Quarterly Ambient Air Quality Monitoring Report for the Durham York Energy Centre – October to December 2017

Durham York Energy Centre

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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 (MOECC, 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), and
  - Particulate Matter smaller than 2.5 microns ($PM_{2.5}$).
- Non-continuously monitored
  - Metals in Total Suspended Particulate (TSP) matter
  - Polycyclic Aromatic Hydrocarbons (PAHs), and
  - 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 by one year for a total of two years 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 October to December 2017 (Calendar Quarter 4). 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 4, 2017.

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 98th 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 MOECC air quality Standards, were below their applicable Standards (as presented in **Table 2-3** in this report) with the exception of one TSP measurement at the Rundle Road Station on November 27, 2017 which exceeded the applicable criteria by 94%. As required by the Ambient Air Quality Monitoring Plan, a written notice of exceedance was submitted to the Region of Durham, Region of York, MOECC, and the local Medical Officer of Health. Stantec's root cause analysis determined that the likely cause of the TSP exceedance was truck activity occurring adjacent to the Rundle Road Station.

4. The maximum measured concentrations of PAHs with MOECC air quality Standards were well below their applicable criteria shown in **Table 2-4**, with the exception of one (1) 24-hour benzo(a)pyrene (B(a)P) concentration measured on December 9, 2017 at the Courtice WPCP Station, and two (2) B(a)P measurements on November 15 and December 9, 2017 at the Rundle Road Station. Measured concentrations of B(a)P exceeded the applicable Ontario Ambient Air Quality Criteria (AAQC) by between 15% and 120%. 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 MOECC Schedule 6 Upper Risk Threshold, the MOECC 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.**

In summary, the measured concentrations of the air contaminants monitored were below their applicable MOECC Standards during the October to December 2017 monitoring period with the exception of benzo(a)pyrene and TSP. Furthermore, all measured levels of the monitored contaminants were below their applicable HHRA health-based criteria except for TSP.

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
MOECC	Ontario Ministry of the Environment and Climate Change
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
$\mu g/m^3$	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

1.1 BACKGROUND AND OBJECTIVES

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), and
  - Particulate Matter smaller than 2.5 microns ($PM_{2.5}$).
- Non-continuously monitored
  - Metals in Total Suspended Particulate (TSP) matter
  - Polycyclic Aromatic Hydrocarbons (PAHs), and
  - 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 a one-year period but this period has been extended by one year for a total of two years 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 October to December 2017 (Q4).

1.2 LOCATIONS OF AMBIENT AIR QUALITY MONITORING STATIONS

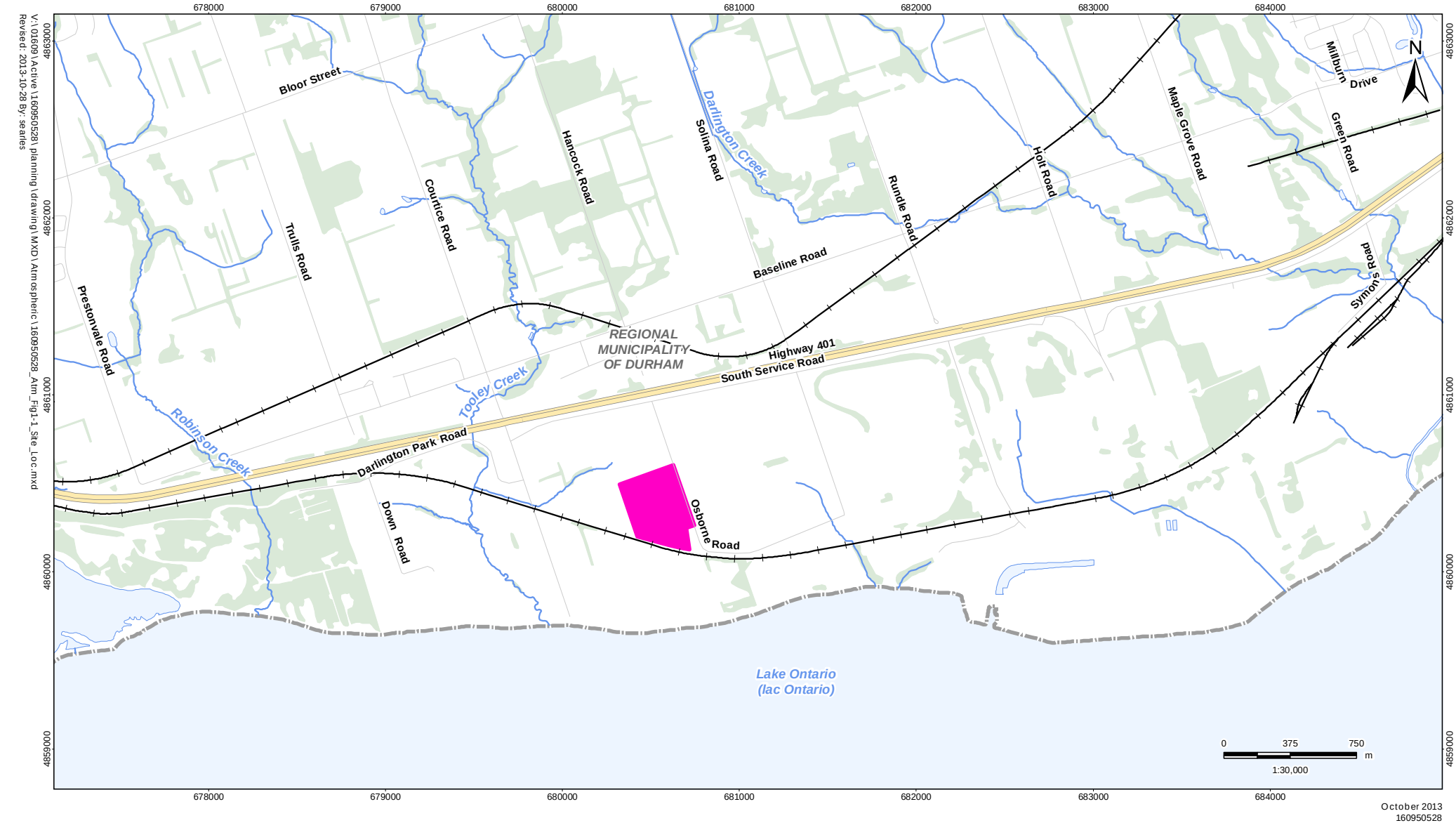
The selection of sites for the monitoring stations was accomplished in consultation with the Ontario Ministry of Environment and Climate Change (MOECC) and Regional Municipality of Durham and York representatives based on the results of air quality modelling done in support of the environmental assessment for the project, the locations of nearby sensitive receptors, and general MOECC 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 Section1.1 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 **Figure1-4.** 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 Water Pollution Control Plant.

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 a one-year period but this period has been extended by one year for a total of two years. The location is presented in **Figure 1-2** and **Figure1-5**.



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Revised: 2013-10-28 By: searles

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

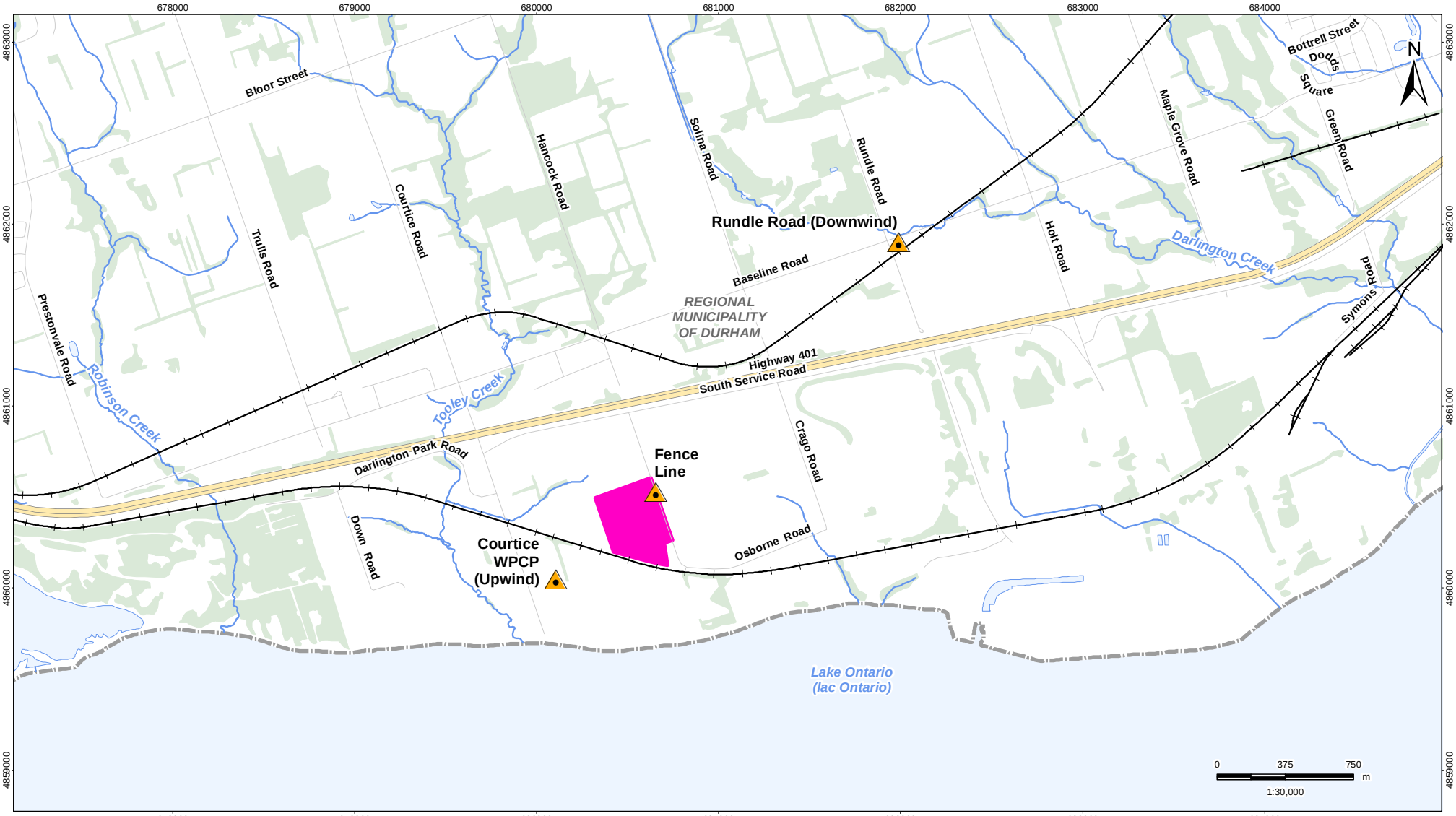
The Region of Durham
Durham York Energy Centre

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
- 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.

1-2

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 @7.5 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), and
  - Particulate Matter smaller than 2.5 microns ($PM_{2.5}$).
- Non-continuously monitored
  - Metals in Total Suspended Particulate (TSP) matter
  - Polycyclic Aromatic Hydrocarbons (PAHs), and
  - 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 MOECC (MOECC, 2012). The second set of criteria was the Standards reported in O. Reg. 419/05 (Schedules 3 and 6) and the MOECC 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" (MOECC, 2016) (ACB List).

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 MOECC (MOECC, 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 Q4 2017 are presented in **Table 2-2** to **Table 2-4**.

Table 2-2 Summary of Air Quality Criteria for CACs

Contaminant	CAS	MOECC 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 PM2.5 was selected referencing CCME (2006).

Table 2-3 Summary of Air Quality Criteria for Metals

Contaminant	CAS	MOECC 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

Table 2-3 Summary of Air Quality Criteria for Metals

Contaminant	CAS	MOECC 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)
Cobalt	7440-48-4	-	0.1	-	0.2	0.1	0.1
Copper	8440-50-8	-	50	-	-	-	-
Iron	15438-31-0	-	4	-	-	-	-
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	MOECC 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	-
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	-

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

Contaminant	CAS	MOECC 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] $(ng/m^3)^{-1}$
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]	-	-	-	-	-

A. Carcinogenic Annual Average. Units in (ng/m3)-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

Instrumentation Summary and Field Conditions
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Two manually operated, hi-volume 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 7.5 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 Water Pollution Control Plant.

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

There were no operations issues encountered during Q4 2017 for the three monitoring stations, as 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	None		

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		
TSP/Metals Hi-Vol	None		
PAH/ D/F Hi-Vol	None		
Other	None		

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

Parameter	Issues	Time Frame	Remedial Action
TSP/Metals Hi-Vol	None		

3.3 INSTRUMENTATION RECOVERY RATES

Data recovery rates for each continuous monitor at the three monitoring stations during Quarter 4 (October to December 2017) are presented in **Table 3-7** to **Table 3-9**.

Table 3-7 Summary of Data Recovery Rates for the Courtice WPCP Station (Predominately Upwind) – October to December 2017

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
SO_2	2203	99.8% [A]
NO_X	2188	99.1% [A]
$PM_{2.5}$	2200	99.6% [A]
Temperature	2208	100.0% [A]
Rainfall	2208	100.0% [A]
Relative Humidity	2208	100.0% [A]
Pressure	2208	100.0% [A]
Wind Speed/Direction	2182	98.8% [A]
TSP/Metals	15 [B]	100%
PAHs	7 [B]	100%
Dioxins and Furans	3 [B]	100%

A. Includes any instrumentation issues summarized in Table 3-4, quarterly MOECC 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) – October to December 2017

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
SO_2	2203	99.8% [A]
NO_X	2192	99.3% [A]
$PM_{2.5}$	2199	99.6% [A]
Temperature	2208	100.0% [A]
Rainfall	2208	100.0% [A]
Relative Humidity	2208	100.0% [A]

Table 3-8 Summary of Data Recovery Rates for the Rundle Road Station (Predominately Downwind) – October to December 2017

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
Wind Speed/Direction	2208	100.0% [A]
TSP/Metals	15 [B]	100 %
PAHs	7 [B]	100%
Dioxins and Furans	3 [B]	100%

A. Includes any instrumentation issues summarized in Table 3-5, quarterly MOECC 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 – October to December 2017

Parameter	Valid Measurements [B]	Data Recovery Rate (%)
TSP/Metals [A]	15	100%

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 Q4 2017 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 Q4.

3.5 FIELD CONDITION OBSERVATIONS

During Q4 2017 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. Photographs of soil berms/ramps and overpass construction activities are provided in **Figure 3-1**, and **Figure 3-2.**

On the north side of Highway 401, the highway construction contractor has located a construction camp along Baseline Road about 1.5 km west of the Rundle Road Station. Heavy vehicle operations were observed in late November that likely contributed to elevated TSP measurements on November 27, 2017. A photo of the observed heavy vehicle operations is included in **Figure 3-3**, and was taken during a site visit on November 28, 2017.

During Q4, there was one period where waste feed to each boiler was halted. The times when these feed stops occurred are summarized in **Table 3-10**.

Table 3-10 Summary of Boiler Operational Status in Q4 2017

Boiler	Date	Time	Status
Boiler 1	November 26	12:19 – 15:34	Feed Stop
Boiler 2	November 26	12:19 – 14:53	Feed Stop

Figure 3-1 Looking North from Megawatt Drive of the Highway 401 and Highway 418 Construction (October 23, 2017)

Figure 3-2 Looking North from Megawatt Drive at Highway 401 and Highway 418 Construction (November 28, 2017)

Figure 3-3 Looking West from Rundle Road Station at Heavy Truck Operations on Adjacent Unpaved Road (November 28, 2017)

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 October to December 2017 period are presented in **Table 4-1**.

Table 4-1 Summary of Hourly Meteorological Measurements – October to December 2017

Parameter	Description	Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)	Units
Temperature	Maximum	21.6	22.1	^{0}C
	Minimum	-23.6	-24.4	^{0}C
	Mean (October)	12.8	12.3	^{0}C
	Mean (November)	3.8	3.3	^{0}C
	Mean (December)	-5.0	-5.6	^{0}C
	Mean (Period)	3.9	3.3	^{0}C
	Standard Deviation	9.2	9.4	^{0}C
Rainfall	Maximum	6.4	7.7	mm
	Minimum	0.0	0.0	mm
	Mean (October)	0.09	0.09	mm
	Mean (November)	0.07	0.08	mm
	Mean (December)	0.03	0.04	mm
	Mean (Period)	0.06	0.07	mm
	Standard Deviation	0.36	0.41	mm
Relative Humidity	Maximum	94.8	100.0	%
	Minimum	39.1	40.8	%
	Mean (October)	74.2	78.8	%
	Mean (November)	70.0	75.6	%
	Mean (December)	69.0	73.5	%
	Mean (Period)	71.1	76.0	%
	Standard Deviation	12.5	14.0	%

Table 4-1 Summary of Hourly Meteorological Measurements – October to December 2017

Parameter	Description	Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)	Units
Pressure [A]	Maximum	30.4	-	in Hg
	Minimum	28.8	-	in Hg
	Mean (October)	29.7	-	in Hg
	Mean (November)	29.8	-	in Hg
	Mean (December)	29.7	-	in Hg
	Mean (Period)	29.7	-	in Hg
	Standard Deviation	0.3	-	in Hg
Wind Speed [B]	Maximum	43.0	39.0	km/hr
	Minimum	0.1	0.3	km/hr
	Mean (October)	12.4	10.8	km/hr
	Mean (November)	13.4	11.1	km/hr
	Mean (December)	13.5	12.4	km/hr
	Mean (Period)	13.1	11.4	km/hr
	Standard Deviation	7.2	7.3	km/hr

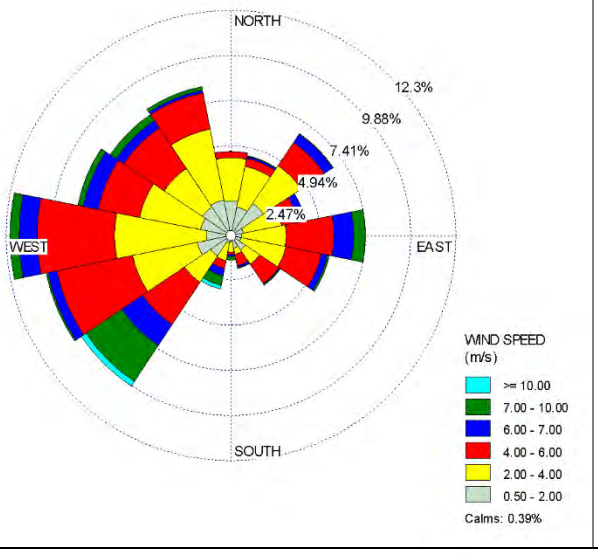
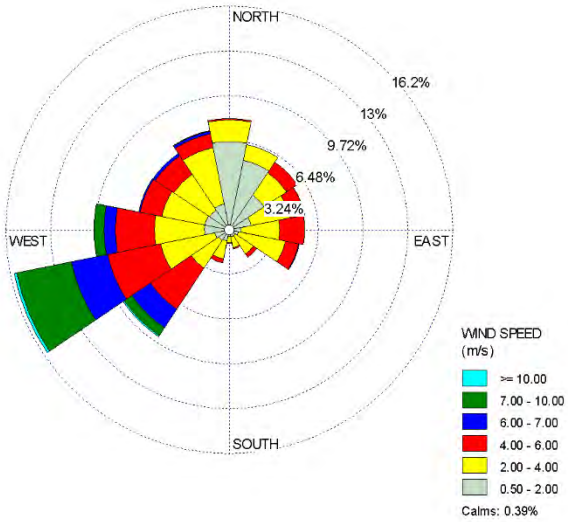
A. Pressure is not measured at the Rundle Road Station.
B. Wind speed at Courtice WPCP Station measured at 20 m and at Rundle Road Station at 7.5 m.

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 southwesterly to north-northwesterly directions. Higher wind speeds occurred from southwestern direction.

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

Figure 4-1 Wind Roses for October to December 2017

Courtice WPCP Station (Predominately Upwind) at 20 m Above Ground	Rundle Road Station (Predominately Downwind) at 7.5 m Above Ground
	

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 October to December 2017.

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 NOx, no criteria comparisons were made as per MOECC request (MOECC 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 – October to December 2017

Pollutant	Averaging Period	MOECC Criteria / HHRA Health-Based Criteria		Description	Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		(ppb)	(µg/m³)		Concentration (ppbv)	Concentration (µg/m³)	Concentration (ppbv)	Concentration (µg/m³)
SO_2	1	250	690	Maximum	84.6	233.6	7.9	21.4
				Minimum	0.0	0.0	0.0	0.0
				Mean (October)	3.7	10.1	0.6	1.6
				Mean (November)	2.0	5.5	0.7	2.0
				Mean (December)	1.1	3.3	0.7	1.9
				Mean (Period)	2.3	6.3	0.6	1.8
				Standard Deviation	5.6	15.5	0.4	1.2
				# of Exceedances	0	0	0	0
	24	100	275	Maximum	16.0	44.6	1.8	5.0
				Minimum	0.1	0.4	0.1	0.2
				Mean (October)	3.7	10.3	0.6	1.5
				Mean (November)	2.0	5.6	0.7	2.0
				Mean (December)	1.1	3.3	0.7	2.0
				Mean (Period)	2.3	6.4	0.6	1.8
				Standard Deviation	2.7	7.4	0.3	0.7
				# of Exceedances	0	0	0	0

Table 4-2 Summary of Ambient CAC Monitoring Data – October to December 2017

Pollutant	Averaging Period	MOECC Criteria / HHRA Health-Based Criteria		Description	Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		(ppb)	(µg/m³)		Concentration (ppbv)	Concentration (µg/m³)	Concentration (ppbv)	Concentration (µg/m³)
$PM_{2.5}$	24	N/A	28 [A]	Maximum	-	30.9	-	27.6
				Minimum	-	0.2	-	0.1
				Mean (October)	-	4.2	-	4.0
				Mean (November)	-	3.8	-	4.3
				Mean (December)	-	6.5	-	7.5
				Mean (Period)	-	4.8	-	5.3
				Standard Deviation	-	4.4	-	4.5
				# of Exceedances	-	N/A	-	N/A
NO_2	1	200	400	Maximum	37.3	79.2	42.9	90.8
				Minimum	0.0	0.0	0.0	0.0
				Mean (October)	5.9	11.5	5.2	10.2
				Mean (November)	5.9	11.9	6.1	12.3
				Mean (December)	8.1	16.9	11.7	24.5
				Mean (Period)	6.6	13.4	7.7	15.7
				Standard Deviation	6.2	12.7	6.2	12.9
				# of Exceedances	0	0	0	0
	24	100	200	Maximum	26.4	55.8	30.5	64.5
				Minimum	0.3	0.7	0.1	0.2
				Mean (October)	5.8	11.4	5.1	9.9
				Mean (November)	5.9	11.9	6.0	12.1

Table 4-2 Summary of Ambient CAC Monitoring Data – October to December 2017

Pollutant	Averaging Period	MOECC Criteria / HHRA Health-Based Criteria		Description	Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		(ppb)	(µg/m³)		Concentration (ppbv)	Concentration (µg/m³)	Concentration (ppbv)	Concentration (µg/m³)
				Mean (December)	8.2	17.0	11.7	24.5
				Mean (Period)	6.6	13.4	7.6	15.5
				Standard Deviation	3.8	7.8	4.9	10.3
				# of Exceedances	0	0	0	0
NO [B]	1	N/A	N/A	Maximum	128.9	168.8	47.2	63.2
				Minimum	0.0	0.0	0.0	0.0
				Mean (October)	4.0	5.2	1.9	2.5
				Mean (November)	2.5	3.3	2.5	3.3
				Mean (December)	2.4	3.2	1.7	2.3
				Mean (Period)	3.0	3.9	2.0	2.7
				Standard Deviation	8.6	11.3	3.3	4.4
				# of Exceedances	N/A	N/A	N/A	N/A
	24	N/A	N/A	Maximum	25.1	33.5	7.1	9.4
				Minimum	0.0	0.0	0.2	0.3
				Mean (October)	4.1	5.2	1.9	2.4
				Mean (November)	2.5	3.4	2.4	3.2
				Mean (December)	2.4	3.2	1.8	2.4
				Mean (Period)	3.0	3.9	2.0	2.7
				Standard Deviation	4.2	5.5	1.4	1.9
				# of Exceedances	N/A	N/A	N/A	N/A

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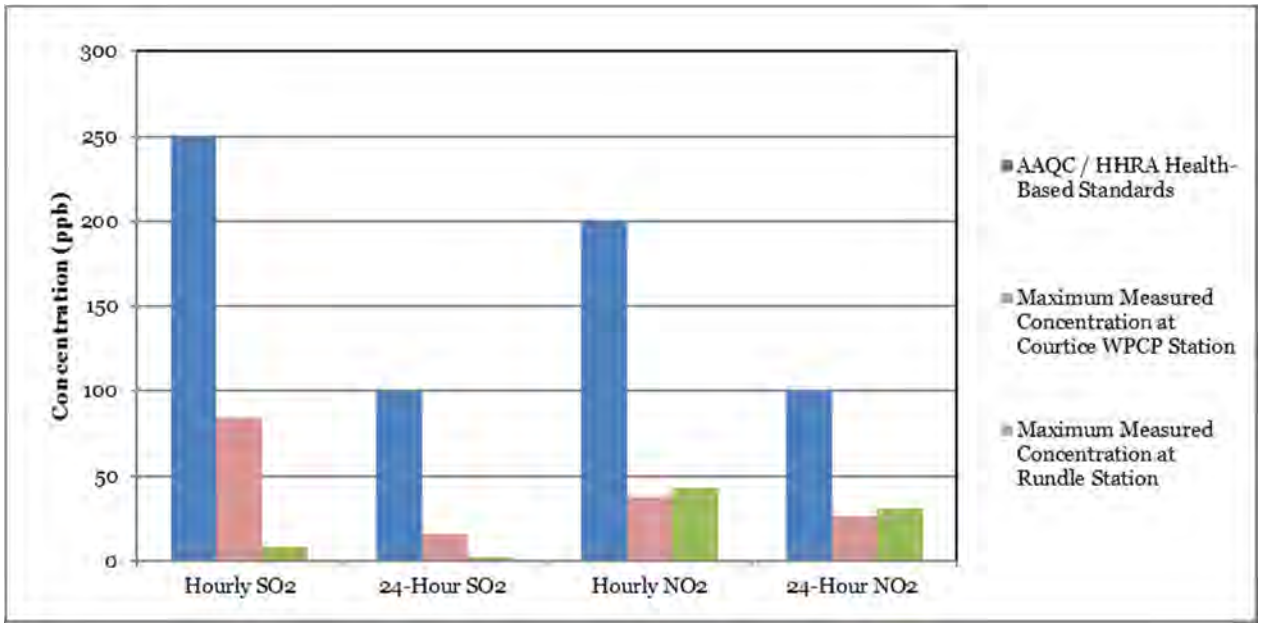
Table 4-2 Summary of Ambient CAC Monitoring Data – October to December 2017

Pollutant	Averaging Period	MOECC Criteria / HHRA Health-Based Criteria		Description	Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		(ppb)	(µg/m³)		Concentration (ppbv)	Concentration (µg/m³)	Concentration (ppbv)	Concentration (µg/m³)
NOx	1	N/A	N/A	Maximum	146.9	295.2	63.9	129.1
				Minimum	0.0	0.0	0.0	0.0
				Mean (October)	9.8	19.4	7.1	13.9
				Mean (November)	8.2	16.7	8.5	17.2
				Mean (December)	10.3	21.4	13.3	27.9
				Mean (Period)	9.4	19.2	9.6	19.6
				Standard Deviation	13.1	26.7	8.1	16.6
				# of Exceedances	N/A	N/A	N/A	N/A
	24	N/A	N/A	Maximum	39.4	80.9	35.5	74.9
				Minimum	1.0	2.0	0.2	0.3
				Mean (October)	9.7	19.2	6.9	13.5
				Mean (November)	8.2	16.7	8.3	16.8
				Mean (December)	10.3	21.5	13.4	28.0
				Mean (Period)	9.4	19.2	9.6	19.5
				Standard Deviation	7.2	14.8	5.5	11.6
				# 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.

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/m³ and 275 µg/m³) 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 October to December 2017 were 84.6 and 16.0 ppb (234 and 44.6 µg/m³) respectively, which are 33.8% and 16.0% 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 7.9 and 1.8 ppb (21.4 and 5.0 µg/m³) respectively, which are 3.2% and 1.8% of the applicable 1-hour and 24-hour Ontario AAQCs.

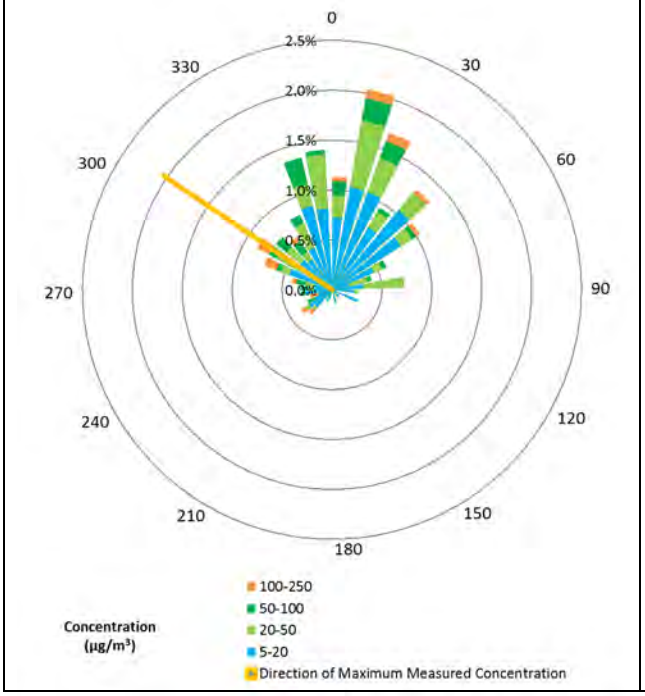
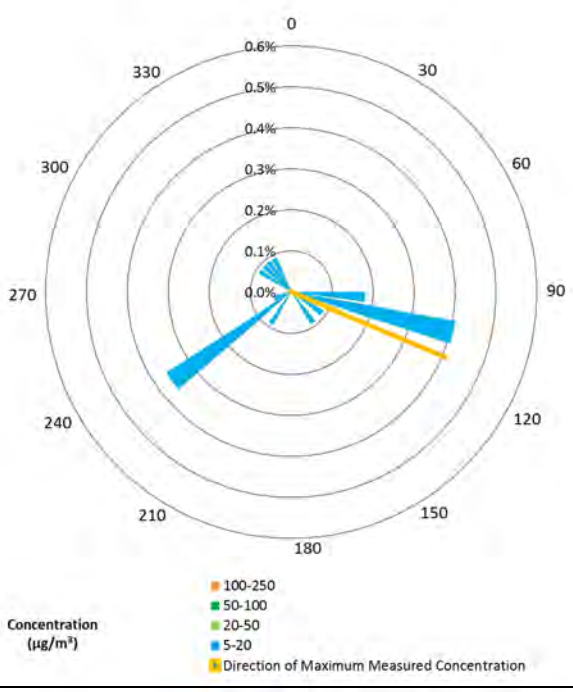
Pollution roses of hourly average SO_2 concentrations measured at the Courtice WPCP Station and Rundle Road Station are presented in **Figure 4-3**. The pollution rose plots present measured hourly average contaminant concentrations versus measured wind direction (over 10° wind sectors). Concentrations less than 5 µg/m³, which account for 79% of the measurements at the Courtice WPCP and 98% 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 northwesterly and northeasterly directions. For the Rundle Road Station, higher hourly concentrations occurred for east-southeasterly and southwesterly winds.

The maximum hourly SO_2 concentration measured at the Courtice WPCP was 84.6 ppb (233.6 µg/m³) and occurred on October 18, 2017 at 3:00. During this time, winds were blowing from the northwest for which the CN railway is upwind. The maximum hourly SO_2 concentration measured at the Rundle Road Station occurred on October 27, 2017 at 13:00, measuring 7.9 ppb (21.4 µg/m³). During this time, winds were blowing from the east for which a CP railroad and Highway 401 were upwind.

The maximum 24-hour average SO_2 concentration at the Courtice WPCP station was 16.0 ppb (44.6 µg/m³) and occurred on October 2, 2017. The wind direction during the 24-hour measurement was blowing from the north-northwest for which a CP railroad and Highway 401 are upwind. The maximum 24-hour average SO_2 concentration at the Rundle Road Station was 1.8 ppb (5.0 µg/m³) and occurred on October 28, 2017. The wind direction during the 24-hour measurement at the Rundle Road Station was from the southeast for which a CP railroad and local roads were generally upwind of the station.

Figure 4-3 Pollution Roses of Measured Hourly Average SO_2 Concentrations – October to December 2017

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

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/m³ and 200 µg/m³)

are shown with blue lines on the respective plot. 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 37.3 and 26.4 ppb (79.2 and 55.8 µg/m³) respectively, which are 18.7% and 26.4% 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 42.9 and 30.5 ppb (90.8 and 64.5 µg/m³), which are 21.4% and 30.5% 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 µg/m³, which account for 54% of the measurements at the Courtice WPCP Station and 40% 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 directions. For the Rundle Road Station, higher measured hourly average concentrations occurred for winds blowing from the southwest and from the northeast.

The maximum measured hourly average NO_2 concentration at the Courtice WPCP was 37.3 ppb (79.2 µg/m³) on December 14, 2017 at 22:00. During this hour, the wind at the Courtice WPCP Station was blowing from the northwest, for which Highway 401 and the CN Railroad were upwind. The measured hourly average NO_2 concentration at the MOECC Oshawa Station in the same hour was 11 ppb which is lower than that at the Courtice WPCP Station, suggesting the elevated hourly average concentration was due to local emissions sources.

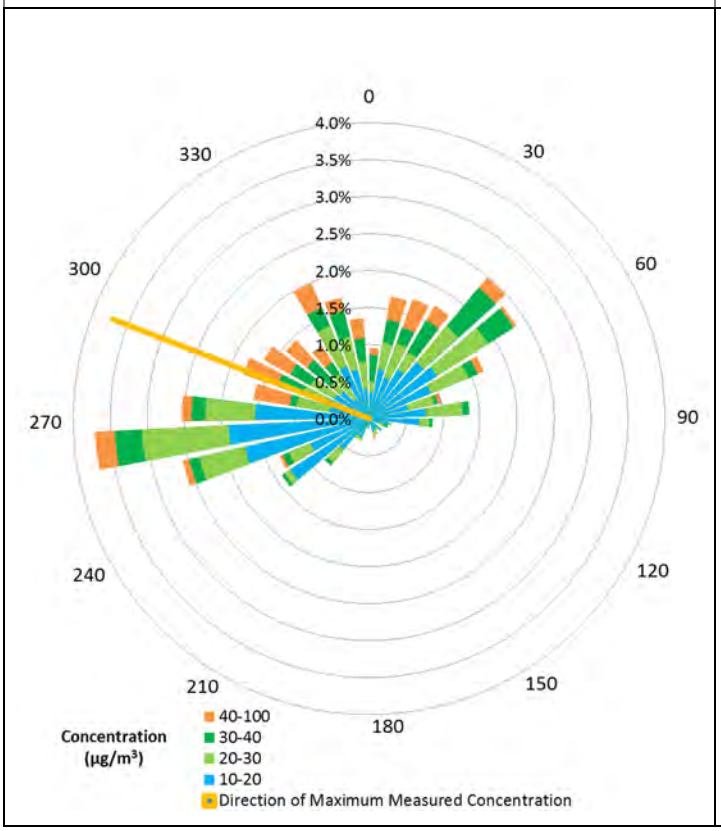
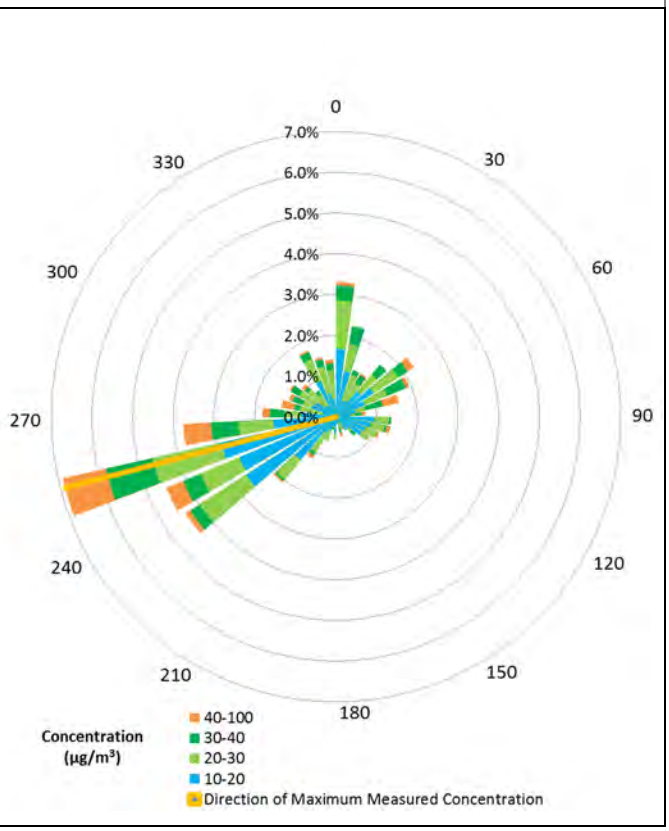
The maximum measured hourly average NO_2 concentration at the Rundle Road Station was 42.9 ppb (90.8 µg/m³) on December 14, 2017 at 20:00, at which time winds were blowing from the west-southwest. A CP railroad, Highway 401 and Highway 418 construction areas were upwind of the Rundle Road Station for this direction. At the same time, the measured NO_2 concentration at the MOECC Oshawa Station was 12 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 of 26.4 ppb (55.8 µg/m³) occurred on December 15, 2017. The wind direction during this measurement was from the west for which Highway 401 was upwind.

The maximum measured 24-hour average NO_2 concentration of 30.5 ppb (64.5 µg/m³) at the Rundle Road Station also occurred on December 15, 2017. Winds were from the west for which a CP railroad, Highway 401 and Highway 418 construction activities are upwind. The measured 24-hour NO_2 concentration at the MOECC Oshawa Station for the same day was 25 ppb which is similar to the Courtice WPCP and Rundle Road Stations, suggesting the elevated 24-hour concentrations were due to regional emission sources.

The maximum measured hourly and 24-hour average NO_2 concentrations of 39 ppb and 25 ppb respectively at the MOECC 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 – October to December 2017

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.

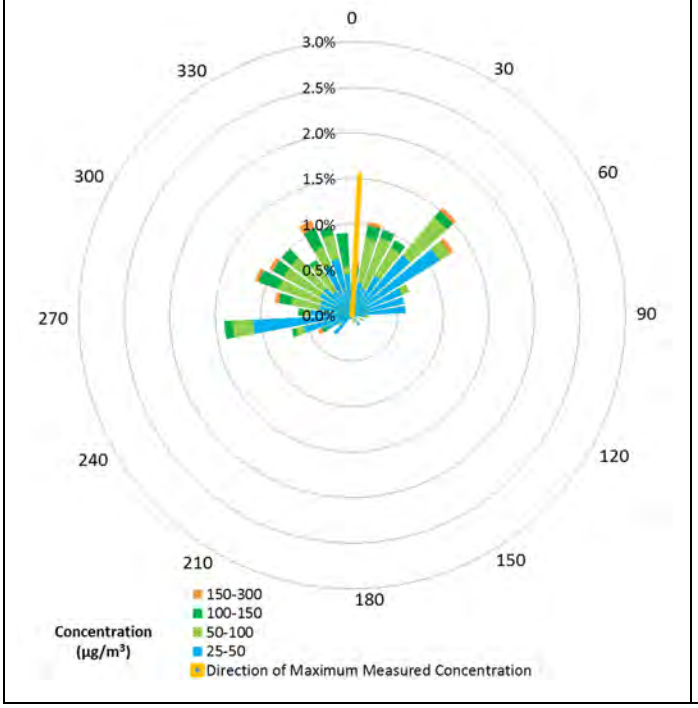
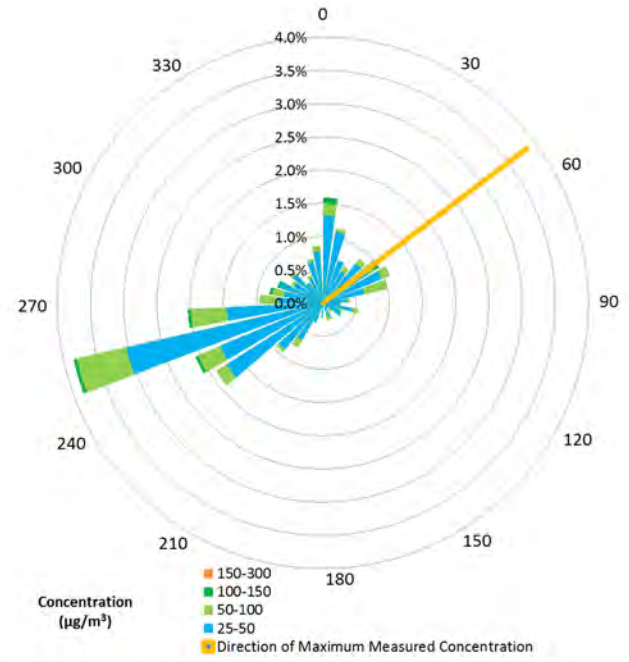
As shown in **Table 4-2**, the maximum hourly average NO_X concentration measured at the Courtice WPCP Station was 147 ppb (295 µg/m³) and the maximum 24-hour average NO_X concentration measured was 39.4 ppb (80.9 µg/m³). At the Rundle Road Station, the maximum hourly and 24-hour average concentrations measured during this quarter were 63.9 and 35.5 ppb (129 and 74.9 µg/m³).

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 25 µg/m³, which account for 75% and 70% 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 northerly directions. At the Rundle Road Station, higher measured hourly average concentrations occurred for southwesterly and northeasterly wind directions.

The maximum measured hourly average NOx concentration at the Courtice WPCP Station was and 147 ppb (295 µg/m³) and occurred on October 21, 2017 at 5:00. Winds were blowing from the north during this time, for which Highway 401 and local roads were upwind. The maximum measured hourly average NOx concentration at the Rundle Road Station was 63.9 ppb (129 µg/m³) and occurred on November 9, 2017 at 9:00. Winds at the Rundle Road Station were from the northeast for which local roads and agricultural activities were upwind.

The maximum measured 24-hour average NOx concentrations at the Courtice WPCP and Rundle Road Stations of 39.4 and 35.5 ppb (80.4 and 74.9 µg/m³) were observed on November 9 and December 15, 2017, respectively. Winds at the Courtice WPCP were from the west, to which local roads and Highway 401 were upwind. Winds at the Rundle Road Station were also from the west on December 15, to which a CN Railroad, local businesses and local roads were upwind.

Figure 4-5 Pollution Roses of Measured Hourly Average NO_X Concentrations – October to December 2017

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

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

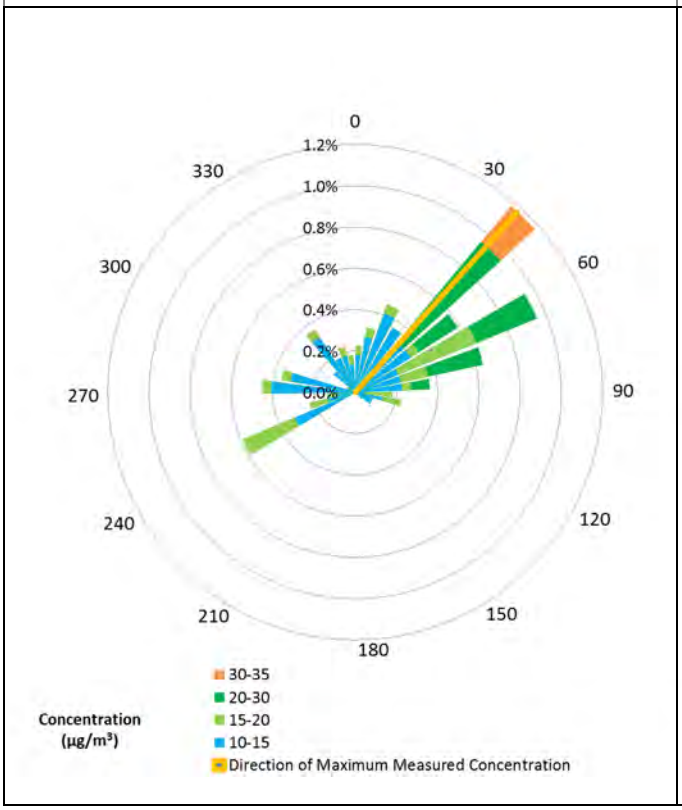
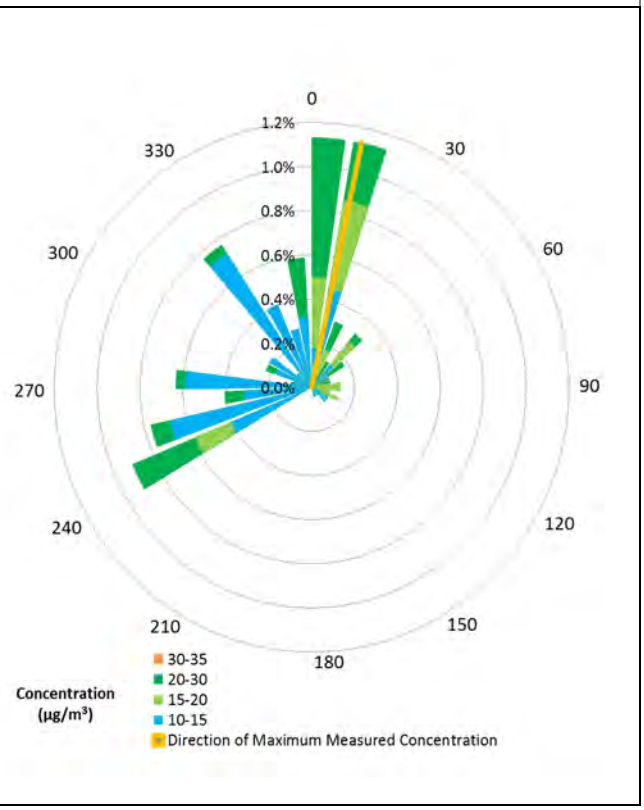
Data summaries and time history plots of measured 24-hour average concentrations are presented in **Appendix E** for $PM_{2.5}$ for the Courtice WPCP and Rundle Road Stations. The maximum measured 24-hour average $PM_{2.5}$ concentrations at the Courtice WPCP and the Rundle Road Stations were 30.9 µg/m³ and 27.6 µg/m³ 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/m³ (CAAQS) or 30 µg/m³ (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 2017 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/m³,

which account for 89% of the measurements at the Courtice WPCP Station and 90% 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 northeasterly winds at the Courtice WPCP Station, and northerly and southwesterly winds at the Rundle Road Station.

The maximum measured 24-hour average $PM_{2.5}$ concentrations at the Courtice WPCP and Rundle Road Stations occurred on December 4, 2017 measuring 30.9 and 27.6 µg/m^3 respectively. The maximum measured concentration at the Courtice WPCP Station occurred when winds were blowing from the northeast, for which Highway 401, local roads, and the DYEC are upwind. At the Rundle Road station, winds were blowing from the north-northeast, for which local roads and agricultural activities were upwind. The maximum measured 24-hour average $PM_{2.5}$ concentration at MOECC's Oshawa Station for Q4 was 26.5 µg/m^3 and was measured on the same day, suggesting that the measurements at the Rundle Road and Courtice WPCP Stations were influenced by regional emission sources.

Figure 4-6 Pollution Roses of Measured 24-Hour Average $PM_{2.5}$ Concentrations – October to December 2017

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 MOECC 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 one TSP measurement at the Rundle Road Station on November 27, 2017. The TSP concentration for this 24-hour sample was 94% above the applicable MOECC and HHRA criteria. The measured TSP concentrations at the Fenceline and Courtice WPCP Stations were not elevated on this day, suggesting a local emissions source may have been influencing the Rundle Road Station. Wind directions during this day were blowing from the west-northwest. The DYEC was not upwind of the Rundle Road Station for the wind direction and the continuous emissions monitoring system at the DYEC indicated opacity at 0% throughout this day from both boilers.

Photographs taken on November 22, 2017 and November 28, 2017 (one day after the sample collection day) indicated ongoing heavy truck traffic and idling along Rundle Road and dusty road conditions. The filter media had visibly heavier loading compared with the samples collected on the same day at the Courtice WPCP and Fenceline Stations. **Figure 3-3** provides a photograph of the truck traffic on November 28th and their proximity to the Rundle Road Station. A summary of the wind direction and potential source contributions for this measurement is presented in **Table 4-4.**

A notification of a potential exceedance was prepared by Stantec and submitted to the Region of Durham, York, MOECC, and the Medical Officer of Health, in accordance with Section 9 of the Ambient Air Quality Monitoring Plan (Stantec, 2012). 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 exceedance was heavy truck traffic on roads near the Rundle Road Station. The measured TSP concentration is not expected to have resulted in an adverse effect on human health or the environment.

Summary of Ambient Measurements
February 9, 2018

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

Contaminant	Units	MOECC 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/m³	120	120	42.2	12.7	0	232	20.2	1	59.2	15.6	0
Total Mercury (Hg)	µg/m³	2	2	3.62E-05	6.39E-06 A	0	4.85E-05	5.94E-06 A	0	4.19E-05	6.12E-06 A	0
Aluminum (Al)	µg/m³	4.8	-	1.49E-01	4.66E-02	0	1.08E+00	5.96E-02	0	3.29E-01	5.53E-02	0
Antimony (Sb)	µg/m³	25	25	3.73E-03 A	3.20E-03 A	0	3.69E-03 A	2.97E-03 A	0	3.49E-03 A	3.05E-03 A	0
Arsenic (As)	µg/m³	0.3	0.3	2.24E-03 A	1.92E-03 A	0	2.21E-03 A	1.78E-03 A	0	2.10E-03 A	1.83E-03 A	0
Barium (Ba)	µg/m³	10	10	1.84E-02	3.32E-03	0	3.20E-02	6.12E-03	0	2.61E-02	6.04E-03	0
Beryllium (Be)	µg/m³	0.01	0.01	3.73E-04 A	3.20E-04 A	0	3.69E-04 A	2.97E-04 A	0	3.49E-04 A	3.05E-04 A	0
Bismuth (Bi)	µg/m³	-	-	2.24E-03 A	1.92E-03 A	-	2.21E-03 A	1.78E-03 A	-	2.10E-03 A	1.83E-03 A	-
Boron (B)	µg/m³	120	-	4.26E-03	1.92E-03 A	0	4.22E-03	1.78E-03 A	0	5.71E-03	1.83E-03 A	0
Cadmium (Cd)	µg/m³	0.025	0.025	7.45E-04 A	6.39E-04 A	0	7.37E-04 A	5.94E-04 A	0	2.31E-03	6.10E-04 A	0
Chromium (Cr)	µg/m³	0.5	-	1.86E-03 A	1.60E-03 A	0	4.51E-03	1.49E-03 A	0	7.65E-03	1.53E-03 A	0
Cobalt (Co)	µg/m³	0.1	0.1	7.45E-04 A	6.39E-04 A	0	7.37E-04 A	5.94E-04 A	0	6.99E-04 A	6.10E-04 A	0
Copper (Cu)	µg/m³	50	-	5.22E-02	3.45E-03	0	5.51E-02	5.76E-03	0	3.75E-02	4.42E-03	0
Iron (Fe)	µg/m³	4	-	5.21E-01	1.32E-01	0	2.17E+00	2.28E-01	0	9.47E-01	2.15E-01	0
Lead (Pb)	µg/m³	0.5	0.5	1.09E-02	9.59E-04 A	0	1.30E-02	9.76E-04 A	0	8.66E-03	9.32E-04 A	0
Magnesium (Mg)	µg/m³	-	-	2.43E-01	5.84E-02	-	1.76E+00	9.76E-02	-	5.66E-01	8.52E-02	-
Manganese (Mn)	µg/m³	0.4	-	2.21E-02	4.16E-03	0	7.74E-02	6.31E-03	0	4.06E-02	8.20E-03	0
Molybdenum (Mo)	µg/m³	120	-	1.12E-03 A	9.59E-04 A	0	3.53E-03	9.55E-04 A	0	3.49E-03	9.19E-04 A	0
Nickel (Ni)	µg/m³	0.2	-	1.12E-03 A	9.59E-04 A	0	2.69E-03	8.91E-04 A	0	2.29E-03	9.16E-04 A	0
Phosphorus (P)	µg/m³	-	-	5.16E-02	7.99E-03 A	-	1.13E-01	8.67E-03 A	-	5.33E-02	8.73E-03 A	-
Selenium (Se)	µg/m³	10	10	3.73E-03 A	3.20E-03 A	0	3.69E-03 A	2.97E-03 A	0	3.49E-03 A	3.05E-03 A	0
Silver (Ag)	µg/m³	1	1	1.86E-03 A	1.60E-03 A	0	1.84E-03 A	1.49E-03 A	0	1.75E-03 A	1.53E-03 A	0
Strontium (Sr)	µg/m³	120	-	5.00E-03	1.36E-03	0	7.54E-02	3.58E-03	0	1.38E-02	2.38E-03	0
Thallium (Tl)	µg/m³	-	-	3.73E-03 A	3.20E-03 A	-	3.69E-03 A	2.97E-03 A	-	3.49E-03 A	3.05E-03 A	-
Tin (Sn)	µg/m³	10	10	3.73E-03 A	3.20E-03 A	0	3.69E-03 A	2.97E-03 A	0	3.49E-03 A	3.05E-03 A	0
Titanium (Ti)	µg/m³	120	-	9.59E-03	3.20E-03 A	0	6.46E-02	3.25E-03 A	0	2.08E-02	3.06E-03 A	0
Vanadium (V)	µg/m³	2	1	1.86E-03 A	1.60E-03 A	0	3.43E-03	1.49E-03 A	0	1.75E-03 A	1.53E-03 A	0
Zinc (Zn)	µg/m³	120	-	2.46E-01	1.35E-02	0	2.95E-01	1.10E-02	0	1.83E-01	1.07E-02	0
Zirconium (Zr)	µg/m³	20	-	1.86E-03 A	1.60E-03 A	0	1.84E-03 A	1.49E-03 A	0	1.75E-03 A	1.53E-03 A	0
Total Uranium (U)	µg/m³	1.5	-	1.68E-04 A	1.44E-04 A	0	1.66E-04 A	1.34E-04 A	0	1.57E-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 4 2017 TSP Exceedance

Date	Station	% above the MOECC TSP Criterion	Wind Direction (blowing from)	Potential Source Contributions
27-Nov-17	Rundle Road	96%	West-Northwesterly	Over the course of November 27th, the wind directionality varied from blowing from westerly to north-easterly directions with an average wind direction of north-northwesterly. The DYEC is not upwind of the Rundle Road Station for these wind directions. Heavy truck traffic next to the Rundle Road Station was observed before and after the sampling date. The truck traffic was expected to be the likely cause of the TSP exceedance.

