se)	$µg/m^3$	3.81E-03	3.04E-03	3.47E-03	3.60E-03	3.81E-03	3.24E-03	3.19E-03	3.05E-03	3.04E-03		3.31E-03		3.34E-03	3.46E-03	3.43E-03	3.22E-03	3.23E-03
Silver (Ag)	$µg/m^3$	1.90E-03	1.52E-03	1.74E-03	1.80E-03	1.90E-03	1.62E-03	1.60E-03	1.52E-03	1.52E-03		1.65E-03		1.67E-03	1.73E-03	1.71E-03	1.61E-03	1.61E-03
Strontium (Sr)	$µg/m^3$	2.64E-02	1.83E-03	6.39E-03	1.94E-03	1.83E-03	7.64E-03	1.16E-02	1.90E-02	2.64E-02		6.61E-03		1.08E-02	9.75E-03	9.73E-03	3.86E-03	8.33E-03
Thallium (Tl)	$µg/m^3$	3.81E-03	3.04E-03	3.47E-03	3.60E-03	3.81E-03	3.24E-03	3.19E-03	3.05E-03	3.04E-03		3.31E-03		3.34E-03	3.46E-03	3.43E-03	3.22E-03	3.23E-03
Tin (Sn)	$µg/m^3$	3.81E-03	3.04E-03	3.47E-03	3.60E-03	3.81E-03	3.24E-03	3.19E-03	3.05E-03	3.04E-03		3.31E-03		3.34E-03	3.46E-03	3.43E-03	3.22E-03	3.23E-03
Titanium (Ti)	$µg/m^3$	3.23E-02	3.31E-03	9.72E-03	3.60E-03	3.81E-03	8.41E-03	1.79E-02	3.23E-02	2.68E-02		3.31E-03		1.87E-02	1.87E-02	1.92E-02	7.08E-03	1.81E-02
Vanadium (V)	$µg/m^3$	1.90E-03	1.52E-03	1.74E-03	1.80E-03	1.90E-03	1.62E-03	1.60E-03	1.52E-03	1.52E-03		1.65E-03		1.67E-03	1.73E-03	1.71E-03	1.61E-03	1.61E-03
Zinc (Zn)	$µg/m^3$	7.32E-02	1.01E-02	3.19E-02	1.01E-02	1.20E-02	1.82E-02	3.37E-02	7.32E-02	3.99E-02		1.59E-02		3.01E-02	3.25E-02	3.48E-02	1.60E-02	2.80E-02
Zirconium (Zr)	$µg/m^3$	1.90E-03	1.52E-03	1.74E-03	1.80E-03	1.90E-03	1.62E-03	1.60E-03	1.52E-03	1.52E-03		1.65E-03		1.67E-03	1.73E-03	1.71E-03	1.61E-03	1.61E-03
Total Uranium (U)	$µg/m^3$	1.71E-04	1.37E-04	1.56E-04	1.62E-04	1.71E-04	1.46E-04	1.44E-04	1.37E-04	1.37E-04		1.49E-04		1.50E-04	1.56E-04	1.54E-04	1.45E-04	1.45E-04

Hi-Vol improperly initialized, resulting in inlet flow rates outside the acceptable range. Data Invalidated

Power trip during sampling. Invalidated

Metals and Total Particulates	Rundle Road Station	Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle	
Location																											
Date	dd/mm/yyyy	02/04/2018		08/04/2018		14/04/2018		20/04/2018		26/04/2018		02/05/2018		08/05/2018		14/05/2018		20/05/2018		26/05/2018		01/06/2018		07/06/2018		13/06/2018		19/06/2018		25/06/2018	
Start Time	hh:mm	0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00	
Sample Duration	Hours	23.52		24		23.99		24.02		24.02		24.05		23.96		24.04		24		23.98		23.97		23.97		24.01		23.92		23.97	
Technician		AE, TZ, AW		TZ, AW		TZ, AW		AW		AW		AW		AW		AW		AW		AW		AW		AW		AW		AW		AW	
Filter Number		B877682		B879675		B889163		B893080		B8A1608		B8A3895		B882808		B883890		B8C9301		B8C6373		B8D8007		B8D9120		B8E9628		B8F1289		B8G3717	
Analytical Report #		18030513		18030968		18030975		18032257		18032264		18032266		18041306		18032268		18042474		18042475		18043082		18043086		18043087		18051731		18051733	
Total Volumetric Flow	Am^3/sample	1279.33		1307.92		1392.03		1504.70		1517.98		1625.63		1606.30		1507.41		1487.42		1499.51		1500.49		1487.83		1494.34		1494.50		1480.86	
Analytical Results	**Units**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**
Particulate	mg	52.4	5.0	20.2	5.0	26.8	5.0	54.9	5.0	59.0	5.0	331	5.0	142	5.0	204	5.0	58.5	5.0	123	5.0	206	5.0	137	5.0	147	5.0	243	5.0	134	5.0
Total Mercury (Hg)	µg	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.05	0.02	0.04	0.02	0.03	0.02	<0.02	0.02	0.03	0.02	<0.02	0.02	0.03	0.02	<0.02	0.02	0.05	5.0	<0.02	0.02
Aluminum (Al)	µg	265	50	51	50	93	50	217	50	272	50	2310	50	1140	50	1570	50	249	50	704	50	817	50	816	50	627	50	1320	50	691	50
Antimony (Sb)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	14	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Arsenic (As)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0
Barium (Ba)	µg	12.7	1.0	2.5	1.0	3.5	1.0	7.9	1.0	15.6	1.0	42.0	1.0	23.9	1.0	34.3	1.0	20.7	1.0	21.5	1.0	24.3	1.0	18.4	1.0	13.3	1.0	20.5	1.0	14.8	1.0
Beryllium (Be)	µg	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0
Bismuth (Bi)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0
Boron (B)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0	6.4	6.0	<6.0	6.0	7.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0
Cadmium (Cd)	µg	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0
Chromium (Cr)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	12.0	5.0	6.6	5.0	9.3	5.0	<5.0	5.0	6.5	5.0	6.5	5.0	5.2	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Cobalt (Co)	µg	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0
Copper (Cu)	µg	14.6	5.0	12.9	5.0	7.1	5.0	20.1	5.0	16.7	5.0	100	5.0	18.6	5.0	80.2	5.0	7.9	5.0	53.9	5.0	21.8	5.0	53.6	5.0	14.8	5.0	47.7	5.0	15.1	5.0
Iron (Fe)	µg	881	50	158	50	182	50	474	50	894	50	4820	50	2270	50	3090	50	599	50	1680	50	1720	50	1630	50	1180	50	2240	50	1390	50
Lead (Pb)	µg	4.2	3.0	<3.0	3.0	3.1	3.0	<3.0	3.0	<3.0	3.0	11.2	3.0	8.2	3.0	8.2	3.0	<3.0	3.0	17.4	3.0	3.2	3.0	6.1	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0
Magnesium (Mg)	µg	507	50	91	50	98	50	378	50	621	50	3420	50	1080	50	1590	50	379	50	851	50	1160	50	1020	50	705	50	1700	50	796	50
Manganese (Mn)	µg	25.1	1.0	4.5	1.0	5.7	1.0	19.3	1.0	26.3	1.0	183	1.0	49.5	1.0	89.0	1.0	18.8	1.0	46.3	1.0	60.3	1.0	47.6	1.0	42.3	1.0	68.0	1.0	39.7	1.0
Molybdenum (Mo)	µg	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	3.7	3.0	<3.0	3.0	3.5	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	3.1	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0
Nickel (Ni)	µg	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	5.3	3.0	3.5	3.0	4.6	3.0	<3.0	3.0	3.5	3.0	<3.0	3.0	3.7	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0
Phosphorus (P)	µg	30	25	<25	25	<25	25	<25	25	38	25	297	25	144	25	150	25	87	25	130	25	198	25	114	25	128	25	186	25	132	25
Selenium (Se)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Silver (Ag)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Strontium (Sr)	µg	12.6	1.0	2.7	1.0	2.4	1.0	15.4	1.0	17.8	1.0	87.5	1.0	54.1	1.0	50.7	1.0	20.4	1.0	19.6	1.0	43.1	1.0	37.1	1.0	27.2	1.0	87.0	1.0	37.7	1.0
Thallium (Tl)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Tin (Sn)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Titanium (Ti)	µg	14	10	<10	10	<10	10	14	10	17	10	82	10	54	10	84	10	15	10	37	10	46	10	32	10	29	10	45	10	31	10
Vanadium (V)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	7.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Zinc (Zn)	µg	47.1	5.0	7.8	5.0	94.3	5.0	13.0	5.0	31.3	5.0	105	5.0	60.0	5.0	65.6	5.0	27.7	5.0	168	5.0	47.3	5.0	46.6	5.0	28.6	5.0	27.5	5.0	22.2	5.0
Zirconium (Zr)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Total Uranium (U)	µg	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45

Notes:
[1]Sampler ran for less than 24 hours. However it was considered that sufficient time elapsed to provide a valid sample.

Calculated Concentrations	Units	Quarter 2 Maximum	Quarter 2 Minimum	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
				02/04/2018	08/04/2018	14/04/2018	20/04/2018	26/04/2018	02/05/2018	08/05/2018	14/05/2018	20/05/2018	26/05/2018	01/06/2018	07/06/2018	13/06/2018	19/06/2018	25/06/2018
Particulate	$µg/m^3$	203.61	19.25			19.25	36.49	38.87	203.61	88.40	135.33	39.33	82.03	137.29	92.08	98.37	162.60	90.49
Total Mercury (Hg)	$µg/m^3$	3.35E-05	6.59E-06			7.18E-06	6.65E-06	6.59E-06	3.08E-05	2.49E-05	1.99E-05	6.72E-06	2.00E-05	6.66E-06	2.02E-05	6.69E-06	3.35E-05	6.75E-06
Aluminum (Al)	$µg/m^3$	1.42E+00	6.68E-02			6.68E-02	1.44E-01	1.79E-01	1.42E+00	7.10E-01	1.04E+00	1.67E-01	4.69E-01	5.44E-01	5.48E-01	4.20E-01	8.83E-01	4.67E-01
Antimony (Sb)	$µg/m^3$	8.72E-03	3.08E-03			3.59E-03	3.32E-03	3.29E-03	3.08E-03	8.72E-03	3.32E-03	3.36E-03	3.33E-03	3.33E-03	3.36E-03	3.35E-03	3.35E-03	3.38E-03
Arsenic (As)	$µg/m^3$	2.16E-03	1.85E-03			2.16E-03	1.99E-03	1.98E-03	1.85E-03	1.87E-03	1.99E-03	2.02E-03	2.00E-03	2.00E-03	2.02E-03	2.01E-03	2.01E-03	2.03E-03
Barium (Ba)	$µg/m^3$	2.58E-02	2.51E-03			2.51E-03	5.25E-03	1.03E-02	2.58E-02	1.49E-02	2.28E-02	1.39E-02	1.43E-02	1.62E-02	1.24E-02	8.90E-03	1.37E-02	9.99E-03
Beryllium (Be)	$µg/m^3$	3.59E-04	3.08E-04			3.59E-04	3.32E-04	3.29E-04	3.08E-04	3.11E-04	3.32E-04	3.36E-04	3.33E-04	3.33E-04	3.36E-04	3.35E-04	3.35E-04	3.38E-04
Bismuth (Bi)	$µg/m^3$	2.16E-03	1.85E-03			2.16E-03	1.99E-03	1.98E-03	1.85E-03	1.87E-03	1.99E-03	2.02E-03	2.00E-03	2.00E-03	2.02E-03	2.01E-03	2.01E-03	2.03E-03
Boron (B)	$µg/m^3$	4.31E-03	1.87E-03			2.16E-03	4.25E-03	1.98E-03	4.31E-03	1.87E-03	1.99E-03	2.02E-03	2.00E-03	2.00E-03	2.02E-03	2.01E-03	2.01E-03	2.03E-03
Cadmium (Cd)	$µg/m^3$	7.18E-04	6.15E-04			7.18E-04	6.65E-04	6.59E-04	6.15E-04	6.23E-04	6.63E-04	6.72E-04	6.67E-04	6.66E-04	6.72E-04	6.69E-04	6.69E-04	6.75E-04
Chromium (Cr)	$µg/m^3$	7.38E-03	1.65E-03			1.80E-03	1.66E-03	1.65E-03	7.38E-03	4.11E-03	6.17E-03	1.68E-03	4.33E-03	4.33E-03	3.50E-03	1.67E-03	1.67E-03	1.69E-03
Cobalt (Co)	$µg/m^3$	7.18E-04	6.15E-04			7.18E-04	6.65E-04	6.59E-04	6.15E-04	6.23E-04	6.63E-04	6.72E-04	6.67E-04	6.66E-04	6.72E-04	6.69E-04	6.69E-04	6.75E-04
Copper (Cu)	$µg/m^3$	6.15E-02	5.10E-03			5.10E-03	1.34E-02	1.10E-02	6.15E-02	1.16E-02	5.32E-02	5.31E-03	3.59E-02	1.45E-02	3.60E-02	9.90E-03	3.19E-02	1.02E-02
Iron (Fe)	$µg/m^3$	2.97E+00	1.31E-01	Hi-Vol improperly initialized, resulting in inlet flow rates outside the acceptable range. Data Invalidated	Hi-Vol improperly initialized, resulting in inlet flow rates outside the acceptable range. Data Invalidated	1.31E-01	3.15E-01	5.89E-01	2.97E+00	1.41E+00	2.05E+00	4.03E-01	1.12E+00	1.15E+00	1.10E+00	7.90E-01	1.50E+00	9.39E-01
Lead (Pb)	$µg/m^3$	1.16E-02	9.88E-04			2.23E-03	9.97E-04	9.88E-04	6.89E-03	5.10E-03	5.44E-03	1.01E-03	1.16E-02	2.13E-03	4.10E-03	1.00E-03	1.00E-03	1.01E-03
Magnesium (Mg)	$µg/m^3$	2.10E+00	7.04E-02			7.04E-02	2.51E-01	4.09E-01	2.10E+00	6.72E-01	1.05E+00	2.55E-01	5.68E-01	7.73E-01	6.86E-01	4.72E-01	1.14E+00	5.38E-01
Manganese (Mn)	$µg/m^3$	1.13E-01	4.09E-03			4.09E-03	1.28E-02	1.73E-02	1.13E-01	3.08E-02	5.90E-02	1.26E-02	3.09E-02	4.02E-02	3.20E-02	2.83E-02	4.55E-02	2.68E-02
Molybdenum (Mo)	$µg/m^3$	2.32E-03	9.34E-04			1.08E-03	9.97E-04	9.88E-04	2.28E-03	9.34E-04	2.32E-03	1.01E-03	1.00E-03	1.00E-03	2.08E-03	1.00E-03	1.00E-03	1.01E-03
Nickel (Ni)	$µg/m^3$	3.26E-03	9.88E-04			1.08E-03	9.97E-04	9.88E-04	3.26E-03	2.18E-03	3.05E-03	1.01E-03	2.33E-03	1.00E-03	2.49E-03	1.00E-03	1.00E-03	1.01E-03
Phosphorus (P)	$µg/m^3$	1.83E-01	8.31E-03			8.98E-03	8.31E-03	2.50E-02	1.83E-01	8.96E-02	9.95E-02	5.85E-02	8.67E-02	1.32E-01	7.66E-02	8.57E-02	1.24E-01	8.91E-02
Selenium (Se)	$µg/m^3$	3.59E-03	3.08E-03			3.59E-03	3.32E-03	3.29E-03	3.08E-03	3.11E-03	3.32E-03	3.36E-03	3.33E-03	3.33E-03	3.36E-03	3.35E-03	3.35E-03	3.38E-03
Silver (Ag)	$µg/m^3$	1.80E-03	1.54E-03			1.80E-03	1.66E-03	1.65E-03	1.54E-03	1.56E-03	1.66E-03	1.68E-03	1.67E-03	1.67E-03	1.68E-03	1.67E-03	1.67E-03	1.69E-03
Strontium (Sr)	$µg/m^3$	5.82E-02	1.72E-03			1.72E-03	1.02E-02	1.17E-02	5.38E-02	3.37E-02	3.36E-02	1.37E-02	1.31E-02	2.87E-02	2.49E-02	1.82E-02	5.82E-02	2.55E-02
Thallium (Tl)	$µg/m^3$	3.59E-03	3.08E-03			3.59E-03	3.32E-03	3.29E-03	3.08E-03	3.11E-03	3.32E-03	3.36E-03	3.33E-03	3.33E-03	3.36E-03	3.35E-03	3.35E-03	3.38E-03
Tin (Sn)	$µg/m^3$	3.59E-03	3.08E-03			3.59E-03	3.32E-03	3.29E-03	3.08E-03	3.11E-03	3.32E-03	3.36E-03	3.33E-03	3.33E-03	3.36E-03	3.35E-03	3.35E-03	3.38E-03
Titanium (Ti)	$µg/m^3$	5.57E-02	3.59E-03			3.59E-03	9.30E-03	1.12E-02	5.04E-02	3.36E-02	5.57E-02	1.01E-02	2.47E-02	3.07E-02	2.15E-02	1.94E-02	3.01E-02	2.09E-02
Vanadium (V)	$µg/m^3$	4.31E-03	1.56E-03			1.80E-03	1.66E-03	1.65E-03	4.31E-03	1.56E-03	1.66E-03	1.68E-03	1.67E-03	1.67E-03	1.68E-03	1.67E-03	1.67E-03	1.69E-03
Zinc (Zn)	$µg/m^3$	1.12E-01	8.64E-03			6.77E-02	8.64E-03	2.06E-02	6.46E-02	3.74E-02	4.35E-02	1.86E-02	1.12E-01	3.15E-02	3.13E-02	1.91E-02	1.84E-02	1.50E-02
Zirconium (Zr)	$µg/m^3$	1.80E-03	1.54E-03			1.80E-03	1.66E-03	1.65E-03	1.54E-03	1.56E-03	1.66E-03	1.68E-03	1.67E-03	1.67E-03	1.68E-03	1.67E-03	1.67E-03	1.69E-03
Total Uranium (U)	$µg/m^3$	1.62E-04	1.38E-04			1.62E-04	1.50E-04	1.48E-04	1.38E-04	1.40E-04	1.49E-04	1.51E-04	1.50E-04	1.50E-04	1.51E-04	1.51E-04	1.51E-04	1.52E-04