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 MOECC AAQCs were below their applicable 24-hour criteria, with the exception of one (1) benzo(a)pyrene (B(a)P) measurement collected at the Courtice WPCP station on December 9 and two (2) B(a)P measurements collected at the Rundle Road Station on November 15 and December 9, 2017.

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 MOECC 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 B(a)P sample collected at the Courtice WPCP Station exceeded the Ontario AAQC by 15%. The B(a)P samples collected at the Rundle Road Station on November 15 and December 9, 2017 exceeded the Ontario AAQC by 50% and 120% respectively. The B(a)P samples were however, well below the MOECC Schedule 6 Upper Risk Threshold, the MOECC 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 4-5**.

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.

Summary of Ambient Measurements
February 9, 2018

Table 4-5 Summary of Measured Ambient PAH Concentrations

Contaminant	Units	MOECC 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/m³	0.05 [A] 5 [B] 1.1 [C]	1	5.77E-02	8.00E-03	1 0 0	1.10E-01	9.45E-03	2 0 0
1-Methylnaphthalene	ng/m³	12,000	-	6.73E+00	1.99E+00	0	9.51E+00	2.58E+00	0
2-Methylnaphthalene	ng/m³	10,000	-	1.14E+01	3.20E+00	0	1.77E+01	4.11E+00	0
Acenaphthene	ng/m³	-	-	3.86E+00	5.26E-01	-	8.49E+00	8.17E-01	-
Acenaphthylene	ng/m³	3,500	-	2.99E-01 [F]	6.83E-02 [F]	0	1.18E+00	7.22E-02 [F]	0
Anthracene	ng/m³	200	-	2.99E-01	6.83E-02 [F]	0	4.01E-01	7.14E-02 [F]	0
Benzo(a)anthracene	ng/m³	-	-	1.10E-01 [F]	6.83E-02 [F]	-	1.13E-01 [F]	7.14E-02 [F]	-
Benzo(a)fluorene	ng/m³	-	-	2.19E-01 [F]	1.37E-01 [F]	-	2.27E-01 [F]	1.43E-01 [F]	-
Benzo(b)fluoranthene	ng/m³	-	-	1.10E-01 [F]	6.83E-02 [F]	-	4.36E-01	7.14E-02 [F]	-
Benzo(b)fluorene	ng/m³	-	-	2.19E-01 [F]	1.37E-01 [F]	-	2.27E-01 [F]	1.43E-01 [F]	-
Benzo(e)pyrene	ng/m³	-	-	2.19E-01 [F]	1.37E-01 [F]	-	2.27E-01 [F]	1.43E-01 [F]	-
Benzo(g,h,i)perylene	ng/m³	-	-	1.10E-01 [F]	6.83E-02 [F]	-	1.13E-01 [A]	7.14E-02 [F]	-
Benzo(k)fluoranthene	ng/m³	-	-	1.10E-01 [F]	6.83E-02 [F]	-	1.13E-01 [A]	7.14E-02 [F]	-
Biphenyl	ng/m³	-	-	3.57E+00	1.07E+00	-	4.83E+00	1.28E+00	-
Chrysene	ng/m³	-	-	1.10E-01 [F]	6.83E-02 [F]	-	1.13E-01 [A]	7.14E-02 [F]	-
Dibenz(a,h)anthracene [D]	ng/m³	-	-	1.10E-01 [F]	6.83E-02 [F]	-	1.13E-01 [A]	7.14E-02 [F]	-
Dibenzo(a,c) anthracene + Picene [D]	ng/m³	-	-	2.19E-01 [F]	1.37E-01 [F]	-	2.27E-01 [A]	1.43E-01 [F]	-

Table 4-5 Summary of Measured Ambient PAH Concentrations

Contaminant	Units	MOECC Criteria	HHRA Health Based Criteria	Courtice WPCP (Predominately Upwind)			Rundle Road (Predominately Downwind)		
				Maximum	Minimum	No. of Exceedances	Maximum	Minimum	No. of Exceedances
Fluoranthene	ng/m³	-	-	9.92E-01	3.14E-01	-	2.07E+00	3.94E-01	-
Indeno (1,2,3-cd)pyrene	ng/m³	-	-	1.10E-01 [F]	6.83E-02 [F]	-	1.13E-01 [A]	7.14E-02 [F]	-
Naphthalene	ng/m³	22,500	22,500	3.16E+01	1.20E+01	0	5.09E+01	1.46E+01	0
o-Terphenyl	ng/m³	-	-	2.19E-01 [F]	1.37E-01 [F]	-	2.27E-01 [A]	1.43E-01 [F]	-
Perylene	ng/m³	-	-	2.19E-01 [F]	1.37E-01 [F]	-	2.27E-01 [A]	1.43E-01 [F]	-
Phenanthrene	ng/m³	-	-	4.54E+00	1.10E+00	-	1.01E+01	1.63E+00	-
Pyrene	ng/m³	-	-	5.12E-01	6.83E-02 [F]	-	8.97E-01	7.14E-02 [F]	-
Tetralin	ng/m³	-	-	2.27E+00	9.04E-01	-	1.95E+00	1.05E+00	-
Total PAH [E]	ng/m³	-	-	6.10E+01	2.30E+00	-	9.11E+01	3.00E+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 4 2017 B(a)P Exceedances

Date	Station	% above the MOECC B(a)P Criterion	Wind Direction (blowing from)	Potential Source Contributions
15-Nov-17	Rundle Road	50%	East-southeast	Highway 401, St. Mary's Cement, and the CN railroad are located upwind of the Rundle Road Station. Potential sources could be vehicle, locomotive, or other combustion exhaust emissions.
9-Dec-17	Courtice WPCP	15%	Northeast	Highway 401, local roads, the CN railroad are located upwind of the Courtice WPCP Station, as are agricultural and rural residential areas farther north. Potential sources could be vehicle or locomotive exhaust emissions, or agricultural activities.
	Rundle Road	120%	Northeast	Land use in this direction is mainly agricultural with some residences. Potential sources could be agricultural activities, a residence with a poorly controlled combustion source operating, or vehicle exhaust.

4.5 AMBIENT DIOXINS AND FURANS CONCENTRATIONS

A summary of the maximum and minimum ambient dioxins and furans concentrations (for a daily averaging period) are presented in **Table 4-6**. 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 4-6**).

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

Contaminant	Units	MOECC 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/m³			4.83E-03 A	3.70E-03 A		5.29E-03 A	4.36E-03 A	
1,2,3,7,8-Penta CDD	pg/m³			5.55E-03 A	4.41E-03 A		5.71E-03 A	4.65E-03 A	
1,2,3,4,7,8-Hexa CDD	pg/m³			5.41E-03 A	4.83E-03 A		1.02E-02	5.13E-03 A	
1,2,3,6,7,8-Hexa CDD	pg/m³			1.25E-02	4.97E-03 A		1.30E-02	1.08E-02	
1,2,3,7,8,9-Hexa CDD	pg/m³			1.83E-02	4.39E-03 A		1.80E-02	4.68E-03 A	
1,2,3,4,6,7,8-Hepta CDD	pg/m³			1.67E-01	1.05E-01		1.79E-01	1.17E-01	
Octa CDD	pg/m³			6.35E-01	1.38E-01 A		7.28E-01	3.14E-01	
Total Tetra CDD	pg/m³			4.83E-03 A	3.70E-03 A		5.29E-03 A	4.36E-03 A	
Total Penta CDD	pg/m³			6.82E-03 A	5.12E-03 A		7.27E-03 A	5.29E-03 A	
Total Hexa CDD	pg/m³			1.02E-01	5.74E-02		1.03E-01	5.80E-02	
Total Hepta CDD	pg/m³			3.57E-01	2.14E-01		3.72E-01	2.31E-01	
2,3,7,8-Tetra CDF **	pg/m³			1.36E-02	4.68E-03 A		1.77E-02	4.53E-03 A	
1,2,3,7,8-Penta CDF	pg/m³	-	-	5.13E-03 A	4.98E-03 A	N/A	5.29E-03 A	4.65E-03 A	N/A
2,3,4,7,8-Penta CDF	pg/m³			5.13E-03 A	4.98E-03 A		5.13E-03 A	4.65E-03 A	
1,2,3,4,7,8-Hexa CDF	pg/m³			4.53E-03 A	3.98E-03 A		1.08E-02	4.35E-03 A	
1,2,3,6,7,8-Hexa CDF	pg/m³			4.39E-03 A	3.84E-03 A		4.83E-03 A	4.07E-03 A	
2,3,4,6,7,8-Hexa CDF	pg/m³			4.97E-03 A	4.41E-03 A		5.44E-03 A	4.62E-03 A	
1,2,3,7,8,9-Hexa CDF	pg/m³			5.41E-03 A	4.30E-03 A		6.04E-03 A	4.62E-03 A	
1,2,3,4,6,7,8-Hepta CDF	pg/m³			3.22E-02	1.39E-02		2.03E-02	1.52E-02	
1,2,3,4,7,8,9-Hepta CDF	pg/m³			5.56E-03 A	4.58E-03 A		5.38E-03 A	4.35E-03 A	
Octa CDF	pg/m³			3.36E-02	1.68E-02		2.09E-02	1.81E-02 A	
Total Tetra CDF	pg/m³			1.36E-02	4.68E-03 A		1.77E-02	4.53E-03 A	
Total Penta CDF	pg/m³			1.76E-02	5.12E-03 A		1.80E-02	5.29E-03 A	
Total Hexa CDF	pg/m³			7.02E-03 A	4.16E-03 A		2.30E-02	9.52E-03	
Total Hepta CDF	pg/m³			4.91E-02	1.39E-02		2.03E-02	1.52E-02	
TOTAL TOXIC EQUIVALENCY B	pg TEQ/m³	0.1 1 C	-	1.90E-02	1.61E-02	0	1.98E-02	1.92E-02	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.

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 October to December 2017.

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 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 98th percentile level over 3 years, whereas the $PM_{2.5}$ measurement period at both stations for this quarterly report was three 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 MOECC air quality Standards, were below their applicable Standards (as presented in **Table 2-3** in this report) with the exception of one TSP measurement at the Rundle Road Station on November 27, 2017 which exceeded the applicable criteria by 94%. As required by the Ambient Air Quality Monitoring Plan, a written notice of exceedance was submitted to the Region of Durham, Region of York, MOECC, and the local Medical Officer of Health. Stantec's root cause analysis determined that the likely cause of the TSP exceedance was truck activity occurring adjacent to the Rundle Road Station.

4. The maximum measured concentrations of PAHs with MOECC air quality Standards were well below their applicable criteria shown in **Table 2-4**, with the exception of one (1) 24-hour benzo(a)pyrene (B(a)P) concentration measured on December 9, 2017 at the Courtice WPCP Station, and two (2) B(a)P concentrations measured on November 15 and December 9 at the Rundle Road Station. Measured concentrations of B(a)P exceeded the applicable Ontario Ambient Air Quality Criteria (AAQC) by between 15% and 120%. 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 MOECC Schedule 6 Upper Risk Threshold, the MOECC 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.**

Conclusions
February 9, 2018

In summary, the measured concentrations of the air contaminants monitored were below their applicable MOECC Standards during the October to December 2017 monitoring period, with the exception of benzo(a)pyrene and TSP. Furthermore, all measured levels of the monitored contaminants were below their applicable HHRA health-based criteria except for TSP.

6.0 REFERENCES

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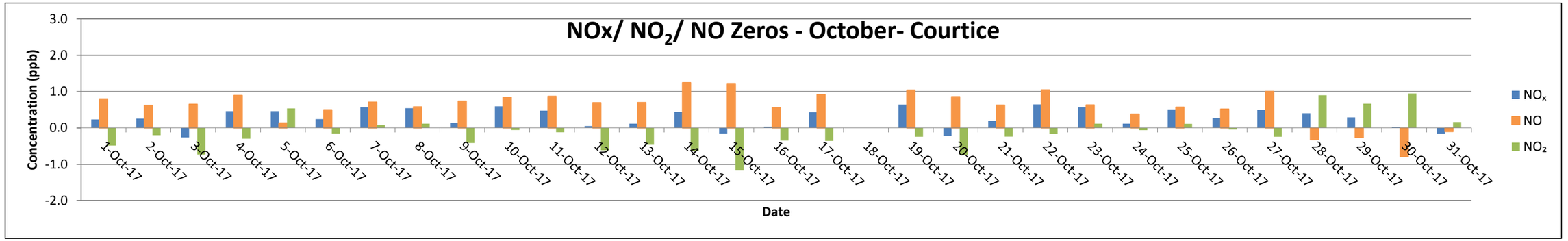
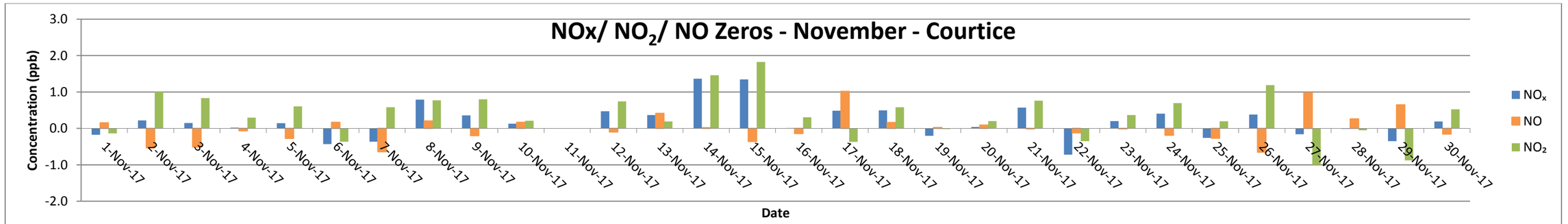
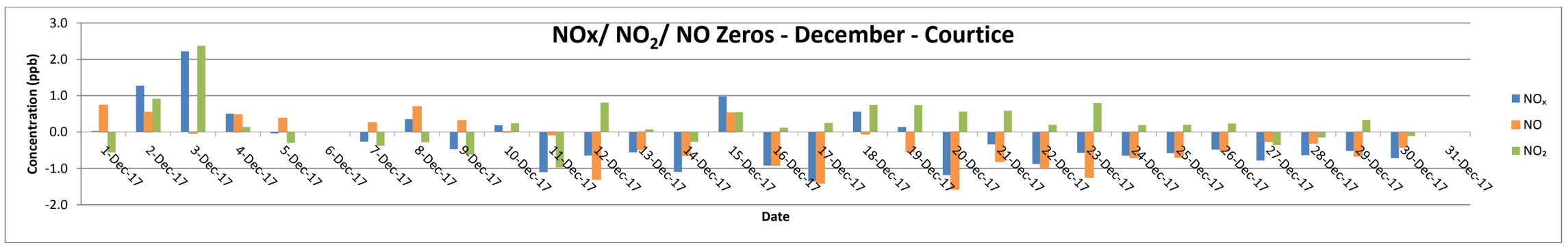
Appendix A SO_2 AND NO_X INSTRUMENT DAILY INTERNAL ZERO CALIBRATION SUMMARIES

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



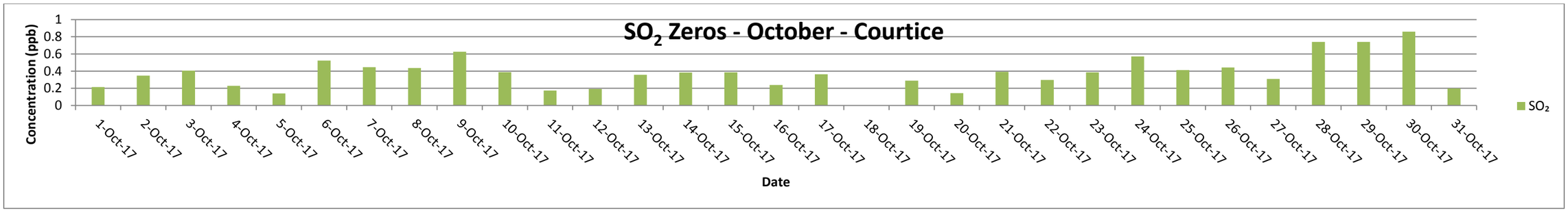


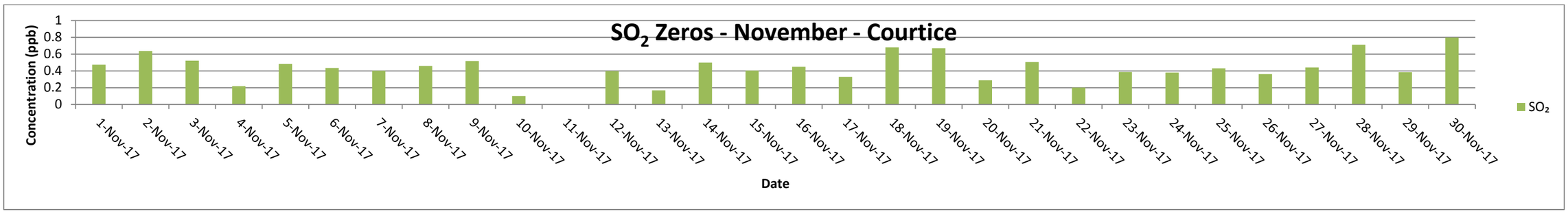


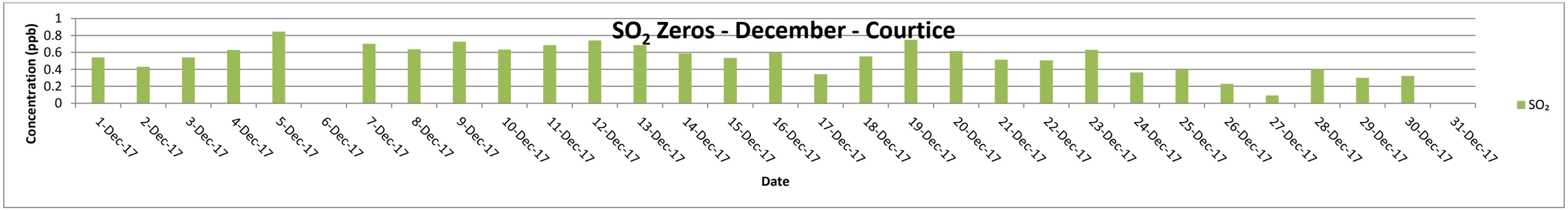
Notes:

- Auto-calibrations occur every 25 hours

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

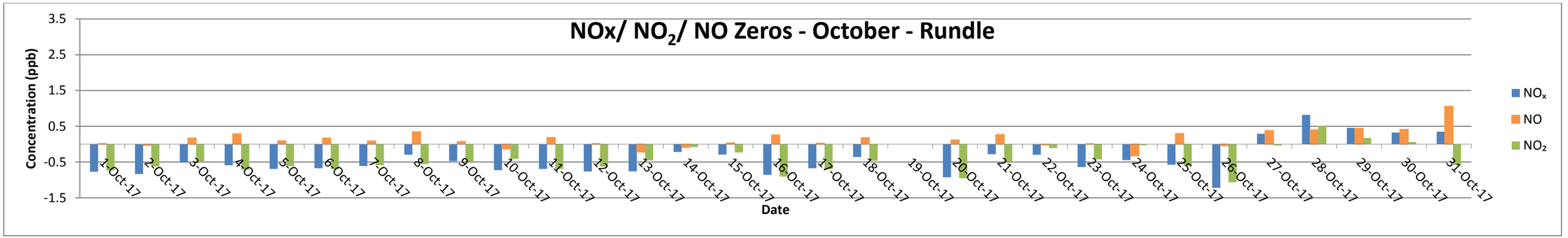


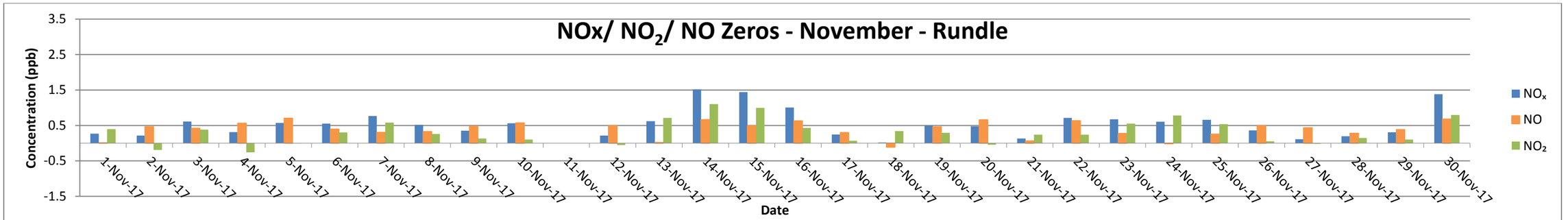


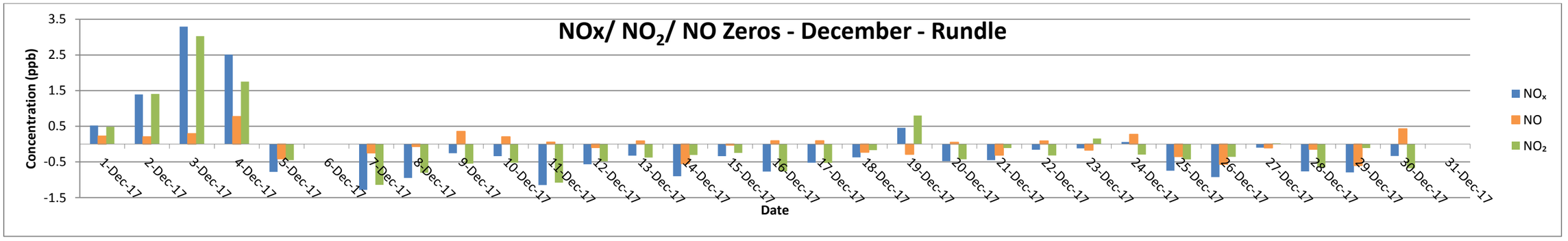


Notes:
Auto-calibrations occur every 25 hours.

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

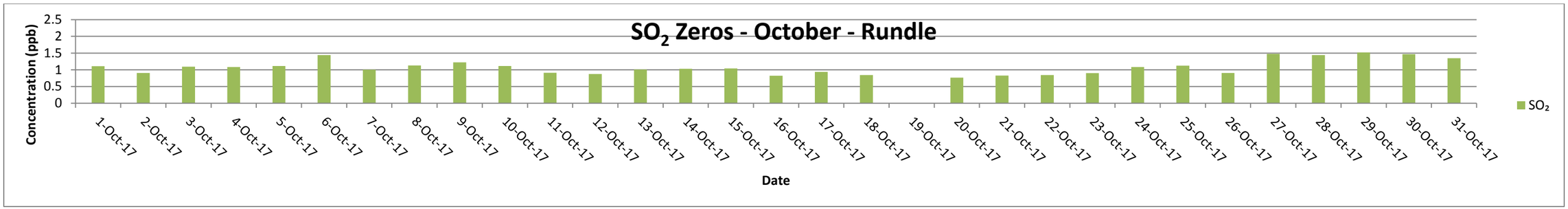


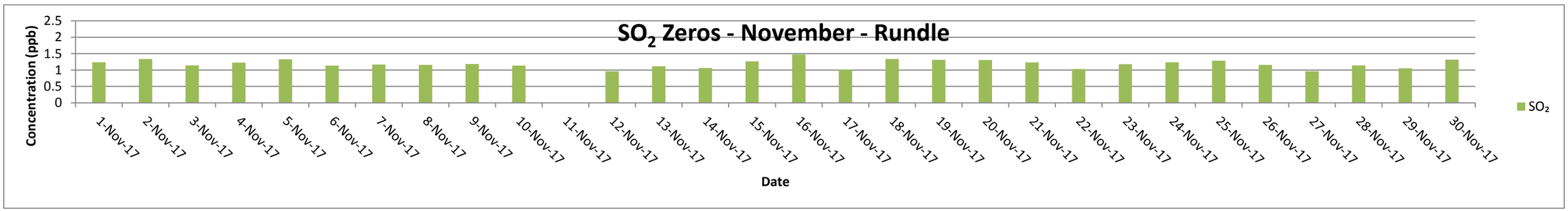


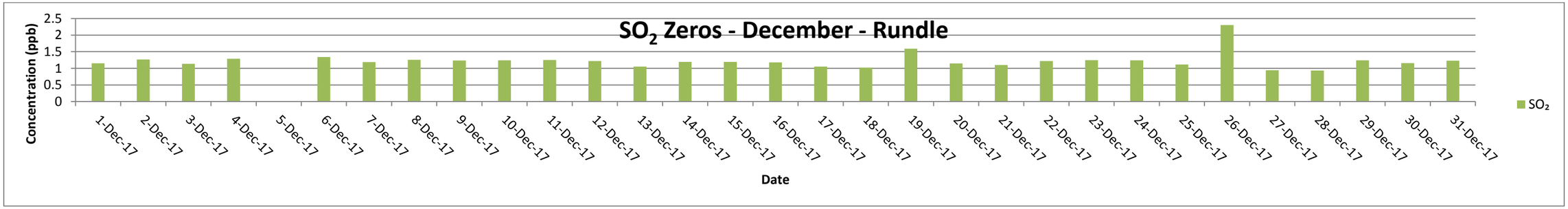


Notes:
- Auto-calibrations occur every 25 hours

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







Notes:

Auto-calibrations occur every 25 hours

Appendix B SO_2 DATA SUMMARIES AND TIME HISTORY PLOTS

SO_2 - COURTICE
October 2017
(ppb)

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>250	Days>100
1	6.3	4.2	2.1	4.3	0.3	5.8	13.6	2.6	2.8	4.8	3.8	2.5	1.2	0.7	0.4	0.5	0.5	0.3	42.1	28.8	14.4	29.8	28.1	11.8	24	42.1	0.3	8.8	0	0
2	30.3	27.5	14.1	27.7	38.3	27.1	28.2	18.9	2.3	1.2	0.9	0.5	0.4	0.3	0.3	0.2	0.1	0.2	0.6	0.3	0.5	1.8	0.6	2.8	24	38.3	0.1	9.4	0	0
3	1.6	1.0	1.5	0.5	9.4	5.3	8.0	11.8	2.0	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.2	2.7	5.2	6.2	7.9	1.5	24	11.8	0.2	2.9	0	0
4	9.6	4.5	1.1	0.8	0.6	0.6	0.5	0.4	0.5	0.6	0.6	0.6	0.4	0.4	0.3	0.3	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1	24	9.6	0.1	1.0	0	0
5	2.8	0.4	1.5	0.3	0.3	0.5	3.1	1.4	0.6	0.5	0.5	0.7	2.2	1.1	0.8	0.6	0.4	0.2	0.2	0.2	0.1	0.3	38.1	33.0	24	38.1	0.1	3.7	0	0
6	35.4	19.3	15.9	17.7	6.6	1.4	8.6	1.4	1.1	2.7	0.8	0.6	0.5	0.6	0.6	0.6	0.6	0.6	6.3	1.2	1.2	0.6	0.8	0.9	24	35.4	0.5	5.2	0	0
7	0.8	0.7	0.7	0.4	0.3	0.2	0.3	0.3	0.6	0.4	0.4	0.6	0.4	0.5	0.6	0.5	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	24	0.8	0.2	0.4	0	0
8	0.4	1.1	1.5	0.6	0.5	0.4	0.5	0.6	0.8	0.7	0.6	0.4	0.4	0.4	0.6	0.9	0.4	0.3	0.3	0.4	1.8	4.9	4.3	1.9	24	4.9	0.3	1.0	0	0
9	0.5	0.4	0.4	0.4	0.3	0.8	0.6	2.9	0.5	2.3	2.9	2.2	1.2	0.7	0.5	0.3	0.0	0.3	0.3	1.7	7.3	10.8	7.2	7.6	24	10.8	0.0	2.2	0	0
10	2.0	1.9	0.6	0.4	10.0	19.5	14.2	1.9	1.2	0.9	0.9	0.6	0.5	0.4	0.4	0.3	0.3	0.7	0.9	0.9	0.7	0.3	0.8	2.8	24	19.5	0.3	2.6	0	0
11	6.5	5.7	2.4	0.6	0.4	0.2	0.3	0.3	0.2	0.2	0.6	3.8	0.5	1.9	0.4	0.6	1.3	4.6	3.8	0.4	0.2	0.5	0.2	0.1	24	6.5	0.1	1.5	0	0
12	0.1	0.1	0.3	0.1	0.2	0.2	0.2	0.1	0.0	0.3	1.7	10.4	5.1	10.1	14.3	0.8	0.6	0.2	0.2	0.2	0.1	0.1	0.1	0.1	24	14.3	0.0	1.9	0	0
13	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.8	2.8	1.3	3.8	2.6	10.5	1.2	0.6	0.4	24	10.5	0.1	1.1	0	0
14	0.3	0.4	0.3	0.1	0.1	0.1	0.1	0.8	1.1	0.8	0.9	0.6	0.8	0.7	0.6	0.6	0.6	0.9	6.1	0.8	0.4	0.4	0.4	0.3	24	6.1	0.1	0.8	0	0
15	0.4	0.4	0.4	0.5	0.4	0.4	0.2	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.8	0.3	0.2	0.2	0.5	24	0.8	0.2	0.4	0	0
16	0.7	0.2	1.2	20.1	12.1	0.8	1.4	1.4	0.9	2.5	4.2	1.0	0.4	0.4	0.3	0.4	1.1	13.0	23.9	20.6	37.0	16.1	6.5	13.3	24	37.0	0.2	7.5	0	0
17	6.7	7.8	12.0	11.3	18.9	15.0	14.4	3.2	3.6	2.4	1.6	1.0	1.2	0.8	0.5	0.4	0.6	0.6	0.4	0.4	0.8	0.9	0.4	0.4	24	18.9	0.4	4.4	0	0
18	0.1	30.0	56.9	84.6	6.2	2.0	41.2	4.2	3.2	2.4	3.3	4.1	4.1	1.7	0.9	0.6	0.4	0.4	0.4	0.4	0.2	0.4	0.4	1.1	24	84.6	0.1	10.4	0	0
19	1.8	45.0	18.0	1.7	0.9	0.8	0.7	0.6	0.6	0.5	0.8	0.7	0.7	0.8	0.7	0.5	0.4	0.2	0.2	0.1	0.3	0.2	0.3	0.2	24	45.0	0.1	3.2	0	0
20	0.1	0.1	0.2	1.1	0.9	19.1	37.0	6.5	1.1	0.7	0.6	0.5	1.5	2.0	1.0	0.8	0.6	0.4	0.3	0.2	0.1	0.3	1.7	1.6	24	37.0	0.1	3.3	0	0
21	1.2	26.4	62.5	29.5	38.8	46.1	22.6	12.5	6.5	2.3	1.7	1.2	1.0	0.9	1.2	0.8	0.6	4.2	6.7	1.6	16.6	19.8	30.9	15.7	24	62.5	0.6	14.6	0	0
22	13.8	1.7	1.5	1.7	5.5	1.1	4.0	0.8	0.8	1.0	0.8	0.8	0.7	0.6	0.9	0.6	2.2	14.0	4.4	1.0	0.6	0.6	0.5	2.0	24	14.0	0.5	2.6	0	0
23	3.4	0.5	0.4	0.3	0.4	0.3	0.2	0.3	0.2	0.3	0.3	0.4	0.4	15.3	1.5	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.2	24	15.3	0.2	1.2	0	0
24	0.7	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.6	0.5	0.9	0.8	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.2	0.2	0.2	0.3	24	0.9	0.2	0.4	0	0
25	0.3	0.5	0.4	0.6	0.5	0.5	0.6	0.9	1.0	1.1	0.8	0.7	0.8	1.1	1.0	1.0	0.8	1.0	1.0	0.5	0.3	24.5	22.5	25.9	24	25.9	0.3	3.7	0	0
26	14.9	14.6	24.7	4.0	2.3	3.9	18.1	13.3	1.1	1.0	0.7	0.6	0.7	0.6	0.7	0.4	0.3	0.3	0.4	3.9	1.5	9.2	3.7	13.3	24	24.7	0.3	5.6	0	0
27	15.2	2.0	17.5	57.5	44.9	4.2	1.4	1.5	4.2	6.4	1.3	C	C	1.8	1.2	1.0	0.8	0.7	1.7	6.1	8.9	2.2	1.0	1.0	22	57.5	0.7	8.3	0	0
28	0.7	0.6	0.6	0.7	5.2	0.9	1.1	0.8	0.7	1.4	0.8	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.3	0.3	0.4	0.4	24	5.2	0.3	0.8	0	0
29	0.3	1.3	6.9	7.1	13.6	20.0	2.2	1.5	1.4	3.7	5.6	5.5	6.8	5.3	3.4	2.7	2.7	1.7	0.7	0.9	1.3	0.8	0.7	0.7	24	20.0	0.3	4.0	0	0
30	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.5	0.5	0.5	0.5	0.5	0.7	0.8	0.8	0.6	0.6	0.6	0.5	0.5	0.7	0.7	0.5	0.4	24	0.8	0.4	0.6	0	0
31	0.4	0.5	0.5	0.6	0.6	0.8	1.0	0.9	0.9	0.9	0.5	0.5	0.4	0.2	0.3	0.4	0.2	0.2	0.3	0.6	0.6	0.3	0.8	10.0	24	10.0	0.2	0.9	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	742					
Maximum	35.4	45.0	62.5	84.6	44.9	46.1	41.2	18.9	6.5	6.4	5.6	10.4	6.8	15.3	14.3	2.7	2.8	14.0	42.1	28.8	37.0	29.8	38.1	33.0	24					
Minimum	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.1	22					
Average	5.1	6.4	8.0	8.9	7.1	5.8	7.3	3.0	1.3	1.4	1.3	1.4	1.2	1.7	1.2	0.6	0.7	1.6	3.5	2.5	3.6	4.3	5.2	4.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.2	0.4	0.4	0.5	0.7	0.9	1.4	3.2	11.2	19.8	41.7	84.6

Maximum Hourly	84.6
Maximum Daily	14.6
Monthly Average	3.7

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

SO_2 - COURTICE
November 2017
(ppb)

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>250	Days>100
1	5.2	1.0	1.2	0.9	1.2	2.3	8.2	18.2	22.6	6.2	3.3	2.0	1.0	0.6	0.7	2.4	1.0	1.2	1.4	1.0	0.9	0.5	0.5	0.6	24	22.6	0.5	3.5	0	0
2	1.1	1.2	3.2	0.7	0.4	0.4	0.5	0.4	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.5	24	3.2	0.3	0.6	0	0
3	0.4	2.0	0.9	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.0	2.9	4.5	11.6	23.4	6.7	24	23.4	0.0	2.3	0	0
4	11.1	14.2	19.6	18.3	13.5	4.0	0.9	0.5	0.5	0.4	0.3	0.2	0.6	1.8	0.4	8.2	6.2	4.8	1.5	13.3	17.2	14.1	22.4	13.8	24	22.4	0.2	7.8	0	0
5	2.0	0.8	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	1.0	0.5	0.4	0.4	0.4	0.4	24	2.0	0.3	0.5	0	0
6	0.7	0.4	0.4	0.4	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.1	2.1	4.7	24	4.7	0.1	0.5	0	0
7	10.4	11.9	13.6	17.1	6.5	7.9	6.2	0.7	0.5	0.7	0.7	0.5	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.6	1.7	8.8	24	17.1	0.2	3.8	0	0
8	3.7	14.4	6.0	7.2	5.1	4.5	12.0	15.8	4.4	1.8	0.9	0.4	0.4	0.4	2.0	1.3	0.9	0.8	1.0	0.8	5.2	10.5	10.9	9.2	24	15.8	0.4	5.0	0	0
9	3.7	15.3	10.3	32.4	16.9	17.2	6.0	8.2	14.9	4.3	1.7	2.1	2.8	1.4	1.0	1.6	0.8	0.8	0.8	0.3	0.3	0.2	0.2	0.4	24	32.4	0.2	6.0	0	0
10	0.5	0.3	0.2	0.2	0.4	0.4	0.9	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0	24	0.9	0.0	0.2	0	0
11	3.0	5.6	4.8	5.5	8.3	9.6	11.1	7.7	2.6	0.2	0.2	0.1	0.2	0.3	1.0	0.2	0.0	0.0	0.0	0.2	0.5	0.5	0.6	0.2	24	11.1	0.0	2.6	0	0
12	3.7	6.0	2.1	4.8	3.9	6.0	5.0	0.6	1.0	1.9	0.6	0.4	0.4	0.4	0.6	1.0	1.1	2.2	1.6	1.1	1.0	1.1	10.1	13.3	24	13.3	0.4	2.9	0	0
13	2.1	1.1	1.1	0.6	3.3	7.9	10.9	5.4	6.2	6.0	3.1	5.3	2.0	1.1	0.7	0.9	1.0	1.0	1.0	18.8	16.0	16.3	8.6	10.3	24	18.8	0.6	5.4	0	0
14	2.2	10.6	3.2	11.7	9.7	4.1	9.8	8.9	6.9	6.1	1.2	1.2	1.1	1.2	1.1	1.1	1.1	1.0	0.8	0.7	1.1	8.4	5.3	4.3	24	11.7	0.7	4.3	0	0
15	2.6	5.6	1.8	1.4	0.7	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.7	0.5	0.5	0.4	0.8	0.5	0.5	0.6	0.7	24	5.6	0.3	0.9	0	0
16	0.6	0.5	0.6	0.6	0.4	0.4	0.5	0.4	0.4	0.4	0.6	0.4	0.6	0.4	0.5	0.5	0.6	0.5	0.3	0.1	0.2	0.1	0.2	0.1	24	0.6	0.1	0.4	0	0
17	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.3	0.1	0.1	0.2	0.4	0.3	0.3	0.3	0.2	0.4	0.3	0.4	24	0.4	0.0	0.2	0	0
18	0.4	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.7	0.6	0.6	0.5	0.5	0.8	0.6	0.6	0.4	0.5	0.5	0.9	2.4	4.3	3.1	24	4.3	0.3	0.9	0	0
19	0.7	0.7	0.7	0.6	0.5	0.5	0.7	0.5	0.4	0.5	0.6	0.6	0.7	0.7	0.5	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.3	24	0.7	0.2	0.5	0	0
20	0.2	0.4	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.4	0.4	0.5	0.6	0.6	0.5	0.6	0.6	0.5	0.5	0.4	0.3	0.3	0.4	0.4	24	0.6	0.2	0.4	0	0
21	0.4	0.5	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.6	0.7	0.6	0.6	0.7	0.7	0.5	0.5	0.7	0.6	0.6	0.5	0.3	0.2	0.2	24	0.7	0.2	0.5	0	0
22	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.4	0.4	0.6	0.6	0.4	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.1	0.0	4.3	2.4	6.4	24	6.4	0.0	0.8	0	0
23	4.4	11.5	6.9	6.2	5.8	7.5	5.3	0.9	1.4	2.5	1.5	0.8	0.6	0.8	1.0	0.7	0.6	0.5	0.4	0.4	0.6	0.8	1.2	1.0	24	11.5	0.4	2.6	0	0
24	1.3	1.5	1.4	1.6	1.9	2.3	2.4	1.9	1.3	1.1	1.0	0.7	0.8	1.3	1.1	0.9	0.8	0.7	0.6	8.5	2.6	1.0	0.9	0.9	24	8.5	0.6	1.6	0	0
25	1.6	6.0	0.9	0.8	0.7	0.7	1.0	0.7	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	24	6.0	0.2	0.7	0	0
26	0.2	0.2	0.2	0.2	0.4	0.2	0.3	0.8	0.4	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.4	1.7	1.2	0.9	0.8	0.7	0.7	24	1.7	0.1	0.4	0	0
27	0.6	0.3	0.2	0.2	0.2	0.3	0.2	0.4	0.3	0.4	0.4	0.3	0.4	C	C	1.3	2.7	1.7	0.8	0.7	1.2	1.1	1.5	0.9	22	2.7	0.2	0.7	0	0
28	1.5	3.0	1.6	0.6	0.7	0.6	0.8	0.7	0.9	1.0	1.1	1.2	1.0	0.8	0.8	0.9	0.8	0.6	0.6	0.6	0.7	0.6	0.9	0.8	24	3.0	0.6	0.9	0	0
29	0.8	0.5	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	1.1	1.8	1.5	0.8	1.2	3.6	0.8	0.9	24	3.6	0.3	0.8	0	0
30	1.3	1.3	0.5	0.4	0.5	0.6	0.4	0.4	0.6	0.7	0.7	0.8	0.9	0.9	1.5	0.9	0.9	0.9	0.9	0.8	0.9	1.0	0.8	0.6	24	1.5	0.4	0.8	0	0
31																													0	0
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	718					
Maximum	11.1	15.3	19.6	32.4	16.9	17.2	12.0	18.2	22.6	6.2	3.3	5.3	2.8	1.8	2.0	8.2	6.2	4.8	1.7	18.8	17.2	16.3	23.4	13.8	24					
Minimum	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	22					
Average	2.2	3.9	2.8	3.8	2.8	2.7	2.9	2.6	2.3	1.3	0.8	0.7	0.6	0.6	0.6	0.9	0.8	0.8	0.7	1.9	2.0	2.8	3.4	3.0						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.2	0.3	0.4	0.5	0.6	0.7	1.0	1.8	6.0	10.5	18.0	32.4

Maximum Hourly	32.4
Maximum Daily	7.8
Monthly Average	2.0

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

SO_2 - COURTICE
December 2017
(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	0.5	0.5	0.5	0.5	0.4	0.4	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.5	7.0	4.1	4.0	1.6	2.5	1.1	24	7.0	0.3	1.2	0	0
2	2.7	0.9	0.7	1.1	1.8	1.6	2.6	0.8	0.8	1.2	1.1	1.0	0.9	0.9	1.1	0.9	1.0	1.3	20.6	4.3	3.0	2.5	1.6	2.1	24	20.6	0.7	2.4	0	0
3	1.9	2.5	1.6	1.7	4.6	1.8	2.2	1.0	0.9	1.7	0.9	0.8	0.9	1.9	3.1	3.1	3.1	2.0	1.8	4.3	1.5	2.5	3.3	7.1	24	7.1	0.8	2.3	0	0
4	1.9	4.7	0.7	2.6	1.7	3.8	0.8	2.0	0.9	0.8	0.6	0.8	1.0	0.6	0.5	0.9	0.7	0.8	0.8	0.9	1.1	1.2	1.1	1.1	24	4.7	0.5	1.3	0	0
5	1.0	1.0	0.9	0.9	0.7	0.7	0.8	0.7	0.6	0.6	0.7	0.8	0.9	1.0	0.8	0.6	0.6	0.7	1.1	0.8	0.8	0.8	0.7	0.8	24	1.1	0.6	0.8	0	0
6	0.9	0.7	0.8	0.7	0.7	0.6	0.8	0.7	0.7	0.6	0.7	0.6	0.6	0.7	0.8	0.6	0.6	0.6	0.7	0.8	0.8	0.5	0.5	0.5	24	0.9	0.5	0.7	0	0
7	0.4	0.4	0.5	0.6	0.5	0.5	0.7	0.7	0.5	0.5	0.9	0.6	4.5	20.7	0.6	0.6	0.5	0.7	0.8	1.0	0.8	0.6	0.8	0.7	24	20.7	0.4	1.6	0	0
8	0.6	0.8	0.8	0.8	0.6	0.6	0.8	0.7	0.6	0.6	0.5	0.7	0.7	0.5	0.6	0.6	0.5	0.8	0.6	0.6	0.7	0.9	1.5	2.0	24	2.0	0.5	0.8	0	0
9	1.8	1.6	1.5	2.2	4.5	20.1	3.3	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.1	1.6	1.7	1.7	1.2	0.8	24	20.1	0.7	2.2	0	0
10	0.6	0.6	0.6	0.6	0.1	0.5	0.6	0.5	0.4	0.4	0.5	0.6	0.6	0.7	0.9	0.7	0.6	0.6	0.7	0.9	0.8	0.8	1.0	1.5	24	1.5	0.1	0.7	0	0
11	2.1	1.2	1.3	1.1	0.8	0.5	0.5	0.6	0.7	1.0	1.7	1.8	0.7	0.7	1.1	0.6	0.6	0.4	0.5	0.6	2.7	0.7	0.7	0.6	24	2.7	0.4	1.0	0	0
12	0.6	0.7	0.6	0.6	0.6	1.0	1.3	1.4	0.8	0.6	1.0	A	0.7	1.0	1.3	1.4	1.2	1.1	1.0	0.9	0.9	0.7	0.6	0.6	23	1.4	0.6	0.9	0	0
13	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.5	0.6	0.5	0.5	0.6	0.6	0.6	0.6	1.9	2.3	2.3	2.1	4.7	2.3	24	4.7	0.4	1.1	0	0
14	3.3	3.2	2.8	0.9	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.8	1.2	1.0	0.3	0.3	0.4	0.7	0.9	1.0	0.8	0.8	24	3.3	0.3	0.9	0	0
15	0.8	0.8	1.7	1.4	0.9	0.7	1.0	1.2	1.6	1.9	1.9	1.5	1.2	1.1	1.1	1.0	0.9	1.1	1.2	1.2	0.9	0.8	1.0	1.2	24	1.9	0.7	1.2	0	0
16	0.8	0.9	0.6	0.7	0.7	0.6	0.5	0.5	0.7	0.6	0.4	0.4	0.5	0.4	0.0	0.2	1.2	0.5	2.0	1.6	5.1	6.6	1.1	0.5	24	6.6	0.0	1.1	0	0
17	0.9	0.5	0.6	0.4	1.9	1.3	1.0	0.9	0.2	0.5	1.4	1.1	2.0	9.1	2.8	0.8	0.6	0.4	0.3	0.5	0.7	0.4	0.3	0.4	24	9.1	0.2	1.2	0	0
18	0.4	0.3	0.4	1.7	0.6	1.6	1.2	1.1	1.2	0.8	1.9	2.3	5.1	3.8	1.6	4.5	5.8	5.7	4.2	0.9	0.9	1.0	1.2	1.1	24	5.8	0.3	2.1	0	0
19	1.1	1.2	1.1	1.1	1.3	1.0	0.9	1.0	0.9	0.9	0.9	0.8	0.8	0.9	0.9	1.1	0.8	0.8	1.0	0.8	1.0	1.0	0.6	0.7	24	1.3	0.6	0.9	0	0
20	0.5	0.6	0.5	0.5	0.4	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	2.2	0.7	3.9	24	3.9	0.3	0.6	0	0
21	6.4	3.7	4.8	3.3	3.0	6.8	4.3	4.4	0.6	0.7	1.1	1.2	1.2	0.9	1.0	6.6	1.3	0.5	0.4	0.4	0.5	0.5	0.4	0.3	24	6.8	0.3	2.3	0	0
22	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.7	0.8	1.5	2.0	3.3	3.4	1.0	0.7	0.3	0.4	0.5	24	3.4	0.3	0.8	0	0
23	1.1	1.3	2.8	2.9	4.4	2.7	1.2	0.8	0.5	0.7	1.9	1.5	0.6	0.6	0.6	0.6	0.6	1.0	1.0	0.7	0.9	0.7	0.7	0.7	24	4.4	0.5	1.3	0	0
24	1.0	1.0	0.7	0.4	0.4	0.6	0.6	1.6	6.6	2.9	1.6	0.5	1.6	1.7	1.0	3.4	1.9	0.5	0.4	0.4	0.4	0.4	0.5	0.4	24	6.6	0.4	1.3	0	0
25	0.6	0.5	0.9	0.6	0.6	0.6	0.5	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	24	0.9	0.3	0.4	0	0
26	0.4	0.4	0.4	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	24	0.4	0.1	0.2	0	0
27	0.2	0.1	0.1	0.1	0.1	0.1	1.1	0.8	0.6	0.2	0.3	0.5	0.8	1.1	1.0	1.0	0.5	0.3	0.6	0.9	0.5	0.2	0.1	0.1	24	1.1	0.1	0.5	0	0
28	0.0	0.0	0.5	0.8	1.0	0.9	0.9	0.7	0.4	0.4	2.6	2.0	1.9	2.7	2.7	3.7	7.2	7.6	5.1	2.2	1.1	0.9	2.4	1.9	24	7.6	0.0	2.1	0	0
29	2.6	1.5	0.4	0.8	0.6	0.5	0.6	0.3	0.7	0.9	0.6	0.6	0.4	0.9	3.7	2.5	0.6	1.3	0.8	0.9	0.7	0.3	0.3	0.5	24	3.7	0.3	1.0	0	0
30	0.4	0.4	0.4	0.4	0.6	0.6	0.6	0.7	0.8	1.0	1.1	0.8	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.1	0.2	24	1.1	0.1	0.5	0	0
31	0.0	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	24	0.3	0.0	0.1	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	743					
Maximum	6.4	4.7	4.8	3.3	4.6	20.1	4.3	4.4	6.6	2.9	2.6	2.3	5.1	20.7	3.7	6.6	7.2	7.6	20.6	4.3	5.1	6.6	4.7	7.1	24					
Minimum	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	23					
Average	1.2	1.1	1.0	1.0	1.1	1.7	1.0	0.9	0.8	0.8	0.9	0.8	1.0	1.8	1.0	1.3	1.2	1.2	2.0	1.2	1.2	1.1	1.0	1.1						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.3	0.4	0.5	0.6	0.7	0.8	1.0	1.3	2.3	3.7	6.9	20.7

Maximum Hourly	20.7
Maximum Daily	2.4
Monthly Average	1.1

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
October 2017
(ppb)

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>250	Days>100
1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	1.5	2.5	2.1	2.0	1.2	0.8	0.5	0.6	0.7	0.5	0.3	0.3	0.2	0.2	0.2	0.2	24	2.5	0.1	0.6	0	0
2	0.2	0.2	0.3	0.2	0.3	0.1	0.3	0.3	0.4	0.7	0.8	1.4	0.6	1.3	0.5	0.3	0.4	0.3	0.3	0.3	0.4	0.2	0.2	0.2	24	1.4	0.1	0.4	0	0
3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.9	0.3	0.2	0.2	0.3	0.3	0.3	24	0.9	0.1	0.3	0	0
4	0.2	0.4	0.5	0.4	0.4	0.5	0.6	0.4	0.6	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	24	0.7	0.2	0.5	0	0
5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.7	1.6	1.1	0.9	0.7	0.7	0.5	0.3	0.3	0.3	0.3	0.4	0.3	24	1.6	0.3	0.5	0	0
6	0.3	0.0	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.7	0.9	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.9	24	0.9	0.0	0.5	0	0
7	0.5	0.7	0.6	0.5	0.7	0.5	0.4	0.5	0.4	0.5	0.6	2.4	1.9	2.2	1.2	1.0	0.8	0.6	0.7	0.7	0.7	0.7	0.8	0.6	24	2.4	0.4	0.8	0	0
8	0.7	0.7	0.6	0.7	0.7	0.5	0.6	0.7	0.8	0.7	0.7	0.6	0.5	0.7	0.9	1.0	0.5	0.5	0.6	0.4	0.4	0.5	0.5	0.5	24	1.0	0.4	0.6	0	0
9	0.4	0.4	0.5	0.7	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.4	0.3	0.3	24	0.7	0.3	0.5	0	0
10	0.3	0.3	0.3	0.3	0.3	0.4	0.8	0.6	0.4	0.5	0.6	0.6	0.6	0.4	0.3	0.3	0.4	0.5	0.6	0.5	0.5	0.4	0.3	0.2	24	0.8	0.2	0.4	0	0
11	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	24	0.3	0.0	0.1	0	0
12	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	1.1	1.8	0.2	0.2	0.2	24	1.8	0.0	0.2	0	0
13	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.2	2.1	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	24	2.1	0.0	0.3	0	0
14	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.4	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	24	0.7	0.1	0.3	0	0
15	0.3	1.1	3.8	0.8	0.6	0.5	0.6	0.6	0.6	0.7	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.4	0.4	0.6	0.4	0.3	0.2	0.2	24	3.8	0.2	0.7	0	0
16	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	0.3	0.0	0.1	0	0
17	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.8	1.0	0.7	0.6	0.8	0.6	0.4	0.3	0.3	0.4	0.3	0.3	1.1	0.8	0.8	0.4	24	1.1	0.0	0.4	0	0
18	0.3	0.3	0.2	0.2	0.3	0.6	0.7	0.8	1.5	1.8	2.6	3.5	3.9	1.8	0.9	0.7	0.5	0.3	0.4	0.4	0.2	0.3	0.3	0.4	24	3.9	0.2	1.0	0	0
19	0.4	0.2	0.4	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.7	0.8	0.8	0.8	0.7	0.5	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.2	24	0.8	0.1	0.4	0	0
20	0.1	0.3	0.2	0.3	0.1	0.1	0.1	0.1	0.2	0.6	0.4	0.4	1.5	1.6	0.8	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.6	24	1.6	0.1	0.4	0	0
21	0.7	0.4	0.4	0.3	0.1	0.1	0.1	0.2	1.1	2.8	2.3	0.8	0.8	1.0	1.0	0.9	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.3	24	2.8	0.1	0.6	0	0
22	0.2	0.4	0.4	0.2	0.2	0.2	0.1	0.2	0.3	0.5	1.0	1.2	0.9	0.7	0.6	0.4	0.4	0.7	0.7	0.5	0.4	0.5	0.4	0.3	24	1.2	0.1	0.5	0	0
23	0.3	0.2	0.3	0.2	0.2	0.0	0.2	0.2	0.4	0.3	0.3	0.3	0.3	0.3	1.4	1.0	2.5	0.7	0.5	1.3	0.7	1.9	3.4	1.6	24	3.4	0.0	0.8	0	0
24	0.6	0.4	0.5	0.5	0.6	0.6	0.4	0.3	0.5	0.6	0.8	0.8	0.6	0.5	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	24	0.8	0.3	0.5	0	0
25	0.3	0.4	0.3	0.5	0.5	0.5	0.6	0.7	0.8	1.0	0.8	0.6	0.7	1.1	1.0	0.9	0.8	0.9	0.8	0.5	0.3	0.2	0.3	0.3	24	1.1	0.2	0.6	0	0
26	0.2	0.2	0.2	0.1	0.1	0.1	0.4	0.2	0.1	0.2	0.3	C	C	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.1	22	1.1	0.1	0.5	0	0
27	1.1	0.9	0.9	0.8	0.7	0.6	0.7	0.7	0.8	0.8	1.1	1.4	3.3	7.9	4.9	4.9	1.6	1.1	1.0	1.0	0.9	0.9	1.1	1.1	24	7.9	0.6	1.7	0	0
28	1.1	1.1	1.1	0.9	1.2	1.0	1.2	1.1	1.1	1.7	1.4	1.1	1.0	0.8	0.7	0.8	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	24	1.7	0.7	1.0	0	0
29	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.9	0.9	0.9	0.9	24	0.9	0.7	0.8	0	0
30	1.0	0.9	1.1	1.1	1.1	1.0	1.1	1.0	1.0	1.0	0.9	0.9	1.1	1.1	1.1	1.1	1.0	1.0	1.0	0.9	1.0	1.1	1.0	0.9	24	1.1	0.9	1.0	0	0
31	0.9	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.1	0.9	0.8	0.8	0.8	0.7	0.6	0.6	0.6	1.0	1.3	0.9	1.0	1.0	24	1.4	0.6	1.0	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	742					
Maximum	1.1	1.1	3.8	1.1	1.2	1.1	1.2	1.2	1.5	2.8	2.6	3.5	3.9	7.9	4.9	4.9	2.5	1.1	1.0	1.3	1.8	1.9	3.4	1.6	24					
Minimum	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	22					
Average	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.6	0.8	0.8	0.9	0.9	1.1	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.1	0.2	0.3	0.4	0.4	0.6	0.7	0.8	1.1	1.3	3.1	7.9