APPENDIX H:
PAHS DATA SUMMARY

Polycyclic Aromatic Hydrocarbons	Courtice WPCP Station			Courtice		Courtice		Courtice		Courtice		Courtice		Courtice	
Location				8/04/2018		20/04/2018		2/05/2018		14/05/2018		26/05/2018		7/06/2018		19/06/2018	
Date	dd/mm/yyyy																
Start Time	hh:mm			0:00		0:00		0:00		0:00		0:00		0:00		0:00	
Sample Duration	hours			23.64		23.74		23.69		23.72		23.67		23.75		23.7	
Technician				TZ, AW		TZ, AW		TZ		AW		AW		AW		AW	
Filter Number				GCQ727-01		GGS612-01		GGS724-01		GNA470-01		GNA487-01		GNA513-01		GSI371-01	
Maxaam ID				GKR700		GNJ840		GPT053		GRV102		GUN297		GXF365		GZX628	
Maxxam Job #				B879689		B893110		B8A4041		B8B3870		B8C6448		B8D8931		B8F1233	
Total Volumetric Flow	Am^3/sample			328.62		320.85		318.50		328.35		328.44		306.79		308.11	
Analytical Results	Units			Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL
Benzo(a)pyrene	µg			<0.0027	0.030	0.00168	0.020	0.0183	0.030	0.00898	0.020	0.0593	0.030	0.00924	0.020	0.00441	0.030
1-Methylnaphthalene	µg			0.51	0.15	0.38	0.10	0.81	0.15	2.08	0.10	2.55	0.15	0.68	0.10	0.42	0.15
2-Methylnaphthalene	µg			0.90	0.15	0.66	0.10	1.35	0.15	3.78	0.10	4.05	0.15	1.10	0.10	0.72	0.15
Acenaphthene	µg			0.240	0.075	0.260	0.050	0.450	0.075	1.66	0.050	0.960	0.075	0.560	0.050	0.510	0.075
Acenaphthylene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Anthracene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Benzo(a)anthracene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Benzo(a)fluorene	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Benzo(b)fluoranthene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Benzo(b)fluorene	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Benzo(e)pyrene	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Benzo(g,h,i)perylene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Benzo(k)fluoranthene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Biphenyl	µg			0.21	0.15	0.16	0.10	0.48	0.15	1.04	0.10	1.50	0.15	0.36	0.10	0.24	0.15
Chrysene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Dibenz(a,h)anthracene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Dibenzo(a,c) anthracene + Picene [1]	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Fluoranthene	µg			<0.075	0.075	0.080	0.050	0.150	0.075	0.240	0.050	0.480	0.075	0.160	0.050	0.240	0.075
Indeno(1,2,3-cd)pyrene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Naphthalene	µg			2.85	0.11	1.82	0.072	6.09	0.11	9.38	0.072	18.2	0.11	4.08	0.072	1.68	0.11
o-Terphenyl	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Perylene	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Phenanthrene	µg			0.270	0.075	0.320	0.050	0.570	0.075	1.78	0.050	1.83	0.075	0.700	0.050	0.930	0.075
Pyrene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	0.100	0.050	0.210	0.075	<0.050	0.050	<0.075	0.075
Tetralin	µg			0.42	0.15	0.20	0.10	0.33	0.15	0.58	0.10	0.63	0.15	0.26	0.10	0.15	0.15
	Quarter 2																
				9		10		11		12		13		14		15	
Calculated Concentrations	Units	Maximum	Minimum	8/04/2018		20/04/2018		2/05/2018		14/05/2018		26/05/2018		7/06/2018		19/06/2018	
Benzo(a)pyrene	ng/m^3	1.81E-01	5.24E-03	4.56E-02		5.24E-03		5.75E-02		2.73E-02		1.81E-01		3.01E-02		1.43E-02	
1-Methylnaphthalene	ng/m^3	7.76E+00	1.18E+00	1.55E+00		1.18E+00		2.54E+00		6.33E+00		7.76E+00		2.22E+00		1.36E+00	
2-Methylnaphthalene	ng/m^3	1.23E+01	2.06E+00	2.74E+00		2.06E+00		4.24E+00		1.15E+01		1.23E+01		3.59E+00		2.34E+00	
Acenaphthene	ng/m^3	5.06E+00	7.30E-01	7.30E-01		8.10E-01		1.41E+00		5.06E+00		2.92E+00		1.83E+00		1.66E+00	
Acenaphthylene	ng/m^3	1.22E-01	7.61E-02	1.14E-01		7.79E-02		1.18E-01		7.61E-02		1.14E-01		8.15E-02		1.22E-01	
Anthracene	ng/m^3	1.22E-01	7.61E-02	1.14E-01		7.79E-02		1.18E-01		7.61E-02		1.14E-01		8.15E-02		1.22E-01	
Benzo(a)anthracene	ng/m^3	1.22E-01	7.61E-02	1.14E-01		7.79E-02		1.18E-01		7.61E-02		1.14E-01		8.15E-02		1.22E-01	
Benzo(a)fluorene	ng/m^3	2.43E-01	1.52E-01	2.28E-01		1.56E-01		2.35E-01		1.52E-01		2.28E-01		1.63E-01		2.43E-01	
Benzo(b)fluoranthene	ng/m^3	1.22E-01	7.61E-02	1.14E-01		7.79E-02		1.18E-01		7.61E-02		1.14E-01		8.15E-02		1.22E-01	
Benzo(b)fluorene	ng/m^3	2.43E-01	1.52E-01	2.28E-01		1.56E-01		2.35E-01		1.52E-01		2.28E-01		1.63E-01		2.43E-01	
Benzo(e)pyrene	ng/m^3	2.43E-01	1.52E-01	2.28E-01		1.56E-01		2.35E-01		1.52E-01		2.28E-01		1.63E-01		2.43E-01	
Benzo(g,h,i)perylene	ng/m^3	1.22E-01	7.61E-02	1.14E-01		7.79E-02		1.18E-01		7.61E-02		1.14E-01		8.15E-02		1.22E-01	
Benzo(k)fluoranthene	ng/m^3	1.22E-01	7.61E-02	1.14E-01		7.79E-02		1.18E-01		7.61E-02		1.14E-01		8.15E-02		1.22E-01	
Biphenyl	ng/m^3	4.57E+00	4.99E-01	6.39E-01		4.99E-01		1.51E+00		3.17E+00		4.57E+00		1.17E+00		7.79E-01	
Chrysene	ng/m^3	1.22E-01	7.61E-02	1.14E-01		7.79E-02		1.18E-01		7.61E-02		1.14E-01		8.15E-02		1.22E-01	
Dibenz(a,h)anthracene	ng/m^3	1.22E-01	7.61E-02	1.14E-01		7.79E-02		1.18E-01		7.61E-02		1.14E-01		8.15E-02		1.22E-01	
Dibenzo(a,c) anthracene + Picene	ng/m^3	2.43E-01	1.52E-01	2.28E-01		1.56E-01		2.35E-01		1.52E-01		2.28E-01		1.63E-01		2.43E-01	
Fluoranthene	ng/m^3	1.46E+00	1.14E-01	1.14E-01		2.49E-01		4.71E-01		7.31E-01		1.46E+00		5.22E-01		7.79E-01	
Indeno(1,2,3-cd)pyrene	ng/m^3	1.22E-01	7.61E-02	1.14E-01		7.79E-02		1.18E-01		7.61E-02		1.14E-01		8.15E-02		1.22E-01	
Naphthalene	ng/m^3	5.54E+01	5.45E+00	8.67E+00		5.67E+00		1.91E+01		2.86E+01		5.54E+01		1.33E+01		5.45E+00	
o-Terphenyl	ng/m^3	2.43E-01	1.52E-01	2.28E-01		1.56E-01		2.35E-01		1.52E-01		2.28E-01		1.63E-01		2.43E-01	
Perylene	ng/m^3	2.43E-01	1.52E-01	2.28E-01		1.56E-01		2.35E-01		1.52E-01		2.28E-01		1.63E-01		2.43E-01	
Phenanthrene	ng/m^3	5.57E+00	8.22E-01	8.22E-01		9.97E-01		1.79E+00		5.42E+00		5.57E+00		2.28E+00		3.02E+00	
Pyrene	ng/m^3	6.39E-01	7.79E-02	1.14E-01		7.79E-02		1.18E-01		3.05E-01		6.39E-01		8.15E-02		1.22E-01	
Tetralin	ng/m^3	1.92E+00	4.87E-01	1.28E+00		6.23E-01		1.04E+00		1.77E+00		1.92E+00		8.47E-01		4.87E-01	
Total PAH	ng/m^3	9.52E+01	1.38E+01	1.91E+01		1.38E+01		3.48E+01		6.45E+01		9.52E+01		2.76E+01		1.86E+01	

Note:
RDL = Reportable Detection Limit
1. These parameters are not accredited for the submitted matrix.