Maximum Hourly	7.9
Maximum Daily	1.7
Monthly Average	0.6

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
November 2017
(ppb)

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>250	Days>100
1	0.9	0.9	0.8	0.7	0.7	1.1	1.1	1.0	1.1	1.6	2.1	1.6	1.2	0.9	0.9	1.4	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.7	24	2.1	0.6	1.0	0	0
2	0.6	0.7	0.7	0.8	1.1	1.1	1.2	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.9	0.8	0.9	24	1.2	0.6	0.8	0	0
3	0.8	0.7	0.7	0.6	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.4	24	0.8	0.4	0.6	0	0
4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.5	0.4	0.5	0.6	0.5	0.5	0.5	0.7	0.6	24	0.7	0.3	0.5	0	0
5	0.6	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.8	0.6	0.5	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.8	0.9	0.8	0.8	0.9	24	0.9	0.5	0.7	0	0
6	0.9	0.7	0.7	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	24	0.9	0.4	0.6	0	0
7	0.4	0.5	0.5	0.4	0.5	0.5	0.5	0.6	0.5	0.7	0.8	0.8	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.4	0.5	0.5	0.4	0.5	24	0.8	0.4	0.5	0	0
8	0.4	0.1	0.4	0.4	0.4	0.5	0.5	0.8	1.1	0.9	1.1	0.6	0.5	0.8	1.6	1.3	0.9	0.7	0.9	0.8	0.5	0.5	0.6	0.5	24	1.6	0.1	0.7	0	0
9	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.9	1.0	1.3	0.9	1.4	1.9	1.4	1.0	1.4	1.0	0.9	1.0	0.6	0.6	0.6	0.6	0.8	24	1.9	0.5	0.9	0	0
10	0.9	0.6	0.5	0.4	0.6	0.6	0.8	0.6	0.5	0.3	0.3	0.3	0.4	0.3	0.3	0.6	0.3	0.2	0.4	0.3	0.2	0.2	0.2	0.3	24	0.9	0.2	0.4	0	0
11	0.0	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.6	1.4	1.0	0.8	0.6	0.6	0.7	0.4	24	1.4	0.0	0.4	0	0
12	0.4	0.5	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.8	0.7	1.7	1.6	1.1	1.7	1.6	1.2	1.2	0.9	0.6	0.6	24	1.7	0.3	0.8	0	0
13	0.9	0.8	0.9	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.7	0.7	0.6	0.6	0.6	0.8	0.7	0.4	0.5	0.4	0.4	0.5	24	0.9	0.4	0.6	0	0
14	0.4	0.4	0.3	0.5	0.4	0.5	0.4	0.6	0.7	0.8	0.7	0.9	1.1	2.2	2.6	1.2	1.0	0.8	0.5	0.6	0.7	0.5	0.5	0.6	24	2.6	0.3	0.8	0	0
15	0.5	0.4	0.5	0.5	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.6	1.3	3.9	1.3	1.1	1.0	0.9	0.9	0.8	24	3.9	0.4	0.9	0	0
16	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.7	0.7	0.8	0.9	0.8	0.9	0.6	0.7	0.8	0.8	0.6	0.6	0.6	0.5	0.5	0.4	0.4	24	0.9	0.4	0.7	0	0
17	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.6	0.5	0.5	0.5	0.6	0.6	0.7	0.6	0.6	0.7	24	0.7	0.3	0.4	0	0
18	0.7	0.7	0.9	0.9	0.8	0.7	0.6	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.9	0.8	0.8	1.0	0.9	1.0	1.2	1.0	1.0	0.9	24	1.2	0.6	0.8	0	0
19	1.0	0.9	0.8	0.8	0.9	0.8	0.8	0.8	0.6	0.7	0.8	0.7	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.5	24	1.0	0.5	0.7	0	0
20	0.6	0.5	0.5	0.5	0.5	0.7	0.7	0.6	0.6	0.6	0.7	0.8	0.8	0.9	0.8	0.9	0.8	0.8	0.7	0.6	0.6	0.6	0.7	0.7	24	0.9	0.5	0.7	0	0
21	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	0.8	0.8	0.8	1.0	0.8	0.7	0.6	0.6	0.6	24	1.0	0.6	0.8	0	0
22	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.7	0.8	0.8	0.7	0.5	0.6	0.8	0.7	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	24	0.8	0.3	0.5	0	0
23	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.7	1.1	2.1	1.8	1.1	1.0	1.1	1.2	1.0	0.9	0.8	0.6	0.6	0.9	1.1	1.2	1.1	24	2.1	0.3	0.9	0	0
24	1.3	1.5	1.4	1.5	1.5	1.7	2.0	1.7	1.6	1.4	1.5	1.3	1.2	1.6	1.3	1.2	1.1	1.0	0.8	0.8	0.8	1.0	1.0	1.1	24	2.0	0.8	1.3	0	0
25	1.0	0.8	0.9	1.0	1.0	0.9	1.1	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	24	1.1	0.5	0.8	0	0
26	0.6	0.5	0.4	0.4	0.5	0.5	0.5	0.7	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	1.4	1.4	1.1	1.0	0.9	0.9	24	1.4	0.4	0.6	0	0
27	0.8	0.6	0.5	0.5	0.5	0.6	0.5	0.4	0.4	0.5	0.4	0.5	0.5	0.9	0.8	0.8	0.6	0.5	0.4	0.5	0.3	0.3	0.3	0.3	24	0.9	0.3	0.5	0	0
28	0.3	0.3	0.4	0.5	0.3	0.3	0.3	0.4	0.6	0.9	1.0	1.1	1.0	0.9	0.9	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.8	0.8	24	1.1	0.3	0.7	0	0
29	0.8	0.6	0.6	0.5	0.5	0.4	0.5	0.8	0.6	0.5	0.4	0.4	0.6	C	0.5	0.6	0.6	0.4	0.1	0.4	0.5	0.5	0.4	0.4	23	0.8	0.1	0.5	0	0
30	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.9	0.7	0.7	0.7	0.9	0.9	0.9	1.0	1.0	0.9	0.7	0.9	1.0	0.8	0.8	0.6	24	1.0	0.5	0.8	0	0
31																													0	0
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	719					
Maximum	1.3	1.5	1.4	1.5	1.5	1.7	2.0	1.7	1.6	2.1	2.1	1.6	1.9	2.2	2.6	1.6	1.3	3.9	1.6	1.4	1.2	1.1	1.2	1.1	24					
Minimum	0.0	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.1	0.3	0.2	0.2	0.2	0.3	23					
Average	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.7	0.8	0.8	0.9	0.9	0.7	0.8	0.7	0.7	0.7	0.6	0.6	0.6						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.4	0.5	0.5	0.6	0.6	0.7	0.8	0.9	1.0	1.3	1.8	3.9

Maximum Hourly	3.9
Maximum Daily	1.3
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 - Rundle Road
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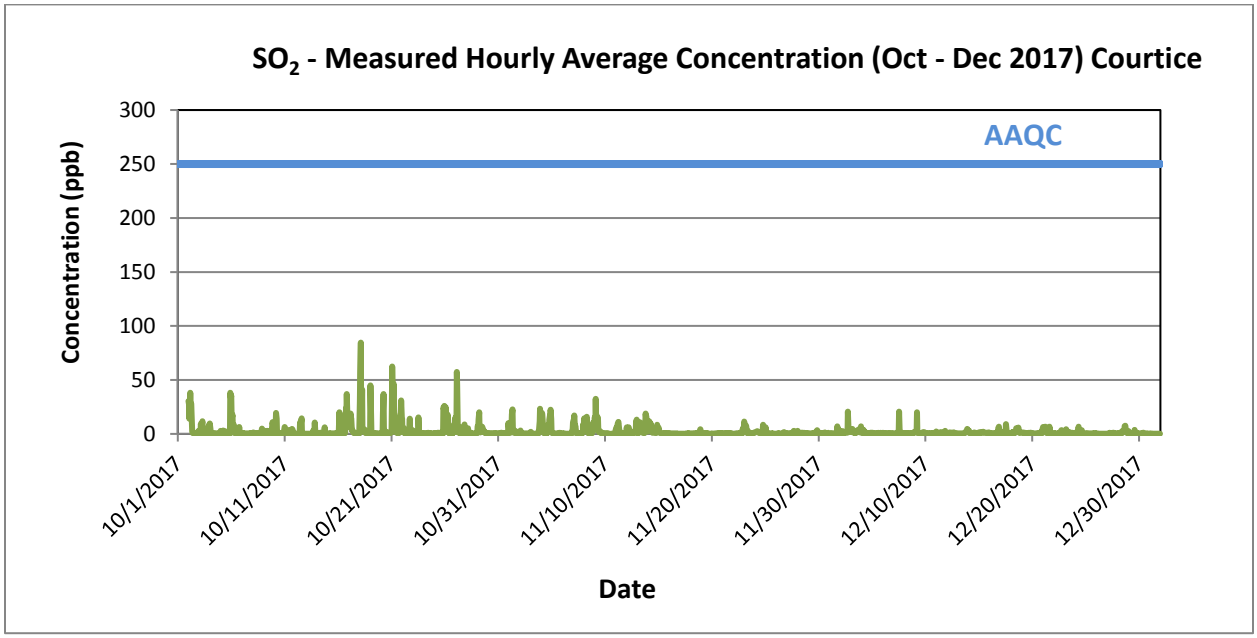
Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>250	Days>100
1	0.6	0.6	0.6	0.6	0.5	0.5	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.3	0.3	0.4	0.5	0.5	0.6	0.5	24	0.7	0.3	0.6	0	0
2	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.5	0.5	0.6	0.6	0.7	0.9	1.0	1.1	0.9	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	24	1.1	0.5	0.7	0	0
3	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.7	0.6	0.6	0.6	0.7	1.2	1.5	1.7	1.8	1.4	1.0	0.8	0.6	0.7	0.6	0.6	24	1.8	0.5	0.8	0	0
4	0.6	0.5	0.4	0.5	0.5	0.4	0.5	0.6	0.7	0.7	0.6	0.6	0.6	0.5	0.6	0.6	0.7	0.8	1.6	2.3	1.4	1.2	1.1	1.1	24	2.3	0.4	0.8	0	0
5	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.9	0.8	0.8	0.9	0.8	0.9	0.9	1.5	1.5	0.8	0.9	0.8	0.8	0.9	0.8	0.9	24	1.5	0.8	0.9	0	0
6	0.7	0.7	0.8	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.7	0.8	0.9	0.8	0.7	0.7	0.6	24	0.9	0.6	0.8	0	0
7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	C	0.8	0.7	0.8	0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.7	0.7	23	0.8	0.6	0.7	0	0
8	0.3	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.7	0.6	0.6	0.7	0.8	0.7	0.7	0.8	0.9	1.2	1.5	24	1.5	0.3	0.8	0	0
9	1.3	1.1	1.3	1.2	1.0	0.9	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0	0.8	0.8	0.8	0.8	1.1	1.2	1.0	0.9	0.6	24	1.3	0.6	0.9	0	0
10	0.8	0.7	0.7	0.7	0.6	0.6	0.7	0.6	0.6	0.5	0.5	0.7	0.6	0.7	0.8	0.7	0.7	0.7	0.7	0.8	0.7	0.8	0.6	0.5	24	0.8	0.5	0.7	0	0
11	0.7	0.8	0.7	0.7	0.6	0.5	0.5	0.5	0.6	0.8	0.8	0.7	0.6	0.7	1.9	0.8	1.4	1.0	0.6	0.6	0.6	0.5	0.4	0.6	24	1.9	0.4	0.7	0	0
12	0.8	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	1.2	1.1	1.0	A	1.2	1.2	1.0	1.0	1.0	0.8	0.8	0.7	0.6	0.5	23	1.2	0.5	0.8	0	0
13	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.5	24	0.7	0.5	0.6	0	0
14	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.7	1.1	0.9	0.5	0.5	0.5	0.5	0.8	0.6	0.5	0.5	24	1.1	0.5	0.6	0	0
15	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.7	1.2	1.3	1.3	1.2	1.1	0.9	1.0	0.9	0.8	0.8	1.1	1.2	1.0	0.6	0.7	0.8	24	1.3	0.4	0.8	0	0
16	0.9	0.7	0.8	0.9	0.8	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	24	0.9	0.2	0.5	0	0
17	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	24	0.5	0.2	0.3	0	0
18	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.3	0.4	0.5	0.5	0.5	0.6	1.1	0.9	1.1	1.3	1.2	1.2	1.1	1.0	1.3	1.1	1.2	24	1.3	0.3	0.8	0	0
19	1.2	1.2	1.2	1.1	1.4	1.2	1.1	1.2	1.1	1.2	1.2	1.1	1.0	0.9	0.9	0.9	0.9	1.1	0.9	0.8	1.2	0.9	0.9	0.9	24	1.4	0.8	1.1	0	0
20	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.4	0.4	0.9	24	0.9	0.4	0.6	0	0
21	1.1	0.9	0.8	1.1	1.1	1.0	0.7	0.6	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	24	1.1	0.4	0.6	0	0
22	0.4	0.4	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.4	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.5	24	0.6	0.4	0.5	0	0
23	0.4	0.4	0.6	0.6	0.6	0.7	0.5	0.5	0.6	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.9	0.8	0.6	0.6	0.7	0.7	0.7	0.7	24	0.9	0.4	0.7	0	0
24	0.7	0.8	0.7	0.6	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.5	0.6	0.6	0.6	0.7	0.7	24	0.8	0.4	0.6	0	0
25	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.6	0.5	0.7	0.7	0.7	0.6	0.6	0.6	0.4	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	24	0.8	0.4	0.6	0	0
26	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.0	0.2	0.2	0.2	0.2	24	0.5	0.0	0.4	0	0
27	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.7	0.7	0.8	0.4	0.4	0.4	0.6	0.5	0.3	0.2	0.2	24	0.8	0.2	0.4	0	0
28	0.2	0.2	0.5	0.6	1.0	0.9	0.8	0.5	0.3	0.4	3.1	1.8	1.6	2.2	2.3	2.7	2.7	3.6	2.6	1.4	1.0	0.8	1.2	1.2	24	3.6	0.2	1.4	0	0
29	1.1	0.7	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.4	0.3	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	24	1.1	0.3	0.4	0	0
30	0.4	0.5	0.4	0.5	0.5	0.6	0.5	0.6	0.7	0.9	1.0	0.8	0.7	0.7	0.6	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	24	1.0	0.4	0.6	0	0
31	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	24	0.4	0.1	0.3	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	30	31	30	31	31	31	31	31	31	31	31	31	31	742					
Maximum	1.3	1.2	1.3	1.2	1.4	1.2	1.1	1.2	1.2	1.3	3.1	1.8	1.6	2.2	2.3	2.7	2.7	3.6	2.6	2.3	1.4	1.3	1.2	1.5	24					
Minimum	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.0	0.2	0.2	0.2	0.2	23					
Average	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.3	0.4	0.5	0.6	0.6	0.7	0.7	0.8	1.1	1.2	2.0	3.6

Maximum Hourly	3.6
Maximum Daily	1.4
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

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



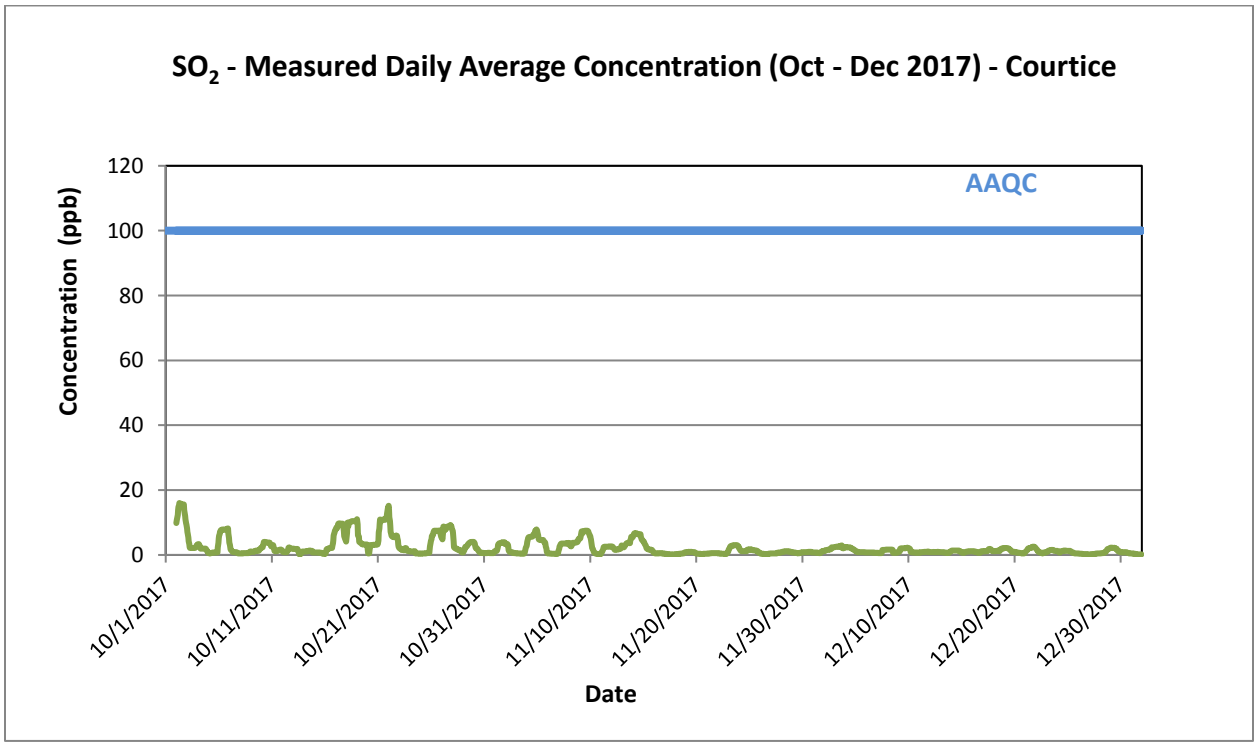
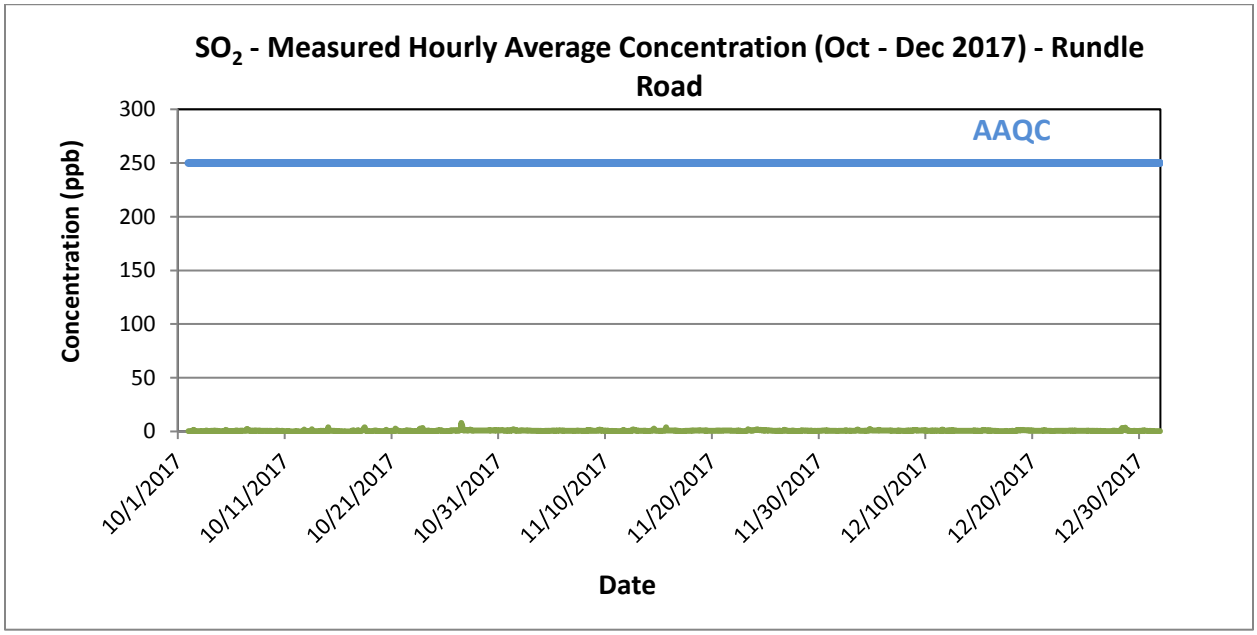
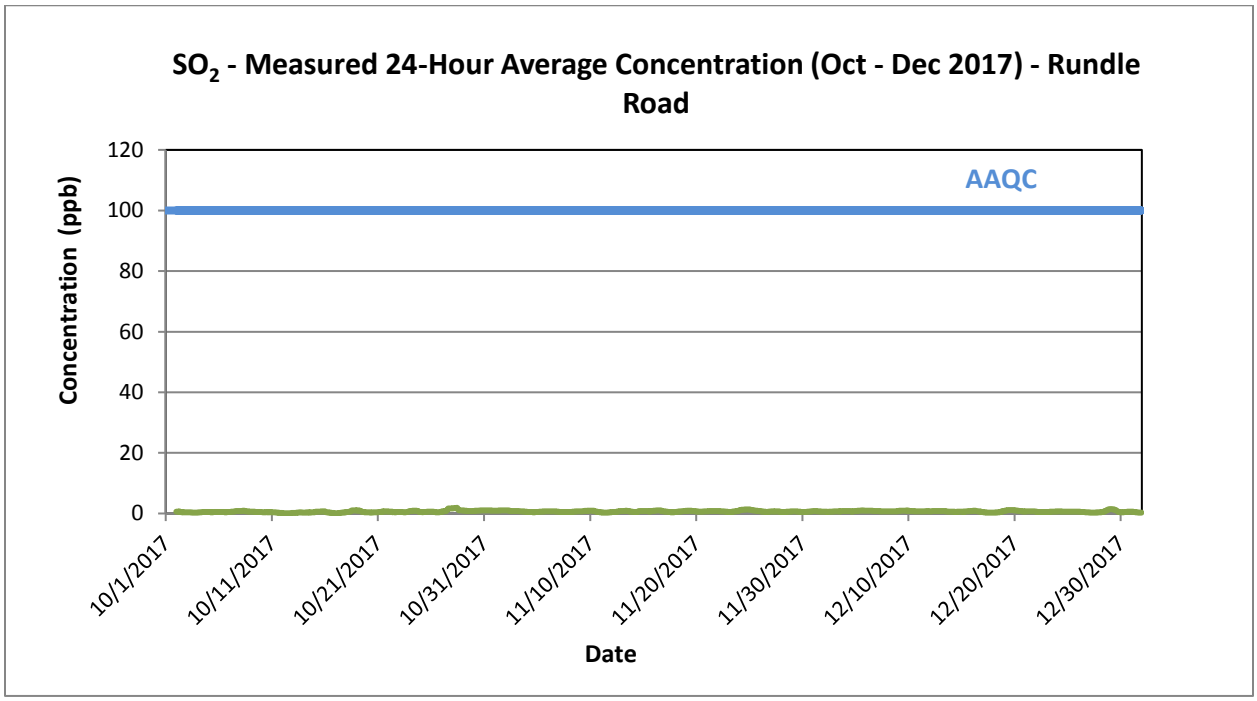


Figure B-2 Time History Plots of Measured Hourly Average and 24 Hour Average SO_2 Concentrations – Rundle Road Station





Appendix C NO_2 DATA SUMMARIES AND TIME HISTORY PLOTS

NO_2 - COURTICE

October 2017

(ppb)

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	2.8	1.3	2.4	1.7	3.5	5.3	5.7	6.3	5.4	6.4	4.7	3.3	1.8	0.8	0.3	0.6	0.8	0.2	15.2	26.2	20.4	13.6	13.0	10.7	24	26.2	0.2	6.4	0	0
2	10.8	9.0	12.7	13.7	15.7	19.6	21.0	24.7	11.1	3.7	1.4	0.3	0.0	0.4	0.2	0.8	3.2	2.9	15.7	16.6	19.8	17.6	13.3	14.5	24	24.7	0.0	10.4	0	0
3	9.3	7.7	9.4	10.6	14.7	14.0	18.2	18.7	10.9	3.3	1.5	1.6	1.8	1.2	1.2	1.1	1.0	1.8	9.3	15.6	26.4	24.6	22.6	22.7	24	26.4	1.0	10.4	0	0
4	19.4	13.8	2.9	1.1	1.2	1.2	1.2	1.7	1.5	1.6	1.5	1.1	1.2	1.7	1.4	1.5	1.6	2.1	2.4	3.3	4.1	3.7	3.3	2.3	24	19.4	1.1	3.2	0	0
5	5.3	5.9	16.2	14.0	10.9	14.0	15.7	9.7	7.9	4.7	3.5	3.0	3.5	2.3	1.3	1.1	1.2	6.6	12.9	10.1	9.1	7.8	11.4	21.5	24	21.5	1.1	8.3	0	0
6	18.8	13.6	12.6	11.8	13.0	12.6	14.6	14.2	13.1	10.1	9.7	5.8	2.2	3.0	4.5	4.9	4.8	5.4	9.1	15.3	12.1	9.9	2.4	4.1	24	18.8	2.2	9.5	0	0
7	3.6	3.3	6.8	3.4	4.1	1.7	1.3	1.0	0.3	1.3	1.7	9.3	7.6	3.6	1.0	0.8	0.6	0.9	1.0	1.1	1.0	1.6	0.9	0.5	24	9.3	0.3	2.4	0	0
8	0.6	0.9	0.8	0.7	0.6	0.4	1.0	1.0	1.0	1.2	1.3	1.2	0.8	0.8	0.3	0.5	0.7	0.6	5.8	1.8	1.5	2.9	4.9	9.0	24	9.0	0.3	1.7	0	0
9	4.8	3.2	2.3	1.7	0.3	3.1	2.1	5.8	2.1	2.1	1.7	0.6	0.1	0.4	0.3	0.5	0.1	0.3	0.1	0.7	8.9	25.6	20.5	15.2	24	25.6	0.1	4.3	0	0
10	11.0	10.9	5.3	3.8	7.4	15.3	17.7	16.0	6.2	6.7	10.5	6.8	5.9	6.6	5.2	1.9	4.2	5.9	8.4	4.5	4.9	4.1	2.1	0.9	24	17.7	0.9	7.2	0	0
11	2.0	1.3	1.0	1.3	3.0	2.3	4.2	5.6	4.2	3.4	3.2	3.1	2.8	3.1	2.4	2.5	2.2	3.6	1.5	1.7	2.6	2.3	2.0	3.6	24	5.6	1.0	2.7	0	0
12	1.8	1.7	2.2	2.4	3.1	3.4	4.1	3.5	2.6	3.0	4.5	9.9	4.2	10.8	10.5	0.9	2.8	1.8	1.0	0.4	0.3	1.0	0.9	1.1	24	10.8	0.3	3.2	0	0
13	1.0	0.7	0.6	0.6	0.8	1.1	1.0	1.3	1.7	1.2	1.4	1.3	1.5	1.4	3.0	9.8	12.3	13.1	11.0	9.2	11.5	13.0	5.0	1.9	24	13.1	0.6	4.4	0	0
14	1.7	1.5	1.2	1.0	0.8	0.8	3.5	12.2	11.1	11.7	12.6	12.4	12.9	12.1	12.1	9.0	9.8	12.3	16.5	6.6	4.1	2.0	2.8	1.5	24	16.5	0.8	7.2	0	0
15	2.2	2.4	1.7	1.5	1.6	1.6	1.8	1.7	1.5	0.9	1.1	0.6	0.7	0.6	0.4	1.9	1.6	1.2	1.4	1.7	0.9	0.6	0.3	0.3	24	2.4	0.3	1.3	0	0
16	0.9	0.1	0.3	1.9	3.0	5.9	7.2	2.5	1.6	1.1	1.8	1.6	0.9	1.2	1.1	0.8	3.3	8.1	20.0	18.6	17.1	15.6	11.5	10.1	24	20.0	0.1	5.7	0	0
17	10.2	8.7	10.4	11.8	11.3	11.3	11.9	15.0	16.0	10.3	1.7	1.2	1.2	1.0	0.9	0.4	0.6	0.7	1.2	1.4	2.7	4.0	3.7	4.0	24	16.0	0.4	5.9	0	0
18	8.1	29.8	24.5	24.7	23.2	27.4	27.5	22.5	17.3	14.2	7.2	6.2	6.1	3.5	1.2	1.0	0.9	1.0	1.0	1.0	1.4	2.2	2.8	2.8	24	29.8	0.9	10.7	0	0
19	3.3	3.3	4.9	3.7	1.3	1.4	1.4	1.8	1.8	1.8	2.5	1.8	1.8	2.1	2.7	2.8	3.0	6.8	8.2	3.7	4.6	4.5	11.6	21.2	24	21.2	1.3	4.2	0	0
20	13.4	11.7	9.8	6.5	22.3	25.5	29.2	22.1	16.4	10.9	10.7	9.2	6.6	5.0	2.7	2.4	1.6	1.0	0.6	0.4	0.5	1.7	2.0	6.1	24	29.2	0.4	9.1	0	0
21	12.9	22.7	21.0	18.2	17.8	17.8	14.4	14.7	16.9	4.8	4.2	4.0	4.7	2.8	2.4	3.6	5.0	9.6	15.1	5.1	10.9	10.4	10.3	11.6	24	22.7	2.4	10.9	0	0
22	7.4	4.3	3.8	6.4	8.9	4.7	6.6	5.5	3.5	1.8	1.8	1.4	1.3	1.4	2.6	2.1	7.1	8.5	7.9	2.9	4.2	6.8	1.9	1.2	24	8.9	1.2	4.3	0	0
23	2.3	1.6	1.3	5.3	13.7	5.0	7.0	4.4	3.5	3.2	3.0	2.4	4.4	10.8	3.8	2.7	1.1	1.2	4.5	1.6	1.3	1.7	1.1	0.2	24	13.7	0.2	3.6	0	0
24	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.4	0.9	1.2	0.5	0.3	0.4	0.3	0.3	0.4	0.5	0.5	0.5	0.4	0.3	0.6	0.6	24	1.2	0.0	0.4	0	0
25	0.4	0.8	0.9	0.9	1.1	1.5	1.3	0.9	0.9	1.2	1.0	1.3	1.2	1.5	1.6	1.6	1.5	1.7	6.1	14.4	19.8	15.9	11.3	14.5	24	19.8	0.4	4.3	0	0
26	17.7	16.0	15.5	17.0	13.2	14.9	17.9	20.9	11.3	9.7	4.3	3.8	9.2	10.9	6.0	2.6	3.8	7.4	7.0	10.8	13.7	14.5	12.7	14.8	24	20.9	2.6	11.5	0	0
27	13.8	11.4	12.0	11.2	11.6	9.9	9.9	9.4	7.9	7.7	1.5	C	C	4.3	3.4	3.0	6.0	6.8	10.2	17.2	21.0	11.1	4.7	3.0	22	21.0	1.5	8.9	0	0
28	1.6	1.9	1.9	3.6	7.2	10.5	5.0	4.2	4.2	4.6	8.7	4.7	5.8	4.8	5.8	10.8	5.5	3.8	7.5	7.9	5.6	4.4	5.7	7.5	24	10.8	1.6	5.6	0	0
29	5.1	5.6	9.1	4.3	5.1	4.1	5.3	6.0	5.6	8.1	3.7	4.0	3.0	3.9	4.0	3.6	3.6	3.7	5.0	2.8	2.2	1.8	1.5	1.4	24	9.1	1.4	4.3	0	0
30	1.4	1.0	1.5	1.4	1.6	2.4	3.1	3.6	2.5	2.5	2.6	1.9	3.7	4.7	4.4	5.5	8.3	8.5	8.0	8.1	5.9	5.9	4.7	3.8	24	8.5	1.0	4.0	0	0
31	3.1	3.1	2.8	2.3	2.3	3.0	3.3	3.1	3.2	3.5	2.9	2.9	2.2	2.0	2.4	4.4	6.8	8.4	12.1	7.6	9.3	5.9	21.8	22.5	24	22.5	2.0	5.9	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	742					
Maximum	19.4	29.8	24.5	24.7	23.2	27.4	29.2	24.7	17.3	14.2	12.6	12.4	12.9	12.1	12.1	10.8	12.3	13.1	20.0	26.2	26.4	25.6	22.6	22.7	24					
Minimum	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.3	0.9	1.0	0.3	0.0	0.4	0.2	0.3	0.1	0.2	0.1	0.4	0.3	0.3	0.3	0.2	22					
Average	6.3	6.4	6.4	6.1	7.2	7.8	8.5	8.4	6.2	4.8	3.8	3.6	3.3	3.5	2.9	2.8	3.4	4.4	7.3	7.1	8.0	7.7	6.9	7.6						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.8	1.2	1.7	2.4	3.5	4.7	7.2	10.8	14.6	18.2	25.2	29.8

Maximum Hourly	29.8
Maximum Daily	11.5
Monthly Average	5.9

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

NO_2 - COURTICE
November 2017
(ppb)

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	17.1	6.3	5.5	3.9	4.3	5.8	18.3	20.2	20.0	16.6	6.7	4.1	3.5	2.7	2.4	5.3	11.3	12.0	9.8	11.0	16.9	13.4	10.1	11.4	24	20.2	2.4	9.9	0	0
2	11.2	11.2	11.2	5.4	3.5	5.4	11.0	8.7	6.5	2.6	3.0	2.9	2.9	2.2	2.3	2.5	2.7	2.6	3.0	3.0	2.6	2.2	2.0	2.8	24	11.2	2.0	4.7	0	0
3	4.8	4.6	3.9	4.4	5.8	6.8	10.4	8.1	6.5	3.6	2.4	2.7	2.3	1.9	1.7	2.5	2.2	3.4	5.4	8.9	19.5	19.4	15.2	9.7	24	19.5	1.7	6.5	0	0
4	9.3	6.6	4.2	5.6	5.1	5.9	6.2	3.5	3.3	2.2	2.2	1.6	1.8	2.4	2.1	4.9	5.0	4.7	4.2	10.8	11.3	12.9	14.0	9.9	24	14.0	1.6	5.8	0	0
5	3.2	2.1	2.1	2.1	2.0	2.4	2.6	2.1	6.2	2.4	3.5	4.4	3.7	7.6	6.0	4.6	1.8	1.9	3.3	1.7	1.9	2.0	1.6	1.2	24	7.6	1.2	3.0	0	0
6	1.8	2.6	2.2	1.7	2.1	1.9	2.5	3.0	3.8	2.5	2.5	2.6	2.5	2.5	2.2	3.8	4.2	5.6	4.8	6.1	8.0	6.4	7.8	6.3	24	8.0	1.7	3.7	0	0
7	4.4	4.9	3.5	4.2	6.7	8.4	13.9	11.6	6.5	3.4	4.0	1.3	0.7	0.7	0.5	0.6	0.5	0.5	1.2	0.8	0.9	4.7	17.0	14.8	24	17.0	0.5	4.8	0	0
8	19.0	19.1	17.7	14.2	16.4	23.5	22.8	23.9	20.2	10.0	10.2	4.0	2.5	1.9	3.9	2.9	3.3	3.3	3.9	4.2	19.3	27.4	19.8	18.3	24	27.4	1.9	13.0	0	0
9	16.7	20.2	18.5	15.9	20.1	20.7	19.6	28.0	26.1	23.7	8.8	5.7	7.0	5.4	4.3	4.9	3.9	4.3	6.2	2.8	2.9	1.9	2.9	1.2	24	28.0	1.2	11.3	0	0
10	2.4	2.4	2.1	1.8	2.0	3.2	4.7	5.2	3.4	2.4	2.7	1.9	1.9	2.4	2.3	2.5	3.2	6.2	9.4	8.7	7.6	13.1	14.0	12.7	24	14.0	1.8	4.9	0	0
11	8.9	3.2	2.4	1.3	2.6	5.4	5.9	4.9	3.6	2.7	3.6	0.6	1.0	1.5	2.6	0.8	0.5	0.4	0.5	0.6	1.1	1.2	1.5	1.5	24	8.9	0.4	2.4	0	0
12	5.6	4.8	4.4	3.1	4.1	4.8	6.1	7.2	6.3	6.3	6.6	4.1	2.6	2.7	2.9	4.0	4.0	4.6	3.5	2.8	2.7	2.4	9.1	13.7	24	13.7	2.4	4.9	0	0
13	9.9	3.1	1.9	1.7	4.2	11.0	12.5	18.9	18.2	12.6	14.1	7.8	8.7	10.4	8.9	8.7	9.2	9.6	6.9	7.2	20.2	26.5	22.2	20.6	24	26.5	1.7	11.4	0	0
14	16.3	14.7	17.0	18.8	18.1	16.6	17.2	18.1	18.9	17.7	8.5	5.6	3.9	3.3	2.6	2.0	2.4	3.0	7.6	4.1	2.8	10.3	19.7	17.8	24	19.7	2.0	11.1	0	0
15	18.1	17.1	5.1	6.1	2.7	2.6	2.7	3.7	2.5	2.4	2.1	1.9	2.5	2.3	2.4	4.7	3.4	2.7	3.0	4.4	3.2	3.0	2.8	2.9	24	18.1	1.9	4.3	0	0
16	3.1	3.0	3.7	4.2	3.2	2.9	3.4	3.8	4.0	4.8	5.3	4.1	3.5	3.4	2.8	3.1	3.1	3.5	2.8	2.0	2.7	2.2	2.0	2.2	24	5.3	2.0	3.3	0	0
17	1.5	2.0	1.4	1.6	2.0	3.6	9.8	10.5	5.2	2.6	1.8	2.4	3.2	4.3	7.6	9.3	7.9	4.6	4.7	4.4	4.1	3.1	3.0	2.8	24	10.5	1.4	4.3	0	0
18	3.3	3.1	2.8	2.9	2.5	2.5	2.4	2.1	2.3	2.7	2.9	3.5	4.7	2.7	9.6	14.8	5.8	3.0	3.3	2.9	4.8	6.7	3.3	2.8	24	14.8	2.1	4.0	0	0
19	1.9	1.6	1.7	1.3	1.2	1.0	1.2	1.5	1.1	1.7	1.3	1.2	2.0	1.6	2.2	1.9	2.2	1.8	2.3	2.6	4.4	4.8	2.7	4.3	24	4.8	1.0	2.1	0	0
20	2.1	1.8	2.7	3.6	5.8	3.5	3.6	4.7	5.7	4.8	6.3	6.5	8.8	8.3	9.5	9.5	12.2	11.6	4.0	2.9	3.2	2.7	2.3	2.0	24	12.2	1.8	5.3	0	0
21	2.2	2.2	2.0	1.9	1.8	1.6	1.7	1.8	2.1	1.9	1.6	2.0	2.2	2.7	2.9	2.9	3.3	3.9	4.5	4.0	8.6	9.9	5.9	4.0	24	9.9	1.6	3.2	0	0
22	3.9	5.1	2.2	3.1	2.9	3.6	3.4	3.8	3.3	2.8	2.3	1.5	1.8	2.5	3.4	3.6	3.0	3.5	4.5	6.3	6.1	13.8	8.1	7.5	24	13.8	1.5	4.3	0	0
23	7.1	9.7	18.7	16.5	18.8	17.2	21.0	9.3	6.9	9.1	7.5	5.0	5.2	5.2	4.4	4.1	3.4	4.9	5.7	7.6	10.0	10.0	10.5	8.4	24	21.0	3.4	9.4	0	0
24	8.8	10.5	9.9	9.6	9.2	8.9	8.1	5.8	5.7	4.6	3.7	3.7	3.2	3.0	3.3	4.8	3.8	3.8	3.5	9.5	7.2	3.5	3.7	3.5	24	10.5	3.0	5.9	0	0
25	3.1	2.7	2.5	1.9	1.9	1.9	2.3	2.4	4.2	4.9	8.3	4.4	2.0	1.8	1.8	2.1	3.8	3.1	4.9	5.8	2.2	3.1	1.7	1.2	24	8.3	1.2	3.1	0	0
26	1.8	1.3	1.2	1.1	1.1	1.0	1.3	1.6	1.9	1.6	2.0	1.5	2.2	2.9	3.8	2.2	3.1	2.6	2.8	4.2	7.2	6.5	6.6	6.9	24	7.2	1.0	2.8	0	0
27	8.7	2.7	1.5	1.8	1.6	2.3	3.3	6.2	6.8	3.5	2.8	2.5	2.1	C	C	4.9	7.2	8.1	9.5	8.1	11.2	13.7	11.5	11.9	22	13.7	1.5	6.0	0	0
28	13.2	14.6	8.4	1.6	3.3	2.3	4.5	3.8	5.8	5.4	3.7	3.7	3.0	2.6	1.9	2.4	2.5	2.0	2.5	2.0	1.9	1.6	1.7	2.3	24	14.6	1.6	4.0	0	0
29	4.9	4.4	5.5	4.2	5.0	4.1	5.3	11.5	5.6	2.4	2.8	2.6	3.3	2.1	3.3	3.7	9.6	24.6	24.5	16.3	14.6	15.3	19.0	10.4	24	24.6	2.1	8.5	0	0
30	16.8	17.4	0.6	1.1	1.2	1.5	1.5	1.9	2.2	2.1	2.5	3.1	3.5	5.3	14.9	10.7	8.2	16.1	17.7	11.8	12.6	11.6	11.3	8.7	24	17.7	0.6	7.7	0	0
31																													0	0
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	718					
Maximum	19.0	20.2	18.7	18.8	20.1	23.5	22.8	28.0	26.1	23.7	14.1	7.8	8.8	10.4	14.9	14.8	12.2	24.6	24.5	16.3	20.2	27.4	22.2	20.6	24					
Minimum	1.5	1.3	0.6	1.1	1.1	1.0	1.2	1.5	1.1	1.6	1.3	0.6	0.7	0.7	0.5	0.6	0.5	0.4	0.5	0.6	0.9	1.2	1.5	1.2	22					
Average	7.7	6.8	5.5	4.9	5.4	6.1	7.6	7.9	7.2	5.5	4.5	3.3	3.3	3.4	4.1	4.5	4.6	5.4	5.7	5.6	7.4	8.5	8.4	7.5						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.8	2.2	2.6	3.1	3.7	4.7	6.2	9.1	14.1	18.3	23.7	28.0

Maximum Hourly	28.0
Maximum Daily	13.0
Monthly Average	5.9

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

NO_2 - COURTICE
December 2017
(ppb)

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	4.0	6.5	7.9	7.1	7.1	9.5	9.8	13.3	14.3	11.7	7.1	3.9	2.8	3.7	3.6	4.5	8.4	9.2	14.0	17.1	17.1	23.8	20.6	17.9	24	23.8	2.8	10.2	0	0
2	15.6	15.5	14.5	5.8	14.4	15.6	15.1	14.5	13.7	12.2	10.7	11.0	9.6	8.2	6.5	10.0	9.7	7.0	10.5	18.5	19.3	19.6	20.8	16.7	24	20.8	5.8	13.1	0	0
3	15.6	15.2	16.2	13.5	11.0	11.1	9.7	11.6	10.1	8.8	8.7	7.1	7.0	7.6	8.7	10.1	12.8	14.9	21.0	21.0	20.0	17.7	13.7	14.9	24	21.0	7.0	12.8	0	0
4	13.6	12.3	13.3	13.5	15.3	17.1	17.5	15.9	16.7	13.6	10.2	9.1	C	C	C	C	10.6	6.7	4.8	4.1	4.3	3.9	3.6	3.0	20	17.5	3.0	10.4	0	0
5	3.4	3.7	4.1	3.1	2.8	2.5	2.8	2.0	1.6	2.1	1.6	0.6	C	C	C	8.7	8.7	8.2	6.9	5.6	5.9	4.9	6.9	6.7	21	8.7	0.6	4.4	0	0
6	6.5	9.0	4.6	4.3	3.7	3.3	3.7	3.8	4.3	5.5	6.2	5.8	5.9	6.7	7.4	7.0	6.4	4.9	6.1	8.4	12.0	11.0	10.3	9.7	24	12.0	3.3	6.5	0	0
7	8.3	7.9	8.6	9.7	10.4	9.7	12.3	13.2	15.4	14.8	12.9	11.3	6.6	5.8	2.4	3.5	5.2	5.8	7.2	6.8	7.1	7.6	7.9	7.6	24	15.4	2.4	8.7	0	0
8	7.3	4.1	6.4	2.9	0.9	1.2	0.8	1.1	1.6	2.4	2.6	2.0	1.9	1.2	1.4	1.0	1.0	2.0	2.8	2.4	3.7	5.2	7.4	8.4	24	8.4	0.8	3.0	0	0
9	10.1	12.0	7.5	8.3	13.2	15.8	19.0	3.5	3.7	4.2	3.0	2.8	2.8	C	C	C	C	C	11.1	11.3	13.0	18.6	19.1	20.7	19	20.7	2.8	10.5	0	0
10	20.8	18.8	5.6	1.1	0.6	2.1	1.0	1.8	2.0	2.6	1.9	2.0	1.2	2.2	3.5	3.6	4.9	5.1	4.6	5.2	6.1	9.3	3.9	0.8	24	20.8	0.6	4.6	0	0
11	0.7	1.1	0.3	0.3	0.0	1.4	4.7	4.0	3.7	1.2	1.2	0.9	C	C	4.5	1.6	1.1	1.5	1.5	2.0	11.8	8.3	5.8	5.5	22	11.8	0.0	2.9	0	0
12	6.2	7.1	6.0	5.1	6.1	6.7	7.2	8.4	10.3	9.5	7.8	A	A	3.0	2.3	2.5	4.6	7.2	4.1	5.8	4.4	4.2	5.6	3.6	22	10.3	2.3	5.8	0	0
13	2.4	2.3	1.8	2.0	2.2	2.9	4.2	3.9	3.8	3.7	2.9	2.2	2.2	2.0	3.3	5.9	13.3	20.2	20.9	9.4	6.6	4.2	3.6	4.2	24	20.9	1.8	5.4	0	0
14	5.6	2.5	1.7	1.7	3.1	3.1	4.4	9.8	5.9	3.6	3.1	2.3	4.0	3.8	6.5	5.0	8.4	17.2	18.0	31.6	25.8	36.1	37.3	36.3	24	37.3	1.7	11.5	0	0
15	36.1	36.4	35.1	30.8	28.3	28.6	31.3	34.5	34.7	32.8	31.4	28.0	18.7	4.5	5.7	3.1	2.7	13.8	10.5	11.1	14.1	13.1	12.2	8.4	24	36.4	2.7	21.1	0	0
16	7.0	8.2	5.0	5.5	8.9	10.0	13.9	11.2	2.9	1.7	1.8	1.9	2.3	1.6	2.0	3.3	6.0	11.0	23.8	16.6	13.4	17.1	18.1	12.6	24	23.8	1.6	8.6	0	0
17	18.7	15.7	14.8	16.2	8.4	3.8	3.8	4.6	5.4	3.1	4.0	4.4	5.6	10.0	6.0	3.9	4.9	6.2	6.3	6.3	5.8	4.7	5.0	4.1	24	18.7	3.1	7.2	0	0
18	4.4	4.1	4.2	6.7	6.2	9.4	13.7	11.1	16.1	16.9	18.9	20.2	26.1	26.4	26.7	29.0	32.6	30.8	27.8	18.3	9.9	11.5	10.1	7.4	24	32.6	4.1	16.2	0	0
19	7.1	7.4	8.1	6.7	5.9	4.3	4.9	5.7	4.9	5.6	5.2	6.2	6.8	7.3	8.3	11.3	10.7	7.2	14.5	9.2	11.4	17.7	6.3	8.1	24	17.7	4.3	7.9	0	0
20	4.4	3.9	3.8	4.7	3.5	3.8	4.1	2.6	3.5	2.2	3.4	2.8	2.5	2.7	3.7	3.7	3.5	3.4	3.9	3.4	4.0	2.8	3.2	3.6	24	4.7	2.2	3.5	0	0
21	2.6	3.4	2.4	2.6	1.8	3.4	3.2	9.1	12.3	6.8	7.6	6.3	6.1	6.6	5.6	9.1	4.5	10.6	11.2	8.6	10.0	8.0	8.5	4.7	24	12.3	1.8	6.5	0	0
22	4.5	5.6	3.8	6.8	3.9	3.6	3.8	2.8	2.7	3.0	3.5	3.8	5.6	4.3	4.4	5.2	5.7	5.4	5.4	6.8	6.1	5.1	6.6	5.7	24	6.8	2.7	4.7	0	0
23	5.2	5.3	4.3	5.3	4.2	5.9	5.6	7.4	10.8	11.0	6.2	8.9	12.9	11.2	13.1	17.1	21.3	27.8	27.5	27.0	21.2	8.1	6.6	7.5	24	27.8	4.2	11.7	0	0
24	7.1	12.1	18.5	12.3	6.6	10.8	18.8	8.3	7.3	4.3	4.2	3.2	3.2	3.8	3.3	6.8	6.6	2.8	1.6	1.5	2.0	1.6	1.5	1.4	24	18.8	1.4	6.2	0	0
25	1.2	1.3	1.2	1.1	1.0	1.0	1.8	4.8	6.0	4.1	2.0	1.9	1.9	1.8	1.6	2.1	2.3	3.6	3.5	2.9	3.9	3.5	3.5	3.6	24	6.0	1.0	2.6	0	0
26	3.0	2.6	2.5	3.2	3.1	3.5	4.1	5.4	7.8	5.2	3.5	2.8	2.3	2.1	2.1	2.3	3.4	3.9	6.1	8.7	9.1	8.7	10.8	9.7	24	10.8	2.1	4.8	0	0
27	10.8	10.2	8.4	8.9	9.9	7.8	18.8	29.8	27.5	10.0	5.0	1.7	1.1	2.1	2.2	1.9	3.3	4.0	4.7	5.5	7.7	7.7	6.6	5.8	24	29.8	1.1	8.4	0	0
28	4.8	5.7	8.4	10.3	16.2	20.5	14.9	10.5	7.4	5.9	3.6	3.2	1.7	2.2	1.9	4.0	7.5	14.3	19.0	14.1	8.2	7.2	7.9	5.2	24	20.5	1.7	8.5	0	0
29	4.2	3.7	5.2	4.2	6.2	5.5	4.7	6.2	5.5	7.0	6.7	6.1	4.7	7.3	7.1	6.2	6.2	7.6	8.2	7.2	10.1	16.7	21.6	25.9	24	25.9	3.7	8.1	0	0
30	15.8	11.0	16.8	14.0	18.8	20.7	23.4	23.1	20.2	21.9	19.3	14.0	10.6	5.8	4.8	5.6	6.5	5.3	5.4	3.4	2.1	3.2	2.2	2.4	24	23.4	2.1	11.5	0	0
31	1.6	2.1	2.5	1.9	2.1	3.6	5.1	4.4	4.0	2.3	1.7	1.6	1.5	1.4	1.6	3.0	3.9	12.6	14.4	3.3	2.4	1.5	2.0	2.7	24	14.4	1.4	3.5	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	30	27	27	28	29	30	30	31	31	31	31	31	31	728					
Maximum	36.1	36.4	35.1	30.8	28.3	28.6	31.3	34.5	34.7	32.8	31.4	28.0	26.1	26.4	26.7	29.0	32.6	30.8	27.8	31.6	25.8	36.1	37.3	36.3	24					
Minimum	0.7	1.1	0.3	0.3	0.0	1.0	0.8	1.1	1.6	1.2	1.2	0.6	1.1	1.2	1.4	1.0	1.0	1.5	1.5	1.5	2.0	1.5	1.5	0.8	19					
Average	8.3	8.3	7.8	7.1	7.3	8.0	9.3	9.3	9.2	7.7	6.7	5.9	5.8	5.4	5.4	6.2	7.6	9.3	10.5	9.8	9.6	10.1	9.6	8.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	2.0	2.9	3.8	4.7	5.9	7.2	9.1	12.2	17.5	21.3	34.1	37.3