Polycyclic Aromatic Hydrocarbons	Rundle Road Station													
Location				Rundle[2]		Rundle		Rundle		Rundle		Rundle		Rundle	
Date	dd/mm/yyyy			8/04/2018		20/04/2018		2/05/2018		14/05/2018		26/05/2018		7/06/2018		19/06/2018	
Start Time	hh:mm			0:00		0:00		0:00		0:00		0:00		0:00		0:00	
Sample Duration	hours			23.95		23.27		23.4		23.26		23.19		23.23		23.23	
Technician				TZ, AW		TZ, AW		AW		AW		AW		AW		AW	
Filter Number				GCQ728-01		GGS613-01		GGS723-01		GNA471-01		GNA488-01		GNA512-01		GSI372-01	
Maxaam ID				GKR701		GNJ841		GPT054		GRV103		GUN298		GXF366		GZX629	
Maxxam Job #				B879689		B893110		B8A4041		B8B3870		B8C6448		B8D8931		B8F1233	
Total Volumetric Flow	Am^3/sample			329.62		284.73		289.53		321.25		294.74		298.19		296.77	
Analytical Results	Units			Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL
Benzo(a)pyrene	µg			0.0062	0.030	0.00384	0.02	0.0150	0.030	0.0122	0.020	0.0409	0.030	0.0115	0.020	0.0028	0.030
1-Methylnaphthalene	µg			0.27	0.15	0.28	0.10	2.79	0.15	2.60	0.10	4.68	0.15	3.78	0.10	3.06	0.15
2-Methylnaphthalene	µg			0.45	0.15	0.48	0.10	5.37	0.15	4.96	0.10	8.70	0.15	7.52	0.10	6.09	0.15
Acenaphthene	µg			<0.075	0.075	<0.050	0.050	2.64	0.075	2.44	0.050	4.50	0.075	4.48	0.050	4.20	0.075
Acenaphthylene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Anthracene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	0.260	0.050	0.330	0.075
Benzo(a)anthracene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Benzo(a)fluorene	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Benzo(b)fluoranthene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Benzo(b)fluorene	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Benzo(e)pyrene	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Benzo(g,h,i)perylene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Benzo(k)fluoranthene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Biphenyl	µg			0.15	0.15	0.12	0.10	1.23	0.15	1.20	0.10	2.40	0.15	1.70	0.10	1.41	0.15
Chrysene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Dibenz(a,h)anthracene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Dibenzo(a,c) anthracene + Picene [1]	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Fluoranthene	µg			<0.075	0.075	<0.050	0.050	0.480	0.075	0.640	0.050	1.35	0.075	1.22	0.050	1.38	0.075
Indeno(1,2,3-cd)pyrene	µg			<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075
Naphthalene	µg			1.83	0.11	1.58	0.072	11.0	0.11	8.62	0.072	18.9	0.11	10.2	0.072	7.38	0.11
o-Terphenyl	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Perylene	µg			<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15
Phenanthrene	µg			0.240	0.075	0.260	0.050	2.73	0.075	3.46	0.050	6.60	0.075	5.82	0.050	6.09	0.075
Pyrene	µg			<0.075	0.075	<0.050	0.050	0.180	0.075	0.240	0.050	0.480	0.075	0.480	0.050	0.570	0.075
Tetralin	µg			0.24	0.15	0.14	0.10	0.69	0.15	0.88	0.10	0.75	0.15	0.66	0.10	0.48	0.15
	Quarter 2																
				9		10		11		12		13		14		15	
Calculated Concentrations	Units	Maximum	Minimum	8/04/2018		20/04/2018		2/05/2018		14/05/2018		26/05/2018		7/06/2018		19/06/2018	
Benzo(a)pyrene	ng/m^3	1.39E-01	9.44E-03	1.88E-02		1.35E-02		5.18E-02		3.80E-02		1.39E-01		3.86E-02		9.44E-03	
1-Methylnaphthalene	ng/m^3	1.59E+01	8.19E-01	8.19E-01		9.83E-01		9.64E+00		8.09E+00		1.59E+01		1.27E+01		1.03E+01	
2-Methylnaphthalene	ng/m^3	2.95E+01	1.37E+00	1.37E+00		1.69E+00		1.85E+01		1.54E+01		2.95E+01		2.52E+01		2.05E+01	
Acenaphthene	ng/m^3	1.53E+01	8.78E-02	1.14E-01		8.78E-02		9.12E+00		7.60E+00		1.53E+01		1.50E+01		1.42E+01	
Acenaphthylene	ng/m^3	1.30E-01	7.78E-02	1.14E-01		8.78E-02		1.30E-01		7.78E-02		1.27E-01		8.38E-02		1.26E-01	
Anthracene	ng/m^3	1.11E+00	7.78E-02	1.14E-01		8.78E-02		1.30E-01		7.78E-02		1.27E-01		8.72E-01		1.11E+00	
Benzo(a)anthracene	ng/m^3	1.30E-01	7.78E-02	1.14E-01		8.78E-02		1.30E-01		7.78E-02		1.27E-01		8.38E-02		1.26E-01	
Benzo(a)fluorene	ng/m^3	2.59E-01	1.56E-01	2.28E-01		1.76E-01		2.59E-01		1.56E-01		2.54E-01		1.68E-01		2.53E-01	
Benzo(b)fluoranthene	ng/m^3	1.30E-01	7.78E-02	1.14E-01		8.78E-02		1.30E-01		7.78E-02		1.27E-01		8.38E-02		1.26E-01	
Benzo(b)fluorene	ng/m^3	2.59E-01	1.56E-01	2.28E-01		1.76E-01		2.59E-01		1.56E-01		2.54E-01		1.68E-01		2.53E-01	
Benzo(e)pyrene	ng/m^3	2.59E-01	1.56E-01	2.28E-01		1.76E-01		2.59E-01		1.56E-01		2.54E-01		1.68E-01		2.53E-01	
Benzo(g,h,i)perylene	ng/m^3	1.30E-01	7.78E-02	1.14E-01		8.78E-02		1.30E-01		7.78E-02		1.27E-01		8.38E-02		1.26E-01	
Benzo(k)fluoranthene	ng/m^3	1.30E-01	7.78E-02	1.14E-01		8.78E-02		1.30E-01		7.78E-02		1.27E-01		8.38E-02		1.26E-01	
Biphenyl	ng/m^3	8.14E+00	4.21E-01	4.55E-01		4.21E-01		4.25E+00		3.74E+00		8.14E+00		5.70E+00		4.75E+00	
Chrysene	ng/m^3	1.30E-01	7.78E-02	1.14E-01		8.78E-02		1.30E-01		7.78E-02		1.27E-01		8.38E-02		1.26E-01	
Dibenz(a,h)anthracene	ng/m^3	1.30E-01	7.78E-02	1.14E-01		8.78E-02		1.30E-01		7.78E-02		1.27E-01		8.38E-02		1.26E-01	
Dibenzo(a,c) anthracene + Picene	ng/m^3	2.59E-01	1.56E-01	2.28E-01		1.76E-01		2.59E-01		1.56E-01		2.54E-01		1.68E-01		2.53E-01	
Fluoranthene	ng/m^3	4.65E+00	8.78E-02	1.14E-01		8.78E-02		1.66E+00		1.99E+00		4.58E+00		4.09E+00		4.65E+00	
Indeno(1,2,3-cd)pyrene	ng/m^3	1.30E-01	7.78E-02	1.14E-01		8.78E-02		1.30E-01		7.78E-02		1.27E-01		8.38E-02		1.26E-01	
Naphthalene	ng/m^3	6.41E+01	5.55E+00	5.55E+00		5.55E+00		3.80E+01		2.68E+01		6.41E+01		3.42E+01		2.49E+01	
o-Terphenyl	ng/m^3	2.59E-01	1.56E-01	2.28E-01		1.76E-01		2.59E-01		1.56E-01		2.54E-01		1.68E-01		2.53E-01	
Perylene	ng/m^3	2.59E-01	1.56E-01	2.28E-01		1.76E-01		2.59E-01		1.56E-01		2.54E-01		1.68E-01		2.53E-01	
Phenanthrene	ng/m^3	2.24E+01	7.28E-01	7.28E-01		9.13E-01		9.43E+00		1.08E+01		2.24E+01		1.95E+01		2.05E+01	
Pyrene	ng/m^3	1.92E+00	8.78E-02	1.14E-01		8.78E-02		6.22E-01		7.47E-01		1.63E+00		1.61E+00		1.92E+00	
Tetralin	ng/m^3	2.74E+00	4.92E-01	7.28E-01		4.92E-01		2.38E+00		2.74E+00		2.54E+00		2.21E+00		1.62E+00	
Total PAH	ng/m^3	1.67E+02	1.22E+01	1.24E+01		1.22E+01		9.64E+01		7.96E+01		1.67E+02		1.23E+02		1.07E+02	

Note:
RDL = Reportable Detection Limit

1. These parameters are not accredited for the submitted matrix.

2. Average sample flows were greater than 8.8cfm. As discussed with the MOECC, these samplers are to run at their maximum allowable flow rate

APPENDIX I:
DIOXINS AND FURANS DATA SUMMARY

Dioxins and Furans	Courtice WPCP Station												
Location		Courtice			Courtice			Courtice			Courtice		
Date	dd/mm/yyyy	8/04/2018			2/05/2018			26/05/2018			19/06/2018		
Start Time	hh:mm	0:00			0:00			0:00			0:00		
Sample Duration	hours	23.64			23.69			23.67			23.7		
Technician		TZ, AW			TZ			AW			AW		
Filter Number		GCQ727-01			GGS724-01			GNA487-01			GSI371-01		
Maxaam ID		GKR700			GPT053			GUN297			GZX628		
Maxxam Job #		B879689			B8A4041			B8C6448			B8F1233		
Total Volumetric Flow	Am^3/sample	328.62			318.50			328.44			308.11		
Analytical Results	Units	Value	EDL	WHO_{2005} TEF	Value	EDL	WHO_{2005} TEF	Value	EDL	WHO_{2005} TEF	Value	EDL	WHO_{2005} TEF
2,3,7,8-Tetra CDD *	pg	<2.9	2.9	1	<3.7	3.7	1	<3.3	3.3	1	<3.4	3.4	1.00
1,2,3,7,8-Penta CDD *	pg	<2.8	2.8	1	<4.2	4.2	1	<3.6	3.6	1	<3.1	3.1	1.00
1,2,3,4,7,8-Hexa CDD *	pg	<3.4	3.4	0.1	<3.3	3.3	0.1	<3.4	3.4	0.1	<3.6	3.6	0.100
1,2,3,6,7,8-Hexa CDD *	pg	<3.6	3.6	0.1	<3.4	3.4	0.1	5.0	3.5	0.1	<3.0	3.0	0.100
1,2,3,7,8,9-Hexa CDD *	pg	<3.4	3.4	0.1	<3.2	3.2	0.1	6.8	3.2	0.1	<3.2	3.2	0.100
1,2,3,4,6,7,8-Hepta CDD *	pg	8.5	3.6	0.01	20.8	3.4	0.01	42.2	3.5	0.01	<3.2	3.2	0.0100
Octa CDD *	pg	21.7	2.9	0.0003	72.6	3.0	0.0003	131	3.2	0.0003	<5.6 (1)	5.6	0.000300
Total Tetra CDD *	pg	<2.9	2.9		<3.7	3.7		31.9	3.3		<18 (1)	18	
Total Penta CDD *	pg	<2.8	2.8		<4.2	4.2		21.5	3.6		<18 (1)	18	
Total Hexa CDD *	pg	<3.5	3.5		5.7	3.3		60.9	3.4		<41 (1)	41	
Total Hepta CDD *	pg	22.4	3.6		48.3	3.4		90.6	3.5		<3.2	3.2	
2,3,7,8-Tetra CDF **	pg	<2.9	2.9	0.1	<3.3	3.3	0.1	64.9	3.3	0.1	<3.2	3.2	0.100
1,2,3,7,8-Penta CDF **	pg	<2.5	2.5	0.03	<4.7	4.7	0.03	15.9	3.3	0.03	<3.1	3.1	0.0300
2,3,4,7,8-Penta CDF **	pg	<2.5	2.5	0.3	<4.6	4.6	0.3	31.4	3.2	0.3	<3.2	3.2	0.300
1,2,3,4,7,8-Hexa CDF **	pg	<2.4	2.4	0.1	<3.5	3.5	0.1	60.1 (1)	2.9	0.1	<3.1	3.1	0.100
1,2,3,6,7,8-Hexa CDF **	pg	<2.3	2.3	0.1	<3.6	3.6	0.1	27.2	2.9	0.1	<2.7	2.7	0.100
2,3,4,6,7,8-Hexa CDF **	pg	<2.6	2.6	0.1	<3.8	3.8	0.1	31.1	3.1	0.1	<3.0	3.0	0.100
1,2,3,7,8,9-Hexa CDF **	pg	<2.7	2.7	0.1	<4.1	4.1	0.1	5.2	3.4	0.1	<4.0	4.0	0.100
1,2,3,4,6,7,8-Hepta CDF **	pg	<3.0	3.0	0.01	3.9	3.3	0.01	160	2.7	0.01	<2.3	2.3	0.0100
1,2,3,4,7,8,9-Hepta CDF **	pg	<3.7	3.7	0.01	<3.9	3.9	0.01	29.0	3.2	0.01	<3.4	3.4	0.0100
Octa CDF **	pg	3.4	3.3	0.0003	4.3	3.3	0.0003	109	2.8	0.0003	<3.4	3.4	0.000300
Total Tetra CDF **	pg	<2.9	2.9		<3.3	3.3		381	3.3		<3.2	3.2	
Total Penta CDF **	pg	<2.5	2.5		<4.6	4.6		375	3.2		<3.1	3.1	
Total Hexa CDF **	pg	<2.5	2.5		<3.7	3.7		315	3.1		<3.1	3.1	
Total Hepta CDF **	pg	<3.3	3.3		3.9	3.6		282	3.0		<2.8	2.8	
Toxic Equivalency	pg												

Notes:

* CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan

Calculated Concentrations	Quarter 2			5	6	7	8
	Units	Maximum	Minimum	8/04/2018	2/05/2018	26/05/2018	19/06/2018
2,3,7,8-Tetra CDD *	pg/m^3	5.81E-03	4.41E-03	0.004	0.006	0.005	0.006
1,2,3,7,8-Penta CDD *	pg/m^3	6.59E-03	4.26E-03	0.004	0.007	0.005	0.005
1,2,3,4,7,8-Hexa CDD *	pg/m^3	5.84E-03	5.17E-03	0.005	0.005	0.005	0.006
1,2,3,6,7,8-Hexa CDD *	pg/m^3	1.52E-02	4.87E-03	0.005	0.005	0.015	0.005
1,2,3,7,8,9-Hexa CDD *	pg/m^3	2.07E-02	5.02E-03	0.005	0.005	0.021	0.005
1,2,3,4,6,7,8-Hepta CDD *	pg/m^3	1.28E-01	5.19E-03	0.026	0.065	0.128	0.005
Octa CDD *	pg/m^3	3.99E-01	9.09E-03	0.066	0.228	0.399	0.009
Total Tetra CDD *	pg/m^3	9.71E-02	4.41E-03	0.004	0.006	0.097	0.029
Total Penta CDD *	pg/m^3	6.55E-02	4.26E-03	0.004	0.007	0.065	0.029
Total Hexa CDD *	pg/m^3	1.85E-01	5.33E-03	0.005	0.018	0.185	0.067
Total Hepta CDD *	pg/m^3	2.76E-01	5.19E-03	0.068	0.152	0.276	0.005
2,3,7,8-Tetra CDF **	pg/m^3	1.98E-01	4.41E-03	0.004	0.005	0.198	0.005
1,2,3,7,8-Penta CDF **	pg/m^3	4.84E-02	3.80E-03	0.004	0.007	0.048	0.005
2,3,4,7,8-Penta CDF **	pg/m^3	9.56E-02	3.80E-03	0.004	0.007	0.096	0.005
1,2,3,4,7,8-Hexa CDF **	pg/m^3	1.83E-01	3.65E-03	0.004	0.005	0.183	0.005
1,2,3,6,7,8-Hexa CDF **	pg/m^3	8.28E-02	3.50E-03	0.003	0.006	0.083	0.004
2,3,4,6,7,8-Hexa CDF **	pg/m^3	9.47E-02	3.96E-03	0.004	0.006	0.095	0.005
1,2,3,7,8,9-Hexa CDF **	pg/m^3	1.58E-02	4.11E-03	0.004	0.006	0.016	0.006
1,2,3,4,6,7,8-Hepta CDF **	pg/m^3	4.87E-01	3.73E-03	0.005	0.012	0.487	0.004
1,2,3,4,7,8,9-Hepta CDF **	pg/m^3	8.83E-02	5.52E-03	0.006	0.006	0.088	0.006
Octa CDF **	pg/m^3	3.32E-01	5.52E-03	0.010	0.014	0.332	0.006
Total Tetra CDF **	pg/m^3	1.16E+00	4.41E-03	0.004	0.005	1.160	0.005
Total Penta CDF **	pg/m^3	1.14E+00	3.80E-03	0.004	0.007	1.142	0.005
Total Hexa CDF **	pg/m^3	9.59E-01	3.80E-03	0.004	0.006	0.959	0.005
Total Hepta CDF **	pg/m^3	8.59E-01	4.54E-03	0.005	0.012	0.859	0.005
Toxic Equivalency	pg/m^3						
TOTAL TOXIC EQUIVALENCY	pg TEQ/m^3	1.09E-01	1.39E-02	0.014	0.020	0.109	0.017
Calculated TEQ Concentrations	**Units**			**08/04/2018**	**02/05/2018**	**26/05/2018**	**19/06/2018**
2,3,7,8-Tetra CDD *	pg TEQ/m^3			0.004	0.006	0.005	0.006
1,2,3,7,8-Penta CDD	pg TEQ/m^3			0.004	0.007	0.005	0.005
1,2,3,4,7,8-Hexa CDD	pg TEQ/m^3			0.0005	0.0005	0.0005	0.0006
1,2,3,6,7,8-Hexa CDD	pg TEQ/m^3			0.0005	0.0005	0.0015	0.0005
1,2,3,7,8,9-Hexa CDD	pg TEQ/m^3			0.0005	0.0005	0.0021	0.0005
1,2,3,4,6,7,8-Hepta CDD	pg TEQ/m^3			0.0003	0.0007	0.0013	0.0001
Octa CDD	pg TEQ/m^3			0.00002	0.00007	0.00012	0.00000
Total Tetra CDD	pg TEQ/m^3						
Total Penta CDD	pg TEQ/m^3						
Total Hexa CDD	pg TEQ/m^3						
Total Hepta CDD	pg TEQ/m^3						
2,3,7,8-Tetra CDF **	pg TEQ/m^3			0.0004	0.0005	0.0198	0.0005
1,2,3,7,8-Penta CDF	pg TEQ/m^3			0.0001	0.0002	0.0015	0.0002
2,3,4,7,8-Penta CDF	pg TEQ/m^3			0.001	0.002	0.029	0.002
1,2,3,4,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0005	0.0183	0.0005
1,2,3,6,7,8-Hexa CDF	pg TEQ/m^3			0.0003	0.0006	0.0083	0.0004
2,3,4,6,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0006	0.0095	0.0005
1,2,3,7,8,9-Hexa CDF	pg TEQ/m^3			0.0004	0.0006	0.0016	0.0006