Maximum Hourly	37.3
Maximum Daily	21.1
Monthly Average	8.1

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
October 2017
(ppb)

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	0.1	0.0	0.5	0.0	0.4	0.0	0.2	0.5	4.0	5.0	3.9	3.1	2.1	1.7	0.3	0.6	1.6	2.2	3.3	2.8	2.2	1.9	1.5	1.4	24	5.0	0.0	1.6	0	0
2	1.6	1.1	0.7	1.2	1.2	2.8	4.9	8.1	7.7	3.6	5.4	4.1	1.5	6.4	0.5	0.7	4.6	2.7	5.4	10.2	17.3	3.9	7.6	3.1	24	17.3	0.5	4.4	0	0
3	2.0	1.7	1.8	6.5	4.0	3.8	7.6	8.0	8.1	7.9	8.4	4.6	6.3	8.3	5.3	2.4	3.3	7.6	6.6	5.6	6.8	3.2	3.0	1.2	24	8.4	1.2	5.2	0	0
4	1.7	7.6	12.2	3.9	6.0	9.7	12.2	10.7	8.8	5.8	7.1	6.9	9.5	9.4	8.3	6.6	6.3	2.7	0.0	0.2	0.2	0.0	0.0	0.0	24	12.2	0.0	5.6	0	0
5	4.3	12.5	6.7	5.0	1.5	4.2	5.3	5.3	7.4	7.4	6.8	5.2	5.5	4.7	3.9	4.4	6.3	5.1	2.6	1.5	0.6	1.6	7.9	7.8	24	12.5	0.6	5.2	0	0
6	5.5	5.1	3.6	2.1	2.2	2.7	6.7	8.0	7.3	4.5	9.2	11.4	10.3	6.5	5.0	5.7	6.7	10.3	7.9	7.1	9.8	10.4	8.7	8.5	24	11.4	2.1	6.9	0	0
7	6.0	11.1	2.9	2.4	4.9	5.6	3.6	5.0	4.9	7.4	3.2	7.4	5.8	3.9	1.8	5.0	2.6	2.2	3.1	6.0	25.0	30.9	25.6	1.6	24	30.9	1.6	7.4	0	0
8	3.3	8.7	5.8	2.0	1.4	1.1	0.8	1.3	1.7	1.5	1.8	1.7	1.0	1.4	0.7	1.1	1.4	1.6	3.7	2.0	3.1	8.1	5.8	9.7	24	9.7	0.7	3.0	0	0
9	6.5	3.9	2.0	1.9	0.2	0.0	1.4	4.2	0.2	0.0	0.0	0.0	0.0	0.4	0.7	1.6	1.7	4.0	2.7	2.6	4.6	5.7	2.2	1.1	24	6.5	0.0	2.0	0	0
10	1.0	0.6	0.0	0.0	0.2	5.2	12.2	17.0	7.2	6.3	13.1	9.6	11.2	6.5	0.7	0.5	0.9	0.8	0.9	0.5	0.3	0.0	0.0	0.0	24	17.0	0.0	3.9	0	0
11	0.0	0.0	0.0	1.0	0.0	0.0	0.1	0.8	1.8	0.2	0.0	0.0	0.3	0.2	0.1	0.4	0.0	0.0	0.0	0.0	0.0	2.6	1.8	1.6	24	2.6	0.0	0.5	0	0
12	1.3	0.0	1.0	0.5	0.8	0.8	1.2	1.7	2.8	1.1	1.5	1.7	1.1	1.2	1.7	0.3	0.8	0.4	2.0	4.3	8.9	2.5	2.9	2.5	24	8.9	0.0	1.8	0	0
13	2.9	3.7	3.3	4.3	3.6	4.4	3.9	4.9	8.9	4.9	6.9	4.7	3.4	8.5	5.6	6.0	5.1	4.5	4.3	2.2	4.3	8.9	7.5	5.9	24	8.9	2.2	5.1	0	0
14	7.1	3.5	5.4	3.8	4.7	3.3	4.3	7.0	8.3	10.1	13.0	6.0	3.8	8.8	13.1	11.5	12.6	12.1	10.8	12.5	4.2	3.0	3.4	2.9	24	13.1	2.9	7.3	0	0
15	1.4	3.7	13.6	3.1	2.7	2.4	3.0	3.9	5.4	6.0	2.5	1.3	1.4	1.6	1.2	2.1	2.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	24	13.6	0.0	2.4	0	0
16	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.1	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.9	2.5	0.9	1.3	2.1	0.8	0.4	24	2.5	0.0	0.5	0	0
17	1.0	1.1	1.4	1.3	2.1	2.1	2.3	3.8	12.4	14.6	5.1	6.4	5.0	5.1	3.7	4.0	2.4	2.7	4.3	6.7	9.7	10.1	9.1	10.4	24	14.6	1.0	5.3	0	0
18	14.0	15.6	15.5	12.2	18.0	20.0	18.9	18.5	19.1	15.0	10.0	7.9	8.6	6.8	4.0	4.5	3.4	3.9	5.5	9.3	11.8	9.6	11.3	11.2	24	20.0	3.4	11.4	0	0
19	23.1	17.4	12.4	11.1	7.3	6.8	10.4	11.3	7.0	7.3	7.4	6.6	6.6	6.4	8.1	7.2	2.4	2.4	1.8	1.8	6.2	2.6	3.3	15.2	24	23.1	1.8	8.0	0	0
20	11.8	23.8	20.1	20.7	20.4	10.1	11.8	11.0	14.7	20.7	14.3	10.9	8.4	7.5	5.8	7.9	6.9	6.3	7.1	5.5	11.6	5.1	7.4	9.0	24	23.8	5.1	11.6	0	0
21	9.4	8.8	15.2	10.0	6.4	4.7	4.5	4.4	9.9	11.8	7.1	5.2	4.1	4.4	4.3	6.0	13.7	16.2	18.7	12.7	5.7	7.3	5.2	3.4	24	18.7	3.4	8.3	0	0
22	3.3	13.6	11.2	4.6	2.6	4.1	2.7	5.1	4.4	4.1	4.3	5.0	4.1	2.6	1.7	5.5	3.2	5.9	6.1	5.4	8.7	8.6	7.6	4.7	24	13.6	1.7	5.4	0	0
23	4.2	3.3	13.0	15.5	19.9	5.9	10.0	14.2	17.4	9.1	4.9	4.0	3.3	6.3	4.9	3.4	6.8	6.0	3.7	4.2	4.4	6.8	9.8	3.2	24	19.9	3.2	7.7	0	0
24	4.1	2.0	5.1	2.0	1.5	2.1	1.9	4.4	4.5	4.3	4.4	1.7	1.7	2.5	4.4	3.9	3.1	3.3	4.7	4.4	2.8	2.4	1.8	2.9	24	5.1	1.5	3.2	0	0
25	2.5	3.2	2.5	3.4	4.6	3.5	3.4	3.9	3.9	4.5	3.7	3.4	3.8	6.2	5.7	4.8	5.0	8.0	7.7	3.7	2.6	1.8	0.3	2.7	24	8.0	0.3	3.9	0	0
26	0.0	0.8	3.6	1.2	2.4	1.3	5.5	4.6	3.6	5.4	5.2	C	C	13.6	12.7	6.3	3.5	2.9	1.3	1.6	9.8	10.1	12.0	13.7	22	13.7	0.0	5.5	0	0
27	9.4	6.3	6.2	3.5	3.6	6.0	6.4	5.1	4.3	6.3	7.8	4.4	6.9	11.0	8.0	7.7	4.8	4.6	8.6	11.2	6.3	7.8	8.5	8.4	24	11.2	3.5	6.8	0	0
28	4.1	4.2	3.1	8.2	20.0	12.5	7.8	7.3	14.9	9.3	9.4	3.1	4.6	3.9	5.6	8.7	8.0	4.5	10.7	5.9	4.1	2.7	4.8	3.2	24	20.0	2.7	7.1	0	0
29	3.3	3.8	3.4	3.7	1.7	1.6	4.9	3.9	5.7	3.3	2.3	2.2	1.8	1.6	1.4	1.6	1.2	1.1	1.1	0.9	0.7	0.5	0.5	0.5	24	5.7	0.5	2.2	0	0
30	0.5	0.5	0.4	0.4	0.5	0.9	1.4	2.2	2.1	2.0	1.5	3.4	8.3	9.9	7.7	8.3	11.9	13.0	12.9	12.6	9.9	8.6	7.1	6.9	24	13.0	0.4	5.5	0	0
31	6.0	4.6	5.1	4.0	4.1	5.7	7.6	7.3	6.2	6.2	4.5	3.9	4.4	4.6	5.4	5.8	2.7	3.7	6.4	11.9	15.5	17.2	14.7	15.7	24	17.2	2.7	7.2	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	742					
Maximum	23.1	23.8	20.1	20.7	20.4	20.0	18.9	18.5	19.1	20.7	14.3	11.4	11.2	13.6	13.1	11.5	13.7	16.2	18.7	12.7	25.0	30.9	25.6	15.7	24					
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22					
Average	4.6	5.6	5.7	4.5	4.8	4.3	5.4	6.3	6.9	6.3	5.6	4.5	4.5	5.2	4.3	4.3	4.4	4.6	5.0	5.0	6.4	6.0	5.9	5.1						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.4	1.4	2.3	3.4	4.3	5.1	6.5	8.1	11.3	14.0	20.3	30.9

Maximum Hourly	30.9
Maximum Daily	11.6
Monthly Average	5.2

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
November 2017
(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	13.9	15.8	11.0	11.8	9.2	13.7	13.2	10.2	10.2	15.2	10.4	5.6	5.0	4.4	5.5	9.5	6.1	5.2	11.9	5.1	7.2	3.8	5.0	5.8	24	15.8	3.8	8.9	0	0
2	6.4	5.3	6.8	4.9	5.8	6.6	10.4	15.9	18.6	13.0	13.1	11.2	9.5	11.6	10.5	8.7	9.5	12.8	9.9	13.7	14.1	9.9	7.3	4.8	24	18.6	4.8	10.0	0	0
3	2.3	1.8	1.7	1.5	1.5	1.5	6.5	4.9	3.9	2.2	1.4	1.3	1.1	0.9	0.7	0.9	0.8	0.9	1.2	2.2	2.7	1.0	2.3	1.8	24	6.5	0.7	2.0	0	0
4	1.3	1.1	0.6	0.5	0.5	1.9	4.3	3.5	3.7	2.8	1.6	1.2	4.1	1.3	1.0	1.1	1.9	2.0	3.1	2.7	2.0	2.2	2.0	1.4	24	4.3	0.5	2.0	0	0
5	1.8	1.8	4.6	2.7	2.1	1.8	1.9	1.7	2.4	5.7	2.7	4.3	4.5	6.1	6.5	10.3	7.3	6.1	5.1	5.2	7.1	8.3	5.3	2.5	24	10.3	1.7	4.5	0	0
6	2.8	1.4	1.4	0.9	0.7	0.8	0.9	2.3	2.4	1.4	0.9	0.8	0.9	1.7	1.2	1.0	1.2	0.9	1.0	1.4	1.9	1.0	0.7	0.8	24	2.8	0.7	1.3	0	0
7	0.2	0.6	0.6	0.8	2.9	6.6	8.0	6.2	5.5	4.5	3.9	3.0	1.2	1.3	1.5	2.0	6.7	13.2	11.0	7.5	4.7	6.0	3.9	3.7	24	13.2	0.2	4.4	0	0
8	2.8	2.3	2.4	2.6	1.7	4.1	4.5	10.9	14.7	16.7	12.0	9.2	9.3	9.0	10.3	11.0	10.4	13.2	10.0	13.3	7.5	7.1	6.5	6.1	24	16.7	1.7	8.2	0	0
9	5.8	6.0	5.4	6.7	6.7	9.4	9.2	12.2	12.7	17.9	18.8	13.5	12.8	11.9	10.2	13.7	10.1	7.9	8.4	1.3	1.0	0.7	0.6	0.3	24	18.8	0.3	8.5	0	0
10	0.2	0.3	0.2	0.2	0.3	0.3	0.4	1.0	1.3	0.9	1.1	1.0	2.0	1.0	1.3	1.2	1.8	3.2	5.8	4.2	3.5	3.6	3.7	3.5	24	5.8	0.2	1.8	0	0
11	1.2	0.4	0.4	0.3	0.2	0.6	1.2	1.0	2.0	2.1	0.9	0.7	0.6	0.7	2.3	1.8	1.7	3.8	2.0	1.8	2.7	2.6	5.6	2.7	24	5.6	0.2	1.6	0	0
12	2.5	2.2	2.7	2.2	2.1	2.8	6.0	5.9	4.0	4.1	3.9	4.2	3.8	4.9	8.8	7.7	8.9	8.2	7.2	6.2	6.6	8.1	7.4	5.5	24	8.9	2.1	5.3	0	0
13	9.9	7.9	6.1	7.3	4.2	3.7	3.6	6.5	10.9	11.9	10.1	7.3	6.0	9.7	13.2	11.8	12.7	15.6	16.1	9.4	9.5	9.9	10.4	6.6	24	16.1	3.6	9.2	0	0
14	5.0	3.8	4.1	9.4	6.4	5.1	4.2	6.0	8.2	14.3	13.2	9.7	9.2	6.7	7.2	4.6	10.1	18.6	16.2	16.6	16.5	13.8	9.7	10.6	24	18.6	3.8	9.6	0	0
15	8.6	8.3	8.3	7.9	6.1	8.8	10.6	8.9	7.5	5.2	6.1	5.4	5.3	4.0	6.2	11.3	8.6	14.6	7.3	7.9	9.1	5.9	6.4	5.3	24	14.6	4.0	7.7	0	0
16	4.9	4.8	7.0	6.3	5.0	4.7	5.5	6.8	6.6	9.2	7.5	3.7	2.1	1.6	1.5	1.6	1.4	1.3	0.9	0.7	0.5	0.4	0.3	0.4	24	9.2	0.3	3.5	0	0
17	0.3	0.2	0.1	0.3	0.3	0.5	0.8	2.0	1.7	1.1	1.2	1.7	5.2	7.9	8.7	11.3	13.4	10.6	16.2	15.2	13.3	6.7	7.0	6.7	24	16.2	0.1	5.5	0	0
18	4.0	6.5	4.7	5.4	3.9	3.5	4.5	4.7	8.1	7.3	8.5	5.7	6.8	9.9	10.1	8.2	6.3	7.6	4.5	4.7	5.5	3.9	2.7	2.2	24	10.1	2.2	5.8	0	0
19	1.4	1.1	1.1	1.0	0.5	0.4	0.5	0.4	0.5	0.4	0.4	0.2	0.5	1.0	0.7	0.6	0.8	0.8	0.7	0.8	1.3	1.1	1.3	1.4	24	1.4	0.2	0.8	0	0
20	0.2	0.3	0.3	0.5	8.7	8.0	10.1	10.6	11.5	10.0	9.4	9.9	11.9	12.6	14.2	14.8	16.1	20.2	10.3	7.2	11.2	9.2	6.6	5.7	24	20.2	0.2	9.1	0	0
21	4.7	5.0	6.2	4.4	4.7	5.5	4.6	4.8	4.5	6.2	6.6	5.5	4.2	5.0	5.7	6.1	7.1	7.8	8.8	9.2	8.2	4.6	2.6	1.3	24	9.2	1.3	5.6	0	0
22	1.4	1.3	0.9	0.8	0.6	1.2	1.9	3.8	4.8	4.3	3.4	6.6	2.6	3.2	9.0	5.6	3.9	1.6	0.7	1.3	1.6	1.5	1.7	2.8	24	9.0	0.6	2.8	0	0
23	6.2	12.2	14.0	8.7	5.6	6.1	5.8	16.3	24.1	19.1	15.2	13.4	10.9	11.0	13.4	9.9	10.0	10.0	10.7	11.2	13.6	15.4	16.2	14.3	24	24.1	5.6	12.2	0	0
24	14.9	14.2	15.9	13.1	19.4	15.1	14.3	16.0	11.2	13.4	6.8	8.9	6.6	8.1	6.2	10.5	6.8	7.6	9.3	14.3	11.9	9.0	10.2	10.0	24	19.4	6.2	11.4	0	0
25	9.2	10.0	10.6	4.0	5.6	4.6	6.8	5.8	12.5	15.8	15.6	7.3	3.9	2.8	1.9	1.9	3.3	1.4	2.3	5.9	1.4	1.7	1.0	0.7	24	15.8	0.7	5.7	0	0
26	0.7	1.0	0.5	0.3	0.7	0.3	0.3	0.5	0.7	1.1	1.3	1.1	1.7	4.2	5.6	3.4	4.7	4.4	4.1	5.7	9.8	8.6	8.5	10.0	24	10.0	0.3	3.3	0	0
27	10.5	1.3	0.6	0.6	0.5	0.4	0.5	2.2	2.9	3.0	2.1	3.5	2.3	7.2	4.1	4.0	3.5	3.9	10.6	12.2	4.5	6.2	3.6	4.7	24	12.2	0.4	4.0	0	0
28	4.6	6.8	7.2	5.2	6.0	6.0	6.5	10.9	13.9	11.3	8.8	12.0	9.6	8.6	9.9	10.0	11.7	8.6	11.6	8.8	7.0	6.9	7.5	6.2	24	13.9	4.6	8.6	0	0
29	7.8	2.8	4.5	3.5	3.8	3.7	5.8	21.4	12.5	5.4	6.0	7.5	4.6	C	C	4.3	6.4	10.5	6.4	3.1	3.0	3.0	3.1	9.5	22	21.4	2.8	6.3	0	0
30	4.6	4.7	6.0	8.9	12.8	9.5	9.1	14.6	19.1	6.6	6.0	6.7	7.7	14.1	19.8	26.0	23.2	21.5	20.1	22.8	24.3	19.9	19.6	8.2	24	26.0	4.6	14.0	0	0
31																													0	0
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	718					
Maximum	14.9	15.8	15.9	13.1	19.4	15.1	14.3	21.4	24.1	19.1	18.8	13.5	12.8	14.1	19.8	26.0	23.2	21.5	20.1	22.8	24.3	19.9	19.6	14.3	24					
Minimum	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.5	0.4	0.4	0.2	0.5	0.7	0.7	0.6	0.8	0.8	0.7	0.7	0.5	0.4	0.3	0.3	22					
Average	4.7	4.4	4.5	4.1	4.3	4.6	5.4	7.3	8.1	7.7	6.6	5.7	5.2	5.9	6.8	7.2	7.2	8.1	7.8	7.4	7.1	6.1	5.6	4.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.8	1.4	2.3	4.0	5.3	6.5	8.2	10.0	13.2	15.3	20.2	26.0

Maximum Hourly	26.0
Maximum Daily	14.0
Monthly Average	6.1

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
December 2017
(ppb)

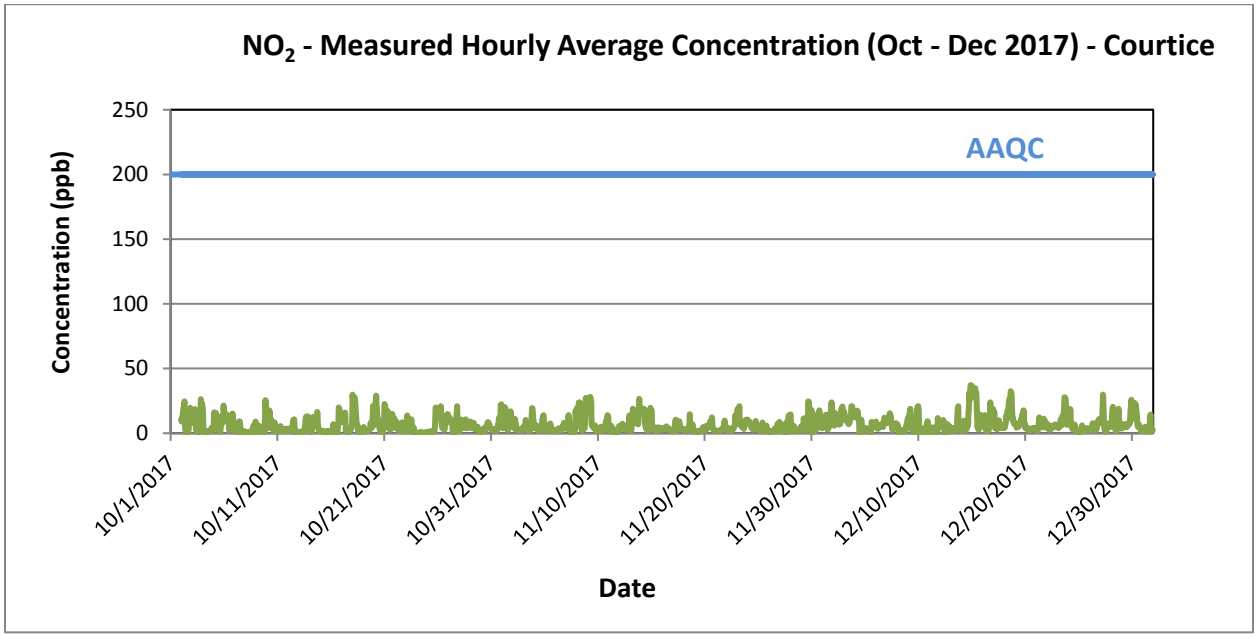
Day	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	4.7	5.1	7.4	6.0	6.2	6.5	18.4	14.3	16.1	17.2	6.7	6.0	4.2	5.3	6.5	14.0	16.7	18.5	13.0	10.6	12.6	13.3	11.2	8.8	24	18.5	4.2	10.4	0	0
2	8.7	11.8	8.9	9.5	7.5	7.6	7.7	7.6	7.8	6.3	7.5	8.2	7.3	7.1	7.6	11.1	14.9	10.4	10.7	12.0	10.3	11.4	11.6	11.4	24	14.9	6.3	9.4	0	0
3	10.1	9.1	7.6	7.2	8.3	7.8	8.3	7.2	9.3	9.5	6.9	8.5	8.8	8.5	9.6	12.3	14.8	16.3	22.1	14.7	9.6	8.3	6.1	5.9	24	22.1	5.9	9.9	0	0
4	4.9	5.1	5.9	4.3	4.2	5.6	9.9	13.8	16.8	16.9	11.2	8.4	9.6	8.2	8.2	9.5	10.1	11.5	16.8	17.8	12.3	9.6	14.1	12.5	24	17.8	4.2	10.3	0	0
5	12.9	18.4	15.2	10.8	9.4	9.3	13.5	11.6	14.7	11.8	9.6	10.1	6.7	7.3	6.8	C	C	C	4.6	3.8	4.5	3.5	4.2	3.6	21	18.4	3.5	9.2	0	0
6	4.8	4.7	2.8	2.7	1.8	2.8	3.5	5.7	5.5	6.4	7.0	5.8	5.4	6.6	7.4	10.5	8.0	5.2	6.7	7.7	6.2	1.7	1.2	1.5	24	10.5	1.2	5.1	0	0
7	0.5	0.3	2.4	2.9	5.4	5.0	6.5	12.8	11.2	12.8	C	C	C	8.1	9.8	8.8	7.7	6.7	8.4	11.2	14.9	11.2	13.6	14.2	21	14.9	0.3	8.3	0	0
8	9.7	9.4	9.8	7.8	3.0	4.1	4.6	5.5	6.2	7.6	6.2	5.4	4.7	4.3	4.3	3.6	3.1	3.8	5.1	5.3	6.0	6.7	11.0	11.3	24	11.3	3.0	6.2	0	0
9	13.0	14.9	12.5	9.8	10.2	9.6	11.4	4.9	5.0	6.9	5.2	4.2	3.8	3.7	5.8	C	C	6.3	6.8	8.1	10.0	12.4	12.3	12.7	22	14.9	3.7	8.6	0	0
10	15.9	14.4	3.5	0.5	0.5	1.4	0.9	0.5	1.4	1.3	2.7	3.2	2.4	2.9	4.9	5.1	6.3	8.8	6.7	6.6	8.4	10.0	0.0	0.0	24	15.9	0.0	4.5	0	0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6	0.9	0.8	2.2	2.7	3.4	C	C	5.6	4.5	2.2	3.4	7.4	2.7	1.6	1.7	22	7.4	0.0	1.9	0	0
12	12.1	4.3	4.5	4.0	2.9	2.8	3.4	3.3	4.6	7.4	14.3	15.9	3.5	A	A	9.8	10.5	12.5	7.4	8.5	8.9	8.7	9.0	7.8	22	15.9	2.8	7.6	0	0
13	7.1	7.4	8.1	8.1	8.2	9.6	9.2	12.9	20.1	16.9	15.1	16.3	14.9	13.2	9.9	11.9	15.6	18.3	19.1	14.5	11.8	9.9	8.9	8.9	24	20.1	7.1	12.3	0	0
14	8.5	8.3	7.7	7.7	8.1	7.6	7.5	11.4	13.5	13.2	11.9	11.9	15.0	15.5	17.6	17.1	13.5	19.5	38.4	40.5	42.9	40.3	33.3	35.5	24	42.9	7.5	18.6	0	0
15	33.3	33.6	27.2	24.3	22.4	20.5	23.9	30.0	34.6	37.4	39.5	37.5	38.2	24.5	22.2	17.6	15.5	17.4	19.4	21.0	21.3	22.2	21.4	17.1	24	39.5	15.5	25.9	0	0
16	14.1	12.9	13.4	16.0	15.6	11.8	12.9	11.4	8.2	7.5	7.3	6.9	6.9	7.4	7.6	8.0	7.9	9.1	11.1	11.5	11.6	13.5	13.0	11.7	24	16.0	6.9	10.7	0	0
17	11.3	10.5	10.3	13.2	13.9	11.5	10.6	10.1	10.3	11.5	14.6	14.0	13.7	15.9	12.9	11.3	10.8	11.3	10.6	10.5	9.9	9.8	10.9	9.0	24	15.9	9.0	11.6	0	0
18	9.0	11.2	9.8	10.2	9.4	15.5	12.5	12.6	15.1	15.2	15.6	15.4	19.8	21.0	25.6	28.6	32.1	30.7	27.8	28.3	21.7	20.6	19.4	17.1	24	32.1	9.0	18.5	0	0
19	16.7	16.6	16.4	15.1	14.2	13.4	12.7	13.3	13.4	14.2	15.0	15.6	14.4	17.5	14.7	13.3	16.3	19.6	20.8	21.0	20.7	23.5	24.4	19.2	24	24.4	12.7	16.7	0	0
20	13.1	6.3	5.9	6.7	7.4	7.0	6.6	7.1	7.5	8.1	9.0	10.3	10.6	9.9	9.9	9.6	9.9	9.3	9.8	11.8	14.2	15.2	14.9	15.4	24	15.4	5.9	9.8	0	0
21	15.8	15.7	15.4	14.7	14.7	15.6	16.4	18.2	21.2	22.8	22.3	22.8	24.3	24.7	25.1	23.7	22.6	22.1	20.2	18.4	19.8	20.1	17.9	15.9	24	25.1	14.7	19.6	0	0
22	13.8	13.9	12.0	10.9	10.1	9.6	8.0	7.6	7.3	7.0	7.3	9.0	11.6	6.1	6.7	10.1	13.4	13.9	14.3	14.4	17.4	20.5	17.3	13.9	24	20.5	6.1	11.5	0	0
23	13.6	14.1	14.3	14.0	14.5	15.2	15.4	15.3	15.3	16.2	17.0	17.6	20.4	23.8	21.2	19.3	26.0	28.0	25.7	23.6	24.2	27.6	23.7	22.4	24	28.0	13.6	19.5	0	0
24	25.8	31.1	34.5	30.9	24.1	20.6	22.7	18.8	17.5	15.1	16.5	18.3	19.0	18.6	16.6	16.1	16.2	12.5	8.8	8.8	9.3	10.0	9.5	8.5	24	34.5	8.5	17.9	0	0
25	9.2	9.4	10.0	13.0	13.0	11.3	9.2	9.0	8.7	9.1	5.9	4.3	4.7	4.2	4.2	5.0	5.7	6.4	6.6	4.9	4.7	5.0	4.6	7.1	24	13.0	4.2	7.3	0	0
26	6.8	6.2	5.7	7.5	7.7	8.0	8.2	9.8	12.8	10.3	9.1	6.9	6.3	6.7	8.8	9.7	11.9	13.0	14.8	12.2	16.5	14.8	14.8	15.2	24	16.5	5.7	10.2	0	0
27	16.1	17.9	16.4	15.7	15.8	15.3	16.9	17.0	17.2	14.5	14.2	12.5	11.6	11.1	10.6	10.4	10.0	9.9	9.9	10.2	10.1	10.0	9.1	8.8	24	17.9	8.8	13.0	0	0
28	8.9	8.8	9.6	13.0	14.0	15.8	12.0	12.1	13.4	12.2	8.1	9.2	11.7	12.0	12.2	11.6	12.6	14.3	14.6	14.1	11.5	10.8	9.0	8.5	24	15.8	8.1	11.7	0	0
29	8.2	7.7	7.9	9.1	10.6	11.0	9.5	10.8	10.6	11.4	14.7	13.3	12.4	12.5	16.4	13.2	11.5	12.0	12.1	12.4	11.8	13.0	13.8	11.3	24	16.4	7.7	11.6	0	0
30	12.3	11.2	10.3	10.5	13.5	18.8	18.5	19.8	19.4	23.2	29.7	24.7	19.8	14.2	10.6	10.0	10.6	9.1	8.5	7.1	6.3	5.9	6.4	6.4	24	29.7	5.9	13.6	0	0
31	6.2	6.0	5.9	6.2	6.5	7.3	8.1	9.1	8.2	8.0	8.2	8.8	9.3	9.7	10.8	11.0	11.5	12.8	13.4	11.3	10.4	10.4	10.5	10.0	24	13.4	5.9	9.2	0	0
Count	31	31	31	31	31	31	31	31	31	31	30	30	30	30	29	28	29	30	31	31	31	31	31	31	732					
Maximum	33.3	33.6	34.5	30.9	24.1	20.6	23.9	30.0	34.6	37.4	39.5	37.5	38.2	24.7	25.6	28.6	32.1	30.7	38.4	40.5	42.9	40.3	33.3	35.5	24					
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.4	0.9	0.8	2.2	2.4	2.9	4.2	3.6	3.1	3.8	2.2	3.4	4.5	1.7	0.0	0.0	21					
Average	11.2	11.2	10.4	10.1	9.8	9.9	10.6	11.1	12.1	12.2	12.0	11.8	11.5	11.1	11.5	12.2	12.8	13.1	13.4	13.1	13.1	13.0	12.2	11.4						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	4.5	6.6	8.0	9.3	10.5	12.0	13.9	15.8	20.1	24.2	36.8	42.9

Maximum Hourly	42.9
Maximum Daily	25.9
Monthly Average	11.6

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



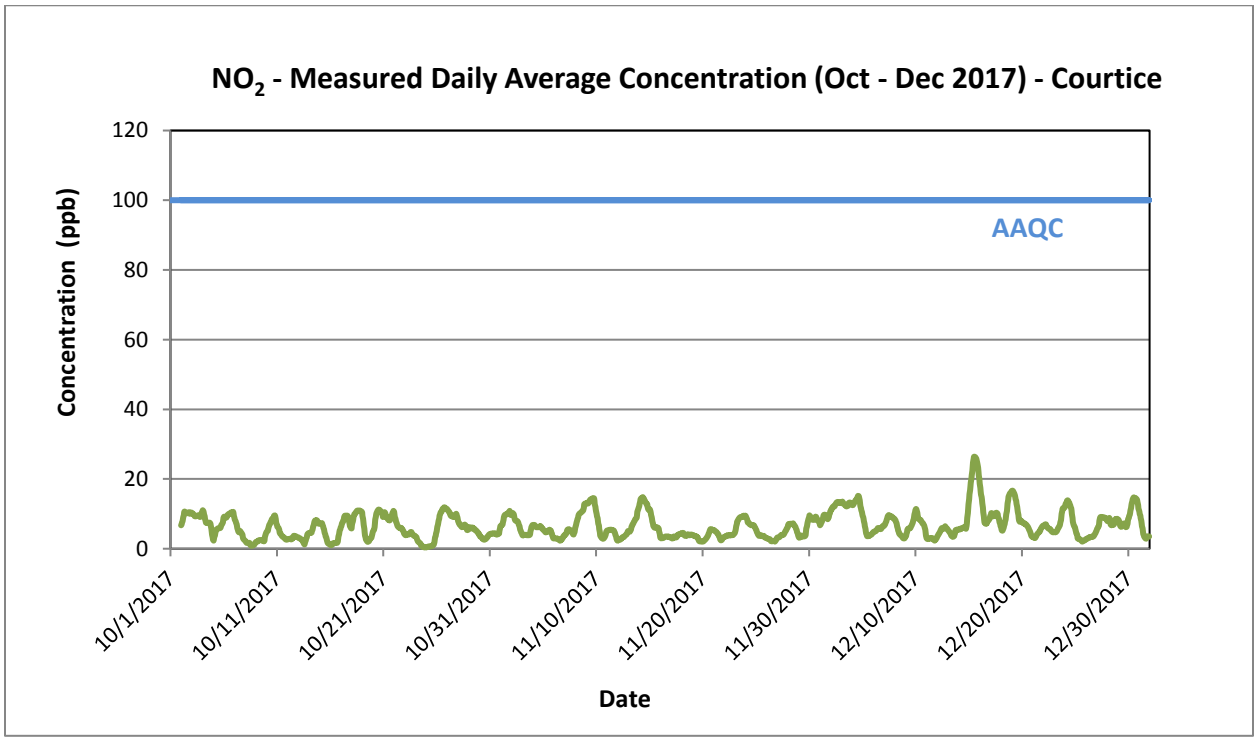
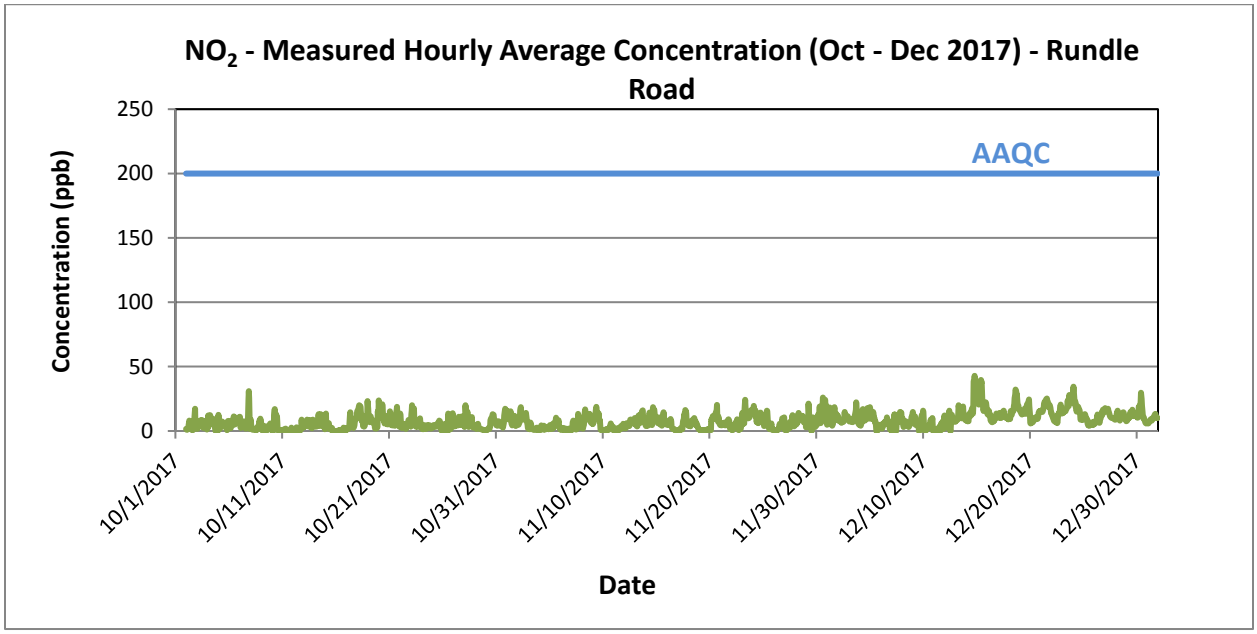
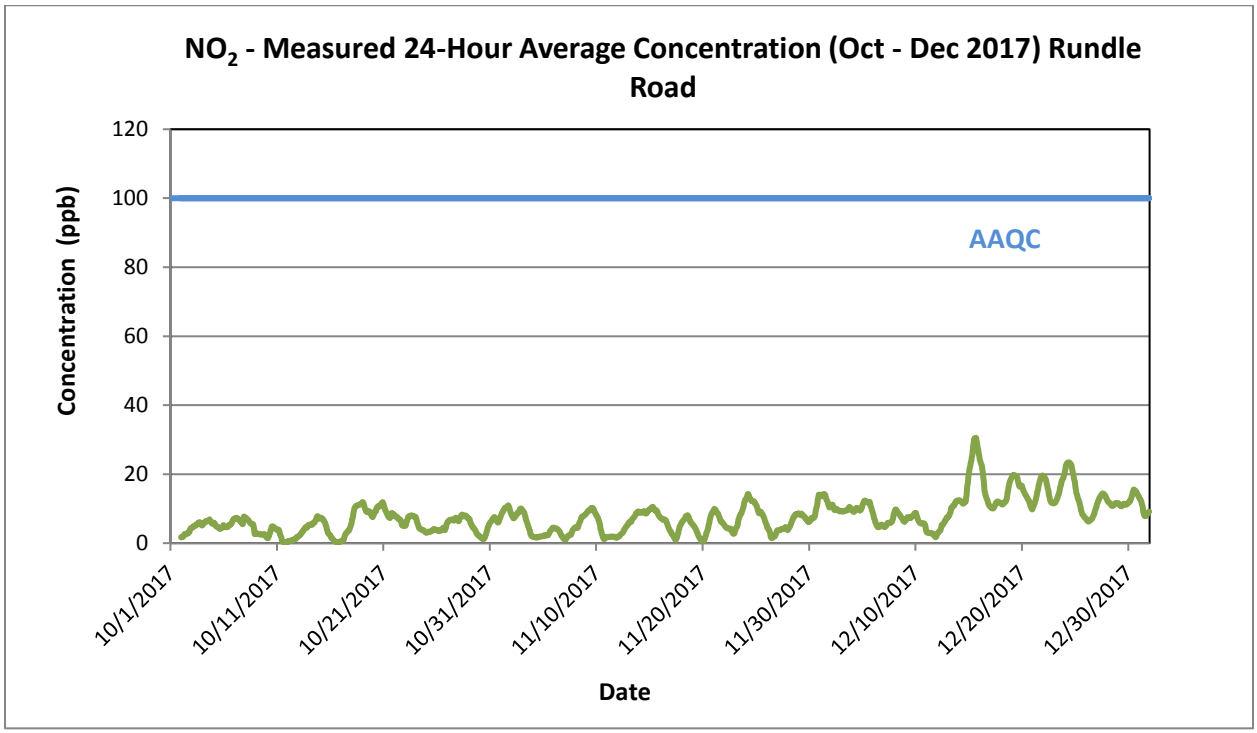


Figure C-2 Time History Plots of Measured Hourly Average and 24 Hour Average NO_2 Concentrations – Rundle Road Station





Appendix D NO_X DATA SUMMARIES AND TIME HISTORY PLOTS

NOx COURTICE
October 2017
(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
1	4.9	2.2	3.5	2.3	4.6	8.1	8.0	11.9	9.8	11.2	8.2	5.6	3.0	1.5	1.1	1.3	1.6	0.8	24.7	42.1	26.9	17.1	14.8	12.0	24	42.1	0.8	9.5
2	12.7	10.2	14.4	19.6	18.3	25.6	37.7	47.3	17.7	6.4	2.6	1.0	0.9	1.2	0.7	1.6	4.6	4.0	19.9	18.3	25.0	21.3	14.8	17.8	24	47.3	0.7	14.3
3	10.7	8.5	10.5	11.7	18.3	17.2	32.4	40.2	21.9	5.3	2.7	2.6	2.8	1.9	1.8	1.9	1.8	2.4	10.8	16.2	28.7	26.3	24.6	31.1	24	40.2	1.8	13.8
4	25.2	17.9	3.5	1.5	1.8	1.6	1.6	2.5	2.2	2.3	2.2	1.9	1.6	2.3	2.1	2.2	2.2	2.8	3.5	4.0	4.8	4.6	4.1	3.2	24	25.2	1.5	4.2
5	6.2	6.4	25.0	16.8	12.9	19.3	32.6	15.7	13.9	8.4	6.2	5.5	6.2	3.9	2.3	2.0	1.9	7.6	14.1	11.3	11.0	8.7	12.9	81.6	24	81.6	1.9	13.8
6	55.3	29.7	20.7	16.6	23.7	19.8	28.0	24.9	22.5	19.3	17.0	8.6	3.6	4.4	6.2	6.4	6.0	6.0	10.7	18.7	13.2	11.0	3.1	4.8	24	55.3	3.1	15.8
7	4.5	4.0	8.7	4.3	5.0	2.3	1.6	1.5	0.7	1.9	2.8	12.4	11.0	5.5	2.1	1.5	1.3	1.3	1.6	1.7	1.3	2.1	1.4	1.4	24	12.4	0.7	3.4
8	1.1	1.4	1.4	1.4	1.3	0.9	1.4	1.5	1.7	1.7	2.1	2.3	1.4	2.0	1.0	1.5	1.3	1.3	7.6	2.5	2.1	3.6	6.1	13.9	24	13.9	0.9	2.6
9	5.9	4.2	3.2	2.4	0.8	3.8	2.7	6.8	2.9	3.8	3.2	1.6	1.0	1.1	1.2	1.2	0.8	0.9	0.6	1.3	15.5	50.8	29.9	33.7	24	50.8	0.6	7.5
10	17.1	17.5	6.6	4.6	8.6	40.7	66.7	43.9	10.3	12.1	21.3	12.3	8.7	10.0	7.8	3.3	5.9	8.6	10.9	5.8	6.1	5.0	3.1	1.8	24	66.7	1.8	14.1
11	3.0	1.9	1.7	2.4	5.2	3.2	7.4	8.3	6.0	5.7	5.4	5.4	5.1	6.0	4.3	3.9	4.2	5.8	3.4	2.9	4.0	3.7	3.0	4.7	24	8.3	1.7	4.4
12	2.9	2.7	3.4	3.7	4.8	4.7	6.0	5.7	4.9	6.9	9.9	23.2	9.1	22.9	20.7	2.2	5.0	3.3	2.1	1.3	0.9	1.6	1.4	1.7	24	23.2	0.9	6.3
13	1.6	1.2	1.2	1.2	1.4	1.6	1.6	1.9	2.5	2.0	2.2	2.1	2.5	2.4	4.1	13.2	15.8	15.9	14.4	12.6	14.3	15.1	5.8	2.6	24	15.9	1.2	5.8
14	2.3	2.0	2.0	1.7	1.4	1.5	4.1	15.1	14.9	17.4	17.2	21.4	22.6	17.0	15.1	11.0	11.5	14.1	19.3	7.2	4.7	2.7	3.5	2.1	24	22.6	1.4	9.7
15	2.9	3.4	2.5	2.2	2.0	2.4	2.4	2.5	2.5	1.7	1.6	1.2	1.0	1.1	1.2	2.6	2.2	1.8	2.5	2.5	1.5	1.2	1.4	0.7	24	3.4	0.7	2.0
16	2.3	0.9	1.1	3.4	3.7	7.1	10.4	5.5	3.1	2.5	3.3	3.0	2.5	3.0	3.0	2.2	7.0	10.9	35.7	52.3	49.0	55.0	32.3	28.9	24	55.0	0.9	13.7
17	25.9	16.2	19.6	34.1	34.5	43.3	49.6	37.2	55.8	21.0	3.0	2.1	2.3	1.8	1.7	1.1	1.4	1.4	1.6	2.0	3.3	4.7	4.4	4.7	24	55.8	1.1	15.5
18	9.3	36.5	33.7	40.6	29.7	41.9	60.5	43.7	30.7	25.3	11.8	9.3	9.3	5.4	1.8	1.7	1.6	1.5	1.5	1.5	1.8	3.0	3.7	3.5	24	60.5	1.5	17.0
19	4.1	4.3	5.8	4.5	1.9	1.9	2.1	2.6	2.7	2.7	4.2	2.9	2.7	3.2	3.7	3.9	4.1	7.3	8.8	4.7	5.3	5.2	13.5	25.5	24	25.5	1.9	5.3
20	14.4	12.6	11.1	7.3	53.3	40.1	84.8	51.4	33.7	18.7	17.7	15.1	10.8	8.1	4.2	3.7	2.6	1.7	1.1	1.2	1.1	2.4	2.6	6.8	24	84.8	1.1	16.9
21	13.9	24.4	28.3	102.8	135.3	146.9	59.4	63.5	48.7	7.3	5.7	6.1	6.9	4.0	3.4	4.5	6.0	10.7	16.5	5.7	12.0	11.4	11.2	14.2	24	146.9	3.4	31.2
22	9.3	5.0	4.7	7.4	11.8	5.6	8.2	7.1	5.1	2.9	2.5	2.1	1.9	2.1	3.6	3.3	9.7	9.5	9.0	3.8	5.7	8.0	2.6	1.9	24	11.8	1.9	5.5
23	3.0	2.1	1.8	6.3	17.9	6.4	8.8	5.2	4.4	4.8	4.3	3.3	5.9	13.5	5.2	3.6	1.7	1.6	5.6	2.4	2.0	2.4	1.6	0.7	24	17.9	0.7	4.8
24	0.8	0.4	0.6	0.5	0.6	0.8	1.0	0.4	1.1	1.9	2.0	1.6	1.0	1.2	1.1	1.1	1.2	1.0	1.1	1.2	0.9	1.1	1.1	1.1	24	2.0	0.4	1.0
25	1.1	1.5	1.5	1.4	1.7	2.0	1.8	2.1	1.8	2.2	2.1	3.3	3.0	3.1	2.8	2.8	2.4	2.4	7.0	15.7	23.6	20.3	12.5	16.2	24	23.6	1.1	5.6
26	32.4	25.0	24.6	26.9	17.1	23.3	40.5	52.0	21.1	18.3	7.8	7.2	15.6	15.8	7.8	3.6	4.6	8.9	9.8	12.4	16.4	19.4	30.5	38.0	24	52.0	3.6	20.0
27	46.9	28.3	53.8	49.0	45.4	15.4	14.9	16.0	15.2	17.6	2.9	C	C	5.5	3.9	3.0	6.9	7.9	12.0	18.2	23.3	12.0	4.6	2.6	22	53.8	2.6	18.4
28	1.3	1.6	1.8	3.4	7.7	10.0	4.8	3.9	4.0	4.8	10.5	5.2	6.9	5.4	6.2	11.3	5.4	3.4	7.4	7.8	5.3	4.2	5.7	8.9	24	11.3	1.3	5.7
29	4.8	5.5	12.4	4.3	9.9	4.2	5.3	6.7	5.7	10.9	4.7	6.3	3.0	4.8	4.8	4.4	4.7	4.4	7.5	2.7	3.0	1.7	1.4	1.6	24	12.4	1.4	5.2
30	1.3	0.8	1.8	1.3	1.5	2.3	3.0	3.7	2.9	2.8	3.3	2.3	4.3	5.0	4.6	5.5	8.6	8.8	7.9	8.0	5.6	5.9	4.6	3.8	24	8.8	0.8	4.1
31	2.9	2.9	2.7	2.1	2.0	3.0	3.2	3.3	4.0	6.7	5.6	5.6	3.3	3.3	2.7	4.8	8.2	8.9	12.5	7.4	9.4	5.8	30.8	32.8	24	32.8	2.0	7.2
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	742			
Maximum	55.3	36.5	53.8	102.8	135.3	146.9	84.8	63.5	55.8	25.3	21.3	23.2	22.6	22.9	20.7	13.2	15.8	15.9	35.7	52.3	49.0	55.0	32.3	81.6	24			
Minimum	0.8	0.4	0.6	0.5	0.6	0.8	1.0	0.4	0.7	1.7	1.6	1.0	0.9	1.1	0.7	1.1	0.8	0.8	0.6	1.2	0.9	1.1	1.1	0.7	22			
Average	10.6	9.1	10.1	12.5	15.6	16.4	19.1	17.2	12.1	8.3	6.3	6.1	5.3	5.4	4.3	3.7	4.6	5.4	9.4	9.5	10.6	10.9	9.4	13.0				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.4	1.9	2.5	3.3	4.6	6.0	9.0	14.8	24.7	37.2	60.1	146.9

Maximum Hourly	146.9
Maximum Daily	31.2
Monthly Average	9.8

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

NOx COURTICE
November 2017
(ppb)

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		
1	19.9	6.0	5.3	3.6	3.9	5.7	30.5	42.2	54.2	39.9	8.8	4.6	4.2	2.8	2.5	5.6	13.4	13.4	10.8	11.7	19.8	14.7	10.6	12.9	24	54.2	2.5	14.5		
2	13.7	13.1	14.0	8.3	3.3	6.5	15.9	9.1	6.4	2.3	2.7	2.6	2.8	2.0	2.0	2.3	2.4	2.5	2.9	2.4	2.2	1.9	1.9	2.6	24	15.9	1.9	5.2		
3	7.2	5.0	3.8	4.2	5.7	6.7	10.0	8.3	8.2	4.8	2.9	3.4	2.9	2.6	1.9	2.9	2.7	3.3	5.7	8.7	21.4	42.2	26.9	14.0	24	42.2	1.9	8.5		
4	13.9	8.5	4.5	6.5	7.2	6.4	7.6	3.8	4.6	3.1	3.4	2.1	2.2	3.8	3.1	8.6	8.1	6.9	5.2	16.1	16.0	20.1	22.2	15.4	24	22.2	2.1	8.3		
5	4.1	2.1	2.2	1.8	1.7	2.4	2.7	1.9	7.5	3.4	4.4	5.3	4.1	9.0	6.9	5.7	1.4	1.7	3.1	1.4	1.7	1.7	1.2	0.8	24	9.0	0.8	3.3		
6	1.5	2.8	1.9	1.6	2.1	1.8	2.3	2.9	3.8	2.7	2.8	3.5	3.0	3.3	2.7	4.7	4.7	5.7	5.3	5.9	9.2	6.5	8.2	7.1	24	9.2	1.5	4.0		
7	4.4	5.2	3.3	4.3	7.9	8.7	15.3	16.0	7.6	4.3	5.9	1.4	0.3	0.2	0.1	0.0	0.0	0.1	0.7	0.5	0.3	6.2	26.7	17.3	24	26.7	0.0	5.7		
8	32.9	47.4	38.7	25.3	23.8	33.8	39.5	96.9	51.7	16.5	16.2	5.5	3.0	2.1	4.6	3.2	3.3	2.8	3.6	4.1	47.8	64.4	55.7	54.0	24	96.9	2.1	28.2		
9	42.7	51.9	46.5	39.6	72.0	67.9	56.6	131.0	108.9	49.2	9.8	6.6	8.5	5.4	4.4	4.8	3.5	4.1	6.0	2.6	3.3	1.6	2.6	1.6	24	131.0	1.6	30.5		
10	2.9	2.5	1.8	1.7	1.9	3.6	5.2	6.8	4.5	3.5	3.8	2.6	2.5	3.1	2.8	2.8	3.2	6.3	9.6	8.7	7.5	13.2	15.8	13.1	24	15.8	1.7	5.4		
11	11.2	3.6	2.7	1.1	2.9	7.8	9.0	6.2	4.4	3.9	5.7	0.4	0.9	1.4	2.5	0.6	0.0	0.0	0.2	0.2	0.7	0.9	1.2	1.3	24	11.2	0.0	2.9		
12	6.1	6.3	4.5	3.0	5.3	5.1	5.8	7.3	6.6	7.2	8.7	5.0	3.2	2.9	3.0	3.9	3.8	4.3	3.3	2.6	2.3	2.0	10.8	14.6	24	14.6	2.0	5.3		
13	11.3	2.8	2.2	1.4	4.0	11.0	14.1	25.7	22.2	14.0	16.3	8.4	9.8	11.2	9.7	8.8	9.0	9.5	6.5	7.1	35.9	52.9	31.0	26.1	24	52.9	1.4	14.6		
14	19.4	16.3	18.7	26.8	37.8	32.5	41.8	63.5	67.1	37.9	10.6	6.9	4.5	3.6	2.6	1.7	2.0	2.9	8.9	4.1	2.5	23.9	37.7	33.6	24	67.1	1.7	21.1		
15	26.1	25.0	5.0	6.9	2.9	2.5	2.4	3.4	2.4	2.1	2.0	2.0	2.6	2.1	2.5	4.8	3.3	2.7	2.8	4.2	3.0	2.7	2.5	2.7	24	26.1	2.0	4.9		
16	2.8	3.0	3.6	3.9	2.9	3.4	3.2	3.8	4.4	5.7	7.4	5.0	4.2	4.2	3.6	3.5	3.4	3.8	3.4	2.0	3.2	2.0	2.3	2.4	24	7.4	2.0	3.6		
17	1.5	2.4	1.3	1.6	2.0	3.8	11.2	13.4	6.5	3.6	1.8	3.1	4.5	5.9	9.8	10.9	8.0	4.2	4.5	4.1	3.8	2.7	2.9	2.8	24	13.4	1.3	4.8		
18	3.0	2.9	2.4	2.4	2.4	2.2	2.0	2.0	2.0	2.6	2.7	3.5	4.9	2.5	11.3	18.1	6.2	2.8	3.1	2.8	4.9	6.8	3.2	2.8	24	18.1	2.0	4.1		
19	2.0	1.9	1.8	0.8	0.9	0.9	1.6	2.3	1.7	1.8	1.5	0.9	2.5	1.5	2.4	1.8	2.2	1.6	2.2	2.6	4.2	4.7	2.6	4.1	24	4.7	0.8	2.1		
20	2.1	2.1	3.0	3.5	5.5	3.0	3.1	4.6	6.2	6.0	8.6	8.5	10.5	11.3	12.1	11.3	12.7	11.8	4.0	2.6	2.9	2.5	2.3	1.8	24	12.7	1.8	5.9		
21	1.8	1.9	1.7	1.5	1.5	1.3	1.7	1.9	1.9	1.9	2.7	2.3	2.6	2.9	3.1	2.8	2.9	3.8	4.4	3.8	8.4	9.6	5.7	3.8	24	9.6	1.3	3.2		
22	3.8	5.2	2.0	3.2	2.9	3.5	3.1	3.9	3.5	3.5	2.7	2.6	2.6	3.3	4.4	4.3	2.9	3.4	4.5	6.3	6.2	14.4	8.7	8.3	24	14.4	2.0	4.5		
23	7.2	10.7	24.8	18.2	27.0	22.3	30.6	11.0	7.2	10.4	8.9	5.7	6.8	6.2	4.6	4.2	3.3	4.6	5.4	7.1	9.9	10.0	10.8	8.3	24	30.6	3.3	11.1		
24	8.8	10.5	10.0	9.4	9.1	8.6	7.7	5.4	5.9	5.1	4.4	4.6	3.8	3.7	3.7	5.0	3.4	3.7	3.1	12.9	7.1	3.3	3.4	3.1	24	12.9	3.1	6.1		
25	3.0	2.4	1.9	1.5	1.4	1.7	2.0	2.1	4.3	5.1	10.1	5.2	2.4	1.7	2.8	2.3	3.6	2.9	4.6	5.5	1.9	2.7	1.9	0.9	24	10.1	0.9	3.1		
26	1.8	1.0	1.1	0.9	0.6	0.7	1.0	1.6	1.7	1.4	2.0	1.4	2.0	2.8	3.6	2.6	3.1	2.3	2.7	4.0	6.9	6.3	6.4	6.7	24	6.9	0.6	2.7		
27	8.4	2.6	1.2	1.6	1.3	2.0	3.6	7.1	9.0	4.5	4.0	3.6	2.6	C	C	7.5	9.1	10.0	11.6	9.8	12.6	14.9	13.0	13.6	22	14.9	1.2	7.0		
28	15.3	16.4	10.6	2.1	3.7	2.5	5.0	4.1	7.6	7.7	5.5	5.1	4.1	3.6	2.4	3.1	2.7	2.6	2.8	2.1	2.0	1.6	1.8	2.3	24	16.4	1.6	4.9		
29	5.0	4.3	5.5	4.2	5.3	4.3	5.8	12.0	6.1	3.0	3.9	3.4	4.5	3.1	4.5	4.6	11.2	39.0	52.4	24.0	21.2	19.6	24.2	13.9	24	52.4	3.0	11.9		
30	21.8	27.7	1.0	1.3	1.4	1.6	1.4	2.0	2.3	2.8	2.7	3.6	4.0	5.8	20.7	11.6	8.7	17.0	18.1	12.9	13.3	12.1	11.8	9.1	24	27.7	1.0	8.9		
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	718					
Maximum	42.7	51.9	46.5	39.6	72.0	67.9	56.6	131.0	108.9	49.2	16.3	8.5	10.5	11.3	20.7	18.1	13.4	39.0	52.4	24.0	47.8	64.4	55.7	54.0	24					
Minimum	1.5	1.0	1.0	0.8	0.6	0.7	1.0	1.6	1.7	1.4	1.5	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.2	0.2	0.3	0.9	1.2	0.8	22					
Average	10.2	9.8	7.6	6.4	8.3	8.8	11.4	16.7	14.4	8.7	5.8	4.0	3.9	3.9	4.8	5.1	4.8	6.0	6.7	6.1	9.4	12.3	11.9	10.0						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.7	2.3	2.7	3.2	4.0	5.1	6.9	10.0	17.1	32.6	62.3	131.0

Maximum Hourly	131.0
Maximum Daily	30.5
Monthly Average	8.2

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

NOx COURTICE
December 2017
(ppb)

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
1	4.1	7.0	8.2	7.3	7.6	10.1	10.0	14.0	16.1	14.3	8.9	4.9	3.5	4.4	4.3	5.1	9.0	9.8	18.9	25.8	31.0	55.3	42.2	31.3	24	55.3	3.5	14.7
2	22.7	18.0	18.0	6.4	20.6	24.9	19.4	21.0	19.9	20.3	17.4	16.1	15.0	12.1	9.4	12.0	10.5	7.5	15.6	24.7	24.4	30.6	29.8	19.8	24	30.6	6.4	18.2
3	17.9	17.0	21.1	15.2	12.1	16.7	10.5	16.1	14.0	13.3	14.8	9.1	8.7	9.2	10.9	11.2	13.5	15.5	27.1	28.3	48.5	48.9	35.8	35.7	24	48.9	8.7	19.6
4	29.3	24.6	21.3	25.5	29.6	29.8	25.6	22.5	25.3	19.5	13.6	14.0	C	C	C	C	14.4	8.1	4.5	3.9	4.0	3.6	3.1	3.3	20	29.8	3.1	16.3
5	3.4	3.7	3.8	2.9	2.6	1.9	2.5	1.5	1.4	1.8	1.3	0.0	C	C	C	9.9	9.7	9.1	7.8	6.2	6.6	5.5	7.7	7.5	21	9.9	0.0	4.6
6	7.9	10.3	5.2	4.8	4.3	4.3	4.2	4.4	5.1	6.1	7.1	6.4	6.6	7.3	7.8	7.6	7.3	5.4	6.5	8.6	13.2	12.2	11.3	10.6	24	13.2	4.2	7.3
7	9.1	9.6	9.7	10.7	11.3	10.7	13.5	14.7	17.2	16.6	14.4	12.5	7.7	112.3	3.6	4.6	5.8	6.3	7.8	7.4	7.5	8.5	8.5	7.9	24	112.3	3.6	14.1
8	7.8	4.8	7.6	3.5	1.3	1.3	0.8	1.3	2.2	3.0	3.7	3.0	2.5	1.5	1.6	1.1	1.4	2.2	3.1	2.7	3.9	5.6	7.6	8.8	24	8.8	0.8	3.4
9	10.6	12.4	7.7	9.1	14.1	19.1	32.7	3.8	4.2	5.1	3.8	3.9	4.5	C	C	C	C	C	12.1	12.3	13.7	19.9	20.6	22.2	19	32.7	3.8	12.2
10	22.4	20.2	6.1	1.3	1.3	2.6	1.2	2.1	2.8	3.3	2.4	2.7	1.5	2.8	4.2	4.4	5.1	5.2	4.9	5.4	6.3	9.5	4.3	1.4	24	22.4	1.2	5.1
11	1.2	1.9	0.6	0.8	0.0	2.3	5.5	5.8	5.7	2.1	1.8	1.7	C	C	4.7	0.8	0.2	1.0	0.8	1.1	12.5	11.3	5.3	5.0	22	12.5	0.0	3.3
12	6.0	7.5	5.3	5.2	5.9	6.4	8.8	9.9	11.1	11.4	10.5	A	A	3.2	2.8	2.3	4.0	6.7	3.5	4.8	3.5	3.4	4.9	2.7	22	11.4	2.3	5.9
13	2.0	1.7	1.2	1.6	1.6	2.2	3.9	3.9	4.2	4.8	3.8	3.2	2.9	2.6	3.9	6.5	14.4	23.7	23.2	10.0	7.2	4.2	3.0	3.4	24	23.7	1.2	5.8
14	6.5	1.8	1.1	0.8	2.4	2.7	4.4	10.8	8.4	4.9	4.4	3.2	6.3	6.0	9.4	5.6	7.9	16.7	17.6	32.7	26.0	54.8	59.8	51.2	24	59.8	0.8	14.4
15	56.2	60.1	52.9	52.6	54.3	33.0	34.2	42.7	51.4	58.7	63.7	47.9	23.3	4.5	5.6	2.4	1.7	13.4	9.6	10.6	13.7	12.4	11.3	7.7	24	63.7	1.7	30.2
16	6.3	7.6	4.2	4.7	8.5	9.3	13.5	12.2	2.4	1.3	2.3	1.6	2.7	1.4	1.9	3.7	6.4	11.3	27.8	21.0	13.6	18.3	19.3	12.7	24	27.8	1.3	8.9
17	28.3	16.9	17.1	16.4	9.3	3.4	2.9	4.9	6.5	3.6	6.4	7.4	8.4	17.5	7.6	3.8	4.8	5.7	5.9	7.5	6.6	4.3	4.3	3.4	24	28.3	2.9	8.5
18	3.9	3.3	3.7	6.1	5.6	9.1	14.6	11.5	18.4	22.1	26.2	30.6	52.6	52.7	51.1	62.9	87.8	83.6	62.3	24.7	9.3	10.8	9.2	6.5	24	87.8	3.3	27.9
19	6.4	6.6	6.9	6.5	5.1	3.7	4.3	4.6	4.2	5.4	5.0	6.8	7.4	8.0	8.4	11.8	10.4	6.3	14.3	8.5	10.8	17.3	5.7	7.7	24	17.3	3.7	7.6
20	3.6	2.9	2.8	3.7	2.7	2.8	3.0	2.0	2.7	1.5	3.3	2.4	2.0	2.2	4.6	3.8	3.3	2.9	3.6	2.7	3.3	2.2	3.0	5.0	24	5.0	1.5	3.0
21	1.9	3.3	2.3	2.4	1.0	2.9	2.7	10.0	13.1	7.3	9.4	7.6	8.2	8.1	5.9	11.7	4.1	13.1	12.0	8.7	11.1	7.7	8.1	4.4	24	13.1	1.0	7.0
22	4.5	5.9	3.1	7.4	3.1	2.8	6.5	2.6	2.9	3.2	3.6	4.3	8.3	5.6	4.9	5.8	6.4	5.1	5.0	6.5	5.8	4.7	6.2	5.4	24	8.3	2.6	5.0
23	4.4	4.9	3.4	5.4	3.2	5.6	4.9	6.8	10.7	12.9	6.6	10.3	16.7	13.6	14.9	21.2	27.1	65.2	40.7	38.5	26.0	7.6	6.1	6.8	24	65.2	3.2	15.1
24	6.5	11.6	18.0	11.6	5.8	10.7	18.8	7.8	7.7	5.0	6.1	4.3	3.4	4.5	3.4	8.3	6.8	2.3	1.8	1.5	1.6	1.0	0.7	0.5	24	18.8	0.5	6.2
25	0.4	0.4	0.4	0.1	0.2	0.3	1.1	3.8	5.3	4.2	1.8	1.7	1.8	1.7	1.2	1.5	1.5	2.9	2.8	2.5	3.1	2.7	2.9	2.5	24	5.3	0.1	2.0
26	2.2	1.7	1.6	2.4	2.2	2.4	3.2	4.6	8.0	6.1	4.6	3.6	2.4	2.2	2.0	1.7	2.8	3.1	5.1	7.9	9.0	8.0	10.5	9.3	24	10.5	1.6	4.4
27	10.5	9.9	7.8	8.6	9.6	7.4	20.2	47.6	45.9	16.0	7.9	2.1	1.0	3.0	2.5	1.8	3.2	3.7	4.7	5.6	9.9	9.3	7.5	6.0	24	47.6	1.0	10.5
28	4.7	6.2	8.2	9.9	16.3	21.8	18.0	14.0	8.2	8.4	5.6	4.9	2.2	3.3	1.9	4.3	7.7	16.3	22.5	16.0	10.1	7.1	10.7	5.9	24	22.5	1.9	9.8
29	3.9	3.3	4.7	3.5	6.1	5.3	4.2	6.3	5.8	9.4	9.0	8.3	6.7	10.3	9.8	7.3	6.2	8.0	8.6	7.2	11.8	17.3	26.8	38.5	24	38.5	3.3	9.5
30	18.7	11.2	21.8	14.0	20.2	21.6	25.5	29.1	25.9	36.8	32.6	23.3	15.7	6.8	5.4	5.9	7.0	5.1	4.9	2.8	1.3	3.6	1.5	1.6	24	36.8	1.3	14.3
31	1.1	1.7	2.7	1.5	1.6	2.9	4.4	3.7	4.0	2.5	1.9	1.5	1.5	1.2	1.1	3.2	3.6	14.0	18.0	2.9	1.7	1.1	1.1	3.0	24	18.0	1.1	3.4
Count	31	31	31	31	31	31	31	31	31	31	31	30	27	27	28	29	30	30	31	31	31	31	31	31	728			
Maximum	56.2	60.1	52.9	52.6	54.3	33.0	34.2	47.6	51.4	58.7	63.7	47.9	52.6	112.3	51.1	62.9	87.8	83.6	62.3	38.5	48.5	55.3	59.8	51.2	24			
Minimum	0.4	0.4	0.4	0.1	0.0	0.3	0.8	1.3	1.4	1.3	1.3	0.0	1.0	1.2	1.1	0.8	0.2	1.0	0.8	1.1	1.3	1.0	0.7	0.5	19			
Average	10.1	9.6	9.0	8.1	8.7	9.0	10.5	11.2	11.6	10.7	9.8	8.3	8.3	11.4	7.0	8.0	9.8	12.6	13.0	11.3	11.5	13.2	12.2	10.9				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.7	2.8	3.8	4.9	6.3	7.8	10.0	14.1	22.6	32.7	60.0	112.3

Maximum Hourly	112.3
Maximum Daily	30.2
Monthly Average	10.3

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
October 2017
(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
1	0.2	0.0	1.3	0.0	0.6	0.0	0.6	1.7	6.2	8.3	8.4	5.0	3.1	3.0	0.5	0.8	1.9	2.4	4.4	3.8	2.5	2.2	1.7	1.4	24	8.4	0.0	2.5
2	1.7	1.1	0.7	1.7	1.3	3.2	7.7	12.8	13.4	5.3	10.9	8.4	2.4	10.6	0.9	1.2	8.8	2.8	5.5	13.3	30.9	4.1	13.4	3.2	24	30.9	0.7	6.9
3	2.0	1.6	3.8	9.5	4.9	4.2	13.7	13.7	14.4	12.7	13.0	7.0	10.7	10.7	6.6	2.8	3.6	7.8	6.5	5.6	6.9	3.4	3.2	1.3	24	14.4	1.3	7.1
4	1.8	13.6	14.6	3.9	6.2	10.5	13.6	12.7	10.4	7.6	9.7	11.3	12.5	11.3	10.3	7.8	6.7	2.8	0.0	0.2	0.0	0.0	0.0	0.0	24	14.6	0.0	7.0
5	4.8	17.3	7.7	5.2	1.7	7.3	7.4	9.1	13.2	13.2	12.1	9.3	9.4	7.9	5.9	5.9	7.7	5.5	3.2	1.7	0.8	1.7	9.9	11.2	24	17.3	0.8	7.5
6	6.7	5.8	11.9	3.7	3.7	2.9	9.8	11.8	11.4	7.3	14.0	16.0	16.6	8.2	5.8	6.6	7.4	11.2	8.3	7.2	12.1	10.1	8.7	9.7	24	16.6	2.9	9.0
7	6.0	20.2	2.9	2.4	4.9	5.7	3.7	6.9	6.1	8.4	3.8	9.1	7.5	5.4	2.3	5.9	2.6	2.2	3.1	8.8	28.5	38.4	30.7	1.6	24	38.4	1.6	9.0
8	3.6	11.8	7.4	2.9	1.6	1.2	0.8	1.4	2.3	2.0	2.3	2.4	1.8	2.3	1.1	1.4	1.6	1.5	3.7	2.2	3.5	12.0	6.0	17.6	24	17.6	0.8	3.9
9	9.6	4.6	2.0	2.0	0.1	0.0	1.5	7.2	0.2	0.0	0.0	0.0	0.0	0.4	1.0	1.9	1.7	4.0	2.6	2.5	5.1	6.8	2.5	1.4	24	9.6	0.0	2.4
10	1.2	0.7	0.0	0.0	0.2	13.8	46.7	33.3	13.2	10.0	22.0	16.7	16.2	9.5	1.3	0.7	1.5	1.1	1.0	0.5	0.4	0.0	0.0	0.0	24	46.7	0.0	7.9
11	0.0	0.0	0.0	1.9	0.0	0.0	0.4	1.2	6.1	0.6	0.0	0.3	0.5	0.4	0.6	0.7	0.1	0.3	0.0	0.0	0.7	6.9	7.1	5.6	24	7.1	0.0	1.4
12	3.3	0.0	1.2	0.5	0.8	0.9	1.5	2.3	7.9	2.0	3.2	2.8	1.8	1.7	2.1	0.4	0.9	0.6	5.3	5.3	11.4	3.0	3.5	3.2	24	11.4	0.0	2.7
13	3.3	6.4	3.8	5.5	4.2	4.8	4.6	7.8	14.3	5.8	11.3	5.9	4.6	10.7	6.1	7.0	5.8	4.8	4.7	2.5	4.4	13.5	8.3	6.1	24	14.3	2.5	6.5
14	10.5	3.6	7.8	3.9	4.9	3.4	4.4	7.7	10.1	13.8	17.1	8.1	5.3	11.4	15.9	13.5	14.0	12.4	12.4	13.7	4.3	3.1	3.5	3.4	24	17.1	3.1	8.7
15	1.3	4.0	19.2	3.1	2.8	2.3	2.9	4.2	8.4	8.1	2.8	1.6	1.6	1.7	1.3	2.1	2.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	24	19.2	0.0	2.9
16	0.0	0.0	0.0	0.0	0.0	1.1	1.7	1.8	1.6	1.1	1.1	2.7	0.1	0.0	0.3	0.3	0.1	1.1	3.6	1.3	2.4	2.9	1.4	0.5	24	3.6	0.0	1.0
17	0.9	1.5	1.5	2.5	2.5	9.4	6.0	12.4	31.7	31.5	8.8	10.7	8.0	7.7	5.3	5.3	2.9	3.1	4.8	8.0	10.3	10.3	9.2	11.0	24	31.7	0.9	8.6
18	14.9	16.2	21.6	19.3	20.1	22.2	23.1	35.2	34.1	24.8	15.3	11.8	12.8	10.1	5.1	5.2	3.9	4.0	5.6	9.6	14.3	9.9	14.9	11.9	24	35.2	3.9	15.2
19	32.6	18.4	18.7	14.5	7.4	7.5	12.2	15.1	9.3	10.9	10.6	9.4	9.2	8.5	10.3	9.1	2.7	2.8	1.9	2.0	6.5	2.8	3.7	18.6	24	32.6	1.9	10.2
20	14.0	28.4	22.9	25.1	21.8	11.7	20.6	18.2	23.8	38.4	23.1	16.8	13.3	10.9	7.8	9.7	9.3	6.7	7.4	5.9	12.2	5.1	7.5	9.1	24	38.4	5.1	15.4
21	9.4	8.8	23.7	13.3	8.7	5.2	8.8	8.9	17.4	17.8	8.9	6.6	5.0	5.3	4.8	6.6	15.0	16.4	19.2	13.9	5.7	7.6	5.3	3.4	24	23.7	3.4	10.2
22	3.4	22.6	16.1	5.2	2.8	7.3	2.9	7.2	5.8	5.4	5.3	6.1	5.2	3.1	1.8	6.7	3.3	5.9	6.0	5.3	8.7	8.5	7.5	5.9	24	22.6	1.8	6.6
23	4.2	3.2	15.9	16.1	20.8	6.4	13.1	16.8	27.8	10.9	5.8	4.6	3.8	8.6	5.4	3.6	7.0	8.6	3.6	4.2	5.1	7.2	11.9	3.2	24	27.8	3.2	9.1
24	4.0	1.9	7.5	2.2	1.6	2.3	2.1	5.3	6.5	7.1	6.3	2.7	2.6	3.3	5.0	4.3	3.6	3.8	5.2	6.0	3.1	3.0	2.2	3.7	24	7.5	1.6	4.0
25	3.2	4.4	2.9	6.0	7.5	4.8	4.8	5.7	6.3	7.9	7.4	6.5	7.5	10.7	11.4	6.8	5.7	9.0	8.1	3.9	4.0	2.0	0.3	2.8	24	11.4	0.3	5.8
26	0.0	1.1	4.5	1.4	2.3	1.7	16.7	8.1	6.3	9.0	9.8	C	C	19.9	17.6	8.3	4.0	3.5	1.6	2.0	14.5	15.7	16.5	35.3	22	35.3	0.0	9.1
27	28.0	19.6	20.2	9.3	4.8	8.4	9.0	7.0	7.3	11.6	9.3	5.9	10.1	19.1	11.2	9.9	5.4	4.8	8.9	12.6	6.6	8.1	11.6	8.8	24	28.0	4.8	10.7
28	4.5	4.4	3.4	8.1	30.8	13.1	8.2	11.0	21.7	10.4	11.6	4.0	5.8	5.0	6.5	9.6	8.7	4.9	11.1	6.3	4.3	2.9	5.8	3.5	24	30.8	2.9	8.6
29	3.7	4.3	3.7	3.8	1.9	2.0	5.5	4.3	11.7	3.9	3.2	3.1	2.5	2.2	1.9	2.2	1.8	1.5	1.5	1.2	1.0	0.8	0.8	0.6	24	11.7	0.6	2.9
30	0.7	0.7	0.8	0.6	0.9	1.2	2.3	3.4	3.3	3.2	2.7	5.1	10.8	12.6	10.6	10.5	13.8	15.6	14.6	15.4	14.3	10.4	8.0	8.4	24	15.6	0.6	7.1
31	7.3	5.2	6.3	4.8	5.2	9.6	12.1	12.9	11.9	14.6	11.2	8.5	9.4	8.4	8.4	8.5	3.6	4.3	7.4	13.1	18.7	20.5	15.6	16.3	24	20.5	3.6	10.2
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	742			
Maximum	32.6	28.4	23.7	25.1	30.8	22.2	46.7	35.2	34.1	38.4	23.1	16.8	16.6	19.9	17.6	13.5	15.0	16.4	19.2	15.4	30.9	38.4	30.7	35.3	24			
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	22			
Average	6.0	7.5	8.2	5.8	5.7	5.6	8.7	9.9	11.7	10.1	8.7	6.9	6.7	7.4	5.6	5.3	5.1	5.0	5.5	5.7	7.8	7.2	7.1	6.7				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.7	1.7	2.9	4.0	5.4	7.1	8.8	11.2	14.9	19.5	32.3	46.7

Maximum Hourly	46.7
Maximum Daily	15.4
Monthly Average	7.1

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
November 2017
(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
1	23.5	24.0	16.7	18.4	11.8	20.3	18.0	20.7	35.5	35.9	17.9	7.7	6.7	5.6	6.5	19.6	7.4	5.7	16.7	5.7	10.8	4.1	5.5	6.1	24	35.9	4.1	14.6
2	7.5	6.1	9.1	5.3	6.6	7.3	11.2	18.8	33.2	15.5	17.1	13.1	10.8	14.0	11.8	9.6	10.4	13.3	10.3	14.7	16.7	10.8	7.8	5.2	24	33.2	5.2	11.9
3	2.5	2.0	1.8	1.8	1.6	1.9	9.0	6.5	5.5	3.6	2.2	2.2	1.9	1.5	1.5	1.6	1.3	1.3	1.6	4.1	3.5	1.4	4.9	2.7	24	9.0	1.3	2.8
4	2.2	1.7	1.2	1.0	0.8	2.5	6.4	6.8	5.7	7.8	3.4	2.1	11.8	2.1	1.6	1.6	2.5	2.6	8.4	4.8	2.5	2.6	2.6	1.7	24	11.8	0.8	3.6
5	2.1	2.0	7.1	3.0	2.4	2.1	2.4	2.0	3.1	7.6	3.1	5.0	6.4	6.7	7.6	11.4	7.7	6.6	6.0	6.0	9.5	9.0	7.4	2.9	24	11.4	2.0	5.4
6	3.0	1.6	1.6	0.9	1.0	1.0	1.3	3.5	3.5	2.8	1.8	1.8	1.7	3.5	2.2	1.7	2.1	1.4	1.5	1.9	2.3	1.3	0.9	1.4	24	3.5	0.9	1.9
7	0.5	0.8	0.9	1.1	3.3	7.4	9.1	9.5	6.9	6.9	7.6	9.8	1.9	1.9	2.2	2.8	7.6	15.4	12.7	10.4	5.5	6.8	4.3	4.2	24	15.4	0.5	5.8
8	3.9	2.9	2.8	3.1	2.2	6.9	7.4	33.0	61.8	31.5	20.5	15.5	15.9	15.2	16.8	17.3	13.3	16.3	11.5	14.6	8.3	8.8	7.5	6.7	24	61.8	2.2	14.3
9	6.8	6.7	6.6	12.6	7.7	12.1	11.8	35.6	39.3	63.9	28.4	23.2	18.7	16.2	13.4	17.9	12.2	9.1	9.5	1.6	1.3	1.0	1.0	0.7	24	63.9	0.7	14.9
10	0.5	0.6	0.6	0.5	0.7	0.7	1.0	2.3	3.1	2.4	2.2	2.5	4.5	2.3	3.7	1.9	3.0	3.7	6.6	4.6	3.9	4.3	4.2	3.9	24	6.6	0.5	2.7
11	1.6	0.7	0.5	0.7	0.4	0.9	1.7	1.5	3.0	3.9	1.5	1.1	1.2	1.2	3.4	2.2	2.1	4.4	2.4	2.3	5.5	3.0	8.1	3.2	24	8.1	0.4	2.4
12	2.8	2.8	3.1	2.7	2.5	3.2	7.6	6.4	4.7	5.0	5.2	6.0	5.4	8.1	12.5	8.6	9.4	8.6	7.5	6.5	8.2	8.6	7.8	5.9	24	12.5	2.5	6.2
13	11.8	8.6	6.8	7.9	4.8	4.6	4.2	9.3	15.1	15.6	13.3	9.5	7.2	14.7	15.8	13.7	14.1	16.0	17.0	10.3	11.2	11.2	11.2	8.0	24	17.0	4.2	10.9
14	5.2	4.2	4.4	15.7	7.4	5.8	6.4	18.1	24.6	35.4	23.7	13.4	13.0	9.2	9.3	5.6	11.4	22.4	21.3	28.7	27.9	19.2	12.3	14.1	24	35.4	4.2	14.9
15	9.3	8.7	8.7	8.4	6.6	11.0	12.1	10.9	9.3	8.9	8.4	7.2	6.8	7.6	7.7	13.4	9.7	19.4	8.2	9.0	16.5	6.9	7.9	6.5	24	19.4	6.5	9.5
16	5.7	5.6	11.6	7.8	7.1	6.6	8.7	9.5	10.7	15.3	13.0	5.9	3.2	2.4	2.7	2.7	2.2	1.8	1.4	1.0	0.9	0.7	0.7	0.8	24	15.3	0.7	5.3
17	0.4	0.4	0.3	0.4	0.6	1.1	1.7	3.3	2.9	1.9	2.3	3.0	9.2	14.7	12.2	13.9	14.2	11.1	17.0	16.2	16.9	7.5	7.8	7.5	24	17.0	0.3	6.9
18	4.6	8.3	5.3	11.9	4.4	3.9	4.8	5.2	8.6	8.1	12.8	6.5	7.4	12.1	11.2	8.9	6.8	11.5	4.9	5.0	8.6	4.2	2.8	2.3	24	12.8	2.3	7.1
19	1.6	1.3	1.2	1.2	0.6	0.7	0.8	0.6	1.1	0.9	0.7	0.6	1.0	1.4	1.1	0.9	1.4	1.1	1.1	1.2	1.5	1.4	1.7	1.7	24	1.7	0.6	1.1
20	0.6	0.7	0.6	0.8	9.4	8.5	11.9	13.5	15.0	14.3	14.4	14.8	16.6	19.0	20.7	20.7	19.3	28.5	13.3	8.1	15.2	12.3	7.6	7.5	24	28.5	0.6	12.2
21	5.7	6.3	9.3	5.2	5.5	6.5	5.5	8.4	5.7	9.0	9.9	8.5	6.4	7.4	9.1	8.2	8.4	8.7	10.1	9.8	8.6	5.2	3.0	1.8	24	10.1	1.8	7.2
22	1.8	1.6	1.2	1.0	1.1	1.6	2.6	6.5	10.4	10.1	7.3	12.4	7.3	9.0	19.7	13.5	5.8	2.3	1.2	1.7	2.0	2.0	2.0	3.2	24	19.7	1.0	5.3
23	8.6	13.6	14.6	9.4	6.0	6.4	6.4	31.1	34.9	27.1	22.8	22.2	14.9	16.3	18.4	12.6	14.2	13.6	12.4	12.1	15.3	16.9	17.8	16.1	24	34.9	6.0	16.0
24	17.4	15.8	18.9	14.3	22.7	16.7	18.7	19.9	17.1	19.2	11.2	15.3	9.5	12.9	9.4	15.0	7.9	9.5	9.8	15.0	14.7	9.7	10.9	12.1	24	22.7	7.9	14.3
25	9.8	10.5	11.2	4.5	7.3	5.0	8.0	8.4	15.9	22.6	22.4	12.1	6.3	4.3	3.0	2.6	3.9	1.7	2.7	6.4	1.6	2.2	1.2	1.1	24	22.6	1.1	7.3
26	1.0	1.2	0.9	0.7	1.0	0.6	0.7	0.9	1.1	1.6	1.9	1.7	2.3	5.1	6.5	4.0	5.3	4.9	4.6	6.3	10.3	9.1	8.9	10.4	24	10.4	0.6	3.8
27	10.8	1.6	0.9	0.9	0.8	1.0	1.0	4.4	5.3	8.1	5.0	9.3	5.2	12.5	8.1	7.8	6.2	4.9	11.4	14.7	4.9	11.7	4.0	5.2	24	14.7	0.8	6.1
28	5.0	8.6	11.8	5.8	6.4	6.5	7.3	12.5	21.4	18.0	14.6	22.6	17.7	12.3	14.9	14.4	14.2	9.9	13.0	10.1	8.1	8.1	9.3	6.9	24	22.6	5.0	11.6
29	8.8	3.2	5.2	4.2	4.1	4.4	8.7	37.2	21.2	11.3	13.5	13.7	10.0	C	C	10.2	14.9	13.2	7.5	3.7	3.8	3.5	3.5	10.5	22	37.2	3.2	9.8
30	5.1	5.1	6.4	14.4	14.4	12.0	11.5	24.0	38.2	9.7	7.5	8.1	11.7	17.7	32.3	41.1	38.1	23.9	21.8	29.1	33.5	24.8	24.2	10.1	24	41.1	5.1	19.4
31																												
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	718			
Maximum	23.5	24.0	18.9	18.4	22.7	20.3	18.7	37.2	61.8	63.9	28.4	23.2	18.7	19.0	32.3	41.1	38.1	28.5	21.8	29.1	33.5	24.8	24.2	16.1	24			
Minimum	0.4	0.4	0.3	0.4	0.4	0.6	0.7	0.6	1.1	0.9	0.7	0.6	1.0	1.2	1.1	0.9	1.3	1.1	1.1	1.0	0.9	0.7	0.7	0.7	22			
Average	5.7	5.2	5.7	5.5	5.0	5.6	6.9	12.3	15.4	14.1	10.5	9.2	8.1	8.9	9.8	10.2	9.2	9.8	9.1	8.9	9.3	7.3	6.6	5.7				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.2	2.0	3.2	5.2	6.8	8.4	10.4	13.4	17.3	22.6	35.8	63.9

Maximum Hourly	63.9
Maximum Daily	19.4
Monthly Average	8.5

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

December 2017

(ppb)

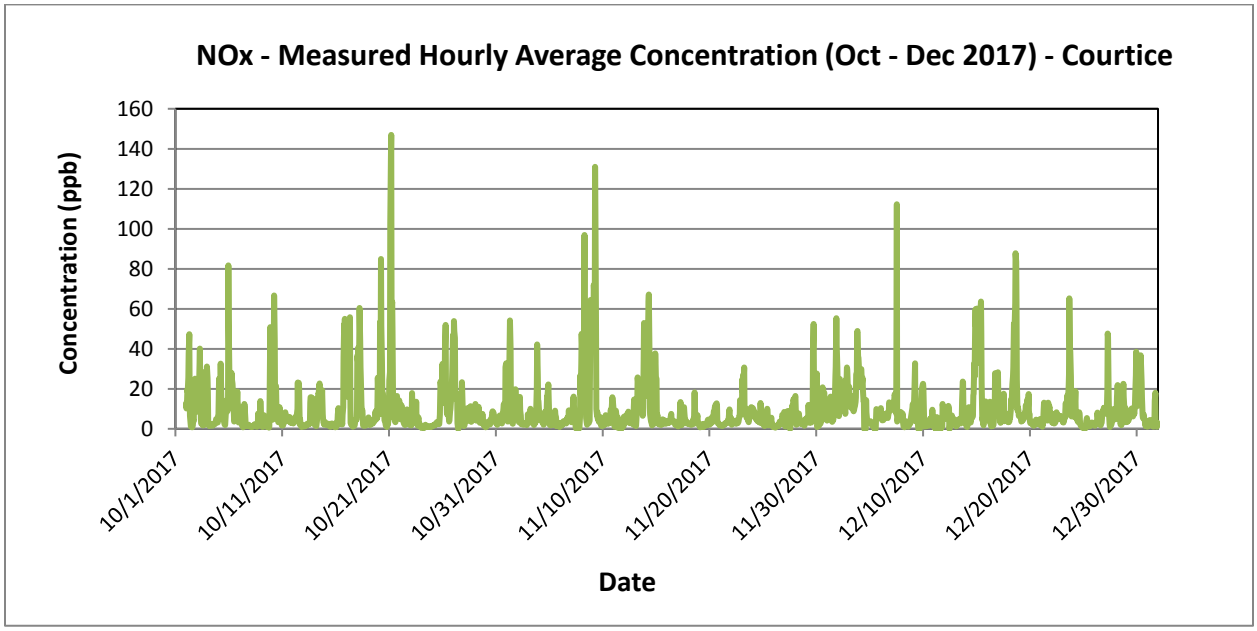
Day	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	5.3	6.1	8.2	6.6	7.0	7.0	22.0	19.3	25.8	23.9	11.1	9.9	7.5	9.8	13.5	19.6	18.0	19.8	15.2	12.8	16.7	18.3	15.6	12.9	24	25.8	5.3	13.8
2	14.2	25.3	18.7	11.7	8.6	16.2	9.3	10.9	10.5	9.0	10.7	10.8	10.1	9.7	10.6	13.7	16.6	11.4	11.6	13.0	11.9	12.7	12.4	19.3	24	25.3	8.6	12.9
3	10.9	10.1	8.7	8.0	8.9	8.2	8.7	8.5	21.2	14.5	9.9	11.5	11.4	10.9	11.9	14.3	15.6	16.8	23.3	15.1	11.3	15.7	7.6	7.3	24	23.3	7.3	12.1
4	6.0	5.4	8.0	5.0	5.3	6.1	10.7	23.1	27.8	37.3	13.8	10.1	12.0	9.6	9.5	10.1	10.7	12.4	20.7	20.7	14.6	10.2	14.8	18.1	24	37.3	5.0	13.4
5	13.6	21.4	17.2	13.1	10.1	10.0	14.1	12.2	18.4	14.8	13.7	14.0	8.3	9.7	9.4	C	C	C	6.0	4.7	6.1	4.3	4.8	4.1	21	21.4	4.1	10.9
6	5.8	5.4	3.8	3.7	2.0	3.5	5.4	8.7	11.3	11.3	12.4	12.4	12.2	12.4	11.4	14.7	10.5	6.9	8.2	8.3	6.6	1.6	1.3	1.6	24	14.7	1.3	7.6
7	0.8	0.5	3.0	3.3	5.9	5.2	7.9	16.3	15.2	18.0	C	C	C	13.5	15.7	13.7	10.7	7.4	9.1	12.1	16.4	12.5	15.6	15.7	21	18.0	0.5	10.4
8	10.7	10.9	10.3	8.4	3.3	4.3	6.4	8.7	9.7	11.1	10.0	9.4	7.1	7.0	6.2	5.9	4.6	4.2	5.7	5.6	6.3	7.1	11.5	11.3	24	11.5	3.3	7.7
9	13.0	15.2	12.9	10.1	10.2	13.5	12.8	5.4	5.6	10.3	7.7	5.4	5.1	4.9	8.9	C	C	6.7	7.0	8.3	10.2	12.8	12.6	13.0	22	15.2	4.9	9.6
10	16.3	14.9	3.6	0.6	0.7	1.6	0.9	0.6	1.6	1.7	3.2	4.1	2.9	3.6	5.7	5.8	6.4	9.2	7.0	7.0	8.6	10.2	0.0	0.0	24	16.3	0.0	4.8
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	4.3	2.4	2.9	4.4	5.5	5.0	C	C	6.9	4.9	2.3	3.5	9.2	2.8	1.5	1.8	22	9.2	0.0	2.8
12	22.5	5.5	6.6	5.0	3.0	3.1	3.6	3.8	5.4	10.0	26.5	28.9	5.5	A	A	10.6	11.2	13.1	7.7	8.8	9.3	9.0	9.3	8.2	22	28.9	3.0	9.9
13	7.5	7.7	8.6	8.5	8.6	10.1	9.7	14.4	22.5	18.6	16.3	18.0	16.0	14.1	11.0	13.4	16.9	19.1	20.2	15.2	12.3	10.4	9.3	9.4	24	22.5	7.5	13.2
14	8.8	8.7	8.1	7.9	8.5	8.1	7.8	12.3	15.0	14.3	12.7	12.6	16.5	16.7	18.9	18.2	14.0	20.4	44.0	46.4	58.5	48.9	35.4	38.8	24	58.5	7.8	20.9
15	36.3	36.6	30.1	27.1	24.6	21.8	25.2	32.2	41.1	48.9	57.5	47.5	45.7	26.5	23.8	18.3	16.4	17.9	20.1	21.7	21.9	23.0	22.2	17.6	24	57.5	16.4	29.3
16	14.5	13.2	13.7	16.4	15.9	12.1	13.3	11.8	8.4	7.5	7.8	7.2	7.2	7.5	7.8	8.2	8.3	9.4	11.5	11.8	12.1	14.3	13.8	12.2	24	16.4	7.2	11.1
17	12.0	11.1	11.1	14.1	14.6	11.9	11.4	10.6	10.8	12.4	15.9	15.1	14.6	17.5	13.5	11.9	11.3	11.8	11.0	10.9	10.1	10.2	11.4	9.4	24	17.5	9.4	12.3
18	9.4	11.6	10.1	10.7	9.7	17.3	13.0	13.2	15.7	16.5	16.8	16.2	21.5	23.3	29.9	37.6	57.3	51.9	48.3	55.3	26.5	24.2	22.5	19.3	24	57.3	9.4	24.1
19	19.1	19.1	18.4	16.4	16.0	15.0	13.9	14.5	14.7	15.9	17.8	18.4	16.4	20.5	16.1	14.4	17.7	20.7	21.9	22.1	21.9	24.9	26.1	20.1	24	26.1	13.9	18.4
20	13.8	6.7	6.2	7.0	7.7	7.4	7.0	7.6	7.9	8.4	9.6	10.8	11.3	10.5	10.6	10.2	10.4	9.9	10.3	12.3	15.0	16.2	15.9	16.6	24	16.6	6.2	10.4
21	16.8	16.9	16.4	15.5	15.8	16.6	17.5	19.6	22.6	24.9	23.8	24.7	26.5	26.8	27.2	25.5	24.3	23.4	21.1	19.4	21.1	21.3	18.9	16.6	24	27.2	15.5	21.0
22	14.5	14.5	12.5	11.4	10.6	10.2	8.5	8.0	7.7	7.3	7.6	9.4	12.2	6.5	6.9	10.7	14.1	14.6	15.0	15.1	18.8	22.9	18.3	14.6	24	22.9	6.5	12.2
23	14.2	14.8	15.1	14.8	15.3	16.1	16.1	16.3	16.3	17.4	18.3	18.9	22.8	27.3	23.1	20.9	34.8	46.3	35.5	25.5	26.4	29.4	24.7	23.3	24	46.3	14.2	22.2
24	26.8	32.6	37.3	33.2	25.3	21.7	24.2	19.8	18.8	16.1	17.4	19.4	20.0	19.7	17.3	17.0	17.0	13.2	9.5	9.3	10.0	10.7	10.1	9.1	24	37.3	9.1	19.0
25	9.8	9.9	10.7	14.0	13.9	12.0	9.8	9.5	9.2	9.5	6.3	4.8	5.3	4.7	4.7	5.5	6.1	6.7	7.1	5.4	5.0	5.3	4.8	7.5	24	14.0	4.7	7.8
26	7.1	6.6	5.9	7.9	8.1	8.4	8.4	10.3	13.6	11.2	10.1	7.6	7.1	7.3	9.7	10.4	12.4	13.7	15.4	12.9	17.4	15.5	15.5	16.0	24	17.4	5.9	10.8
27	17.0	19.0	17.3	16.5	16.8	16.2	18.2	18.4	18.6	15.5	15.3	13.4	12.5	11.7	11.3	11.2	10.8	10.5	10.5	10.7	10.9	10.9	9.7	9.4	24	19.0	9.4	13.8
28	9.6	9.5	10.2	13.9	14.9	16.8	12.8	13.0	14.4	13.2	9.2	10.0	12.4	12.7	12.8	12.1	13.3	15.0	15.7	15.0	12.1	11.4	9.6	8.9	24	16.8	8.9	12.4
29	8.5	8.1	8.4	9.3	11.1	11.4	9.8	11.2	11.1	12.0	15.5	14.0	13.1	13.2	17.3	14.0	11.9	12.6	12.4	12.9	12.3	13.7	14.4	12.3	24	17.3	8.1	12.1
30	12.8	11.7	10.5	10.8	14.1	19.6	19.2	20.7	20.8	27.7	37.2	27.2	21.1	14.9	10.9	10.5	11.0	9.5	8.7	7.4	6.3	6.0	6.7	6.5	24	37.2	6.0	14.7
31	6.7	6.3	6.2	6.7	6.8	7.6	8.6	9.5	8.6	8.5	8.6	9.1	9.8	10.2	11.2	11.7	12.1	13.5	14.2	12.0	11.0	10.9	11.1	10.4	24	14.2	6.2	9.6
Count	31	31	31	31	31	31	31	31	31	31	30	30	30	30	29	28	29	30	31	31	31	31	31	31	732			
Maximum	36.3	36.6	37.3	33.2	25.3	21.8	25.2	32.2	41.1	48.9	57.5	47.5	45.7	27.3	29.9	37.6	57.3	51.9	48.3	55.3	58.5	48.9	35.4	38.8	24			
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6	1.7	2.9	4.1	2.9	3.6	4.7	5.5	4.6	4.2	2.3	3.5	5.0	1.6	0.0	0.0	21			
Average	12.4	12.4	11.5	10.9	10.4	10.9	11.5	12.7	14.7	15.2	14.9	14.2	13.3	12.9	13.3	13.9	14.9	15.1	15.4	14.9	14.7	14.4	13.1	12.6				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	5.4	7.5	9.2	10.4	11.6	13.3	15.2	17.5	22.5	26.9	48.1	58.5

Maximum Hourly	58.5
Maximum Daily	29.3
Monthly Average	13.3

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



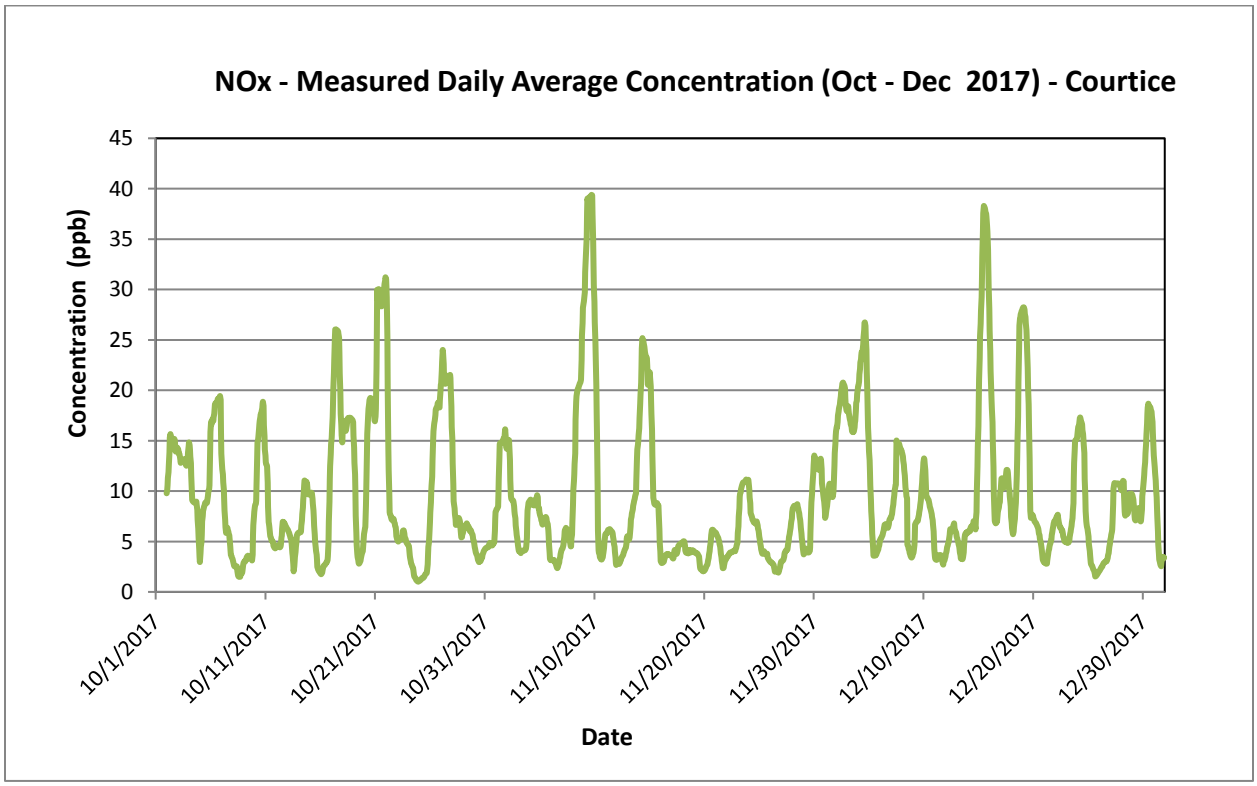
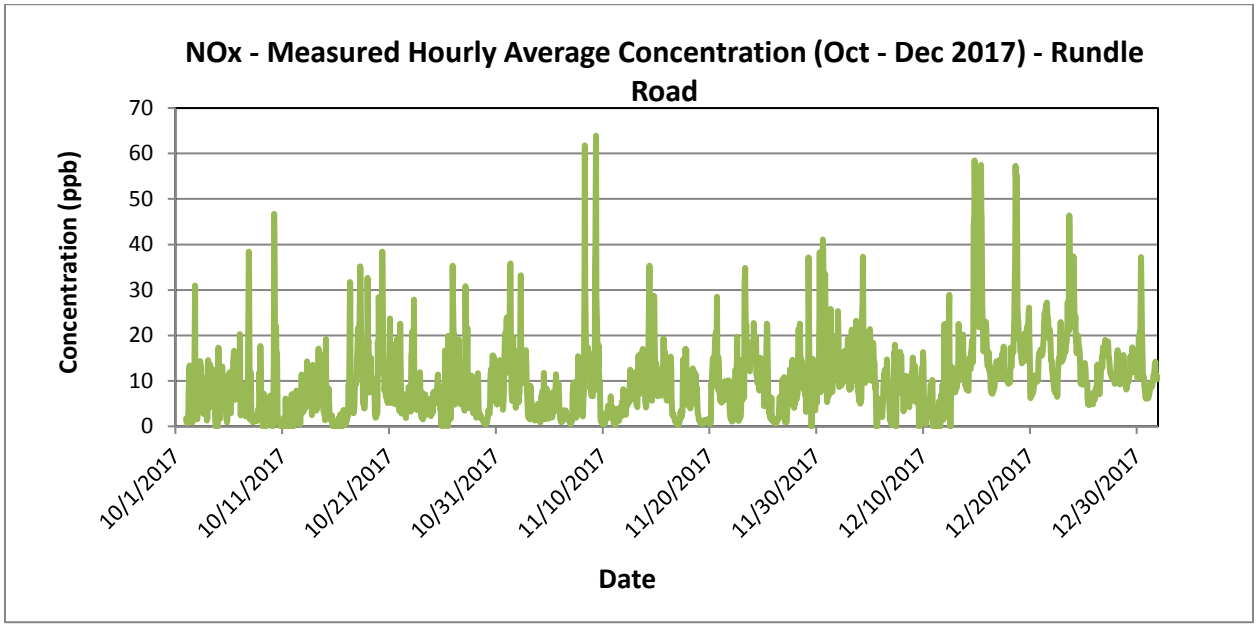
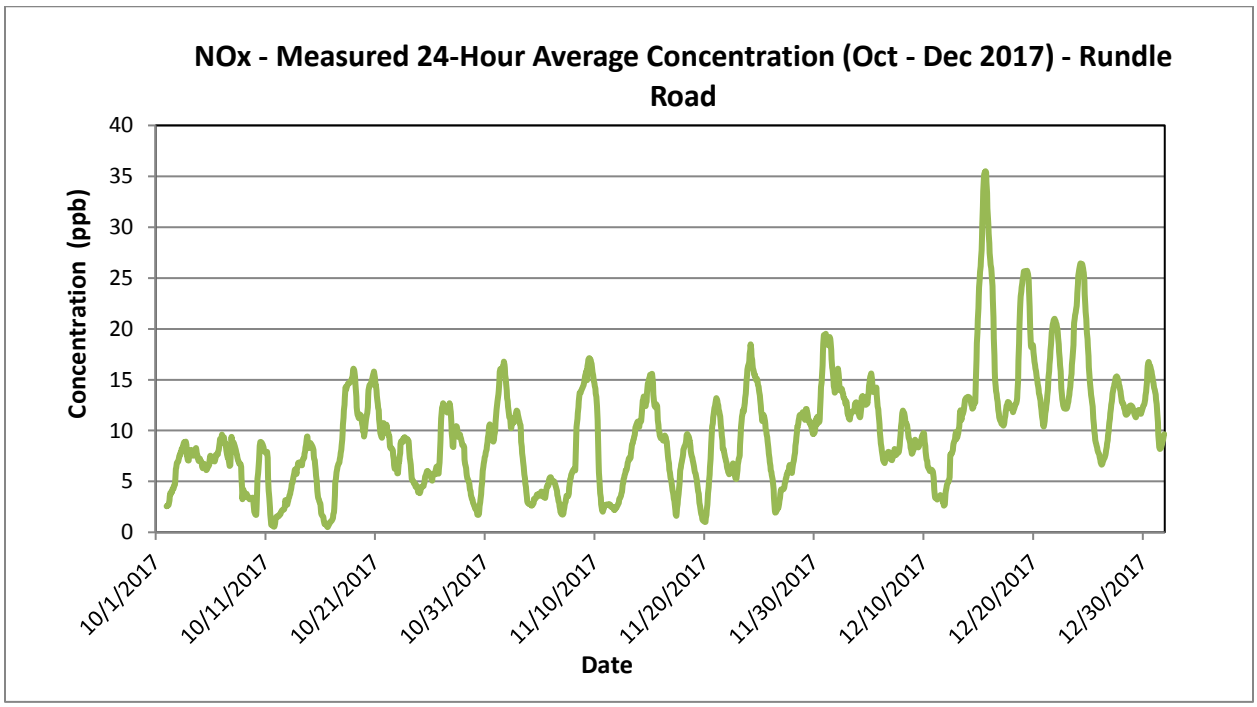


Figure D-2 Time History Plots of Measured Hourly Average and 24 Hour Average NO_X Concentrations – Rundle Road Station





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

$PM_{2.5}$ - October ($\mu g/m^3$)	COURTICE	2017																											
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		
1	1.4	0.8	1.0	1.0	1.2	1.3	1.4	0.8	0.7	1.1	0.8	1.1	0.8	1.1	1.1	1.0	1.6	1.3	4.2	7.2	10.4	10.1	8.6	7.0	24	10.4	0.7	2.8		
2	5.0	3.6	3.4	3.7	4.0	4.1	5.3	5.6	2.4	1.6	1.7	1.0	1.1	1.2	1.1	1.3	1.1	1.1	2.5	2.7	3.1	2.3	2.3	2.1	24	5.6	1.0	2.6		
3	3.4	4.3	4.8	5.4	5.4	5.7	8.8	5.9	3.1	0.7	0.9	1.4	2.2	2.8	3.4	3.3	2.8	3.6	4.1	5.3	6.4	5.1	5.2	5.6	24	8.8	0.7	4.2		
4	5.8	4.7	3.0	2.5	2.7	2.7	2.7	2.6	2.5	2.1	2.3	2.7	2.8	4.7	3.9	4.5	5.1	2.6	0.6	1.2	1.5	1.2	1.2	1.3	24	5.8	0.6	2.8		
5	1.4	1.8	3.1	2.8	2.5	3.2	4.6	2.7	1.9	0.7	0.9	1.0	2.1	2.0	1.6	1.5	0.9	0.3	0.5	0.8	0.6	1.0	1.7	5.0	24	5.0	0.3	1.9		
6	5.3	5.4	6.6	6.9	7.3	6.6	6.5	5.9	4.8	3.3	1.6	1.6	1.3	1.8	4.2	5.3	6.2	6.8	7.4	6.9	8.6	8.2	2.4	2.6	24	8.6	1.3	5.1		
7	3.2	3.5	3.5	4.1	6.4	7.4	6.4	4.3	2.2	1.7	2.5	6.0	9.2	9.3	8.0	5.4	4.3	4.0	4.4	4.7	4.9	5.5	5.4	4.6	24	9.3	1.7	5.0		
8	3.6	3.1	2.9	3.2	1.3	0.3	0.4	0.5	0.5	0.4	0.5	0.4	0.6	0.5	0.2	0.4	0.4	0.6	2.1	3.0	4.8	3.2	1.8	2.1	24	4.8	0.2	1.5		
9	3.2	2.2	1.7	2.0	2.1	1.1	0.7	0.5	0.2	0.3	0.2	0.2	0.2	0.2	0.5	0.5	0.4	0.3	0.3	0.3	1.0	3.6	4.4	7.0	24	7.0	0.2	1.4		
10	8.2	5.3	3.8	4.4	5.5	9.0	12.1	10.8	6.7	8.1	10.9	6.4	6.0	7.9	4.5	3.5	3.3	1.6	2.9	3.2	3.0	2.1	1.5	1.9	24	12.1	1.5	5.5		
11	2.4	2.5	1.9	1.9	1.9	1.8	1.9	1.9	1.4	1.3	1.2	1.0	1.4	1.2	1.4	1.3	1.5	2.0	2.2	1.5	1.4	1.7	1.8	2.0	24	2.5	1.0	1.7		
12	2.1	2.2	2.5	2.9	2.9	2.8	2.7	2.7	3.2	3.5	3.9	4.7	4.2	5.6	6.3	5.4	6.0	6.4	7.3	6.3	5.8	6.0	5.1	4.9	24	7.3	2.1	4.4		
13	5.1	5.7	5.6	4.9	4.8	4.6	4.7	4.3	5.9	6.4	5.7	5.4	5.9	5.8	5.9	6.7	5.9	5.3	5.9	5.0	5.1	5.4	4.2	4.2	24	6.7	4.2	5.3		
14	3.8	3.8	3.7	3.4	3.3	3.1	4.6	10.0	11.4	11.1	10.8	12.5	12.3	11.7	12.5	11.5	8.9	8.8	11.0	8.0	5.3	3.4	4.7	4.3	24	12.5	3.1	7.7		
15	5.2	5.8	4.4	4.9	5.6	5.5	5.3	4.5	5.3	6.9	8.5	9.2	9.8	9.5	9.7	3.1	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	9.8	0.2	4.4		
16	0.2	0.2	0.2	0.2	0.4	0.5	1.2	0.7	0.4	0.6	1.0	1.2	1.0	1.0	0.8	0.7	0.8	1.2	3.2	4.0	5.7	5.8	5.0	6.2	24	6.2	0.2	1.8		
17	6.5	6.2	5.6	5.1	5.7	7.2	7.8	5.9	5.4	3.0	1.5	2.0	2.0	2.5	2.9	2.5	2.8	3.2	3.4	3.9	4.6	5.0	4.9	5.7	24	7.8	1.5	4.4		
18	4.4	6.3	7.6	9.0	8.5	9.3	10.7	11.0	7.7	6.6	4.4	5.4	5.7	5.2	4.1	3.5	4.4	4.5	5.1	6.2	7.1	7.7	9.9	13.6	24	13.6	3.5	7.0		
19	18.1	22.2	16.5	6.5	5.1	4.4	3.7	3.4	3.6	3.9	4.8	5.7	5.9	6.7	6.7	5.1	4.3	4.6	4.1	3.8	3.7	4.0	4.8	4.1	24	22.2	3.4	6.5		
20	3.5	5.5	5.9	7.4	6.9	3.8	5.9	5.4	3.3	1.9	2.3	2.5	3.4	3.4	2.8	3.2	2.6	2.3	2.3	2.2	2.4	2.7	3.2	5.3	24	7.4	1.9	3.8		
21	9.4	10.2	12.0	28.9	36.4	35.8	14.9	17.3	15.3	8.3	8.7	7.4	5.3	4.9	6.4	5.6	7.8	11.5	12.6	10.9	14.6	13.5	13.5	12.4	24	36.4	4.9	13.5		
22	11.5	11.4	11.0	11.5	11.6	11.5	11.0	10.0	7.3	4.6	5.0	5.7	5.6	6.8	6.5	5.7	8.1	9.5	8.8	8.9	10.1	10.8	9.8	9.8	24	11.6	4.6	8.8		
23	10.5	11.1	11.4	13.2	14.4	14.2	14.0	13.2	10.5	8.1	6.8	7.0	7.0	9.1	7.0	6.5	6.8	5.8	6.6	4.2	2.9	3.3	3.4	1.1	24	14.4	1.1	8.3		
24	0.5	1.2	0.9	0.6	0.5	0.5	0.4	0.2	0.2	0.2	0.6	0.7	0.4	0.9	1.5	1.7	1.8	2.1	2.0	2.1	1.9	2.0	2.3	2.4	24	2.4	0.2	1.2		
25	3.4	4.0	2.3	2.1	1.3	1.6	1.6	1.5	1.4	1.5	1.8	2.0	1.9	1.7	2.0	2.4	2.2	2.9	3.3	4.6	5.5	5.0	3.5	3.3	24	5.5	1.3	2.6		
26	5.5	7.5	8.3	8.9	5.4	4.4	5.4	6.4	2.2	1.6	0.7	0.9	1.9	3.3	1.9	1.1	0.8	1.3	2.1	3.7	4.0	4.3	4.9	6.3	24	8.9	0.7	3.9		
27	6.5	5.2	9.0	7.4	6.0	4.9	3.3	3.3	3.2	3.2	2.6	C	C	1.4	1.1	1.1	1.4	1.0	0.9	0.8	0.9	0.6	0.6	0.6	22	9.0	0.6	3.0		
28	0.6	0.5	0.5	1.0	3.2	8.7	7.2	3.6	6.4	6.8	4.7	0.2	0.2	0.2	0.2	1.0	0.4	0.2	0.4	0.8	1.4	2.3	2.6	3.4	24	8.7	0.2	2.3		
29	3.5	3.4	4.4	4.4	3.8	3.0	3.2	3.3	2.7	3.0	3.6	2.8	2.4	3.1	3.3	3.0	2.2	2.1	2.0	1.8	0.8	0.2	0.2	0.2	24	4.4	0.2	2.6		
30	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	2.4	4.3	3.6	3.5	1.9	2.2	2.8	4.0	4.7	4.1	1.9	1.0	24	4.7	0.2	1.6		
31	1.0	0.7	0.6	0.5	0.3	0.5	0.6	0.6	0.9	1.4	0.9	0.7	0.4	0.2	0.2	0.3	0.2	0.2	0.5	0.6	0.8	1.1	2.2	3.3	24	3.3	0.2	0.8		
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	742					
Maximum	18.1	22.2	16.5	28.9	36.4	35.8	14.9	17.3	15.3	11.1	10.9	12.5	12.3	11.7	12.5	11.5	8.9	11.5	12.6	10.9	14.6	13.5	13.5	13.6	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	22					
Average	4.7	4.9	4.8	5.2	5.4	5.5	5.1	4.8	4.0	3.3	3.3	3.3	3.5	3.9	3.7	3.3	3.1	3.2	3.7	3.8	4.3	4.2	4.0	4.3						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	36.4
													Maximum Daily	13.5
Data	0.5	1.1	1.8	2.5	3.3	4.3	5.3	6.3	8.8	11.0	15.1	36.4	Monthly Average	4.1

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

$PM_{2.5}$ - November ($\mu g/m^3$)	COURTICE	2017																											
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		
1	3.3	3.0	3.2	3.8	4.5	7.2	7.3	7.8	10.4	8.0	5.2	2.6	3.1	2.8	2.7	4.1	2.5	1.6	1.8	1.7	1.9	1.8	2.5	2.6	24	10.4	1.6	4.0		
2	3.4	3.8	5.2	1.7	1.2	1.5	1.8	1.7	1.2	0.6	0.7	0.9	1.3	2.3	2.8	3.7	5.8	7.2	7.4	8.3	9.6	10.5	10.9	8.7	24	10.9	0.6	4.3		
3	0.2	0.2	0.2	0.2	0.2	1.2	2.6	3.1	4.0	3.8	2.8	1.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	1.8	2.5	2.5	2.4	24	4.0	0.2	1.3		
4	1.2	1.0	1.3	1.0	0.6	0.7	0.3	0.2	0.4	0.2	0.4	0.2	0.3	0.9	0.3	0.8	0.7	0.7	1.0	2.5	1.9	2.0	2.0	2.0	24	2.5	0.2	0.9		
5	1.8	2.8	4.6	5.1	4.7	5.6	4.2	2.4	1.2	0.7	0.5	0.6	0.9	1.3	1.3	0.9	0.6	0.6	1.2	1.5	1.8	1.7	0.6	0.2	24	5.6	0.2	2.0		
6	0.6	1.2	0.5	0.2	0.2	0.2	0.2	0.6	0.9	0.5	0.5	0.6	0.7	0.2	0.4	0.6	0.9	1.0	0.9	1.1	1.3	1.1	1.1	0.8	24	1.3	0.2	0.7		
7	1.0	1.2	1.1	1.5	1.6	1.4	2.1	2.0	2.2	0.9	1.3	0.9	0.8	0.9	0.8	0.7	1.1	1.4	1.3	1.4	1.2	2.3	8.0	6.7	24	8.0	0.7	1.8		
8	8.6	11.2	9.6	8.1	6.1	4.4	4.9	7.5	5.6	2.3	2.5	1.2	1.4	2.4	2.3	2.4	2.9	3.5	3.7	4.1	6.0	10.5	13.1	11.7	24	13.1	1.2	5.7		
9	11.7	11.9	10.3	10.4	10.6	10.6	11.0	13.4	15.2	14.9	13.6	10.8	11.1	10.5	8.5	5.6	3.9	4.7	4.6	0.0	0.0	0.0	0.0	0.3	24	15.2	0.0	8.1		
10	0.3	0.3	0.4	0.6	0.9	1.6	2.2	2.2	1.7	1.2	1.3	0.6	0.2	0.3	0.2	0.2	0.2	0.3	0.5	0.5	0.7	1.3	1.8	2.2	24	2.2	0.2	0.9		
11	1.2	0.7	0.8	0.8	0.7	0.8	0.7	0.8	0.8	0.7	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	24	1.2	0.2	0.5		
12	0.9	1.1	1.1	0.9	1.2	1.6	2.4	2.7	4.5	6.3	7.0	6.5	5.0	4.4	4.5	5.4	4.8	5.8	4.8	5.2	5.5	4.6	8.9	9.4	24	9.4	0.9	4.4		
13	6.6	4.5	4.2	3.1	3.0	4.6	4.9	5.1	6.0	5.2	5.0	4.5	7.4	8.5	9.5	9.4	9.1	9.4	7.7	9.1	12.6	19.5	19.2	16.2	24	19.5	3.0	8.1		
14	16.4	18.6	18.2	17.6	14.3	9.8	8.5	7.5	6.8	5.5	4.0	4.4	4.9	3.7	3.5	3.0	3.0	3.3	4.1	3.5	2.9	7.0	16.1	16.7	24	18.6	2.9	8.5		
15	14.2	12.5	8.0	8.5	7.4	6.4	8.1	7.1	6.6	5.3	4.1	4.6	5.2	5.3	5.5	5.2	5.2	5.8	4.5	3.8	2.8	2.0	2.5	1.6	24	14.2	1.6	5.9		
16	1.0	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	24	1.0	0.2	0.2		
17	0.2	0.3	0.3	0.2	0.5	0.8	1.1	1.5	1.2	1.0	1.2	1.4	1.9	1.9	2.9	4.2	6.5	7.9	7.0	5.8	6.9	8.2	7.5	6.3	24	8.2	0.2	3.2		
18	4.3	3.3	3.4	2.9	1.9	1.4	1.1	0.7	1.0	1.7	2.0	1.7	1.3	2.5	3.0	2.3	2.0	3.7	3.6	3.4	3.5	3.0	0.1	0.0	24	4.3	0.0	2.2		
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.0	1.4	1.5	1.4	1.9	24	1.9	0.0	0.3		
20	1.6	1.2	1.4	1.7	2.8	3.8	3.9	5.0	4.0	4.2	5.8	5.9	8.3	10.2	10.9	10.3	11.2	11.8	5.8	3.0	3.2	2.6	1.8	1.2	24	11.8	1.2	5.1		
21	1.5	1.9	1.8	1.6	1.3	1.2	1.1	1.1	1.9	2.6	2.9	3.5	3.7	4.1	4.8	5.1	4.9	5.3	5.5	5.5	6.5	6.0	2.4	1.6	24	6.5	1.1	3.2		
22	2.0	2.0	1.5	1.4	1.2	1.1	0.9	0.9	1.9	2.5	1.9	1.9	2.2	2.5	3.0	3.1	2.4	1.7	2.6	2.6	1.8	4.0	5.3	3.2	24	5.3	0.9	2.2		
23	5.0	5.4	5.5	3.9	4.3	3.6	3.8	2.1	3.0	4.5	3.7	3.7	5.6	8.8	7.5	6.8	6.1	3.3	2.8	3.5	4.5	5.9	8.8	11.6	24	11.6	2.1	5.1		
24	12.3	12.2	11.9	11.8	12.1	12.6	13.5	12.1	9.0	6.9	8.7	7.1	4.4	3.3	3.9	4.5	3.4	2.2	2.3	2.5	2.1	1.4	1.5	1.7	24	13.5	1.4	6.8		
25	1.5	1.0	1.4	1.4	1.5	1.9	2.4	2.7	3.6	5.5	7.5	2.0	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.9	0.2	0.2	0.2	0.2	24	7.5	0.2	1.5		
26	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.3	0.2	0.3	0.7	0.9	0.8	1.4	3.3	9.4	5.7	6.1	5.6	5.5	5.2	24	9.4	0.2	2.0		
27	5.5	1.9	1.3	0.9	0.8	1.5	2.2	2.7	2.4	1.8	1.7	3.8	11.8	C	C	15.9	17.3	16.3	16.3	10.7	12.9	12.6	12.7	13.4	22	17.3	0.8	7.6		
28	21.7	41.9	16.7	6.0	7.4	11.9	12.7	13.4	13.5	11.5	7.9	4.3	1.8	1.5	1.2	1.2	1.9	2.8	2.8	2.6	2.6	2.6	3.3	4.4	24	41.9	1.2	8.2		
29	12.7	11.6	10.7	14.9	14.2	10.0	4.2	1.4	0.9	0.9	1.0	0.9	1.1	1.1	1.1	1.6	2.6	6.3	8.0	5.5	5.1	10.3	7.7	4.3	24	14.9	0.9	5.8		
30	5.1	5.2	1.9	2.2	2.6	2.9	5.1	6.7	5.4	4.3	4.6	5.3	5.1	5.2	7.8	7.8	9.8	21.7	28.6	21.0	15.1	9.2	6.2	2.8	24	28.6	1.9	8.0		
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	718					
Maximum	21.7	41.9	18.2	17.6	14.3	12.6	13.5	13.4	15.2	14.9	13.6	10.8	11.8	10.5	10.9	15.9	17.3	21.7	28.6	21.0	15.1	19.5	19.2	16.7	24					
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	22					
Average	4.9	5.4	4.2	3.8	3.6	3.7	3.8	3.8	3.9	3.5	3.3	2.7	3.0	3.0	3.1	3.5	3.7	4.4	4.7	3.9	4.1	4.7	5.1	4.7						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	41.9
													Maximum Daily	8.5
Data	0.2	0.6	1.1	1.6	2.4	3.4	4.8	6.5	10.3	12.7	18.5	41.9	Monthly Average	3.9

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

$PM_{2.5}$ - December ($\mu g/m^3$)	COURTICE	2017																											
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		
1	1.0	0.8	0.3	0.4	0.0	0.7	0.8	0.5	1.2	1.2	0.7	0.8	0.4	0.5	0.5	0.6	1.2	2.0	2.8	4.4	4.5	15.8	13.6	13.9	24	15.8	0.0	2.8		
2	14.7	10.7	8.4	7.6	9.6	11.2	11.3	12.4	14.2	14.3	14.2	14.6	13.4	12.0	9.2	9.1	12.2	15.9	18.3	25.7	27.3	26.4	23.8	23.1	24	27.3	7.6	15.0		
3	22.2	22.7	21.7	23.4	24.1	23.8	24.0	24.9	21.4	16.1	19.6	13.9	13.7	20.8	27.2	31.6	37.7	36.6	44.6	37.4	34.3	34.2	31.4	30.4	24	44.6	13.7	26.6		
4	29.3	28.7	27.4	25.2	25.7	27.6	28.6	29.6	30.2	29.4	29.9	32.0	24.9	27.8	25.6	23.3	21.9	19.8	14.0	10.4	8.6	8.6	8.7	8.9	24	32.0	8.6	22.7		
5	9.3	10.1	14.6	16.1	20.0	15.9	14.1	10.0	5.2	3.9	3.4	3.1	3.1	2.7	4.2	4.1	3.8	2.1	1.5	2.3	3.6	2.7	1.5	1.3	24	20.0	1.3	6.6		
6	1.8	1.4	2.1	2.2	2.6	2.4	3.0	3.0	2.5	1.3	1.1	0.8	0.9	0.8	1.1	1.7	2.6	3.5	4.8	5.8	5.4	3.4	2.9	2.8	24	5.8	0.8	2.5		
7	2.6	3.6	4.0	3.2	3.1	3.1	3.2	3.0	2.9	2.9	2.4	1.8	1.4	1.4	1.1	1.0	1.2	1.6	1.9	2.3	2.5	2.0	2.2	1.9	24	4.0	1.0	2.3		
8	1.8	1.5	2.2	1.1	1.0	1.5	2.2	3.2	5.6	8.2	6.8	5.6	5.9	4.2	4.4	2.9	2.9	3.2	2.9	2.9	3.7	4.1	4.7	5.3	24	8.2	1.0	3.7		
9	4.8	4.5	5.1	6.3	5.6	5.8	7.9	11.0	13.8	14.2	12.5	10.3	8.3	6.5	6.5	5.7	4.7	6.1	7.2	8.5	11.3	15.3	18.0	18.8	24	18.8	4.5	9.1		
10	22.4	20.8	9.2	2.4	1.8	1.5	0.9	1.1	0.7	0.6	0.6	1.1	1.7	3.2	4.7	6.1	7.2	8.5	6.9	8.2	10.8	14.1	3.8	0.6	24	22.4	0.6	5.8		
11	0.7	0.8	0.8	0.7	0.7	0.7	0.9	1.0	1.1	0.6	0.7	0.5	C	C	1.5	0.6	0.5	0.8	0.9	1.7	4.5	2.7	3.0	3.6	22	4.5	0.5	1.3		
12	3.4	3.6	3.9	4.0	3.3	2.8	2.6	2.7	3.8	5.2	7.2	A	A	1.2	0.2	0.3	0.8	1.6	1.6	1.7	1.8	1.9	2.3	2.1	22	7.2	0.2	2.6		
13	1.9	1.7	1.7	1.6	1.6	1.6	1.5	1.7	2.6	4.8	4.0	2.9	1.6	1.1	1.1	1.5	2.6	4.1	5.0	3.9	2.8	2.0	1.9	2.3	24	5.0	1.1	2.4		
14	3.6	3.7	3.1	2.7	3.1	2.8	2.8	3.2	2.5	1.5	1.3	1.3	1.5	1.4	2.1	1.4	1.4	2.5	2.6	4.4	5.1	8.2	8.9	10.6	24	10.6	1.3	3.4		
15	9.8	11.2	10.5	11.9	13.4	9.6	8.8	10.0	11.2	12.3	14.1	12.0	6.5	3.9	6.1	4.8	3.1	7.8	14.4	19.3	21.6	17.3	12.5	6.1	24	21.6	3.1	10.7		
16	4.9	6.0	3.0	3.6	4.9	3.1	3.3	2.4	0.9	0.7	0.5	0.2	0.3	0.5	0.4	0.5	1.8	3.8	6.9	7.4	7.0	8.3	8.3	7.6	24	8.3	0.2	3.6		
17	4.8	4.5	8.0	5.4	4.0	3.3	2.2	1.9	1.6	1.3	1.2	1.7	2.9	13.9	3.9	2.0	1.8	2.2	2.9	2.3	2.2	1.8	1.8	2.1	24	13.9	1.2	3.3		
18	3.2	4.4	5.4	9.0	6.5	13.4	13.5	9.0	14.2	11.2	10.7	10.7	14.8	16.2	21.3	20.8	23.6	23.6	24.1	16.7	14.6	21.7	26.7	23.0	24	26.7	3.2	14.9		
19	19.1	17.7	19.4	16.8	17.7	15.6	13.6	12.7	11.4	11.3	13.3	13.5	13.1	10.9	8.2	6.9	6.4	5.7	6.6	5.0	5.8	4.7	2.3	1.4	24	19.4	1.4	10.8		
20	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.2	0.2	0.2	0.2	0.3	0.2	0.3	0.8	1.0	1.0	1.1	1.0	1.1	1.8	24	1.8	0.2	0.5		
21	1.7	1.9	2.6	3.2	2.1	2.2	2.2	3.1	3.8	3.9	4.4	3.1	3.2	3.4	5.8	10.9	7.3	9.6	8.7	8.2	9.3	9.0	9.0	7.1	24	10.9	1.7	5.2		
22	4.3	3.4	4.3	5.4	3.8	2.9	2.7	2.5	2.9	3.6	3.8	4.6	3.6	3.5	3.5	4.9	3.3	3.6	4.0	4.2	5.1	5.4	6.9	10.1	24	10.1	2.5	4.2		
23	8.3	7.3	10.2	9.1	7.2	7.4	6.4	6.9	6.8	5.8	8.5	10.3	10.6	8.3	8.9	11.0	14.4	18.2	15.3	10.2	6.6	2.0	1.2	1.3	24	18.2	1.2	8.4		
24	1.4	3.0	3.6	2.4	1.9	2.8	3.9	1.5	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.7	0.4	0.3	0.5	0.5	0.6	0.6	24	3.9	0.0	1.1		
25	0.6	0.4	0.7	0.7	0.8	0.5	0.5	0.7	0.6	1.0	1.0	2.0	1.8	1.4	0.8	1.0	1.4	1.9	1.6	0.8	1.2	1.7	2.1	2.2	24	2.2	0.4	1.1		
26	2.3	2.3	2.4	2.0	2.3	2.4	2.2	1.8	3.0	3.6	3.4	3.7	2.7	2.5	3.0	3.2	3.3	3.0	2.5	3.7	4.4	3.7	4.4	4.8	24	4.8	1.8	3.0		
27	5.1	3.7	4.2	3.8	3.3	3.4	3.8	6.1	5.9	1.7	1.1	0.4	0.1	0.6	1.0	1.2	2.2	3.5	3.5	4.6	4.5	4.8	5.0	4.8	24	6.1	0.1	3.3		
28	2.7	1.8	2.3	2.3	2.5	2.8	2.9	2.4	2.2	1.7	1.6	1.7	0.6	1.0	0.7	0.8	1.5	3.6	4.5	5.4	2.9	2.8	2.4	2.4	24	5.4	0.6	2.3		
29	2.6	1.5	1.8	1.5	1.8	2.2	2.4	2.0	2.7	3.7	3.3	1.5	1.6	3.0	3.8	4.7	5.2	6.3	5.4	4.4	4.3	4.8	6.8	7.0	24	7.0	1.5	3.5		
30	8.8	6.7	10.3	11.1	13.1	17.2	20.9	21.4	27.0	33.5	29.0	18.3	13.0	8.6	8.3	7.0	10.7	10.2	9.3	5.2	2.6	2.4	2.9	3.7	24	33.5	2.4	12.5		
31	3.6	2.9	3.2	3.1	3.9	3.1	3.1	2.3	1.8	0.9	0.8	0.8	0.6	0.5	0.3	0.3	1.0	3.6	5.0	3.1	2.2	1.9	2.0	2.3	24	5.0	0.3	2.2		
Count	31	31	31	31	31	31	31	31	31	31	31	30	29	30	31	31	31	31	31	31	31	31	31	31	740					
Maximum	29.3	28.7	27.4	25.2	25.7	27.6	28.6	29.6	30.2	33.5	29.9	32.0	24.9	27.8	27.2	31.6	37.7	36.6	44.6	37.4	34.3	34.2	31.4	30.4	24					
Minimum	0.4	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.7	0.4	0.3	0.5	0.5	0.6	0.6	22					
Average	6.5	6.2	6.3	6.1	6.2	6.2	6.3	6.3	6.6	6.5	6.5	5.8	5.2	5.4	5.3	5.5	6.1	7.0	7.5	7.1	7.2	7.6	7.2	6.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	44.6
													Maximum Daily	26.6
Data	0.7	1.4	2.0	2.7	3.4	4.5	6.7	10.3	16.7	23.8	31.8	44.6	Monthly Average	6.4

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

$PM_{2.5}$ - October ($\mu g/m^3$)	Rundle Road												2017																	
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		
1	4.2	3.7	3.9	3.7	3.6	2.9	3.1	4.6	5.5	4.6	2.8	2.9	2.7	1.9	1.3	1.5	1.7	1.4	3.8	7.4	10.2	13.8	11.7	9.4	24	13.8	1.3	4.7		
2	9.5	8.9	7.5	7.2	7.1	6.7	7.9	11.3	6.9	3.6	4.0	2.5	1.7	2.1	1.3	1.5	1.9	2.7	4.4	5.5	6.3	4.9	4.8	4.2	24	11.3	1.3	5.2		
3	5.3	7.4	7.4	6.8	5.8	6.2	6.7	8.5	6.7	3.1	2.9	3.0	3.5	3.3	3.2	2.9	3.6	4.7	6.0	14.6	7.0	6.0	6.4	5.7	24	14.6	2.9	5.7		
4	6.6	6.5	4.9	2.9	2.8	3.4	3.3	3.2	3.6	3.5	3.8	3.7	3.9	5.7	4.6	4.4	5.0	2.7	0.3	0.6	0.4	0.0	0.1	0.0	24	6.6	0.0	3.2		
5	0.6	1.8	1.9	2.9	2.8	4.5	5.4	5.6	10.3	5.4	4.1	3.1	3.9	3.3	2.5	3.4	3.1	0.9	1.4	2.4	2.7	7.7	9.3	9.0	24	10.3	0.6	4.1		
6	7.8	7.0	6.8	5.3	4.5	4.3	4.4	4.1	2.2	1.3	1.1	1.0	1.3	1.4	3.0	4.0	4.5	5.9	5.8	7.7	9.5	9.0	6.5	3.5	24	9.5	1.0	4.7		
7	5.1	5.0	3.1	3.8	4.8	7.3	7.5	5.1	2.4	1.8	2.0	4.0	7.2	8.2	8.1	4.6	2.6	2.4	2.6	3.2	3.8	4.2	4.7	3.3	24	8.2	1.8	4.5		
8	3.0	3.7	3.4	3.7	1.2	0.2	0.2	0.2	0.8	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.8	0.4	1.5	1.7	2.4	1.7	1.5	5.5	24	5.5	0.2	1.4		
9	5.9	4.3	3.9	2.9	1.9	0.7	0.3	0.2	0.2	0.3	0.2	0.2	0.6	0.3	0.2	0.5	1.0	1.0	0.3	0.5	0.7	0.9	0.7	0.4	24	5.9	0.2	1.2		
10	1.7	3.6	3.7	5.2	5.3	7.4	13.0	13.7	11.1	5.4	5.4	4.9	6.3	5.1	2.8	3.0	1.8	0.2	0.7	1.5	1.5	0.3	0.2	0.9	24	13.7	0.2	4.4		
11	1.9	1.1	0.2	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	0.4	0.4	0.2	0.2	0.3	0.2	0.2	24	1.9	0.2	0.3		
12	0.2	0.2	0.2	0.2	0.2	0.5	1.0	1.5	1.7	1.7	2.1	2.8	3.0	3.7	4.9	5.3	5.2	5.3	5.3	4.8	4.6	3.9	3.4	3.6	24	5.3	0.2	2.7		
13	3.9	4.8	4.4	4.3	4.5	5.0	4.5	5.4	5.3	4.2	4.5	3.9	4.0	5.2	4.8	5.6	6.6	7.6	7.9	6.7	6.4	7.3	4.7	4.1	24	7.9	3.9	5.2		
14	3.6	3.1	3.6	3.7	3.3	3.3	4.2	10.0	11.2	10.7	11.7	9.5	6.3	7.2	11.0	11.1	10.8	10.6	11.3	12.3	8.0	4.3	4.7	3.7	24	12.3	3.1	7.5		
15	4.1	4.6	3.4	3.5	4.0	4.0	4.1	4.0	4.1	4.6	5.7	6.4	6.8	6.5	6.5	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	6.8	0.0	3.1		
16	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.3	0.4	0.7	0.2	0.0	0.0	0.0	0.0	0.0	1.6	1.8	3.1	7.5	3.8	4.5	24	7.5	0.0	1.0		
17	5.7	4.8	5.2	5.7	4.1	5.5	6.7	6.5	8.9	5.5	2.4	2.7	3.0	3.2	3.7	3.2	3.3	4.0	4.6	5.7	5.3	6.3	5.5	5.5	24	8.9	2.4	4.9		
18	7.3	8.9	12.3	13.4	13.6	12.1	12.0	13.5	13.2	9.9	8.2	9.0	8.3	7.0	6.7	4.8	4.4	4.0	4.4	6.0	6.6	7.0	9.4	11.1	24	13.6	4.0	8.9		
19	11.9	10.0	8.3	5.2	3.7	3.4	3.6	3.4	3.1	3.0	3.5	3.8	4.9	6.2	5.8	5.6	4.8	4.8	3.5	3.5	3.3	2.7	3.3	5.7	24	11.9	2.7	4.9		
20	4.8	5.0	7.0	9.0	6.6	4.5	6.3	4.8	5.0	4.9	2.7	2.5	5.3	3.7	2.5	2.1	2.6	2.7	2.8	3.1	3.9	4.2	4.6	9.4	24	9.4	2.1	4.6		
21	11.7	10.6	15.8	16.5	16.0	12.4	11.7	15.1	18.3	13.3	9.6	5.5	4.0	4.9	6.0	6.2	5.8	7.3	10.2	14.3	12.0	13.2	12.0	14.1	24	18.3	4.0	11.1		
22	12.6	9.9	9.1	8.6	9.4	9.1	10.3	11.2	8.8	6.8	4.7	5.1	5.6	5.9	5.4	5.7	7.0	8.8	10.4	10.4	9.9	9.6	8.5	7.6	24	12.6	4.7	8.4		
23	7.8	8.8	10.9	11.9	12.9	12.9	14.4	15.5	15.5	8.7	6.6	6.6	5.9	6.1	5.7	5.4	5.6	4.7	4.3	2.6	1.9	2.1	2.3	0.9	24	15.5	0.9	7.5		
24	0.3	0.4	0.5	0.5	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.3	0.5	0.2	0.4	0.7	0.7	0.8	0.7	0.6	0.7	0.8	1.2	24	1.2	0.1	0.4		
25	1.6	2.1	0.9	0.8	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.8	1.0	0.4	0.4	0.7	0.8	0.2	24	2.1	0.1	0.5		
26	0.1	0.3	1.2	1.5	0.8	0.5	4.0	6.4	2.7	1.1	0.7	C	C	4.6	1.8	1.5	0.7	0.4	0.6	0.6	1.8	1.1	1.0	2.8	22	6.4	0.1	1.7		
27	2.0	1.4	1.6	1.4	0.9	1.2	1.0	1.0	0.8	0.5	0.3	0.3	0.4	0.3	0.2	0.2	0.3	1.0	0.9	0.6	0.2	0.3	0.2	0.2	24	2.0	0.2	0.7		
28	0.2	0.2	0.2	0.9	3.2	9.7	8.2	1.8	7.5	8.0	6.3	0.2	0.2	0.2	0.2	1.6	1.6	0.2	0.4	0.9	1.7	2.1	2.8	3.4	24	9.7	0.2	2.6		
29	5.2	6.3	6.2	6.0	5.0	6.0	4.6	6.1	4.0	2.7	3.8	2.5	2.3	1.9	2.5	2.9	2.3	2.3	2.1	1.9	0.5	0.2	0.2	0.2	24	6.3	0.2	3.2		
30	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.2	0.3	0.2	1.0	3.5	7.1	6.0	5.6	5.6	6.7	8.2	11.2	10.7	8.5	3.6	2.0	24	11.2	0.2	3.5		
31	3.3	1.2	1.1	0.9	0.5	1.3	2.0	2.0	3.2	3.4	3.2	2.3	2.5	1.7	1.1	1.9	0.6	0.4	1.2	2.1	3.6	3.5	3.3	3.8	24	3.8	0.4	2.1		
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	742					
Maximum	12.6	10.6	15.8	16.5	16.0	12.9	14.4	15.5	18.3	13.3	11.7	9.5	8.3	8.2	11.0	11.1	10.8	10.6	11.3	14.6	12.0	13.8	12.0	14.1	24					
Minimum	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22					
Average	4.5	4.4	4.5	4.5	4.2	4.4	4.9	5.3	5.3	3.8	3.3	3.0	3.3	3.5	3.3	3.1	3.1	3.1	3.5	4.4	4.2	4.3	3.9	4.1						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	18.3
													Maximum Daily	11.1
Data	0.2	0.5	1.3	2.5	3.4	4.2	5.3	6.5	9.1	11.3	14.5	18.3	Monthly Average	4.0

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
November 2017
($\mu g/m^3$)

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	3.9	3.4	4.4	6.7	7.1	8.4	9.6	10.2	13.8	10.0	5.1	2.7	3.0	2.9	3.1	4.9	15.5	3.9	4.5	4.3	3.8	3.6	3.7	4.0	24	15.5	2.7	5.9		
2	5.1	5.1	4.4	3.3	2.7	2.3	3.3	3.2	2.8	1.2	1.7	2.1	2.4	3.1	3.9	4.3	6.5	7.6	7.7	9.1	10.3	10.4	10.0	8.5	24	10.4	1.2	5.1		
3	0.5	0.6	0.3	0.6	0.7	1.4	3.1	3.0	2.8	3.1	2.8	1.3	0.2	0.5	0.2	0.2	0.4	0.2	0.2	0.3	0.7	0.6	1.4	2.7	24	3.1	0.2	1.2		
4	1.7	0.6	1.0	0.6	0.3	0.3	0.6	0.4	0.6	0.6	11.5	4.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	24	11.5	0.2	1.0		
5	0.6	0.8	1.7	2.5	2.9	3.1	3.3	2.1	1.6	1.2	1.1	1.4	1.9	2.0	2.3	2.8	1.9	2.5	3.2	3.0	3.4	3.2	2.6	0.6	24	3.4	0.6	2.2		
6	1.0	1.1	0.5	0.2	0.2	0.2	0.2	0.6	0.8	0.7	0.5	0.4	0.5	0.6	1.2	0.5	1.4	0.9	0.9	1.1	0.8	0.4	0.7	1.5	24	1.5	0.2	0.7		
7	1.2	1.2	0.9	1.2	2.9	2.1	3.6	4.7	2.3	1.4	0.9	0.9	0.8	0.8	0.7	0.7	1.1	3.4	3.5	2.6	4.1	7.9	7.6	6.0	24	7.9	0.7	2.6		
8	5.4	4.4	5.3	6.7	5.4	6.1	6.9	30.4	30.1	6.2	6.6	3.9	3.8	4.0	4.1	4.9	6.1	6.4	6.7	8.2	19.4	14.8	11.4	12.4	24	30.4	3.8	9.1		
9	13.0	11.8	11.4	13.1	12.6	11.8	9.8	17.0	20.8	19.5	11.7	8.9	9.3	8.3	7.0	5.1	4.9	5.0	5.0	0.1	0.5	0.2	1.1	0.1	24	20.8	0.1	8.7		
10	0.2	0.1	0.1	0.3	0.4	0.6	1.1	1.7	1.8	1.9	10.2	12.5	11.1	9.9	10.7	8.9	9.7	13.3	15.7	20.4	38.7	11.4	10.3	12.0	24	38.7	0.1	8.5		
11	5.3	3.9	3.5	3.3	2.8	2.8	3.1	3.0	2.8	3.2	1.5	1.5	1.3	1.2	1.9	1.3	1.0	1.3	1.3	1.5	1.3	1.0	1.4	2.1	24	5.3	1.0	2.2		
12	3.5	5.0	4.4	3.8	3.9	3.8	4.0	3.7	3.4	3.0	3.8	2.9	2.8	1.8	1.9	1.8	2.3	3.4	3.2	3.2	3.3	7.1	6.6	5.3	24	7.1	1.8	3.7		
13	4.6	3.2	3.1	2.5	3.2	3.6	3.1	3.8	4.2	3.6	2.8	2.9	3.5	4.6	6.3	6.4	7.0	8.8	9.6	9.6	12.6	12.8	11.6	12.9	24	12.9	2.5	6.1		
14	9.7	10.1	12.2	12.4	11.6	11.0	7.8	6.1	7.5	6.6	4.6	4.1	4.2	4.1	3.4	2.7	3.5	3.5	4.2	7.3	9.2	9.3	10.7	10.5	24	12.4	2.7	7.3		
15	10.3	10.7	10.0	8.6	8.2	9.8	8.1	6.3	5.6	4.6	3.8	3.7	3.8	3.9	4.0	4.5	4.3	4.3	3.5	2.9	2.6	2.0	3.0	2.0	24	10.7	2.0	5.4		
16	1.7	1.2	1.0	0.7	0.0	0.0	0.0	0.1	0.7	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	1.7	0.0	0.2		
17	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.8	1.1	1.2	1.5	1.8	2.5	3.0	3.5	3.8	5.3	5.4	5.0	4.5	4.7	4.7	4.5	24	5.4	0.0	2.3		
18	3.4	3.7	3.9	3.3	2.3	1.8	2.0	1.3	1.0	0.7	0.9	0.8	0.2	0.9	2.3	1.2	0.7	1.6	1.8	2.4	1.8	1.1	0.0	0.0	24	3.9	0.0	1.6		
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	1.3	1.0	3.0	1.4	0.4	24	3.0	0.0	0.3		
20	0.7	0.3	0.4	0.5	1.4	4.1	4.7	5.6	5.9	5.1	7.6	8.6	12.0	13.2	15.0	13.4	13.3	12.2	7.1	3.6	3.9	3.1	1.8	1.1	24	15.0	0.3	6.0		
21	1.4	1.1	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.0	0.0	0.2	0.5	0.7	1.2	1.5	3.3	4.7	5.6	5.4	6.3	6.8	6.9	2.1	24	6.9	0.0	2.2		
22	1.4	0.8	0.4	0.0	0.0	0.7	0.0	0.0	0.5	0.7	0.7	1.9	3.0	4.4	5.9	6.3	6.7	2.5	1.5	5.9	2.6	4.4	4.0	4.0	24	6.7	0.0	2.4		
23	4.4	5.1	5.6	5.0	5.1	4.2	6.6	10.6	9.0	10.8	9.2	7.1	7.8	10.1	9.1	7.8	8.0	6.1	4.8	5.1	7.0	8.9	12.5	14.6	24	14.6	4.2	7.7		
24	16.0	16.3	15.1	14.1	13.9	13.7	14.0	11.6	8.2	5.4	7.0	5.7	4.0	2.8	3.2	3.7	3.7	2.5	2.8	3.8	2.4	1.8	1.9	2.0	24	16.3	1.8	7.3		
25	2.1	2.3	1.9	1.8	2.0	2.3	2.5	3.2	5.5	6.8	9.5	3.3	0.5	0.3	0.3	0.3	1.7	3.6	4.2	1.5	2.3	2.4	0.8	0.2	24	9.5	0.2	2.6		
26	0.3	0.2	0.2	0.5	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.4	0.5	1.1	1.5	1.1	2.6	3.2	9.6	6.9	6.7	6.2	6.2	5.8	24	9.6	0.2	2.3		
27	6.3	2.4	1.9	1.6	1.4	1.6	1.9	5.1	10.9	8.7	7.4	10.8	7.3	10.5	7.9	9.9	11.4	9.6	12.6	8.3	6.9	7.5	5.4	5.1	24	12.6	1.4	6.8		
28	5.1	7.3	8.6	8.2	5.5	6.0	6.1	7.8	7.6	5.5	3.6	2.5	1.7	1.6	2.4	2.6	3.4	3.4	3.0	2.9	2.6	2.4	2.9	2.9	24	8.6	1.6	4.4		
29	6.3	5.5	4.8	6.6	7.7	7.0	2.8	7.5	5.3	3.0	4.5	4.8	9.6	C	C	6.8	6.9	7.4	4.2	5.1	7.7	9.7	12.7	10.7	22	12.7	2.8	6.7		
30	7.9	7.9	5.7	4.9	4.1	4.1	6.5	8.4	8.7	5.7	5.5	6.2	6.2	7.4	9.7	11.6	12.1	17.7	22.0	20.4	16.9	11.0	8.9	4.5	24	22.0	4.1	9.3		
31																														
Count	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	718					
Maximum	16.0	16.3	15.1	14.1	13.9	13.7	14.0	30.4	30.1	19.5	11.7	12.5	12.0	13.2	15.0	13.4	15.5	17.7	22.0	20.4	38.7	14.8	12.7	14.6	24					
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22					
Average	4.1	3.9	3.8	3.8	3.6	3.8	3.9	5.3	5.5	4.0	4.2	3.6	3.5	3.6	3.9	4.0	4.8	4.8	5.1	5.1	6.1	5.3	5.1	4.6						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	38.7
													Maximum Daily	9.3
Data	0.2	0.7	1.4	2.4	3.2	4.1	5.4	7.4	10.3	12.6	19.5	38.7	Monthly Average	4.4

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
December 2017
($\mu g/m^3$)

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	4.1	2.4	2.2	2.0	1.9	1.9	2.6	2.8	3.4	2.9	2.5	3.0	2.9	2.3	4.3	2.1	3.0	11.5	9.9	14.9	18.7	19.6	19.3	21.4	24	21.4	1.9	6.7
2	17.4	18.1	14.1	11.2	14.0	13.7	10.7	11.6	13.5	14.5	15.0	14.4	13.2	10.7	9.2	10.8	13.8	14.0	21.1	28.3	28.6	23.2	25.7	21.1	24	28.6	9.2	16.2
3	18.8	16.4	16.1	19.7	18.0	19.1	19.4	18.8	19.6	10.4	17.9	16.3	18.0	22.6	25.0	30.1	36.2	32.6	42.9	37.0	30.0	28.5	29.4	28.9	24	42.9	10.4	23.8
4	28.8	25.8	23.8	23.3	22.8	21.1	20.8	14.1	27.5	27.2	22.1	29.2	27.3	27.7	24.4	21.5	21.5	21.1	16.1	12.3	9.8	10.0	10.5	10.6	24	29.2	9.8	20.8
5	12.4	15.5	18.3	20.5	21.1	16.6	18.0	15.2	9.1	7.0	6.0	5.4	5.1	7.2	6.0	6.0	4.6	2.9	2.5	2.8	4.5	3.1	2.0	1.7	24	21.1	1.7	8.9
6	2.8	2.5	3.5	3.3	3.7	3.3	4.7	5.5	6.4	4.8	3.7	3.2	3.1	2.7	3.9	5.0	4.4	4.5	5.9	7.8	8.3	6.8	5.0	4.2	24	8.3	2.5	4.5
7	3.7	4.1	4.1	3.3	3.6	3.8	3.8	6.0	5.4	4.4	C	C	C	2.7	2.8	3.5	4.1	2.0	2.1	3.0	3.7	2.8	3.3	3.4	21	6.0	2.0	3.6
8	2.7	3.7	3.3	3.0	2.4	3.6	4.9	7.1	9.0	9.3	10.4	13.0	11.4	10.0	9.3	5.1	4.4	3.3	2.8	2.9	3.6	5.5	5.9	6.8	24	13.0	2.4	6.0
9	7.5	8.4	10.5	11.6	9.9	10.0	12.2	18.7	19.5	19.6	14.1	11.8	9.8	7.6	7.5	6.9	4.8	8.4	8.5	9.7	35.0	16.6	53.5	17.0	24	53.5	4.8	14.1
10	14.9	14.6	6.1	1.5	1.1	0.9	0.6	0.6	0.2	0.3	0.3	0.7	1.1	1.9	3.3	4.2	5.5	7.7	6.6	7.4	10.3	14.0	0.4	0.4	24	14.9	0.2	4.4
11	0.6	0.5	0.4	0.3	0.4	0.3	0.4	0.9	1.2	1.4	1.1	1.3	1.6	1.9	5.1	1.5	5.0	3.2	1.4	2.9	3.2	2.6	2.8	3.7	24	5.1	0.3	1.8
12	4.8	5.5	5.9	5.4	4.0	3.4	3.1	3.2	3.8	7.6	8.6	6.1	1.7	A	A	0.7	0.4	0.4	0.3	0.4	0.5	0.7	0.9	0.5	22	8.6	0.3	3.1
13	0.4	0.6	0.4	0.2	0.2	0.2	0.2	3.1	4.9	1.2	0.4	0.6	0.3	0.2	0.2	0.4	0.9	2.6	3.0	2.2	1.5	1.2	1.6	1.8	24	4.9	0.2	1.2
14	2.8	2.2	1.6	1.1	1.8	1.0	2.1	2.3	2.6	1.7	2.0	2.4	1.9	2.2	2.6	6.2	6.7	4.9	7.5	5.4	7.1	17.9	19.2	11.7	24	19.2	1.0	4.9
15	11.6	11.7	11.4	16.0	16.6	16.5	17.7	12.1	10.4	11.0	12.0	9.4	9.6	4.1	7.6	5.9	4.2	7.5	14.4	21.0	23.6	21.6	12.8	7.3	24	23.6	4.1	12.3
16	4.7	2.2	5.1	6.1	3.4	1.0	10.1	1.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	5.9	28.6	7.3	11.8	20.1	7.0	3.2	24	28.6	0.2	5.0
17	2.4	4.2	9.4	7.4	6.2	4.5	3.9	2.4	6.1	2.1	0.6	0.7	1.3	1.0	1.0	1.1	1.1	2.2	2.6	2.5	2.2	1.8	1.9	2.1	24	9.4	0.6	2.9
18	2.1	2.5	3.2	4.4	5.3	8.0	10.3	9.1	10.8	17.9	13.0	13.6	18.4	16.1	21.3	23.5	27.4	29.4	30.5	23.4	21.0	30.1	39.4	38.0	24	39.4	2.1	17.4
19	34.9	35.2	37.2	33.8	34.5	22.8	12.8	12.2	11.3	10.7	12.1	13.1	12.5	10.9	8.5	7.7	6.6	5.8	5.9	5.6	7.1	6.2	3.5	2.0	24	37.2	2.0	14.7
20	0.8	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	1.5	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.8	24	1.5	0.3	0.5
21	0.9	1.1	1.5	1.3	1.3	1.4	1.6	2.8	2.7	3.3	3.0	3.2	3.2	3.6	3.5	3.6	4.3	5.1	4.9	4.7	5.1	6.3	6.5	5.1	24	6.5	0.9	3.3
22	2.6	1.9	2.4	3.4	2.3	2.0	1.8	1.9	1.9	2.0	1.9	1.8	2.0	2.2	2.8	3.2	2.7	3.5	4.3	5.6	6.1	7.3	7.9	11.6	24	11.6	1.8	3.5
23	13.6	17.9	15.7	12.9	9.9	8.3	8.8	9.7	9.6	10.1	12.4	13.9	17.3	13.5	12.8	14.7	15.8	14.5	10.8	10.8	8.6	5.5	2.9	2.6	24	17.9	2.6	11.4
24	3.1	4.7	5.8	4.1	3.4	4.1	4.3	2.2	3.3	2.5	1.3	1.1	0.8	0.7	0.8	1.2	3.6	2.0	1.9	2.0	2.2	2.2	2.2	2.2	24	5.8	0.7	2.6
25	2.6	2.9	2.5	2.7	2.4	1.8	1.5	1.9	1.9	2.3	2.1	3.7	4.3	3.3	2.6	2.7	4.5	7.3	6.6	3.4	3.4	3.6	4.1	3.9	24	7.3	1.5	3.2
26	3.3	3.4	4.0	3.9	3.2	3.4	3.6	3.7	4.5	5.2	5.1	4.2	4.0	4.1	3.7	3.9	5.1	5.2	6.0	6.1	7.4	8.6	7.5	7.2	24	8.6	3.2	4.8
27	6.7	6.5	5.9	6.2	6.0	5.3	5.8	6.6	8.6	9.1	4.3	2.1	2.0	2.3	2.4	2.7	2.2	5.9	6.1	7.1	5.9	6.7	6.3	5.5	24	9.1	2.0	5.3
28	4.8	3.7	4.1	4.8	4.7	5.1	5.4	5.0	7.7	4.8	5.1	6.2	5.4	4.9	4.0	2.8	4.2	6.3	8.0	9.4	6.2	5.5	4.8	4.7	24	9.4	2.8	5.3
29	4.1	2.7	2.5	2.5	2.7	2.5	2.8	3.5	3.1	3.4	2.7	2.1	2.4	2.6	3.1	3.8	4.3	5.2	5.2	5.5	5.5	5.8	8.2	8.2	24	8.2	2.1	3.9
30	10.0	5.0	6.4	7.7	10.0	11.7	14.8	18.3	19.5	25.1	24.8	14.3	10.9	7.9	7.0	6.5	10.0	9.6	11.6	4.5	2.3	2.0	1.9	2.3	24	25.1	1.9	10.2
31	3.1	2.5	3.1	3.5	3.3	3.1	3.1	3.0	3.0	2.1	1.8	1.7	1.8	1.3	2.3	1.6	2.2	10.4	12.1	4.1	2.4	2.6	4.0	4.2	24	12.1	1.3	3.4
Count	31	31	31	31	31	31	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	31	31	739			
Maximum	34.9	35.2	37.2	33.8	34.5	22.8	20.8	18.8	27.5	27.2	24.8	29.2	27.3	27.7	25.0	30.1	36.2	32.6	42.9	37.0	35.0	30.1	53.5	38.0	24			
Minimum	0.4	0.5	0.4	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.3	0.4	0.5	0.6	0.4	0.4	21			
Average	7.5	7.4	7.5	7.3	7.1	6.5	6.8	6.6	7.5	7.3	6.9	6.6	6.5	6.0	6.2	6.1	6.9	7.9	9.4	8.4	9.2	9.3	9.7	7.9				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.9	2.0	2.7	3.4	4.4	5.9	8.1	11.8	18.7	23.9	35.2	53.5

Maximum Hourly	53.5
Maximum Daily	23.8
Monthly Average	7.4

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

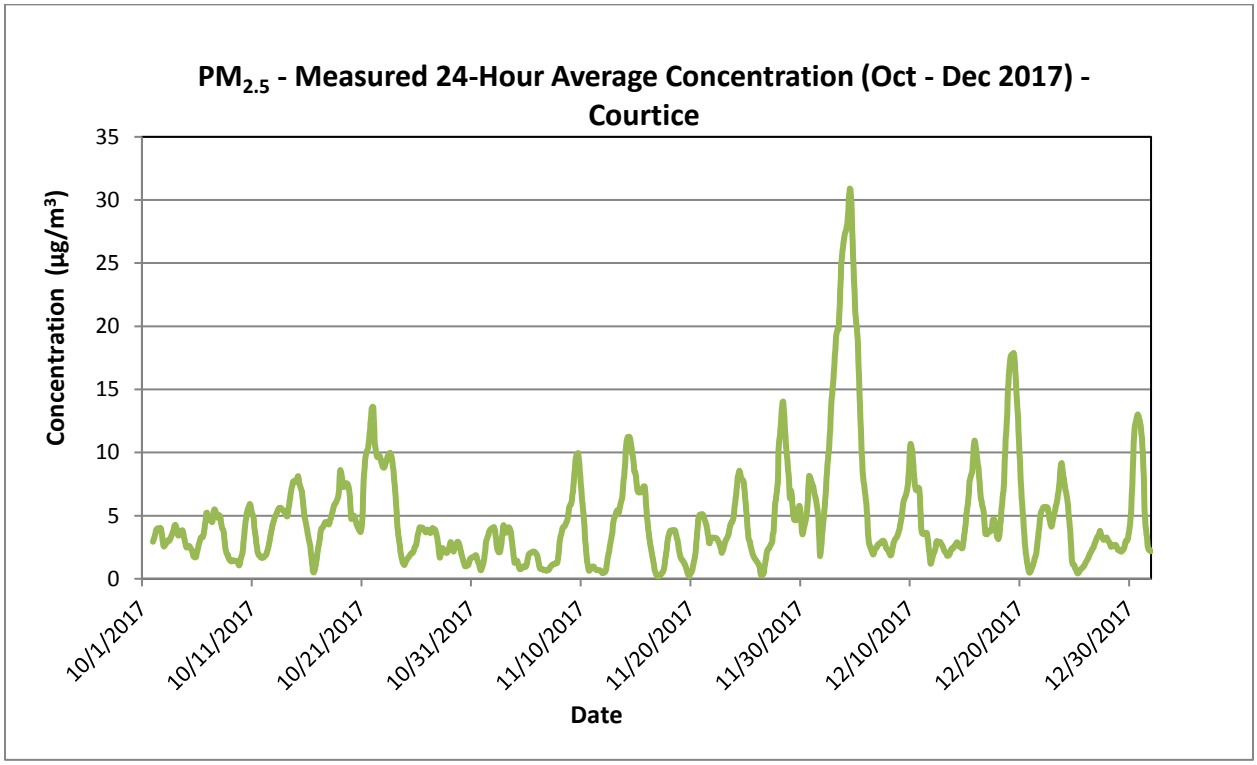
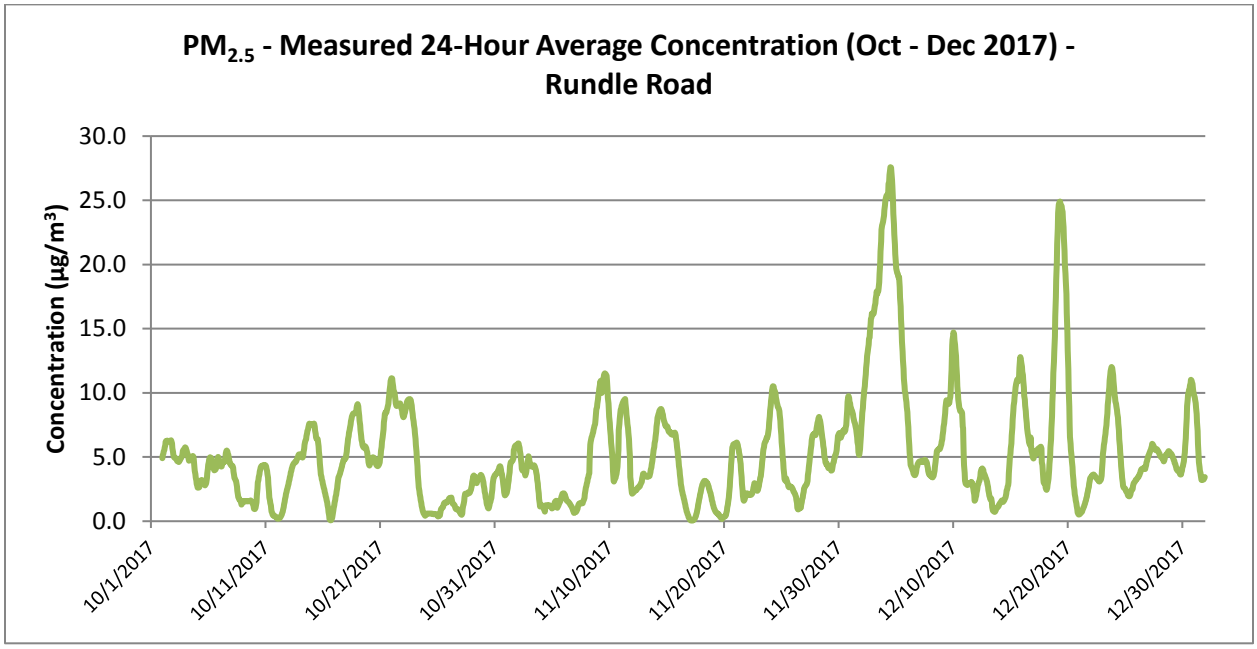