1,2,3,4,6,7,8-Hepta CDF	pg TEQ/m^3			0.00005	0.00012	0.00487	0.00004
1,2,3,4,7,8,9-Hepta CDF	pg TEQ/m^3			0.00006	0.00006	0.00088	0.00006
Octa CDF	pg TEQ/m^3			0.000003	0.000004	0.000100	0.000002
Total Tetra CDF	pg TEQ/m^3						
Total Penta CDF	pg TEQ/m^3						
Total Hexa CDF	pg TEQ/m^3						
Total Hepta CDF	pg TEQ/m^3						
TOTAL TOXIC EQUIVALENCY	pg TEQ/m^3			0.014	0.020	0.109	0.017

Notes:
EDL = Estimated Detection Limit
* CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

Dioxins and Furans	Rundle Road Station												
Location		Rundle			Rundle			Rundle			Rundle		
Date	dd/mm/yyyy	8/04/2018			2/05/2018			26/05/2018			19/06/2018		
Start Time	hh:mm	0:00			0:00			0:00			0:00		
Sample Duration	hours	23.95			23.4			23.19			23.23		
Technician		TZ, AW			AW			AW			AW		
Filter Number		GCQ728-01			GGS723-01			GNA488-01			GSI372-01		
Maxaam ID		GKR701			GPT054			GUN298			GZX629		
Maxxam Job #		B879689			B8A4041			B8C6448			B8F1233		
Total Volumetric Flow	Am^3/sample	329.62			289.53			294.74			296.77		
Analytical Results	**Units**	**Value**	**EDL**	**WHO_{2005} TEF**	**Value**	**EDL**	**WHO_{2005} TEF**	**Value**	**EDL**	**WHO_{2005} TEF**	**Value**	**EDL**	**WHO_{2005} TEF**
2,3,7,8-Tetra CDD *	pg	<3.3	3.3	1	<3.7	3.7	1	<3.6	3.6	1	<3.1	3.1	1.00
1,2,3,7,8-Penta CDD *	pg	<3.7	3.7	1	<3.7	3.7	1	<3.2	3.2	1	<3.2	3.2	1.00
1,2,3,4,7,8-Hexa CDD *	pg	<3.6	3.6	0.1	<3.4	3.4	0.1	<3.0	3.0	0.1	<3.6	3.6	0.100
1,2,3,6,7,8-Hexa CDD *	pg	<3.8	3.8	0.1	<3.5	3.5	0.1	<3.1	3.1	0.1	<3.0	3.0	0.100
1,2,3,7,8,9-Hexa CDD *	pg	<3.5	3.5	0.1	<3.2	3.2	0.1	4.3	2.9	0.1	<3.2	3.2	0.100
1,2,3,4,6,7,8-Hepta CDD *	pg	31.4	3.3	0.01	20.1	3.1	0.01	28.1	2.8	0.01	<3.1	3.1	0.0100
Octa CDD *	pg	77.2	3.3	0.0003	95.0	3.6	0.0003	86.5	2.8	0.0003	7.8	3.3	0.000300
Total Tetra CDD *	pg	<3.3	3.3		<3.7	3.7		12.5	3.6		<16 (1)	16	
Total Penta CDD *	pg	<3.7	3.7		<3.7	3.7		<9.0 (2)	9.0		<21 (1)	21	
Total Hexa CDD *	pg	10.1	3.6		12.3	3.4		34.4	3.0		<38 (1)	38	
Total Hepta CDD *	pg	67.1	3.3		54.7	3.1		59.4	2.8		<3.1	3.1	
2,3,7,8-Tetra CDF **	pg	<3.0	3.0	0.1	<3.1	3.1	0.1	41.6	3.6	0.1	<3.2	3.2	0.100
1,2,3,7,8-Penta CDF **	pg	<3.2	3.2	0.03	<3.5	3.5	0.03	12.1	3.5	0.03	<3.1	3.1	0.0300
2,3,4,7,8-Penta CDF **	pg	<3.3	3.3	0.3	<3.5	3.5	0.3	26.7	3.5	0.3	<3.3	3.3	0.300
1,2,3,4,7,8-Hexa CDF **	pg	<3.0	3.0	0.1	<3.3	3.3	0.1	40.7 (1)	3.0	0.1	<3.1	3.1	0.100
1,2,3,6,7,8-Hexa CDF **	pg	<2.9	2.9	0.1	<3.4	3.4	0.1	21.1	3.1	0.1	<2.7	2.7	0.100
2,3,4,6,7,8-Hexa CDF **	pg	<3.3	3.3	0.1	<3.6	3.6	0.1	20.2	3.3	0.1	<3.1	3.1	0.100
1,2,3,7,8,9-Hexa CDF **	pg	<3.4	3.4	0.1	<3.8	3.8	0.1	5.2	3.5	0.1	<4.0	4.0	0.100
1,2,3,4,6,7,8-Hepta CDF **	pg	<2.3	2.3	0.01	4.6	3.1	0.01	97.1	3.2	0.01	<2.6	2.6	0.0100
1,2,3,4,7,8,9-Hepta CDF **	pg	<2.8	2.8	0.01	<3.6	3.6	0.01	23.6	3.8	0.01	<3.7	3.7	0.0100
Octa CDF **	pg	<3.4	3.4	0.0003	4.7	3.4	0.0003	73.2	4.0	0.0003	<3.0	3.0	0.000300
Total Tetra CDF **	pg	<3.0	3.0		<3.1	3.1		303	3.6		<3.4 (1)	3.4	
Total Penta CDF **	pg	<3.2	3.2		<3.5	3.5		321	3.5		<3.2	3.2	
Total Hexa CDF **	pg	<3.1	3.1		<3.5	3.5		262	3.2		<3.2	3.2	
Total Hepta CDF **	pg	<2.5	2.5		4.6	3.3		199	3.5		<3.0	3.0	
Toxic Equivalency	pg												