Figure E-2 Time History Plot of Measured 24 Hour Average $PM_{2.5}$ Concentrations – Rundle Road Station



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-Oct-17	End date:	31-Dec-17		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)	
102	9-Jan-18	BB	Data review	18-Oct-17	03:00	18-Oct-17	04:00	An elevated SO_2 level of 85 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured. Winds were west-northwesterly during this time. Potential emission sources in this direction include highway 401 or rail traffic. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
103	9-Jan-18	BB	Data review	21-Oct-17	02:00	21-Oct-17	04:00	An elevated SO_2 level of 62 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured. Winds were west-northwesterly during this time. Potential emission sources in this direction include highway 401 or rail traffic. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
104	9-Jan-18	BB	Data review	27-Oct-17	03:00	27-Oct-17	04:00	An elevated SO_2 level of 58 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured. Winds were north-northeasterly during this time. Potential emission sources in this direction include highway 401 or the Courtice WPCP. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
105	9-Jan-18	BB	Invalidate	27-Oct-17	11:00	27-Oct-17	12:00	Monthly Calibration
106	9-Jan-18	BB	Invalidate	27-Nov-17	13:00	27-Nov-17	14:00	Monthly Calibration
107	9-Jan-18	BB	Data review	9-Nov-17	03:00	9-Nov-17	05:00	An elevated SO_2 level of 32 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured. Winds were northerly during this time. Potential emission sources in this direction include highway 401 or rail traffic. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
104	9-Jan-18	BB	Data review	9-Dec-17	04:00	9-Dec-17	06:00	An elevated SO_2 level of 20 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured. Winds were northerly during this time. Potential emission sources in this direction include highway 401 or rail traffic. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
105	9-Jan-18	BB	Invalidate	12-Dec-17	11:00	12-Dec-17	11:00	Quarterly Audit
106	9-Jan-18	BB	Data review	10-Nov-17	17:00	10-Nov-17	20:00	Instances of repeating zero values in this timeframe were due to negative instrument zero drift less than -5 ppb and rounded to 0 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied.
107	9-Jan-18	BB	Data review	25-Nov-17	20:00	26-Nov-17	01:00	
108	17-Jan-18	BB	Data review	1-Nov-17	07:00	1-Nov-17	09:00	An elevated SO_2 level of 23 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured. Winds were northwesterly during this time. Potential emission sources in this direction include highway 401 or rail traffic. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
109	17-Jan-18	BB	Data review	3-Nov-18	21:00	4-Nov-17	04:00	An elevated SO_2 level of 23 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured. Winds were northwesterly during this time. Potential emission sources in this direction include highway 401 or rail traffic. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
110	17-Jan-18	BB	Invalidate	27-Nov-17	13:00	27-Nov-17	14:00	Monthly Calibration
111	17-Jan-18	BB	Invalidate	7-Dec-17	12:00	7-Dec-17	13:00	Monthly Calibration

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-Oct-17	End date:	31-Dec-17	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)	
51	9-Jan-18	BB	Invalidate	27-Oct-17	11:00	27-Oct-17	12:00	Monthly Calibration
52	9-Jan-18	BB	Invalidate	27-Nov-17	13:00	27-Nov-17	14:00	Monthly Calibration
53	9-Jan-18	BB	Invalidate	11-Dec-17	12:00	11-Dec-17	13:00	Monthly calibration
52	9-Jan-18	BB	Data review	21-Oct-17	03:00	21-Oct-17	06:00	An elevated NOx level of 147 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Concentrations of SO_2 were also elevated during this time, indicating a potential local combustion source. Winds were northerly during this time. Potential sources include agricultural activities, CN rail traffic or local roads. The data was deemed valid.
53	9-Jan-18	BB	Data review	9-Nov-17	07:00	9-Nov-17	09:00	An elevated NOx level of 131 ppb was measured at the Courtice WPCP station without a corresponding trend at the Rundle Road Station. Concentrations of SO_2 were also elevated during this time, indicating a potential local combustion source. Winds were northerly during this time. Potential sources include agricultural activities, CN rail traffic or local roads. The data was deemed valid.
54	9-Jan-18	BB	Data review	18-Dec-17	12:00	18-Dec-17	18:00	An elevated NOx level of 88 ppb was measured at the Courtice WPCP station. NOX was also elevated at the Rundle Road Station. SO_2 concentrations were also elevated during this time indicating a combustion source. Winds were northerly during this time. Potential sources include agricultural activities, a CN rail traffic or local roads. The data was deemed valid.
55	9-Jan-18	BB	Data review	4-Dec-17	19:00	5-Dec-17	11:00	Instances of repeating zero values in this timeframe were due to negative instrument zero drift less than -5 ppb and rounded to 0 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied.
56	9-Jan-18	BB	Data review	11-Dec-17	16:00	11-Dec-17	19:00	
57	9-Jan-18	BB	Data review	12-Dec-17	16:00	13-Dec-17	06:00	
58	9-Jan-18	BB	Data review	15-Dec-17	14:00	16-Dec-17	06:00	
59	9-Jan-18	BB	Data review	16-Dec-17	22:00	17-Dec-17	05:00	
60	9-Jan-18	BB	Data review	16-Dec-17	22:00	18-Dec-17	05:00	
61	9-Jan-18	BB	Data review	18-Dec-17	21:00	21-Dec-17	06:00	
62	9-Jan-18	BB	Data review	22-Dec-17	18:00	23-Dec-17	08:00	
63	9-Jan-18	BB	Data review	23-Dec-17	22:00	24-Dec-17	05:00	
64	9-Jan-18	BB	Data review	24-Dec-17	20:00	27-Dec-17	05:00	
65	9-Jan-18	BB	Data review	30-Dec-17	18:00	31-Dec-17	22:00	
66	9-Jan-18	BB	Invalidate	9-Dec-17	13:00	9-Dec-17	17:00	Calibration
67	9-Jan-18	BB	Invalidate	12-Dec-17	11:00	12-Dec-17	11:00	Quarterly Audit
68	10-Jan-18	BB	Data review	12-Oct-17	22:00	13-Oct-17	14:00	Instances of repeating zero values in this timeframe were due to negative instrument zero drift less than -5 ppb and rounded to 0 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied.
69	10-Jan-18	BB	Data review	24-Oct-17	23:00	25-Oct-17	05:00	
70	10-Jan-18	BB	Data review	28-Oct-17	00:00	28-Oct-17	08:00	
71	10-Jan-18	BB	Data review	31-Oct-17	01:00	31-Oct-17	06:00	
72	10-Jan-18	BB	Data review	1-Nov-17	02:00	1-Nov-17	05:00	
73	10-Jan-18	BB	Data review	2-Nov-17	10:00	2-Nov-17	23:00	
74	10-Jan-18	BB	Data review	5-Nov-17	17:00	6-Nov-17	00:00	
75	10-Jan-18	BB	Data review	7-Nov-17	13:00	7-Nov-17	20:00	
76	10-Jan-18	BB	Data review	11-Nov-17	16:00	11-Nov-17	23:00	
77	10-Jan-18	BB	Data review	12-Nov-17	17:00	12-Nov-17	21:00	
78	10-Jan-18	BB	Data review	15-Nov-17	20:00	16-Nov-17	04:00	
79	10-Jan-18	BB	Data review	17-Nov-17	18:00	18-Nov-17	06:00	
80	10-Jan-18	BB	Data review	20-Nov-17	20:00	21-Nov-17	23:00	
81	10-Jan-18	BB	Data review	24-Nov-17	21:00	25-Nov-17	07:00	
82	10-Jan-18	BB	Data review	25-Nov-17	17:00	26-Nov-17	06:00	
83	17-Jan-18	BB	Invalidate	7-Dec-17	13:00	7-Dec-17	13:00	Calibration
84	17-Jan-18	BB	Invalidate	4-Dec-17	12:00	4-Dec-17	15:00	Calibration
85	17-Jan-18	BB	Invalidate	5-Dec-17	12:00	5-Dec-17	14:00	Calibration

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**				
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-Oct-17**	**End date:**	**31-Dec-17**		**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)**	
86	9-Jan-18	BB	Invalidate	12-Dec-17	11:00	12-Dec-17	11:00	Quarterly Audit
87	9-Jan-18	BB	Invalidate	27-Oct-17	11:00	27-Oct-17	12:00	Monthly Calibration
88	9-Jan-18	BB	Invalidate	27-Nov-17	13:00	27-Nov-17	14:00	Monthly Calibration
89	9-Jan-18	BB	Invalidate	11-Dec-17	12:00	11-Dec-17	13:00	Monthly calibration
90	9-Jan-18	BB	Data review	21-Oct-17	03:00	21-Oct-17	06:00	Elevated levels of up to 36 µg/m³ were measured without a corresponding trend at the Rundle or Oshawa Stations. Winds were northerly - potential emission sources in this direction include agricultural activities, highway 401, and CN rail traffic. The data was deemed valid.
91	9-Jan-18	BB	Data review	28-Nov-17	01:00	28-Nov-17	02:00	Elevated levels of up to 42 µg/m³ were measured without a corresponding trend at the Rundle or Oshawa Stations. Winds were northerly - potential emission sources in this direction include agricultural activities, highway 401, and CN rail traffic. The data was deemed valid.
92	9-Jan-18	BB	Data review	3-Dec-17	16:00	3-Dec-17	21:00	Elevated levels of up to 45 µg/m³ were measured. Concentrations were also elevated at Rundle and Oshawa Stations. Winds were northerly - potential emission sources in this direction include agricultural activities and highway 401. The data was deemed valid.
93	24-Nov-17	TZ	Invalidate minute data	6-Oct-17	09:44	6-Oct-17	09:54	Zero check. Minute data invalidated
94	24-Nov-17	TZ	Invalidate minute data	13-Oct-17	11:06	13-Oct-17	11:11	Zero check. Minute data invalidated
95	24-Nov-17	TZ	Invalidate minute data	20-Oct-17	11:15	20-Oct-17	11:26	Zero check. Minute data invalidated
96	24-Nov-17	TZ	Invalidate minute data	23-Oct-17	12:31	23-Oct-17	12:36	Zero check. Minute data invalidated
97	9-Jan-18	BB	Zero correction	1-Oct-17	00:00	6-Oct-17	10:00	Offset of -1.2 µg/m³ applied due to zero drift.
98	10-Jan-18	BB	Invalidate minute data	1-Nov-17	11:45	1-Nov-17	11:55	Zero check. Minute data invalidated
99	10-Jan-18	BB	Invalidate minute data	6-Nov-17	12:40	6-Nov-17	12:55	Zero check. Minute data invalidated
100	10-Jan-18	BB	Invalidate minute data	10-Nov-17	13:09	10-Nov-17	13:26	Zero check. Minute data invalidated
101	10-Jan-18	BB	Invalidate minute data	17-Nov-17	12:13	17-Nov-17	12:26	Zero check. Minute data invalidated
102	10-Jan-18	BB	Invalidate minute data	23-Nov-17	12:03	23-Nov-17	12:16	Zero check. Minute data invalidated
103	10-Jan-18	BB	Invalidate minute data	28-Nov-17	11:58	28-Nov-17	12:06	Zero check. Minute data invalidated
104	10-Jan-18	BB	Invalidate minute data	8-Dec-17	13:00	8-Dec-17	13:10	Zero check. Minute data invalidated
105	10-Jan-18	BB	Invalidate minute data	18-Dec-17	11:24	18-Dec-17	11:34	Zero check. Minute data invalidated
106	10-Jan-18	BB	Invalidate minute data	22-Dec-17	10:44	22-Dec-17	10:57	Zero check. Minute data invalidated
107	10-Jan-18	BB	Invalidate minute data	28-Dec-17	11:47	28-Dec-17	12:22	Zero check. Minute data invalidated
108	10-Jan-18	BB	Zero correction	6-Nov-17	12:00	10-Nov-17	13:00	Offset of -0.6 µg/m³ applied due to zero drift.
109	10-Jan-18	BB	Zero correction	17-Nov-17	12:00	23-Nov-17	12:00	Offset of -0.7 µg/m³ applied due to zero drift.
110	10-Jan-18	BB	Zero correction	28-Nov-17	12:00	8-Dec-17	13:00	Offset of -0.6 µg/m³ applied due to zero drift.
111	10-Jan-18	BB	Zero correction	22-Dec-17	11:00	28-Dec-17	12:00	Offset of -0.4 µg/m³ applied due to zero drift.
112	10-Jan-18	BB	Data review	9-Oct-17	11:00	9-Oct-17	19:00	Repeating values were investigated. Measurements fluctuated, but appear as repeating due to round off.
113	10-Jan-18	BB	Data review	15-Oct-17	18:00	16-Oct-17	03:00	
114	10-Jan-18	BB	Data review	29-Oct-17	22:00	30-Oct-17	10:00	
115	10-Jan-18	BB	Data review	9-Nov-17	20:00	10-Nov-17	01:00	
116	10-Jan-18	BB	Data review	11-Nov-17	12:00	11-Nov-17	22:00	
117	10-Jan-18	BB	Data review	16-Nov-17	03:00	16-Nov-17	21:00	
118	10-Jan-18	BB	Data review	19-Nov-17	00:00	19-Nov-17	17:00	
119	10-Jan-18	BB	Data review	25-Nov-17	13:00	26-Nov-17	09:00	
120	10-Jan-18	BB	Data review	20-Dec-17	02:00	20-Dec-17	13:00	

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:	**Temperature**	**Instrument make & model:**		**Campbell Scientific Model HMP60**			**Serial Number:**	
Data edit period	**Start date:**	**1-Oct-17**	**End date:**	**31-Dec-17**	**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-Oct-17**	**End date:**	**31-Dec-17**	**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	**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-Oct-17**	**End date:**	**31-Dec-17**	**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-Oct-17**	**End date:**	**31-Dec-17**	**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-Oct-17**	**End date:**	**31-Dec-17**		**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	15-Jan-17	BB	Invalidate	3-Oct-17	02:00	3-Oct-17	02:00	Data not available from Courtice WPCP meteorological station
2	15-Jan-17	BB	Invalidate	21-Nov-17	14:00	22-Nov-17	00:00	Data not available from Courtice WPCP meteorological station
3	15-Jan-17	BB	Invalidate	23-Nov-17	01:00	23-Nov-17	14:00	Data not available from Courtice WPCP meteorological station

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	42892		Phone:	905-944-7777	E-mail:	42882		
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-Oct-17	End date:	31-Dec-17	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)	
94	10-Jan-18	BB	Data Review	15-Nov-17	16:00	15-Nov-17	17:00	Elevated levels of up to 5 ppb were measured without a corresponding trend at the Courtice WPCP. Elevated NOx levels were also measured in the same time period suggesting a local combustion source. Winds were easterly during this time. Potential emission sources in this direction include Highway 401 or the CP railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
95	10-Jan-18	BB	Invalidate	26-Oct-17	11:00	26-Oct-17	12:00	Monthly Calibration
96	11-Jan-18	BB	Invalidate	29-Nov-17	13:00	29-Nov-17	13:00	Monthly Calibration
97	11-Jan-18	BB	Invalidate	7-Dec-17	11:00	7-Dec-17	11:00	Monthly Calibration
98	11-Jan-18	BB	Invalidate	26-Sep-17	11:00	26-Sep-17	12:00	Calibration
99	11-Jan-18	BB	Data Review	1-Oct-17	01:00	1-Oct-17	07:00	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
100	11-Jan-18	BB	Data Review	1-Oct-17	19:00	2-Oct-17	01:00	
101	11-Jan-18	BB	Data Review	2-Oct-17	18:00	3-Oct-17	14:00	
102	11-Jan-18	BB	Data Review	4-Oct-17	21:00	5-Oct-17	10:00	
103	11-Jan-18	BB	Data Review	9-Oct-17	23:00	10-Oct-17	04:00	
104	11-Jan-18	BB	Data Review	11-Oct-17	00:00	13-Oct-17	06:00	
105	11-Jan-18	BB	Data Review	28-Oct-17	17:00	31-Oct-17	03:00	
106	11-Jan-18	BB	Data Review	2-Nov-17	10:00	2-Nov-17	16:00	
107	11-Jan-18	BB	Data Review	3-Nov-17	08:00	4-Nov-17	15:00	
108	11-Jan-18	BB	Data Review	6-Nov-17	07:00	7-Nov-17	06:00	
109	11-Jan-18	BB	Data Review	12-Nov-17	05:00	12-Nov-17	09:00	
110	11-Jan-18	BB	Data Review	13-Nov-17	05:00	13-Nov-17	16:00	
111	11-Jan-18	BB	Data Review	15-Nov-17	08:00	15-Nov-17	14:00	
112	11-Jan-18	BB	Data Review	17-Nov-17	06:00	17-Nov-17	11:00	
113	11-Jan-18	BB	Data Review	21-Nov-17	03:00	22-Nov-17	06:00	
114	11-Jan-18	BB	Data Review	25-Nov-17	09:00	26-Nov-17	16:00	
115	11-Jan-18	BB	Data Review	1-Dec-17	00:00	1-Dec-17	16:00	
116	11-Jan-18	BB	Data Review	2-Dec-17	18:00	3-Dec-17	11:00	
117	11-Jan-18	BB	Data Review	6-Dec-17	07:00	7-Dec-17	09:00	
118	11-Jan-18	BB	Data Review	9-Dec-17	08:00	9-Dec-17	18:00	
119	11-Jan-18	BB	Data Review	14-Dec-17	03:00	14-Dec-17	12:00	
120	11-Jan-18	BB	Data Review	16-Dec-17	06:00	17-Dec-17	09:00	
121	11-Jan-18	BB	Data Review	19-Dec-17	22:00	20-Dec-17	16:00	
122	11-Jan-18	BB	Data Review	21-Dec-17	09:00	24-Dec-17	00:00	
123	11-Jan-18	BB	Data Review	24-Dec-17	20:00	26-Dec-17	05:00	
124	11-Jan-18	BB	Data Review	26-Dec-17	20:00	27-Dec-17	07:00	
125	11-Jan-18	BB	Data Review	29-Dec-17	12:00	29-Dec-17	21:00	
126	11-Jan-18	BB	Data Review	30-Dec-17	20:00	31-Dec-17	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-Oct-17**	**End date:**	**31-Dec-17**				**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)**	
66	11-Jan-18	BB	Data review	7-Oct-17	19:00	7-Oct-17	23:00	An elevated NOx level of 38 ppb was measured, without a corresponding trend at the Oshawa or Courtice stations. Winds were south-southeasterly during this time. Potential emission sources in this direction include Highway 401, local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
67	11-Jan-18	BB	Data review	2-Nov-17	07:00	2-Nov-17	09:00	An elevated NOx level of 33 ppb was measured, without a corresponding trend at the Oshawa or Courtice stations. Winds were northeasterly during this time. Potential emission sources in this direction include CP rail traffic, local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
68	11-Jan-18	BB	Data review	30-Nov-17	06:00	30-Nov-17	08:00	An elevated NOx level of 38 ppb was measured, without a corresponding trend at the Oshawa or Courtice stations. Winds were south-southeasterly during this time. Potential emission sources in this direction include Highway 401, local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
69	11-Jan-18	BB	Invalidate	26-Oct-17	11:00	26-Oct-17	12:00	Monthly calibration
70	11-Jan-18	BB	Invalidate	29-Nov-17	13:00	26-Oct-17	14:00	Monthly calibration
71	11-Jan-18	BB	Invalidate	7-Dec-17	10:00	7-Dec-17	12:00	Monthly calibration
72	11-Jan-18	BB	Invalidate	5-Dec-17	15:00	5-Dec-17	17:00	Calibration
73	11-Jan-18	BB	Invalidate	7-Dec-17	10:00	7-Dec-17	12:00	Calibration
74	11-Jan-18	BB	Invalidate	9-Dec-17	15:00	9-Dec-17	16:00	Calibration
75	11-Jan-18	BB	Invalidate	11-Dec-17	14:00	11-Dec-17	15:00	Calibration
76	11-Jan-18	BB	Invalidate	12-Dec-17	13:00	12-Dec-17	14:00	Quarterly Audit
77	11-Jan-18	BB	Data review	10-Oct-17	22:00	11-Oct-17	02:00	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
78	11-Jan-18	BB	Data review	15-Oct-17	19:00	16-Oct-17	04:00	
79	11-Jan-18	BB	Data review	10-Dec-17	23:00	11-Dec-17	06:00	
80	11-Jan-18	BB	Data review	27-Dec-17	23:00	28-Dec-17	06:00	

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-Oct-17	End date:	31-Dec-17			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)	
104	11-Jan-17	BB	Data review	8-Nov-17	07:00	8-Nov-17	08:00	Elevated levels of 30 µg/m³ were measured without a corresponding trend at the Courtice or Oshawa Stations. Winds were northerly during this time. Potential emission sources in this direction include local roads and businesses, and agricultural activity. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
105	11-Jan-17	BB	Data review	10-Nov-17	10:00	10-Nov-17	23:00	Elevated levels of up to 39 µg/m³ were measured without a corresponding trend at the Courtice or Oshawa Stations. Winds were westerly during this time. Potential emission sources in this direction include local roads and businesses, and agricultural activity. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
106	11-Jan-17	BB	Data review	9-Dec-17	20:00	9-Dec-17	23:00	Elevated levels of up to 54 µg/m³ were measured without a corresponding trend at the Courtice or Oshawa Stations. Winds were westerly during this time. Potential emission sources in this direction include local roads and businesses, and agricultural activity. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
107	11-Jan-17	BB	Invalidate	26-Oct-17	11:00	26-Oct-17	12:00	Monthly calibration
108	11-Jan-17	BB	Invalidate	29-Nov-17	13:00	29-Nov-17	14:00	Monthly calibration
109	11-Jan-17	BB	Invalidate	7-Dec-17	10:00	7-Dec-17	12:00	Monthly calibration
110	11-Jan-17	BB	Invalidate	12-Dec-17	13:00	12-Dec-17	14:00	Quarterly Audit
111	11-Jan-17	BB	Invalidate Minute Data	6-Oct-17	07:36	6-Oct-17	08:06	Zero check
112	11-Jan-17	BB	Invalidate Minute Data	13-Oct-17	12:14	13-Oct-17	12:20	Zero check
113	11-Jan-17	BB	Invalidate Minute Data	20-Oct-17	09:15	20-Oct-17	09:32	Zero check
114	11-Jan-17	BB	Invalidate Minute Data	23-Oct-17	14:36	23-Oct-17	14:50	Zero check
115	11-Jan-17	BB	Invalidate Minute Data	6-Nov-17	13:44	6-Nov-17	13;55	Zero check
116	11-Jan-17	BB	Invalidate Minute Data	10-Nov-17	10:32	10-Nov-17	10:36	Zero check
117	11-Jan-17	BB	Invalidate Minute Data	17-Nov-17	15:37	17-Nov-17	15:58	Zero check
118	11-Jan-17	BB	Invalidate Minute Data	23-Nov-17	08:33	23-Nov-17	08:46	Zero check
119	11-Jan-17	BB	Invalidate Minute Data	28-Nov-17	13:44	28-Nov-17	13:52	Zero check
120	11-Jan-17	BB	Invalidate Minute Data	8-Dec-17	10:26	8-Dec-17	10:35	Zero check
121	11-Jan-17	BB	Invalidate Minute Data	18-Dec-17	09:02	18-Dec-17	09:13	Zero check
122	11-Jan-17	BB	Invalidate Minute Data	22-Dec-17	13:08	22-Dec-17	13:16	Zero check
123	11-Jan-17	BB	Invalidate Minute Data	28-Dec-17	10;15	28-Dec-17	10:25	Zero check
124	11-Jan-17	BB	Zero correction	1-Oct-17	00:00	6-Oct-17	07:00	Offset of 1.3 µg/m³ applied due to zero drift.
125	11-Jan-17	BB	Zero correction	13-Oct-17	12:00	23-Oct-17	14:00	Offset of 0.9 µg/m³ applied due to zero drift.
126	11-Jan-17	BB	Zero correction	6-Nov-17	14:00	23-Nov-17	14:00	Offset of 1.1 µg/m³ applied due to zero drift.
127	11-Jan-17	BB	Data review	11-Oct-17	05:00	12-Oct-17	04:00	Repeating values were investigated. Measurements fluctuated, but appear as repeating due to round off.
128	11-Jan-17	BB	Data review	15-Oct-17	18:00	16-Oct-17	04:00	
129	11-Jan-17	BB	Data review	25-Oct-17	08:00	25-Oct-17	16:00	
130	11-Jan-17	BB	Data review	30-Oct-17	02:00	30-Oct-17	07:00	
131	11-Jan-17	BB	Data review	4-Nov-17	14:00	4-Nov-17	22:00	
132	11-Jan-17	BB	Data review	16-Nov-17	12:00	17-Nov-17	05:00	
133	11-Jan-17	BB	Data review	18-Nov-17	23:00	19-Nov-17	16:00	
134	11-Jan-17	BB	Data review	16-Dec-17	10:00	16-Dec-17	15:00	
135	11-Jan-17	BB	Data review	20-Dec-17	05:00	20-Dec-17	22:00	

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:	**Temperature**	**Instrument make & model:**		**Campbell Scientific Model HMP60**			**Serial Number:**	
Data edit period	**Start date:**	**1-Oct-17**	**End date:**	**31-Dec-17**			**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-Oct-17**	**End date:**	**31-Dec-17**			**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)**	

Examples of Acceptable Edit Actions:
Add offset of
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Zero Correction
Slope Correction
Manual data entry for missing, but collected data
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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-Oct-17**	**End date:**	**31-Dec-17**		**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-Oct-17**	**End date:**	**31-Dec-17**		**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)**	

Examples of Acceptable Edit Actions:
Add offset of
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Appendix G METALS DATA SUMMARY

Metals and Total Particulates	Courtice WPCP Station			Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice	
Location				04/10/2017		10/10/2017		16/10/2017		22/10/2017		28/10/2017		03/11/2017		09/11/2017		15/11/2017		21/11/2017		27/11/2017		03/12/2017		09/12/2017		15/12/2017		21/12/2017		27/12/2017	
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			23.49		23.53		23.16		23.89		23.6		23.66		23.8		23.56		24		23.18		23.69		23.6		23.53		23.79		23.79	
Technician				TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ	
Filter Number				17091563		17091933		17091937		17100461		17100464		17101253		17101256		17102750		17102754		17111529		17111532		17112388		17112391		17120634		17120637	
Analytical Report #				B7M3129		B7M7642		B7N5362		B7N5362		B7O8839		B7O8839		B7Q0355		B7P9976		B7Q6105		B7Q8602		B7S0205		B7S2424		B7S7588		B7T0949		B801290	
Total Volumetric Flow	Am^3/sample			1538.74		1491.81		1409.45		1509.39		1495.03		1437.79		1459.79		1466.14		1564.31		1341.90		1478.69		1484.53		1382.27		1405.35		1408.90	
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	Value	RDL
Particulate	mg	26.7	5.0	32.2	5	19.1	5	44.6	5	34.4	5.0	20.9	5.0	51.4	5.0	25.6	5.0	19.9	5.0	25.0	5.0	62.4	5.0	35.2	5.0	34.3	5.0	51.6	5.0	28.4	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	<0.02	0.02	0.03	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.02	0.02	<0.02	0.02	0.05	0.02	<0.02	0.02	<0.02	0.02
Aluminum (Al)	µg	134	50	120	50	180	50	188	50	108	50	67	50	218	50	94	50	111	50	132	50	179	50	154	50	70	50	136	50	<50	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	7.7	1.0	27.5	1.0	15.0	1.0	11.9	1.0	13.0	1.0	10.3	1.0	26.1	1.0	6.4	1.0	5.2	1.0	10.3	1.0	15.9	1.0	16.9	1.0	17.0	1.0	7.6	1.0	8.2	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	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	6.3	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	<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
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	44.7	5.0	67.1	5.0	33.5	5.0	42.5	5.0	78.0	5.0	62.0	5.0	38.4	5.0	37.7	5.0	5.4	5.0	11.3	5.0	28.5	5.0	40.8	5.0	20.8	5.0	19.9	5.0	13.6	5.0
Iron (Fe)	µg	367	50	576	50	430	50	554	50	388	50	282	50	760	50	194	50	375	50	721	50	601	50	531	50	384	50	212	50		
Lead (Pb)	µg	4.1	3.0	<3.0	3.0	<3.0	3.0	8.3	3.0	3.6	3.0	<3.0	3.0	9.9	3.0	4.1	3.0	<3.0	3.0	<3.0	3.0	10.9	3.0	4.8	3.0	15.0	3.0	<3.0	3.0	<3.0	3.0
Magnesium (Mg)	µg	228	50	205	50	145	50	226	50	190	50	84	50	342	50	102	50	166	50	193	50	316	50	360	50	117	50	148	50	121	50
Manganese (Mn)	µg	14.0	1.0	18.7	1.0	10.5	1.0	17.9	1.0	14.8	1.0	6.4	1.0	21.6	1.0	6.1	1.0	8.8	1.0	12.0	1.0	23.5	1.0	21.1	1.0	30.6	1.0	8.2	1.0	5.1	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	<3.0	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
Phosphorus (P)	µg	40	25	77	25	<25	25	42	25	28	25	<25	25	41	25	<25	25	<25	25	25	25	39	25	29	25	<25	25	<25	25	<25	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	3.6	1.0	4.9	1.0	3.2	1.0	6.7	1.0	3.4	1.0	2.9	1.0	7.3	1.0	2.0	1.0	2.8	1.0	6.2	1.0	6.2	1.0	5.4	1.0	2.8	1.0	6.3	1.0	3.3	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	12	10	<10	10	10	10	<10	10	<10	10	14	10	<10	10	<10	10	11	10	13	10	<10	10	<10	10	<10	10	<10	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	35.9	5.0	58.3	5.0	27.5	5.0	28.5	5.0	35.4	5.0	19.4	5.0	84.3	5.0	29.8	5.0	21.7	5.0	18.9	5.0	54.0	5.0	94.3	5.0	340	5.0	39.6	5.0	23.1	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 4 Maximum	Quarter 4 Minimum	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
				04/10/2017	10/10/2017	16/10/2017	22/10/2017	28/10/2017	03/11/2017	09/11/2017	15/11/2017	21/11/2017	27/11/2017	03/12/2017	09/12/2017	15/12/2017	21/12/2017	27/12/2017
Particulate	$µg/m^3$	42.20	12.72	17.35	21.58	13.55	29.55	23.01	14.54	35.21	17.46	12.72	18.63	42.20	23.71	24.81	36.72	20.16
Total Mercury (Hg)	$µg/m^3$	3.62E-05	6.39E-06	6.50E-06	6.70E-06	7.09E-06	6.63E-06	6.69E-06	6.96E-06	2.06E-05	6.82E-06	6.39E-06	7.45E-06	1.35E-05	6.74E-06	3.62E-05	7.12E-06	7.10E-06
Aluminum (Al)	$µg/m^3$	1.49E-01	4.66E-02	8.71E-02	8.04E-02	1.28E-01	1.25E-01	7.22E-02	4.66E-02	1.49E-01	6.41E-02	7.10E-02	9.84E-02	1.21E-01	1.04E-01	5.06E-02	9.68E-02	1.77E-02
Antimony (Sb)	$µg/m^3$	3.73E-03	3.20E-03	3.25E-03	3.35E-03	3.55E-03	3.31E-03	3.34E-03	3.48E-03	3.43E-03	3.41E-03	3.20E-03	3.73E-03	3.38E-03	3.37E-03	3.62E-03	3.56E-03	3.55E-03
Arsenic (As)	$µg/m^3$	2.24E-03	1.92E-03	1.95E-03	2.01E-03	2.13E-03	1.99E-03	2.01E-03	2.09E-03	2.06E-03	2.05E-03	1.92E-03	2.24E-03	2.03E-03	2.02E-03	2.17E-03	2.13E-03	2.13E-03
Barium (Ba)	$µg/m^3$	1.84E-02	3.32E-03	5.00E-03	1.84E-02	1.06E-02	7.88E-03	8.70E-03	7.16E-03	1.79E-02	4.37E-03	3.32E-03	7.68E-03	1.08E-02	1.14E-02	1.23E-02	5.41E-03	5.82E-03
Beryllium (Be)	$µg/m^3$	3.73E-04	3.20E-04	3.25E-04	3.35E-04	3.55E-04	3.31E-04	3.34E-04	3.48E-04	3.43E-04	3.41E-04	3.20E-04	3.73E-04	3.38E-04	3.37E-04	3.62E-04	3.56E-04	3.55E-04
Bismuth (Bi)	$µg/m^3$	2.24E-03	1.92E-03	1.95E-03	2.01E-03	2.13E-03	1.99E-03	2.01E-03	2.09E-03	2.06E-03	2.05E-03	1.92E-03	2.24E-03	2.03E-03	2.02E-03	2.17E-03	2.13E-03	2.13E-03
Boron (B)	$µg/m^3$	4.26E-03	1.92E-03	1.95E-03	2.01E-03	2.13E-03	1.99E-03	2.01E-03	2.09E-03	2.06E-03	2.05E-03	1.92E-03	2.24E-03	4.26E-03	2.02E-03	2.17E-03	2.13E-03	2.13E-03
Cadmium (Cd)	$µg/m^3$	7.45E-04	6.39E-04	6.50E-04	6.70E-04	7.09E-04	6.63E-04	6.69E-04	6.96E-04	6.85E-04	6.82E-04	6.39E-04	7.45E-04	6.76E-04	6.74E-04	7.23E-04	7.12E-04	7.10E-04
Chromium (Cr)	$µg/m^3$	1.86E-03	1.60E-03	1.62E-03	1.68E-03	1.77E-03	1.66E-03	1.67E-03	1.74E-03	1.71E-03	1.71E-03	1.60E-03	1.86E-03	1.69E-03	1.68E-03	1.81E-03	1.78E-03	1.77E-03
Cobalt (Co)	$µg/m^3$	7.45E-04	6.39E-04	6.50E-04	6.70E-04	7.09E-04	6.63E-04	6.69E-04	6.96E-04	6.85E-04	6.82E-04	6.39E-04	7.45E-04	6.76E-04	6.74E-04	7.23E-04	7.12E-04	7.10E-04
Copper (Cu)	$µg/m^3$	5.22E-02	3.45E-03	2.90E-02	4.50E-02	2.38E-02	2.82E-02	5.22E-02	4.31E-02	2.63E-02	2.57E-02	3.45E-03	8.42E-03	1.93E-02	2.75E-02	1.50E-02	1.42E-02	9.65E-03
Iron (Fe)	$µg/m^3$	5.21E-01	1.32E-01	2.39E-01	3.86E-01	3.05E-01	3.67E-01	2.60E-01	1.96E-01	5.21E-01	1.32E-01	1.43E-01	2.79E-01	4.88E-01	4.05E-01	3.84E-01	2.73E-01	1.50E-01
Lead (Pb)	$µg/m^3$	1.09E-02	9.59E-04	2.66E-03	1.01E-03	1.06E-03	5.50E-03	2.41E-03	1.04E-03	6.78E-03	2.80E-03	9.59E-04	1.12E-03	7.37E-03	3.23E-03	1.09E-02	1.07E-03	1.06E-03
Magnesium (Mg)	$µg/m^3$	2.43E-01	5.84E-02	1.48E-01	1.37E-01	1.03E-01	1.50E-01	1.27E-01	5.84E-02	2.34E-01	6.96E-02	1.06E-01	1.44E-01	2.14E-01	2.43E-01	8.46E-02	1.05E-01	8.59E-02
Manganese (Mn)	$µg/m^3$	2.21E-02	4.16E-03	9.10E-03	1.25E-02	7.45E-03	1.19E-02	9.90E-03	4.45E-03	1.48E-02	4.16E-03	5.63E-03	8.94E-03	1.59E-02	1.42E-02	2.21E-02	5.83E-03	3.62E-03
Molybdenum (Mo)	$µg/m^3$	1.12E-03	9.59E-04	9.75E-04	1.01E-03	1.06E-03	9.94E-04	1.00E-03	1.04E-03	1.03E-03	1.02E-03	9.59E-04	1.12E-03	1.01E-03	1.01E-03	1.09E-03	1.07E-03	1.06E-03
Nickel (Ni)	$µg/m^3$	1.12E-03	9.59E-04	9.75E-04	1.01E-03	1.06E-03	9.94E-04	1.00E-03	1.04E-03	1.03E-03	1.02E-03	9.59E-04	1.12E-03	1.01E-03	1.01E-03	1.09E-03	1.07E-03	1.06E-03
Phosphorus (P)	$µg/m^3$	5.16E-02	7.99E-03	2.60E-02	5.16E-02	8.87E-03	2.78E-02	1.87E-02	8.69E-03	2.81E-02	8.53E-03	7.99E-03	1.86E-02	2.64E-02	1.95E-02	9.04E-03	8.89E-03	8.87E-03
Selenium (Se)	$µg/m^3$	3.73E-03	3.20E-03	3.25E-03	3.35E-03	3.55E-03	3.31E-03	3.34E-03	3.48E-03	3.43E-03	3.41E-03	3.20E-03	3.73E-03	3.38E-03	3.37E-03	3.62E-03	3.56E-03	3.55E-03
Silver (Ag)	$µg/m^3$	1.86E-03	1.60E-03	1.62E-03	1.68E-03	1.77E-03	1.66E-03	1.67E-03	1.74E-03	1.71E-03	1.71E-03	1.60E-03	1.86E-03	1.69E-03	1.68E-03	1.81E-03	1.78E-03	1.77E-03
Strontium (Sr)	$µg/m^3$	5.00E-03	1.36E-03	2.34E-03	3.28E-03	2.27E-03	4.44E-03	2.27E-03	2.02E-03	5.00E-03	1.36E-03	1.79E-03	4.62E-03	4.19E-03	3.64E-03	2.03E-03	4.48E-03	2.34E-03
Thallium (Tl)	$µg/m^3$	3.73E-03	3.20E-03	3.25E-03	3.35E-03	3.55E-03	3.31E-03	3.34E-03	3.48E-03	3.43E-03	3.41E-03	3.20E-03	3.73E-03	3.38E-03	3.37E-03	3.62E-03	3.56E-03	3.55E-03
Tin (Sn)	$µg/m^3$	3.73E-03	3.20E-03	3.25E-03	3.35E-03	3.55E-03	3.31E-03	3.34E-03	3.48E-03	3.43E-03	3.41E-03	3.20E-03	3.73E-03	3.38E-03	3.37E-03	3.62E-03	3.56E-03	3.55E-03
Titanium (Ti)	$µg/m^3$	9.59E-03	3.20E-03	3.25E-03	8.04E-03	3.55E-03	6.63E-03	3.34E-03	3.48E-03	9.59E-03	3.41E-03	3.20E-03	8.20E-03	8.79E-03	3.37E-03	3.62E-03	3.56E-03	3.55E-03
Vanadium (V)	$µg/m^3$	1.86E-03	1.60E-03	1.62E-03	1.68E-03	1.77E-03	1.66E-03	1.67E-03	1.74E-03	1.71E-03	1.71E-03	1.60E-03	1.86E-03	1.69E-03	1.68E-03	1.81E-03	1.78E-03	1.77E-03
Zinc (Zn)	$µg/m^3$	2.46E-01	1.35E-02	2.33E-02	3.91E-02	1.95E-02	1.89E-02	2.37E-02	1.35E-02	5.77E-02	2.03E-02	1.39E-02	1.41E-02	3.65E-02	6.35E-02	2.46E-01	2.82E-02	1.64E-02
Zirconium (Zr)	$µg/m^3$	1.86E-03	1.60E-03	1.62E-03	1.68E-03	1.77E-03	1.66E-03	1.67E-03	1.74E-03	1.71E-03	1.71E-03	1.60E-03	1.86E-03	1.69E-03	1.68E-03	1.81E-03	1.78E-03	1.77E-03
Total Uranium (U)	$µg/m^3$	1.68E-04	1.44E-04	1.46E-04	1.51E-04	1.60E-04	1.49E-04	1.50E-04	1.56E-04	1.54E-04	1.53E-04	1.44E-04	1.68E-04	1.52E-04	1.52E-04	1.63E-04	1.60E-04	1.60E-04

Notes:

Metals and Total Particulates	Rundle Road Station	Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle	
Location		04/10/2017		10/10/2017		16/10/2017		22/10/2017		28/10/2017		03/11/2017		09/11/2017		15/11/2017		21/11/2017		27/11/2017		03/12/2017		09/12/2017		15/12/2017		21/12/2017		27/12/2017	
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	23.72		23.3		23.46		23.62		23.52		23.82		23.82		23.86		23.39		23.28		23.56		23.53		23.4		23.78		23.82	
Technician		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ		TZ	
Filter Number		17091565		17091931		17091938		17100459		17100466		17101251		17101258		17102749		17102756		17111527		16121530		17112386		17112393		16121532		17120639	
Analytical Report #		B7M3129		B7M7642		B7N5362		B7N5362		B7O8839		B7O8839		B7Q0355		B7P9976		B7Q6105		B7Q8602		B7S0205		B7S2424		B7S7588		B7I0949		B801290	
Total Volumetric Flow	Am^3/sample	1683.06		1586.66		1499.79		1516.14		1523.72		1536.89		1490.52		1511.74		1509.31		1484.99		1536.82		1570.75		1442.02		1356.02		1354.59	
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	67.4	5.0	84.8	5.0	50.5	5.0	55.5	5.0	43.3	5.0	31.0	5.0	90.8	5.0	43.3	5.0	52.5	5.0	345	5.0	152	5.0	75.2	5.0	46.4	5.0	36.0	5.0	29.4	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	<0.02	0.02	0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.03	0.02	0.07	0.02	<0.02	0.02	<0.02	0.02
Aluminum (Al)	µg	273	50	395	50	275	50	280	50	176	50	134	50	448	50	209	50	373	50	1600	50	511	50	354	50	86	50	137	50	50	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	12.0	1.0	32.2	1.0	15.7	1.0	20.5	1.0	15.5	1.0	9.4	1.0	28.1	1.0	11.7	1.0	14.0	1.0	47.5	1.0	22.3	1.0	20.7	1.0	21.6	1.0	10.9	1.0	6.0	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	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	6.4	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	<5.0	5.0	<5.0	5.0	<5.0	5.0	6.6	5.0	6.3	5.0	<5.0	5.0	<5.0	5.0	6.5	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	37.1	5.0	87.5	5.0	52.6	5.0	43.6	5.0	33.2	5.0	39.5	5.0	44.7	5.0	12.6	5.0	8.7	5.0	13.5	5.0	33.1	5.0	40.3	5.0	27.4	5.0	10.6	5.0	21.4	5.0
Iron (Fe)	µg	755	50	1060	50	620	50	765	50	600	50	351	50	1090	50	580	50	873	50	3220	50	1420	50	1000	50	592	50	418	50	137	50
Lead (Pb)	µg	4.1	3.0	3.1	3.0	<3.0	3.0	8.1	3.0	3.5	3.0	<3.0	3.0	10.1	3.0	4.5	3.0	4.8	3.0	5.2	3.0	9.9	3.0	5.2	3.0	18.7	3.0	<3.0	3.0	<3.0	3.0
Magnesium (Mg)	µg	422	50	616	50	396	50	317	50	277	50	150	50	597	50	219	50	539	50	2620	50	974	50	690	50	167	50	203	50	147	50
Manganese (Mn)	µg	23.1	1.0	35.8	1.0	21.4	1.0	19.4	1.0	17.6	1.0	9.7	1.0	32.6	1.0	11.2	1.0	32.4	1.0	115	1.0	46.2	1.0	33.8	1.0	39.2	1.0	11.0	1.0	5.2	1.0
Molybdenum (Mo)	µg	3.1	3.0	5.6	3.0	4.5	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	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	4.0	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	62	25	108	25	41	25	59	25	34	25	32	25	50	25	39	25	48	25	168	25	81	25	46	25	<25	25	<25	25	<25	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	11.0	1.0	25.1	1.0	13.6	1.0	10.6	1.0	7.3	1.0	5.5	1.0	17.1	1.0	8.3	1.0	13.3	1.0	112	1.0	28.2	1.0	15.4	1.0	5.9	1.0	8.5	1.0	4.4	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	13	10	25	10	17	10	14	10	11	10	<10	10	26	10	12	10	21	10	96	10	33	10	18	10	<10	10	<10	10	<10	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	5.1	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	34.6	5.0	39.1	5.0	24.7	5.0	35.1	5.0	39.1	5.0	16.9	5.0	74.6	5.0	30.1	5.0	46.1	5.0	50.2	5.0	54.6	5.0	94.8	5.0	425	5.0	36.1	5.0	29.4	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:

Calculated Concentrations	Units	Quarter 4 Maximum	Quarter 4 Minimum	Rundle 47	Rundle 48	Rundle 49	Rundle 50	Rundle 51	Rundle 52	Rundle 53	Rundle 54	Rundle 55	Rundle 56	Rundle 57	Rundle 58	Rundle 59	Rundle 60	Rundle 61
				04/10/2017	10/10/2017	16/10/2017	22/10/2017	28/10/2017	03/11/2017	09/11/2017	15/11/2017	21/11/2017	27/11/2017	03/12/2017	09/12/2017	15/12/2017	21/12/2017	27/12/2017
Particulate	$µg/m^3$	232.32	20.17	40.05	53.45	33.67	36.61	28.42	20.17	60.92	28.64	34.78	232.32	98.91	47.88	32.18	26.55	21.70
Total Mercury (Hg)	$µg/m^3$	4.85E-05	5.94E-06	5.94E-06	6.30E-06	6.67E-06	6.60E-06	6.56E-06	6.51E-06	1.34E-05	6.61E-06	6.63E-06	6.73E-06	6.51E-06	1.91E-05	4.85E-05	7.37E-06	7.38E-06
Aluminum (Al)	$µg/m^3$	1.08E+00	5.96E-02	1.62E-01	2.49E-01	1.83E-01	1.85E-01	1.16E-01	8.72E-02	3.01E-01	1.38E-01	2.47E-01	1.08E+00	3.33E-01	2.25E-01	5.96E-02	1.01E-01	3.69E-02
Antimony (Sb)	$µg/m^3$	3.69E-03	2.97E-03	2.97E-03	3.15E-03	3.33E-03	3.30E-03	3.28E-03	3.25E-03	3.35E-03	3.31E-03	3.31E-03	3.37E-03	3.25E-03	3.18E-03	3.47E-03	3.69E-03	3.69E-03
Arsenic (As)	$µg/m^3$	2.21E-03	1.78E-03	1.78E-03	1.89E-03	2.00E-03	1.98E-03	1.97E-03	1.95E-03	2.01E-03	1.98E-03	1.99E-03	2.02E-03	1.95E-03	1.91E-03	2.08E-03	2.21E-03	2.21E-03
Barium (Ba)	$µg/m^3$	3.20E-02	6.12E-03	7.13E-03	2.03E-02	1.05E-02	1.35E-02	1.02E-02	6.12E-03	1.89E-02	7.74E-03	9.28E-03	3.20E-02	1.45E-02	1.32E-02	1.50E-02	8.04E-03	4.43E-03
Beryllium (Be)	$µg/m^3$	3.69E-04	2.97E-04	2.97E-04	3.15E-04	3.33E-04	3.30E-04	3.28E-04	3.25E-04	3.35E-04	3.31E-04	3.31E-04	3.37E-04	3.25E-04	3.18E-04	3.47E-04	3.69E-04	3.69E-04
Bismuth (Bi)	$µg/m^3$	2.21E-03	1.78E-03	1.78E-03	1.89E-03	2.00E-03	1.98E-03	1.97E-03	1.95E-03	2.01E-03	1.98E-03	1.99E-03	2.02E-03	1.95E-03	1.91E-03	2.08E-03	2.21E-03	2.21E-03
Boron (B)	$µg/m^3$	4.22E-03	1.78E-03	1.78E-03	1.89E-03	2.00E-03	4.22E-03	1.97E-03	1.95E-03	2.01E-03	1.98E-03	1.99E-03	2.02E-03	1.95E-03	4.07E-03	2.08E-03	2.21E-03	2.21E-03
Cadmium (Cd)	$µg/m^3$	7.37E-04	5.94E-04	5.94E-04	6.30E-04	6.67E-04	6.60E-04	6.56E-04	6.51E-04	6.71E-04	6.61E-04	6.63E-04	6.73E-04	6.51E-04	6.37E-04	6.93E-04	7.37E-04	7.38E-04
Chromium (Cr)	$µg/m^3$	4.51E-03	1.49E-03	1.49E-03	1.58E-03	1.67E-03	1.65E-03	1.64E-03	1.63E-03	1.68E-03	1.65E-03	4.37E-03	4.24E-03	1.63E-03	1.59E-03	4.51E-03	1.84E-03	1.85E-03
Cobalt (Co)	$µg/m^3$	7.37E-04	5.94E-04	5.94E-04	6.30E-04	6.67E-04	6.60E-04	6.56E-04	6.51E-04	6.71E-04	6.61E-04	6.63E-04	6.73E-04	6.51E-04	6.37E-04	6.93E-04	7.37E-04	7.38E-04
Copper (Cu)	$µg/m^3$	5.51E-02	5.76E-03	2.20E-02	5.51E-02	3.51E-02	2.88E-02	2.18E-02	2.57E-02	3.00E-02	8.33E-03	5.76E-03	9.09E-03	2.15E-02	2.57E-02	1.90E-02	7.82E-03	1.58E-02
Iron (Fe)	$µg/m^3$	2.17E+00	2.28E-01	4.49E-01	6.68E-01	4.13E-01	5.05E-01	3.94E-01	2.28E-01	7.31E-01	3.84E-01	5.78E-01	2.17E+00	9.24E-01	6.37E-01	4.11E-01	3.08E-01	1.01E-01
Lead (Pb)	$µg/m^3$	1.30E-02	9.76E-04	2.44E-03	1.95E-03	1.00E-03	5.34E-03	2.30E-03	9.76E-04	6.78E-03	2.98E-03	3.18E-03	3.50E-03	6.44E-03	3.31E-03	1.30E-02	1.11E-03	1.11E-03
Magnesium (Mg)	$µg/m^3$	1.76E+00	9.76E-02	2.51E-01	3.88E-01	2.64E-01	2.09E-01	1.82E-01	9.76E-02	4.01E-01	1.45E-01	3.57E-01	1.76E+00	6.34E-01	4.39E-01	1.16E-01	1.50E-01	1.09E-01
Manganese (Mn)	$µg/m^3$	7.74E-02	6.31E-03	1.37E-02	2.26E-02	1.43E-02	1.28E-02	1.16E-02	6.31E-03	2.19E-02	7.41E-03	2.15E-02	7.74E-02	3.01E-02	2.15E-02	2.72E-02	8.11E-03	3.84E-03
Molybdenum (Mo)	$µg/m^3$	3.53E-03	9.55E-04	1.84E-03	3.53E-03	3.00E-03	9.89E-04	9.84E-04	9.76E-04	2.01E-03	9.92E-04	9.94E-04	1.01E-03	9.76E-04	9.55E-04	1.04E-03	1.11E-03	1.11E-03
Nickel (Ni)	$µg/m^3$	2.69E-03	8.91E-04	8.91E-04	9.45E-04	1.00E-03	9.89E-04	9.84E-04	9.76E-04	1.01E-03	9.92E-04	9.94E-04	2.69E-03	9.76E-04	9.55E-04	1.04E-03	1.11E-03	1.11E-03
Phosphorus (P)	$µg/m^3$	1.13E-01	8.67E-03	3.68E-02	6.81E-02	2.73E-02	3.89E-02	2.23E-02	2.08E-02	3.35E-02	2.58E-02	3.18E-02	1.13E-01	5.27E-02	2.93E-02	8.67E-03	9.22E-03	9.23E-03
Selenium (Se)	$µg/m^3$	3.69E-03	2.97E-03	2.97E-03	3.15E-03	3.33E-03	3.30E-03	3.28E-03	3.25E-03	3.35E-03	3.31E-03	3.31E-03	3.37E-03	3.25E-03	3.18E-03	3.47E-03	3.69E-03	3.69E-03
Silver (Ag)	$µg/m^3$	1.84E-03	1.49E-03	1.49E-03	1.58E-03	1.67E-03	1.65E-03	1.64E-03	1.63E-03	1.68E-03	1.65E-03	1.66E-03	1.68E-03	1.63E-03	1.59E-03	1.73E-03	1.84E-03	1.85E-03
Strontium (Sr)	$µg/m^3$	7.54E-02	3.58E-03	6.54E-03	1.58E-02	9.07E-03	6.99E-03	4.79E-03	3.58E-03	1.15E-02	5.49E-03	8.81E-03	7.54E-02	1.83E-02	9.80E-03	4.09E-03	6.27E-03	3.25E-03
Thallium (Tl)	$µg/m^3$	3.69E-03	2.97E-03	2.97E-03	3.15E-03	3.33E-03	3.30E-03	3.28E-03	3.25E-03	3.35E-03	3.31E-03	3.31E-03	3.37E-03	3.25E-03	3.18E-03	3.47E-03	3.69E-03	3.69E-03
Tin (Sn)	$µg/m^3$	3.69E-03	2.97E-03	2.97E-03	3.15E-03	3.33E-03	3.30E-03	3.28E-03	3.25E-03	3.35E-03	3.31E-03	3.31E-03	3.37E-03	3.25E-03	3.18E-03	3.47E-03	3.69E-03	3.69E-03
Titanium (Ti)	$µg/m^3$	6.46E-02	3.25E-03	7.72E-03	1.58E-02	1.13E-02	9.23E-03	7.22E-03	3.25E-03	1.74E-02	7.94E-03	1.39E-02	6.46E-02	2.15E-02	1.15E-02	3.47E-03	3.69E-03	3.69E-03
Vanadium (V)	$µg/m^3$	3.43E-03	1.49E-03	1.49E-03	1.58E-03	1.67E-03	1.65E-03	1.64E-03	1.63E-03	1.68E-03	1.65E-03	1.66E-03	3.43E-03	1.63E-03	1.59E-03	1.73E-03	1.84E-03	1.85E-03
Zinc (Zn)	$µg/m^3$	2.95E-01	1.10E-02	2.06E-02	2.46E-02	1.65E-02	2.32E-02	2.57E-02	1.10E-02	5.00E-02	1.99E-02	3.05E-02	3.38E-02	3.55E-02	6.04E-02	2.95E-01	2.66E-02	2.17E-02
Zirconium (Zr)	$µg/m^3$	1.84E-03	1.49E-03	1.49E-03	1.58E-03	1.67E-03	1.65E-03	1.64E-03	1.63E-03	1.68E-03	1.65E-03	1.66E-03	1.68E-03	1.63E-03	1.59E-03	1.73E-03	1.84E-03	1.85E-03
Total Uranium (U)	$µg/m^3$	1.66E-04	1.34E-04	1.34E-04	1.42E-04	1.50E-04	1.48E-04	1.48E-04	1.46E-04	1.51E-04	1.49E-04	1.49E-04	1.52E-04	1.46E-04	1.43E-04	1.56E-04	1.66E-04	1.66E-04

Metals and Total Particulates	Fenceline Station	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline
Location		04/10/2017	10/10/2017	16/10/2017	22/10/2017	28/10/2017	03/11/2017	09/11/2017	15/11/2017	21/11/2017	27/11/2017	03/12/2017	09/12/2017	15/12/2017	21/12/2017	27/12/2017
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	0:00
Sample Duration	Hours	23.74	23.85	23.7	24.24	23.98	24.59	23.67	23.75	23.87	23.91	24.3	23.85	24.2	23.62	23.89
Technician		TZ	TZ	TZ	TZ	TZ	TZ	TZ	TZ	TZ	TZ	TZ	TZ	TZ	TZ	TZ
Filter Number		17091564	17091932	17091936	17100460	17100465	17101252	17101257	17102751	17102755	17111528	17111533	17112387	17112392	17120633	17120638
Analytical Report #		B7M3129	B7M7642	B7N5362	B7N5362	B7O8839	B7O8839	B7Q0355	B7P9976	B7Q6105	B7Q8602	B7S0205	B7S2424	B7S7588	B7T0949	B801290
Total Volumetric Flow	Am^3/sample	1631.93	1633.29	1593.01	1638.45	1575.06	1609.22	1541.80	1489.39	1505.46	1537.77	1576.12	1517.60	1431.29	1454.36	1434.32

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	42.8	5.0	39.0	5.0	27.0	5.0	50.1	5.0	36.7	5.0	25.1	5.0	91.3	5.0	79.7	5.0	38.8	5.0	43.5	5.0	67.0	5.0	41.0	5.0	52.4	5.0	84.2	5.0	28.8	5.0
Total Mercury (Hg)	µg	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.03	0.02	<0.02	0.02	<0.02	0.02	0.04	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.02	0.02	0.06	0.02	<0.02	0.02	<0.02	0.02
Aluminum (Al)	µg	179	50	162	50	127	50	269	50	135	50	89	50	507	50	270	50	418	50	236	50	184	50	207	50	85	50	264	50	53	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	10.3	1.0	30.1	1.0	18.6	1.0	14.4	1.0	14.5	1.0	12.4	1.0	40.3	1.0	12.6	1.0	9.1	1.0	13.8	1.0	18.5	1.0	17.9	1.0	15.5	1.0	12.7	1.0	13.1	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	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	9.0	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	3.5	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0
Chromium (Cr)	µg	<5.0	5.0	5.7	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	8.7	5.0	11.4	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
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	47.2	5.0	53.1	5.0	37.7	5.0	60.1	5.0	47.4	5.0	30.7	5.0	56.1	5.0	55.9	5.0	7.3	5.0	6.8	5.0	15.8	5.0	19.7	5.0	17.9	5.0	9.3	5.0	10.9	5.0
Iron (Fe)	µg	581	50	684	50	521	50	640	50	451	50	346	50	1460	50	961	50	349	50	578	50	687	50	692	50	469	50	695	50	219	50
Lead (Pb)	µg	5.5	3.0	3.1	3.0	<3.0	3.0	8.1	3.0	4.0	3.0	<3.0	3.0	12.1	3.0	6.4	3.0	5.1	3.0	<3.0	3.0	10.8	3.0	4.9	3.0	12.4	3.0	<3.0	3.0	<3.0	3.0
Magnesium (Mg)	µg	332	50	288	50	215	50	303	50	226	50	139	50	872	50	545	50	637	50	372	50	337	50	476	50	122	50	500	50	141	50
Manganese (Mn)	µg	23.3	1.0	24.8	1.0	16.1	1.0	18.6	1.0	18.3	1.0	13.2	1.0	57.2	1.0	60.5	1.0	32.2	1.0	20.5	1.0	27.2	1.0	28.0	1.0	27.1	1.0	25.1	1.0	4.8	1.0
Molybdenum (Mo)	µg	<3.0	3.0	3.6	3.0	<3.0	3.0	5.3	3.0	4.1	3.0	<3.0	3.0	3.4	3.0	5.2	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	3.6	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
Phosphorus (P)	µg	51	25	87	25	38	25	49	25	34	25	29	25	62	25	38	25	27	25	41	25	44	25	32	25	<25	25	28	25	<25	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	6.0	1.0	7.0	1.0	5.4	1.0	9.2	1.0	4.6	1.0	4.3	1.0	18.9	1.0	20.5	1.0	6.7	1.0	11.3	1.0	7.0	1.0	6.9	1.0	3.4	1.0	18.2	1.0	3.7	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	<10	10	15	10	<10	10	15	10	<10	10	<10	10	32	10	13	10	19	10	16	10	14	10	11	10	<10	10	17	10	<10	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	44.1	5.0	38.7	5.0	29.7	5.0	32.1	5.0	38.5	5.0	17.2	5.0	99.1	5.0	31.2	5.0	38.5	5.0	31.0	5.0	65.7	5.0	60.3	5.0	262	5.0	44.0	5.0	28.5	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:

Calculated Concentrations	Quarter 4			47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
	Units	Maximum	Minimum	04/10/2017	10/10/2017	16/10/2017	22/10/2017	28/10/2017	03/11/2017	09/11/2017	15/11/2017	21/11/2017	27/11/2017	03/12/2017	09/12/2017	15/12/2017	21/12/2017	27/12/2017
Particulate	µg/m^3	59.22	15.60	26.23	23.88	16.95	30.58	23.30	15.60	59.22	53.51	25.77	28.29	42.51	27.02	36.61	57.89	20.08
Total Mercury (Hg)	µg/m^3	4.19E-05	6.12E-06	6.13E-06	6.12E-06	6.28E-06	1.83E-05	6.35E-06	6.21E-06	2.59E-05	6.71E-06	6.64E-06	6.50E-06	6.34E-06	1.32E-05	4.19E-05	6.88E-06	6.97E-06
Aluminum (Al)	µg/m^3	3.29E-01	5.53E-02	1.10E-01	9.92E-02	7.97E-02	1.64E-01	8.57E-02	5.53E-02	3.29E-01	1.81E-01	2.78E-01	1.53E-01	1.17E-01	1.36E-01	5.94E-02	1.82E-01	3.70E-02
Antimony (Sb)	µg/m^3	3.49E-03	3.05E-03	3.06E-03	3.06E-03	3.14E-03	3.05E-03	3.17E-03	3.11E-03	3.24E-03	3.36E-03	3.32E-03	3.25E-03	3.17E-03	3.29E-03	3.49E-03	3.44E-03	3.49E-03
Arsenic (As)	µg/m^3	2.10E-03	1.83E-03	1.84E-03	1.84E-03	1.88E-03	1.83E-03	1.90E-03	1.86E-03	1.95E-03	2.01E-03	1.99E-03	1.95E-03	1.90E-03	1.98E-03	2.10E-03	2.06E-03	2.09E-03
Barium (Ba)	µg/m^3	2.61E-02	6.04E-03	6.31E-03	1.84E-02	1.17E-02	8.79E-03	9.21E-03	7.71E-03	2.61E-02	8.46E-03	6.04E-03	8.97E-03	1.17E-02	1.18E-02	1.08E-02	8.73E-03	9.13E-03
Beryllium (Be)	µg/m^3	3.49E-04	3.05E-04	3.06E-04	3.06E-04	3.14E-04	3.05E-04	3.17E-04	3.11E-04	3.24E-04	3.36E-04	3.32E-04	3.25E-04	3.17E-04	3.29E-04	3.49E-04	3.44E-04	3.49E-04
Bismuth (Bi)	µg/m^3	2.10E-03	1.83E-03	1.84E-03	1.84E-03	1.88E-03	1.83E-03	1.90E-03	1.86E-03	1.95E-03	2.01E-03	1.99E-03	1.95E-03	1.90E-03	1.98E-03	2.10E-03	2.06E-03	2.09E-03
Boron (B)	µg/m^3	5.71E-03	1.83E-03	1.84E-03	1.84E-03	1.88E-03	1.83E-03	1.90E-03	1.86E-03	1.95E-03	2.01E-03	1.99E-03	1.95E-03	5.71E-03	1.98E-03	2.10E-03	2.06E-03	2.09E-03
Cadmium (Cd)	µg/m^3	2.31E-03	6.10E-04	6.13E-04	6.12E-04	6.28E-04	6.10E-04	6.35E-04	6.21E-04	6.49E-04	6.71E-04	6.64E-04	6.50E-04	6.34E-04	2.31E-03	6.99E-04	6.88E-04	6.97E-04
Chromium (Cr)	µg/m^3	7.65E-03	1.53E-03	1.53E-03	3.49E-03	1.57E-03	1.53E-03	1.59E-03	1.55E-03	5.64E-03	7.65E-03	1.66E-03	1.63E-03	1.59E-03	1.65E-03	1.75E-03	1.72E-03	1.74E-03
Cobalt (Co)	µg/m^3	6.99E-04	6.10E-04	6.13E-04	6.12E-04	6.28E-04	6.10E-04	6.35E-04	6.21E-04	6.49E-04	6.71E-04	6.64E-04	6.50E-04	6.34E-04	6.59E-04	6.99E-04	6.88E-04	6.97E-04
Copper (Cu)	µg/m^3	3.75E-02	4.42E-03	2.89E-02	3.25E-02	2.37E-02	3.67E-02	3.01E-02	1.91E-02	3.64E-02	3.75E-02	4.85E-03	4.42E-03	1.00E-02	1.30E-02	1.25E-02	6.39E-03	7.60E-03
Iron (Fe)	µg/m^3	9.47E-01	2.15E-01	3.56E-01	4.19E-01	3.27E-01	3.91E-01	2.86E-01	2.15E-01	9.47E-01	6.45E-01	2.32E-01	3.76E-01	4.36E-01	4.56E-01	3.28E-01	4.78E-01	1.53E-01
Lead (Pb)	µg/m^3	8.66E-03	9.32E-04	3.37E-03	1.90E-03	9.42E-04	4.94E-03	2.54E-03	9.32E-04	7.85E-03	4.30E-03	3.39E-03	9.75E-04	6.85E-03	3.23E-03	8.66E-03	1.03E-03	1.05E-03
Magnesium (Mg)	µg/m^3	5.66E-01	8.52E-02	2.03E-01	1.76E-01	1.35E-01	1.85E-01	1.43E-01	8.64E-02	5.66E-01	3.66E-01	4.23E-01	2.42E-01	2.14E-01	3.14E-01	8.52E-02	3.44E-01	9.83E-02
Manganese (Mn)	µg/m^3	4.06E-02	8.20E-03	1.43E-02	1.52E-02	1.01E-02	1.14E-02	1.16E-02	8.20E-03	3.71E-02	4.06E-02	2.14E-02	1.33E-02	1.73E-02	1.85E-02	1.89E-02	1.73E-02	3.35E-03
Molybdenum (Mo)	µg/m^3	3.49E-03	9.19E-04	9.19E-04	2.20E-03	9.42E-04	3.23E-03	2.60E-03	9.32E-04	2.21E-03	3.49E-03	9.96E-04	9.75E-04	9.52E-04	9.88E-04	1.05E-03	1.03E-03	1.05E-03
Nickel (Ni)	µg/m^3	2.29E-03	9.16E-04	9.19E-04	9.18E-04	9.42E-04	9.16E-04	2.29E-03	9.32E-04	9.73E-04	1.01E-03	9.96E-04	9.75E-04	9.52E-04	9.88E-04	1.05E-03	1.03E-03	1.05E-03
Phosphorus (P)	µg/m^3	5.33E-02	8.73E-03	3.13E-02	5.33E-02	2.39E-02	2.99E-02	2.16E-02	1.80E-02	4.02E-02	2.55E-02	1.79E-02	2.67E-02	2.79E-02	2.11E-02	8.73E-03	1.93E-02	8.71E-03
Selenium (Se)	µg/m^3	3.49E-03	3.05E-03	3.06E-03	3.06E-03	3.14E-03	3.05E-03	3.17E-03	3.11E-03	3.24E-03	3.36E-03	3.32E-03	3.25E-03	3.17E-03	3.29E-03	3.49E-03	3.44E-03	3.49E-03
Silver (Ag)	µg/m^3	1.75E-03	1.53E-03	1.53E-03	1.53E-03	1.57E-03	1.53E-03	1.59E-03	1.55E-03	1.62E-03	1.68E-03	1.66E-03	1.63E-03	1.59E-03	1.65E-03	1.75E-03	1.72E-03	1.74E-03
Strontium (Sr)	µg/m^3	1.38E-02	2.38E-03	3.68E-03	4.29E-03	3.39E-03	5.62E-03	2.92E-03	2.67E-03	1.23E-02	1.38E-02	4.45E-03	7.35E-03	4.44E-03	4.55E-03	2.38E-03	1.25E-02	2.58E-03
Thallium (Tl)	µg/m^3	3.49E-03	3.05E-03	3.06E-03	3.06E-03	3.14E-03	3.05E-03	3.17E-03	3.11E-03	3.24E-03	3.36E-03	3.32E-03	3.25E-03	3.17E-03	3.29E-03	3.49E-03	3.44E-03	3.49E-03
Tin (Sn)	µg/m^3	3.49E-03	3.05E-03	3.06E-03	3.06E-03	3.14E-03	3.05E-03	3.17E-03	3.11E-03	3.24E-03	3.36E-03	3.32E-03	3.25E-03	3.17E-03	3.29E-03	3.49E-03	3.44E-03	3.49E-03
Titanium (Ti)	µg/m^3	2.08E-02	3.06E-03	3.06E-03	9.18E-03	3.14E-03	9.16E-03	3.17E-03	3.11E-03	2.08E-02	8.73E-03	1.26E-02	1.04E-02	8.88E-03	7.25E-03	3.49E-03	1.17E-02	3.49E-03
Vanadium (V)	µg/m^3	1.75E-03	1.53E-03	1.53E-03	1.53E-03	1.57E-03	1.53E-03	1.59E-03	1.55E-03	1.62E-03	1.68E-03	1.66E-03	1.63E-03	1.59E-03	1.65E-03	1.75E-03	1.72E-03	1.74E-03
Zinc (Zn)	µg/m^3	1.83E-01	1.07E-02	2.70E-02	2.37E-02	1.86E-02	1.96E-02	2.44E-02	1.07E-02	6.43E-02	2.09E-02	2.56E-02	2.02E-02	4.17E-02	3.97E-02	1.83E-01	3.03E-02	1.99E-02
Zirconium (Zr)	µg/m^3	1.75E-03	1.53E-03	1.53E-03	1.53E-03	1.57E-03	1.53E-03	1.59E-03	1.55E-03	1.62E-03	1.68E-03	1.66E-03	1.63E-03	1.59E-03	1.65E-03	1.75E-03	1.72E-03	1.74E-03
Total Uranium (U)	µg/m^3	1.57E-04	1.37E-04	1.38E-04	1.38E-04	1.41E-04	1.37E-04	1.43E-04	1.40E-04	1.46E-04	1.51E-04	1.49E-04	1.46E-04	1.43E-04	1.48E-04	1.57E-04	1.55E-04	1.57E-04

Appendix H PAHS DATA SUMMARY

Polycyclic Aromatic Hydrocarbons	Courtice WPCP Station															
Location			Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice	
Date	dd/mm/yyyy		10/10/2017		22/10/2017		3/11/2017		15/11/2017		27/11/2017		9/12/2017		21/12/2017	
Start Time	hh:mm		0:00		0:00		0:00		0:00		0:00		0:00		0:00	
Sample Duration	hours		23.99		23.99		23.84		23.36		23.6		23.51		23.49	
Technician			TZ		TZ		TZ		TZ		TZ		TZ		TZ	
Filter Number			FDH293-01		FDI132-01		FDI289-01		FJ4302-01		FJY349-01		FOW816-01		FOW835-01	
Maxaam ID			FHZ653		FJX008		FMN836		FOT352		FQM613		FTE240		FUY231	
Maxxam Job #			B7M6937		B7N5341		B7O8818		B7P9968		B7Q8634		B7S2438		B7T0957	
Total Volumetric Flow	Am^3/sample		361.21		341.86		366.07		360.60		331.68		351.75		344.34	
Analytical Results	Units		Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL
Benzo(a)pyrene	µg		0.00493	0.00078	0.0169	0.00093	0.00293	0.00080	0.0149	0.0017	<0.016	0.030	0.0203	0.030	0.0152	0.020
1-Methylnaphthalene	µg		2.43	0.10	1.78	0.15	0.85	0.10	1.03	0.15	0.66	0.10	1.52	0.15	1.06	0.10
2-Methylnaphthalene	µg		4.12	0.10	2.83	0.15	1.37	0.10	1.54	0.15	1.06	0.10	2.41	0.15	1.85	0.10
Acenaphthene	µg		1.30	0.050	1.32	0.075	0.414	0.050	0.210	0.075	0.206	0.050	0.252	0.075	0.181	0.050
Acenaphthylene	µg		<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	0.103	0.050
Anthracene	µg		0.108	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Benzo(a)anthracene	µg		<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Benzo(a)fluorene	µg		<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Benzo(b)fluoranthene	µg		<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Benzo(b)fluorene	µg		<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Benzo(e)pyrene	µg		<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Benzo(g,h,i)perylene	µg		<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Benzo(k)fluoranthene	µg		<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Biphenyl	µg		0.83	0.10	1.22	0.15	0.39	0.10	0.74	0.15	0.40	0.10	0.80	0.15	0.68	0.10
Chrysene	µg		<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Dibenz(a,h)anthracene	µg		<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Dibenzo(a,c) anthracene + Picene [1]	µg		<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Fluoranthene	µg		0.348	0.050	0.339	0.075	0.138	0.050	0.192	0.075	0.104	0.050	0.216	0.075	0.213	0.050
Indeno(1,2,3-cd)pyrene	µg		<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Naphthalene	µg		9.76	0.072	9.59	0.11	4.55	0.072	7.56	0.11	3.98	0.072	11.1	0.11	6.93	0.072
o-Terphenyl	µg		<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Perylene	µg		<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Phenanthrene	µg		1.64	0.050	1.55	0.075	0.590	0.050	0.543	0.075	0.364	0.050	0.591	0.075	0.603	0.050
Pyrene	µg		0.185	0.050	0.147	0.075	<0.050	0.050	0.105	0.075	<0.050	0.050	<0.075	0.075	0.144	0.050
Tetralin	µg		0.82	0.10	0.58	0.15	0.41	0.10	0.41	0.15	0.30	0.10	0.50	0.15	0.44	0.10

Calculated Concentrations	Quarter 4															
				24		25		26		27		28		29		30
	Units	Maximum	Minimum	10/10/2017		22/10/2017		3/11/2017		15/11/2017		27/11/2017		9/12/2017		21/12/2017
Benzo(a)pyrene	ng/m^3	5.77E-02	8.00E-03	1.36E-02		4.94E-02		8.00E-03		4.13E-02		4.52E-02		5.77E-02		4.41E-02
1-Methylnaphthalene	ng/m^3	6.73E+00	1.99E+00	6.73E+00		5.21E+00		2.32E+00		2.86E+00		1.99E+00		4.32E+00		3.08E+00
2-Methylnaphthalene	ng/m^3	1.14E+01	3.20E+00	1.14E+01		8.28E+00		3.74E+00		4.27E+00		3.20E+00		6.85E+00		5.37E+00
Acenaphthene	ng/m^3	3.86E+00	5.26E-01	3.60E+00		3.86E+00		1.13E+00		5.82E-01		6.21E-01		7.16E-01		5.26E-01
Acenaphthylene	ng/m^3	2.99E-01	6.83E-02	6.92E-02		1.10E-01		6.83E-02		1.04E-01		7.54E-02		1.07E-01		2.99E-01
Anthracene	ng/m^3	2.99E-01	6.83E-02	2.99E-01		1.10E-01		6.83E-02		1.04E-01		7.54E-02		1.07E-01		7.26E-02
Benzo(a)anthracene	ng/m^3	1.10E-01	6.83E-02	6.92E-02		1.10E-01		6.83E-02		1.04E-01		7.54E-02		1.07E-01		7.26E-02
Benzo(a)fluorene	ng/m^3	2.19E-01	1.37E-01	1.38E-01		2.19E-01		1.37E-01		2.08E-01		1.51E-01		2.13E-01		1.45E-01
Benzo(b)fluoranthene	ng/m^3	1.10E-01	6.83E-02	6.92E-02		1.10E-01		6.83E-02		1.04E-01		7.54E-02		1.07E-01		7.26E-02
Benzo(b)fluorene	ng/m^3	2.19E-01	1.37E-01	1.38E-01		2.19E-01		1.37E-01		2.08E-01		1.51E-01		2.13E-01		1.45E-01
Benzo(e)pyrene	ng/m^3	2.19E-01	1.37E-01	1.38E-01		2.19E-01		1.37E-01		2.08E-01		1.51E-01		2.13E-01		1.45E-01
Benzo(g,h,i)perylene	ng/m^3	1.10E-01	6.83E-02	6.92E-02		1.10E-01		6.83E-02		1.04E-01		7.54E-02		1.07E-01		7.26E-02
Benzo(k)fluoranthene	ng/m^3	1.10E-01	6.83E-02	6.92E-02		1.10E-01		6.83E-02		1.04E-01		7.54E-02		1.07E-01		7.26E-02
Biphenyl	ng/m^3	3.57E+00	1.07E+00	2.30E+00		3.57E+00		1.07E+00		2.05E+00		1.21E+00		2.27E+00		1.97E+00
Chrysene	ng/m^3	1.10E-01	6.83E-02	6.92E-02		1.10E-01		6.83E-02		1.04E-01		7.54E-02		1.07E-01		7.26E-02
Dibenz(a,h)anthracene	ng/m^3	1.10E-01	6.83E-02	6.92E-02		1.10E-01		6.83E-02		1.04E-01		7.54E-02		1.07E-01		7.26E-02
Dibenzo(a,c) anthracene + Picene	ng/m^3	2.19E-01	1.37E-01	1.38E-01		2.19E-01		1.37E-01		2.08E-01		1.51E-01		2.13E-01		1.45E-01
Fluoranthene	ng/m^3	9.92E-01	3.14E-01	9.63E-01		9.92E-01		3.77E-01		5.32E-01		3.14E-01		6.14E-01		6.19E-01
Indeno(1,2,3-cd)pyrene	ng/m^3	1.10E-01	6.83E-02	6.92E-02		1.10E-01		6.83E-02		1.04E-01		7.54E-02		1.07E-01		7.26E-02
Naphthalene	ng/m^3	3.16E+01	1.20E+01	2.70E+01		2.81E+01		1.24E+01		2.10E+01		1.20E+01		3.16E+01		2.01E+01
o-Terphenyl	ng/m^3	2.19E-01	1.37E-01	1.38E-01		2.19E-01		1.37E-01		2.08E-01		1.51E-01		2.13E-01		1.45E-01
Perylene	ng/m^3	2.19E-01	1.37E-01	1.38E-01		2.19E-01		1.37E-01		2.08E-01		1.51E-01		2.13E-01		1.45E-01
Phenanthrene	ng/m^3	4.54E+00	1.10E+00	4.54E+00		4.53E+00		1.61E+00		1.51E+00		1.10E+00		1.68E+00		1.75E+00
Pyrene	ng/m^3	5.12E-01	6.83E-02	5.12E-01		4.30E-01		6.83E-02		2.91E-01		7.54E-02		1.07E-01		4.18E-01
Tetralin	ng/m^3	2.27E+00	9.04E-01	2.27E+00		1.70E+00		1.12E+00		1.14E+00		9.04E-01		1.42E+00		1.28E+00
Total PAH	ng/m^3	6.10E+01	2.30E+01	6.10E+01		5.90E+01		2.53E+01		3.64E+01		2.30E+01		5.18E+01		3.69E+01

Note:
RDL = Reportable Detection Limit
1. These parameters have not been subjected to Maxxam's standard validation
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

Polycyclic Aromatic Hydrocarbons	Rundle Road Station													
Location		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle	
Date	dd/mm/yyyy	10/10/2017		22/10/2017		3/11/2017		15/11/2017		27/11/2017		9/12/2017		21/12/2017	
Start Time	hh:mm	0:00		0:00		0:00		0:00		0:00		0:00		0:00	
Sample Duration	hours	23.79		24.09		24.36		24.11		23.11		23.66		24.46	
Technician		TZ		TZ		TZ		TZ		TZ		TZ		TZ	
Filter Number		FDH294-01		FDI131-01		FDI288-01		FJ4301-01		FJY348-01		FOW815-01		FOW834-01	
Maxaam ID		FHZ652		FJX007		FMN835		FOT351		FQM612		FTE239		FUY230	
Maxxam Job #		B7M6937		B7N5341		B7O8818		B7P9968		B7Q8634		B7S2438		B7I0957	
Total Volumetric Flow	Am^3/sample	346.47		331.06		350.34		367.68		313.53		344.10		319.65	
Analytical Results	Units	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL
Benzo(a)pyrene	µg	0.0094	0.0026	0.0136	0.00098	0.00331	0.00047	0.0276	0.030	0.0109	0.020	0.0378	0.030	0.0139	0.020
1-Methylnaphthalene	µg	1.97	0.10	3.15	0.15	1.06	0.10	1.88	0.15	0.81	0.10	2.53	0.15	1.24	0.10
2-Methylnaphthalene	µg	3.41	0.10	5.87	0.15	1.70	0.10	3.06	0.15	1.29	0.10	3.93	0.15	2.08	0.10
Acenaphthene	µg	1.39	0.050	2.81	0.075	0.570	0.050	0.855	0.075	0.256	0.050	0.450	0.075	0.347	0.050
Acenaphthylene	µg	<0.050	0.050	<0.075	0.075	0.106	0.050	<0.075	0.075	0.092	0.050	0.405	0.075	0.113	0.050
Anthracene	µg	0.132	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	0.138	0.075	<0.050	0.050
Benzo(a)anthracene	µg	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Benzo(a)fluorene	µg	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Benzo(b)fluoranthene	µg	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	0.150	0.075	<0.050	0.050
Benzo(b)fluorene	µg	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Benzo(e)pyrene	µg	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Benzo(g,h,i)perylene	µg	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Benzo(k)fluoranthene	µg	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Biphenyl	µg	0.63	0.10	1.60	0.15	0.45	0.10	1.09	0.15	0.47	0.10	1.36	0.15	0.75	0.10
Chrysene	µg	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Dibenz(a,h)anthracene	µg	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Dibenzo(a,c) anthracene + Picene [1]	µg	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Fluoranthene	µg	0.419	0.050	0.684	0.075	0.138	0.050	0.342	0.075	0.184	0.050	0.492	0.075	0.260	0.050
Indeno(1,2,3-cd)pyrene	µg	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Naphthalene	µg	6.80	0.072	11.0	0.11	5.13	0.072	10.6	0.11	4.81	0.072	17.5	0.11	7.62	0.072
o-Terphenyl	µg	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Perylene	µg	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Phenanthrene	µg	1.94	0.050	3.34	0.075	0.676	0.050	1.36	0.075	0.510	0.050	1.51	0.075	0.798	0.050
Pyrene	µg	0.215	0.050	0.297	0.075	<0.050	0.050	0.198	0.075	0.138	0.050	0.291	0.075	0.169	0.050
Tetralin	µg	0.67	0.10	0.62	0.15	0.37	0.10	0.58	0.15	0.33	0.10	0.67	0.15	0.43	0.10

Calculated Concentrations	Quarter 4													
				24		25		26		27		28		29		30	
	Units	Maximum	Minimum	10/10/2017		22/10/2017		3/11/2017		15/11/2017		27/11/2017		9/12/2017		21/12/2017	
Benzo(a)pyrene	ng/m^3	0.1099	0.0094	2.71E-02		4.11E-02		9.45E-03		7.51E-02		3.48E-02		1.10E-01		4.35E-02	
1-Methylnaphthalene	ng/m^3	9.51E+00	2.58E+00	5.69E+00		9.51E+00		3.03E+00		5.11E+00		2.58E+00		7.35E+00		3.88E+00	
2-Methylnaphthalene	ng/m^3	1.77E+01	4.11E+00	9.84E+00		1.77E+01		4.85E+00		8.32E+00		4.11E+00		1.14E+01		6.51E+00	
Acenaphthene	ng/m^3	8.49E+00	8.17E-01	4.01E+00		8.49E+00		1.63E+00		2.33E+00		8.17E-01		1.31E+00		1.09E+00	
Acenaphthylene	ng/m^3	1.18E+00	7.22E-02	7.22E-02		1.13E-01		3.03E-01		1.02E-01		2.93E-01		1.18E+00		3.54E-01	
Anthracene	ng/m^3	4.01E-01	7.14E-02	3.81E-01		1.13E-01		7.14E-02		1.02E-01		7.97E-02		4.01E-01		7.82E-02	
Benzo(a)anthracene	ng/m^3	1.13E-01	7.14E-02	7.22E-02		1.13E-01		7.14E-02		1.02E-01		7.97E-02		1.09E-01		7.82E-02	
Benzo(a)fluorene	ng/m^3	2.27E-01	1.43E-01	1.44E-01		2.27E-01		1.43E-01		2.04E-01		1.59E-01		2.18E-01		1.56E-01	
Benzo(b)fluoranthene	ng/m^3	4.36E-01	7.14E-02	7.22E-02		1.13E-01		7.14E-02		1.02E-01		7.97E-02		4.36E-01		7.82E-02	
Benzo(b)fluorene	ng/m^3	2.27E-01	1.43E-01	1.44E-01		2.27E-01		1.43E-01		2.04E-01		1.59E-01		2.18E-01		1.56E-01	
Benzo(e)pyrene	ng/m^3	2.27E-01	1.43E-01	1.44E-01		2.27E-01		1.43E-01		2.04E-01		1.59E-01		2.18E-01		1.56E-01	
Benzo(g,h,i)perylene	ng/m^3	1.13E-01	7.14E-02	7.22E-02		1.13E-01		7.14E-02		1.02E-01		7.97E-02		1.09E-01		7.82E-02	
Benzo(k)fluoranthene	ng/m^3	1.13E-01	7.14E-02	7.22E-02		1.13E-01		7.14E-02		1.02E-01		7.97E-02		1.09E-01		7.82E-02	
Biphenyl	ng/m^3	4.83E+00	1.28E+00	1.82E+00		4.83E+00		1.28E+00		2.96E+00		1.50E+00		3.95E+00		2.35E+00	
Chrysene	ng/m^3	1.13E-01	7.14E-02	7.22E-02		1.13E-01		7.14E-02		1.02E-01		7.97E-02		1.09E-01		7.82E-02	
Dibenz(a,h)anthracene	ng/m^3	1.13E-01	7.14E-02	7.22E-02		1.13E-01		7.14E-02		1.02E-01		7.97E-02		1.09E-01		7.82E-02	
Dibenzo(a,c) anthracene + Picene	ng/m^3	2.27E-01	1.43E-01	1.44E-01		2.27E-01		1.43E-01		2.04E-01		1.59E-01		2.18E-01		1.56E-01	
Fluoranthene	ng/m^3	2.07E+00	3.94E-01	1.21E+00		2.07E+00		3.94E-01		9.30E-01		5.87E-01		1.43E+00		8.13E-01	
Indeno(1,2,3-cd)pyrene	ng/m^3	1.13E-01	7.14E-02	7.22E-02		1.13E-01		7.14E-02		1.02E-01		7.97E-02		1.09E-01		7.82E-02	
Naphthalene	ng/m^3	5.09E+01	1.46E+01	1.96E+01		3.32E+01		1.46E+01		2.88E+01		1.53E+01		5.09E+01		2.38E+01	
o-Terphenyl	ng/m^3	2.27E-01	1.43E-01	1.44E-01		2.27E-01		1.43E-01		2.04E-01		1.59E-01		2.18E-01		1.56E-01	
Perylene	ng/m^3	2.27E-01	1.43E-01	1.44E-01		2.27E-01		1.43E-01		2.04E-01		1.59E-01		2.18E-01		1.56E-01	
Phenanthrene	ng/m^3	1.01E+01	1.63E+00	5.60E+00		1.01E+01		1.93E+00		3.70E+00		1.63E+00		4.39E+00		2.50E+00	
Pyrene	ng/m^3	8.97E-01	7.14E-02	6.21E-01		8.97E-01		7.14E-02		5.39E-01		4.40E-01		8.46E-01		5.29E-01	
Tetralin	ng/m^3	1.95E+00	1.05E+00	1.93E+00		1.87E+00		1.06E+00		1.58E+00		1.05E+00		1.95E+00		1.35E+00	
Total PAH	ng/m^3	9.11E+01	3.00E+01	5.22E+01		9.11E+01		3.06E+01		5.65E+01		3.00E+01		8.76E+01		4.48E+01	

Note:
RDL = Reportable Detection Limit

Appendix I DIOXINS AND FURANS DATA SUMMARY

Dioxins and Furans	Courtice WPCP Station									
Location		Courtice			Courtice			Courtice		
Date	dd/mm/yyyy	22/10/2017			15/11/2017			9/12/2017		
Start Time	hh:mm	0:00			0:00			0:00		
Sample Duration	hours	23.99			23.36			23.51		
Technician		TZ			TZ			0		
Filter Number		FDI132-01			FJ4302-01			FOW815-01		
Maxaam ID		FJX008			FOT352			FTE240		
Maxxam Job #		B7N5341			B7P9968			B7S2438		
Total Volumetric Flow	Am^3/sample	341.86			360.60			351.75		
Analytical Results	Units	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	<3.2	3.2	1	<2.6	2.6	1
1,2,3,7,8-Penta CDD *	pg	<3.5	3.5	1	<4.0	4.0	1	<3.1	3.1	1
1,2,3,4,7,8-Hexa CDD *	pg	<3.4	3.4	0.1	<3.9	3.9	0.1	<3.4	3.4	0.1
1,2,3,6,7,8-Hexa CDD *	pg	<3.4	3.4	0.1	4.5	4.0	0.1	3.7	3.5	0.1
1,2,3,7,8,9-Hexa CDD *	pg	<3.0	3.0	0.1	6.6	3.3	0.1	<3.1 (2)	3.1	0.1
1,2,3,4,6,7,8-Hepta CDD *	pg	57.1	3.3	0.01	43.1	3.3	0.01	37.1	3.1	0.01
Octa CDD *	pg	217	3.5	0.0003	134	3.5	0.0003	<97 (2)	97	0.0003
Total Tetra CDD *	pg	<3.3	3.3		<3.2	3.2		<2.6	2.6	
Total Penta CDD *	pg	<3.5	3.5		<4.0	4.0		<4.8 (2)	4.8	
Total Hexa CDD *	pg	24.4	3.2		36.7	3.7		20.2	3.3	
Total Hepta CDD *	pg	122	3.3		85.8	3.3		75.2	3.1	
2,3,7,8-Tetra CDF **	pg	<3.2	3.2	0.1	<3.6	3.6	0.1	4.8	3.4	0.1
1,2,3,7,8-Penta CDF **	pg	<3.5	3.5	0.03	<3.7	3.7	0.03	<3.5	3.5	0.03
2,3,4,7,8-Penta CDF **	pg	<3.5	3.5	0.3	<3.7	3.7	0.3	<3.5	3.5	0.3
1,2,3,4,7,8-Hexa CDF **	pg	<3.1	3.1	0.1	<3.0	3.0	0.1	<2.8	2.8	0.1
1,2,3,6,7,8-Hexa CDF **	pg	<3.0	3.0	0.1	<2.9	2.9	0.1	<2.7	2.7	0.1
2,3,4,6,7,8-Hexa CDF **	pg	<3.4	3.4	0.1	<3.2	3.2	0.1	<3.1	3.1	0.1
1,2,3,7,8,9-Hexa CDF **	pg	<3.7	3.7	0.1	<3.1	3.1	0.1	<3.4	3.4	0.1
1,2,3,4,6,7,8-Hepta CDF **	pg	11.0	2.9	0.01	5.0	2.9	0.01	5.4	2.8	0.01
1,2,3,4,7,8,9-Hepta CDF **	pg	<3.8	3.8	0.01	<3.3	3.3	0.01	<3.8	3.8	0.01
Octa CDF **	pg	11.5	3.5	0.0003	7.0	3.6	0.0003	5.9	2.3	0.0003
Total Tetra CDF **	pg	<3.2	3.2		<3.6	3.6		4.8	3.4	
Total Penta CDF **	pg	<3.5	3.5		<3.7	3.7		6.2	3.5	
Total Hexa CDF **	pg	<4.8 (1)	4.8		<3.0	3.0		<3.2 (1)	3.2	
Total Hepta CDF **	pg	16.8	3.3		5.0	3.1		5.4	3.2	
Toxic Equivalency	pg									

Notes:
(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.
(2) EMPC / Merged Peak
(3) RT > 3 seconds - PCDD/DF analysis - Peak detected exceeds expected retention time (from internal standard) by greater than 3 seconds.
(4) Average sample flows were greater than 8.8cfm. As discussed with the MOECC, these samplers are to run at their maximum allowable flow rate

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

Calculated Concentrations	Quarter 4			14	15	16
	Units	Maximum	Minimum	22/10/2017	15/11/2017	9/12/2017
2,3,7,8-Tetra CDD *	pg/m^3	4.83E-03	3.70E-03	0.005	0.004	0.004
1,2,3,7,8-Penta CDD *	pg/m^3	5.55E-03	4.41E-03	0.005	0.006	0.004
1,2,3,4,7,8-Hexa CDD *	pg/m^3	5.41E-03	4.83E-03	0.005	0.005	0.005
1,2,3,6,7,8-Hexa CDD *	pg/m^3	1.25E-02	4.97E-03	0.005	0.012	0.011
1,2,3,7,8,9-Hexa CDD *	pg/m^3	1.83E-02	4.39E-03	0.004	0.018	0.004
1,2,3,4,6,7,8-Hepta CDD *	pg/m^3	1.67E-01	1.05E-01	0.167	0.120	0.105
Octa CDD *	pg/m^3	6.35E-01	1.38E-01	0.635	0.372	0.138
Total Tetra CDD *	pg/m^3	4.83E-03	3.70E-03	0.005	0.004	0.004
Total Penta CDD *	pg/m^3	6.82E-03	5.12E-03	0.005	0.006	0.007
Total Hexa CDD *	pg/m^3	1.02E-01	5.74E-02	0.071	0.102	0.057
Total Hepta CDD *	pg/m^3	3.57E-01	2.14E-01	0.357	0.238	0.214
2,3,7,8-Tetra CDF **	pg/m^3	1.36E-02	4.68E-03	0.005	0.005	0.014
1,2,3,7,8-Penta CDF **	pg/m^3	5.13E-03	4.98E-03	0.005	0.005	0.005
2,3,4,7,8-Penta CDF **	pg/m^3	5.13E-03	4.98E-03	0.005	0.005	0.005
1,2,3,4,7,8-Hexa CDF **	pg/m^3	4.53E-03	3.98E-03	0.005	0.004	0.004
1,2,3,6,7,8-Hexa CDF **	pg/m^3	4.39E-03	3.84E-03	0.004	0.004	0.004
2,3,4,6,7,8-Hexa CDF **	pg/m^3	4.97E-03	4.41E-03	0.005	0.004	0.004
1,2,3,7,8,9-Hexa CDF **	pg/m^3	5.41E-03	4.30E-03	0.005	0.004	0.005
1,2,3,4,6,7,8-Hepta CDF **	pg/m^3	3.22E-02	1.39E-02	0.032	0.014	0.015
1,2,3,4,7,8,9-Hepta CDF **	pg/m^3	5.56E-03	4.58E-03	0.006	0.005	0.005
Octa CDF **	pg/m^3	3.36E-02	1.68E-02	0.034	0.019	0.017
Total Tetra CDF **	pg/m^3	1.36E-02	4.68E-03	0.005	0.005	0.014
Total Penta CDF **	pg/m^3	1.76E-02	5.12E-03	0.005	0.005	0.018
Total Hexa CDF **	pg/m^3	7.02E-03	4.16E-03	0.007	0.004	0.005
Total Hepta CDF **	pg/m^3	4.91E-02	1.39E-02	0.049	0.014	0.015
Toxic Equivalency	pg/m^3					
TOTAL TOXIC EQUIVALENCY	pg TEQ/m^3	1.90E-02	1.61E-02	0.018	0.019	0.016
Calculated TEQ Concentrations	Units			22/10/2017	15/11/2017	09/12/2017
2,3,7,8-Tetra CDD *	pg TEQ/m^3			0.005	0.004	0.004
1,2,3,7,8-Penta CDD	pg TEQ/m^3			0.005	0.006	0.004
1,2,3,4,7,8-Hexa CDD	pg TEQ/m^3			0.0005	0.0005	0.0005
1,2,3,6,7,8-Hexa CDD	pg TEQ/m^3			0.0005	0.0012	0.0011
1,2,3,7,8,9-Hexa CDD	pg TEQ/m^3			0.0004	0.0018	0.0004
1,2,3,4,6,7,8-Hepta CDD	pg TEQ/m^3			0.0017	0.0012	0.0011
Octa CDD	pg TEQ/m^3			0.00019	0.00011	0.00004
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	0.0014
1,2,3,7,8-Penta CDF	pg TEQ/m^3			0.0002	0.0002	0.0001
2,3,4,7,8-Penta CDF	pg TEQ/m^3			0.002	0.002	0.001
1,2,3,4,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0004	0.0004
1,2,3,6,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0004	0.0004
2,3,4,6,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0004	0.0004
1,2,3,7,8,9-Hexa CDF	pg TEQ/m^3			0.0005	0.0004	0.0005
1,2,3,4,6,7,8-Hepta CDF	pg TEQ/m^3			0.00032	0.00014	0.00015
1,2,3,4,7,8,9-Hepta CDF	pg TEQ/m^3			0.00006	0.00005	0.00005
Octa CDF	pg TEQ/m^3			0.000010	0.000006	0.000005
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			0.018	0.019	0.016

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		
Date	dd/mm/yyyy	22/10/2017			15/11/2017			9/12/2017		
Start Time	hh:mm	0:00			0:00			0:00		
Sample Duration	hours	24.09			24.11			23.66		
Technician		TZ			TZ			0		
Filter Number		FDI131-01			FJ4301-01			FOW815-01		
Maxaam ID		FJX007			FOT351			FTE239		
Maxxam Job #		B7N5341			B7P9968			B7S2438		
Total Volumetric Flow	Am^3/sample	331.06			367.68			344.10		
Analytical Results	Units	Value	EDL	WHO_{2005} TEF	Value	EDL	WHO_{2005} TEF	Value	EDL	WHO_{2005} TEF
2,3,7,8-Tetra CDD *	pg	<3.5	3.5	1	<3.6	3.6	1	<3.0	3.0	1
1,2,3,7,8-Penta CDD *	pg	<3.5	3.5	1	<4.2	4.2	1	<3.2	3.2	1
1,2,3,4,7,8-Hexa CDD *	pg	<3.4	3.4	0.1	<3.8	3.8	0.1	3.5	3.4	0.1
1,2,3,6,7,8-Hexa CDD *	pg	4.3	3.5	0.1	4.4	3.9	0.1	3.7	3.5	0.1
1,2,3,7,8,9-Hexa CDD *	pg	<3.1	3.1	0.1	6.6	3.2	0.1	<5.7 (1)	5.7	0.1
1,2,3,4,6,7,8-Hepta CDD *	pg	59.3	3.5	0.01	49.6	3.5	0.01	40.4	3.9	0.01
Octa CDD *	pg	241	3.2	0.0003	167	3.4	0.0003	108	2.8	0.0003
Total Tetra CDD *	pg	<3.5	3.5		<3.6	3.6		<3.0	3.0	
Total Penta CDD *	pg	<3.5	3.5		<4.2	4.2		<5.0 (2)	5.0	
Total Hexa CDD *	pg	19.2	3.3		37.7	3.6		28.9	3.3	
Total Hepta CDD *	pg	123	3.5		104	3.5		79.4	3.9	
2,3,7,8-Tetra CDF **	pg	<3.0	3.0	0.1	<4.6 (1)	4.6	0.1	6.1	3.1	0.1
1,2,3,7,8-Penta CDF **	pg	<3.5	3.5	0.03	<3.7	3.7	0.03	<3.2	3.2	0.03
2,3,4,7,8-Penta CDF **	pg	<3.4	3.4	0.3	<3.6	3.6	0.3	<3.2	3.2	0.3
1,2,3,4,7,8-Hexa CDF **	pg	<3.3	3.3	0.1	<3.2	3.2	0.1	3.7	2.9	0.1
1,2,3,6,7,8-Hexa CDF **	pg	<3.2	3.2	0.1	<3.1	3.1	0.1	<2.8	2.8	0.1
2,3,4,6,7,8-Hexa CDF **	pg	<3.6	3.6	0.1	<3.4	3.4	0.1	<3.2	3.2	0.1
1,2,3,7,8,9-Hexa CDF **	pg	<4.0	4.0	0.1	<3.4	3.4	0.1	<3.5	3.5	0.1
1,2,3,4,6,7,8-Hepta CDF **	pg	<11 (1)	11	0.01	5.6	2.9	0.01	7.0	2.8	0.01
1,2,3,4,7,8,9-Hepta CDF **	pg	<3.5	3.5	0.01	<3.2	3.2	0.01	<3.7	3.7	0.01
Octa CDF **	pg	<12 (1)	12	0.0003	7.1	3.1	0.0003	7.2	2.5	0.0003
Total Tetra CDF **	pg	<3.0	3.0		4.6	3.5		6.1	3.1	
Total Penta CDF **	pg	<3.5	3.5		4.2	3.6		6.2	3.2	
Total Hexa CDF **	pg	6.7	3.5		3.5	3.3		7.9	3.1	
Total Hepta CDF **	pg	6.0	3.0		5.6	3.0		7.0	3.2	
Toxic Equivalency	pg									

(1) Timer dial stopped just before the scheduled end was reached but the sample still ran for sufficient duration to be deemed valid.

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

Calculated Concentrations	Quarter 4			14	15	16
	Units	Maximum	Minimum	22/10/2017	15/11/2017	9/12/2017
2,3,7,8-Tetra CDD *	pg/m^3	5.29E-03	4.36E-03	0.005	0.005	0.004
1,2,3,7,8-Penta CDD *	pg/m^3	5.71E-03	4.65E-03	0.005	0.006	0.005
1,2,3,4,7,8-Hexa CDD *	pg/m^3	1.02E-02	5.13E-03	0.005	0.005	0.010
1,2,3,6,7,8-Hexa CDD *	pg/m^3	1.30E-02	1.08E-02	0.013	0.012	0.011
1,2,3,7,8,9-Hexa CDD *	pg/m^3	1.80E-02	4.68E-03	0.005	0.018	0.008
1,2,3,4,6,7,8-Hepta CDD *	pg/m^3	1.79E-01	1.17E-01	0.179	0.135	0.117
Octa CDD *	pg/m^3	7.28E-01	3.14E-01	0.728	0.454	0.314
Total Tetra CDD *	pg/m^3	5.29E-03	4.36E-03	0.005	0.005	0.004
Total Penta CDD *	pg/m^3	7.27E-03	5.29E-03	0.005	0.006	0.007
Total Hexa CDD *	pg/m^3	1.03E-01	5.80E-02	0.058	0.103	0.084
Total Hepta CDD *	pg/m^3	3.72E-01	2.31E-01	0.372	0.283	0.231
2,3,7,8-Tetra CDF **	pg/m^3	1.77E-02	4.53E-03	0.005	0.006	0.018
1,2,3,7,8-Penta CDF **	pg/m^3	5.29E-03	4.65E-03	0.005	0.005	0.005
2,3,4,7,8-Penta CDF **	pg/m^3	5.13E-03	4.65E-03	0.005	0.005	0.005
1,2,3,4,7,8-Hexa CDF **	pg/m^3	1.08E-02	4.35E-03	0.005	0.004	0.011
1,2,3,6,7,8-Hexa CDF **	pg/m^3	4.83E-03	4.07E-03	0.005	0.004	0.004
2,3,4,6,7,8-Hexa CDF **	pg/m^3	5.44E-03	4.62E-03	0.005	0.005	0.005
1,2,3,7,8,9-Hexa CDF **	pg/m^3	6.04E-03	4.62E-03	0.006	0.005	0.005
1,2,3,4,6,7,8-Hepta CDF **	pg/m^3	2.03E-02	1.52E-02	0.017	0.015	0.020
1,2,3,4,7,8,9-Hepta CDF **	pg/m^3	5.38E-03	4.35E-03	0.005	0.004	0.005
Octa CDF **	pg/m^3	2.09E-02	1.81E-02	0.018	0.019	0.021
Total Tetra CDF **	pg/m^3	1.77E-02	4.53E-03	0.005	0.013	0.018
Total Penta CDF **	pg/m^3	1.80E-02	5.29E-03	0.005	0.011	0.018
Total Hexa CDF **	pg/m^3	2.30E-02	9.52E-03	0.020	0.010	0.023
Total Hepta CDF **	pg/m^3	2.03E-02	1.52E-02	0.018	0.015	0.020
Toxic Equivalency	pg/m^3					
TOTAL TOXIC EQUIVALENCY	pg TEQ/m^3	1.98E-02	1.92E-02	0.019	0.020	0.019
Calculated TEQ Concentrations	Units			22/10/2017	15/11/2017	09/12/2017
2,3,7,8-Tetra CDD *	pg TEQ/m^3			0.005	0.005	0.004
1,2,3,7,8-Penta CDD	pg TEQ/m^3			0.005	0.006	0.005
1,2,3,4,7,8-Hexa CDD	pg TEQ/m^3			0.0005	0.0005	0.0010
1,2,3,6,7,8-Hexa CDD	pg TEQ/m^3			0.0013	0.0012	0.0011
1,2,3,7,8,9-Hexa CDD	pg TEQ/m^3			0.0005	0.0018	0.0008
1,2,3,4,6,7,8-Hepta CDD	pg TEQ/m^3			0.0018	0.0013	0.0012
Octa CDD	pg TEQ/m^3			0.00022	0.00014	0.00009
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	0.0006	0.0018
1,2,3,7,8-Penta CDF	pg TEQ/m^3			0.0002	0.0002	0.0001
2,3,4,7,8-Penta CDF	pg TEQ/m^3			0.002	0.001	0.001
1,2,3,4,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0004	0.0011
1,2,3,6,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0004	0.0004
2,3,4,6,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0005	0.0005
1,2,3,7,8,9-Hexa CDF	pg TEQ/m^3			0.0006	0.0005	0.0005
1,2,3,4,6,7,8-Hepta CDF	pg TEQ/m^3			0.00017	0.00015	0.00020
1,2,3,4,7,8,9-Hepta CDF	pg TEQ/m^3			0.00005	0.00004	0.00005
Octa CDF	pg TEQ/m^3			0.000005	0.000006	0.000006
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			0.019	0.020	0.019

Notes:
EDL = Estimated Detection Limit
* CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient
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