Notes:
* CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan

Calculated Concentrations	Quarter 2			5	6	7	8
	Units	Maximum	Minimum	8/04/2018	2/05/2018	26/05/2018	19/06/2018
2,3,7,8-Tetra CDD *	pg/m^3	6.39E-03	5.01E-03	0.005	0.006	0.006	0.005
1,2,3,7,8-Penta CDD *	pg/m^3	6.39E-03	5.39E-03	0.006	0.006	0.005	0.005
1,2,3,4,7,8-Hexa CDD *	pg/m^3	6.07E-03	5.09E-03	0.005	0.006	0.005	0.006
1,2,3,6,7,8-Hexa CDD *	pg/m^3	6.04E-03	5.05E-03	0.006	0.006	0.005	0.005
1,2,3,7,8,9-Hexa CDD *	pg/m^3	1.46E-02	5.31E-03	0.005	0.006	0.015	0.005
1,2,3,4,6,7,8-Hepta CDD *	pg/m^3	9.53E-02	5.22E-03	0.095	0.069	0.095	0.005
Octa CDD *	pg/m^3	3.28E-01	2.63E-02	0.234	0.328	0.293	0.026
Total Tetra CDD *	pg/m^3	4.24E-02	5.01E-03	0.005	0.006	0.042	0.027
Total Penta CDD *	pg/m^3	3.54E-02	5.61E-03	0.006	0.006	0.015	0.035
Total Hexa CDD *	pg/m^3	1.17E-01	3.06E-02	0.031	0.042	0.117	0.064
Total Hepta CDD *	pg/m^3	2.04E-01	5.22E-03	0.204	0.189	0.202	0.005
2,3,7,8-Tetra CDF **	pg/m^3	1.41E-01	4.55E-03	0.005	0.005	0.141	0.005
1,2,3,7,8-Penta CDF **	pg/m^3	4.11E-02	4.85E-03	0.005	0.006	0.041	0.005
2,3,4,7,8-Penta CDF **	pg/m^3	9.06E-02	5.01E-03	0.005	0.006	0.091	0.006
1,2,3,4,7,8-Hexa CDF **	pg/m^3	1.38E-01	4.55E-03	0.005	0.006	0.138	0.005
1,2,3,6,7,8-Hexa CDF **	pg/m^3	7.16E-02	4.40E-03	0.004	0.006	0.072	0.005
2,3,4,6,7,8-Hexa CDF **	pg/m^3	6.85E-02	5.01E-03	0.005	0.006	0.069	0.005
1,2,3,7,8,9-Hexa CDF **	pg/m^3	1.76E-02	5.16E-03	0.005	0.007	0.018	0.007
1,2,3,4,6,7,8-Hepta CDF **	pg/m^3	3.29E-01	3.49E-03	0.003	0.016	0.329	0.004
1,2,3,4,7,8,9-Hepta CDF **	pg/m^3	8.01E-02	4.25E-03	0.004	0.006	0.080	0.006
Octa CDF **	pg/m^3	2.48E-01	5.05E-03	0.005	0.016	0.248	0.005
Total Tetra CDF **	pg/m^3	1.03E+00	4.55E-03	0.005	0.005	1.028	0.006
Total Penta CDF **	pg/m^3	1.09E+00	4.85E-03	0.005	0.006	1.089	0.005
Total Hexa CDF **	pg/m^3	8.89E-01	4.70E-03	0.005	0.006	0.889	0.005
Total Hepta CDF **	pg/m^3	6.75E-01	3.79E-03	0.004	0.016	0.675	0.005
Toxic Equivalency	pg/m^3						
TOTAL TOXIC EQUIVALENCY	pg TEQ/m^3	9.13E-02	1.70E-02	0.017	0.021	0.091	0.017
Calculated TEQ Concentrations	**Units**			**08/04/2018**	**02/05/2018**	**26/05/2018**	**19/06/2018**
2,3,7,8-Tetra CDD *	pg TEQ/m^3			0.005	0.006	0.006	0.005
1,2,3,7,8-Penta CDD	pg TEQ/m^3			0.006	0.006	0.005	0.005
1,2,3,4,7,8-Hexa CDD	pg TEQ/m^3			0.0005	0.0006	0.0005	0.0006
1,2,3,6,7,8-Hexa CDD	pg TEQ/m^3			0.0006	0.0006	0.0005	0.0005
1,2,3,7,8,9-Hexa CDD	pg TEQ/m^3			0.0005	0.0006	0.0015	0.0005
1,2,3,4,6,7,8-Hepta CDD	pg TEQ/m^3			0.0010	0.0007	0.0010	0.0001
Octa CDD	pg TEQ/m^3			0.00007	0.00010	0.00009	0.00001
Total Tetra CDD	pg TEQ/m^3						
Total Penta CDD	pg TEQ/m^3						
Total Hexa CDD	pg TEQ/m^3						
Total Hepta CDD	pg TEQ/m^3						
2,3,7,8-Tetra CDF **	pg TEQ/m^3			0.0005	0.0005	0.0141	0.0005
1,2,3,7,8-Penta CDF	pg TEQ/m^3			0.0001	0.0002	0.0012	0.0002
2,3,4,7,8-Penta CDF	pg TEQ/m^3			0.002	0.002	0.027	0.002
1,2,3,4,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0006	0.0138	0.0005
1,2,3,6,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0006	0.0072	0.0005
2,3,4,6,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0006	0.0069	0.0005
1,2,3,7,8,9-Hexa CDF	pg TEQ/m^3			0.0005	0.0007	0.0018	0.0007
1,2,3,4,6,7,8-Hepta CDF	pg TEQ/m^3			0.00003	0.00016	0.00329	0.00004
1,2,3,4,7,8,9-Hepta CDF	pg TEQ/m^3			0.00004	0.00006	0.00080	0.00006
Octa CDF	pg TEQ/m^3			0.000002	0.000005	0.000075	0.000002
Total Tetra CDF	pg TEQ/m^3						
Total Penta CDF	pg TEQ/m^3						
Total Hexa CDF	pg TEQ/m^3						
Total Hepta CDF	pg TEQ/m^3						
TOTAL TOXIC EQUIVALENCY	pg TEQ/m^3			0.017	0.021	0.091	0.017

Notes:
EDL = Estimated Detection Limit
* CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds