Quarterly Ambient Air Quality Monitoring Report for the Durham York Energy Centre – July to September 2016

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 municipal solid waste remaining after 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).

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, and will run for a one year period.

The EFW facility became fully operational on February 1, 2016, and monitoring of non-continuous air quality parameters resumed.

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 July to September (Calendar Quarter 3). Some minor operational issues at the sites were encountered this quarter including: a $PM_{2.5}$ sampler aspiration pump failure and a mouse damaging the TSP sampler motor at the Rundle Road station. 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.

During this quarter, the Regional Municipality of Durham requested that the dioxin/ furan sampling frequency at the Courtice WPCP and Rundle Road monitoring stations be increased from once every 24 days to once every 12 days for a 3-month period starting in September 2016. The additional sampling followed the same methodologies and protocols specified in the Ambient Monitoring Plan (Stantec, 2012) for the existing monitoring program. The results of this additional sampling have been included in this report.

Site personnel noted ongoing Highway 418 construction on the north and south sides of Highway 401 between Courtice and Crago Roads causing significant dust suspension from haul trucks, bulldozers, graders and excavators. These construction activities may have contributed to elevated $PM_{2.5}$ measurements during this quarter.

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 O. Reg. 419/05 Standards 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 well below their applicable Standards (as presented in **Table 2-3** in this report);
4. The maximum measured concentrations of all PAHs with MOECC air quality Standards were well below their applicable criteria shown in **Table 2-4**, with the exception of the 24-hour benzo(a)pyrene (B(a)P) concentration in two samples measured at the Rundle Road Station

which exceeded the applicable Ontario Ambient Air Quality Criteria (AAQC) by 28% and 42%. The current Ontario 24-hour B(a)P AAQC was introduced in 2011 and levels above this AAQC are commonly measured throughout Ontario. The measurement was 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; and,

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 monitoring period between July to September 2016, with the exception of benzo(a)pyrene. Furthermore, all measured levels of the monitored contaminants were below their applicable HHRA health-based criteria.

Abbreviations

AAQC	Ambient Air Quality Criteria
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
Tl	Thallium
Sn	Tin
V	Vanadium
Zn	Zinc
Miscellaneous	
°C	Temperature in degrees Celsius
N/A	Not Available
%	Percent
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
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 monitor). 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. The Fence Line Station began operation after the Facility's commissioning period was completed, and will run for a one year period.

During this quarter, the Regional Municipality of Durham requested that the dioxin/ furan sampling frequency at the Courtice WPCP and Rundle Road monitoring stations be increased from once every 24 days to once every 12 days for a 3-month period starting in September 2016. The additional sampling followed the same methodologies and protocols specified in the Ambient Monitoring Plan (Stantec, 2012) for the existing monitoring program. The results of this additional sampling have been included in this report.

This quarterly report provides a summary of the ambient air quality data collected at the three stations for the period July to September 2016 (Q3).

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 detailed in the Ambient Monitoring Plan.

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

The predominately upwind Courtice WPCP Station, is located at the Courtice Water Pollution Control Plant (WPCP) to the southwest of the DYEC with the objective of measuring background air quality in a predominantly upwind location. The location is presented in **Figure 1-2** and **Figure 1-4.** This monitoring station measures the air contaminants presented in Section 1.1, as well as meteorological data, with the exception of wind speed and wind direction, which are measured and provided by the Courtice 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, and will run for a one year period. The location is presented in **Figure 1-2** and **Figure 1-5**.

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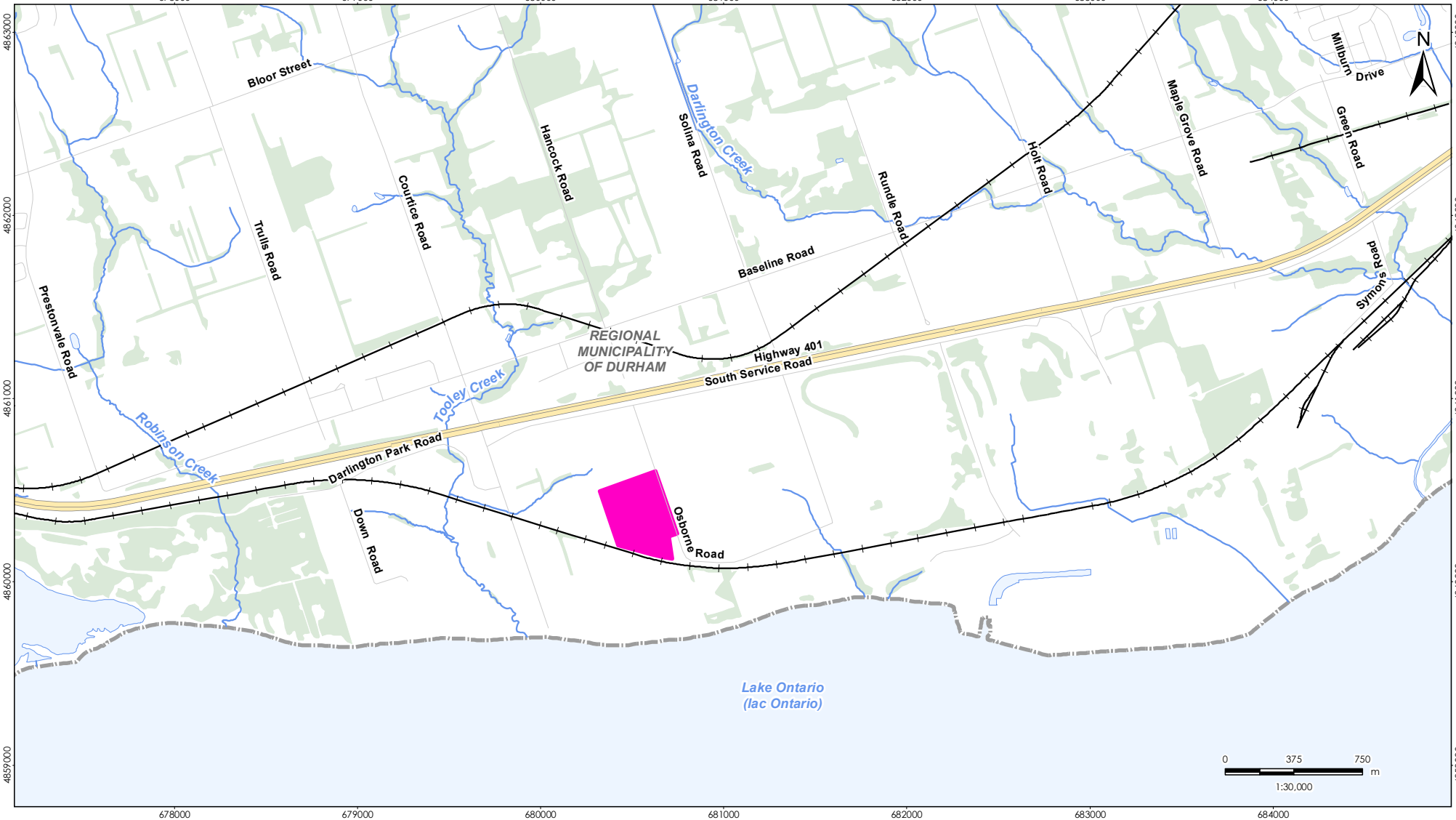

October 2013
160950528

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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.

Legend

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

Client/Project

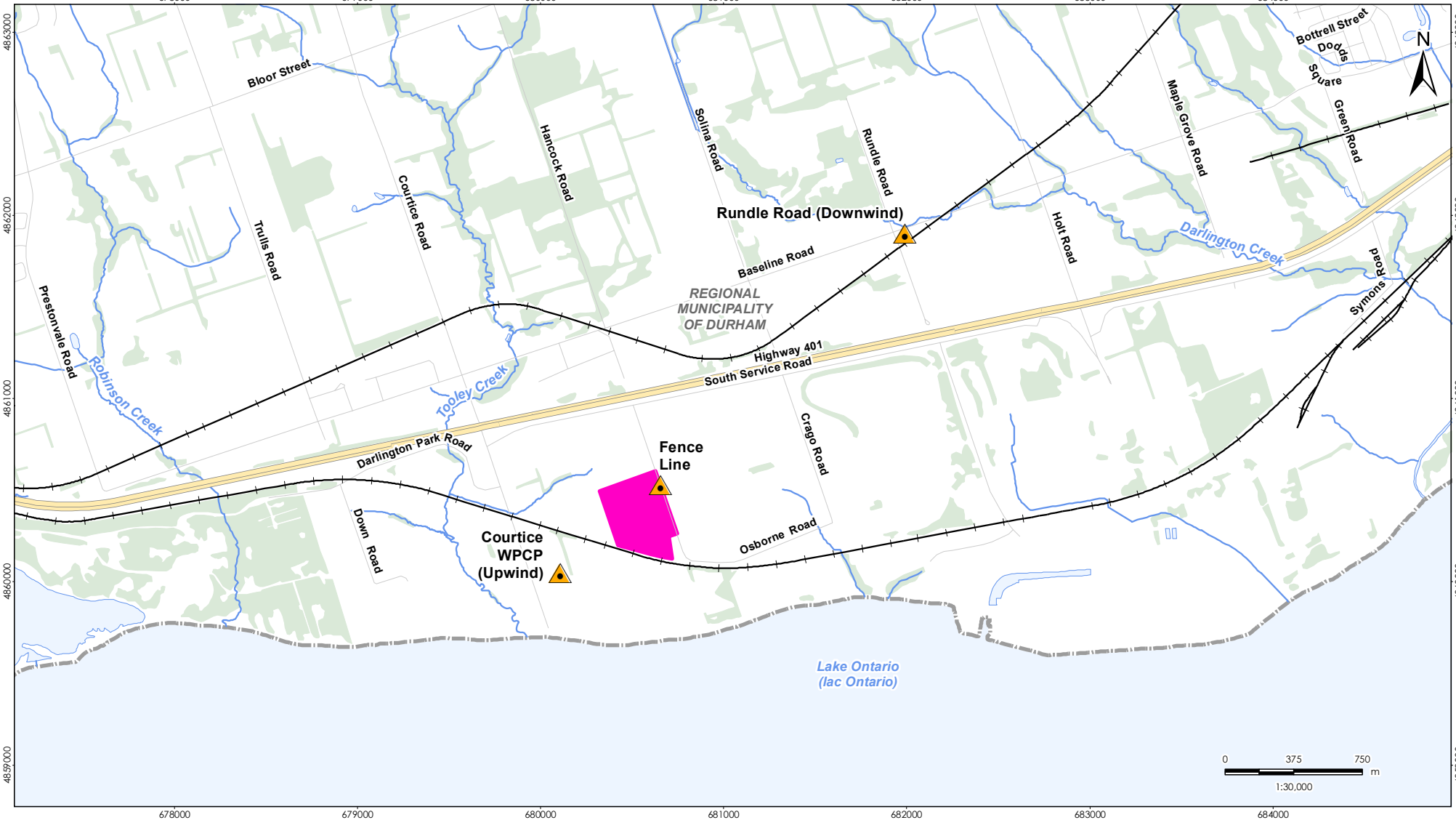
The Region of Durham
Durham York Energy Centre

Figure No.

1-1

Title

Site Location Plan



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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

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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 monitoring 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 @10 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).

Key Components Assessed
November 3, 2016

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

Two sets of criteria were used for comparison to the air quality data as specified in the Ambient Air Monitoring Plan. The first set of criteria were the Standards reported in O. Reg. 419/05 (Schedules 3 and 6). These are compliance based Standards used throughout the province of Ontario. However, not all chemicals have O. Reg. 419/05 Standards, 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 the second set of criteria.

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.

Summaries of the relevant air quality criteria for the contaminants monitored in Q3 2016 are presented in **Table 2-2** to **Table 2-4**.

Table 2-2 Summary of Air Quality Criteria for CACs

Contaminant	CAS	O. Reg. 419/05 – Schedule 3 Standards /AAQC			HHRA Health-Based Criteria		
		1-Hour (µg/m^3)	24-Hour (µg/m^3)	Annual (µg/m^3)	1-Hour (µg/m^3)	24-Hour (µg/m^3)	Annual (µg/m^3)
Sulphur dioxide	7446095	690	275	-	690	275	29
Nitrogen oxides [A]	10102-44-0	400	200	-	400	200	60
Contaminant	**CAS**	**Canadian Ambient Air Quality Standards (CAAQS)**			**HHRA Health-Based Criteria**		
		1-Hour (µg/m^3)	**24-Hour (µg/m^3)**	**Annual (µg/m^3)**	**1-Hour (µg/m^3)**	**24-Hour (µg/m^3)**	**Other time Period (µg/m^3)**
$PM_{2.5}$	N/A	-	28 [B]	10 [C]	-	30 [D]	-

Notes:

A. The Schedule 3 Standards for NO_X are based on health effects of NO_2, as NO_2 has adverse health effects at much lower concentrations than NO. Therefore the standard was compared to NO_2 in this report. However, as per the current April 2012 version of O. Reg. 419/05 Summary of Standards and Guidelines, the standard was also compared to the monitored NO_X.

B. 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.

C. 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.

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

Table 2-3 Summary of Air Quality Criteria for Metals

Contaminant	CAS	O. Reg. 419/05 – Schedule 3 Standards			HHRA Health-Based Criteria		
		1-Hour (µg/m³)	24-Hour (µg/m³)	Other time Period (µg/m³)	1-Hour (µg/m³)	24-Hour (µg/m³)	Annual (µg/m³)
Total Particulate	NA	-	120	-	-	120	60
Aluminum	7429-90-5	-	4.8	-	-	-	-
Antimony	7440-36-0	-	25	-	5	25	0.2
Arsenic	7440-38-2	-	0.3	-	0.2	0.3	0.015 [A] 0.0043 [B]
Barium	7440-39-3	-	10	-	5	10	1
Beryllium	7440-41-7	-	0.01	-	0.02	0.01	0.007 [A] 0.0024 [B]
Bismuth	7440-69-9	-					
Boron	7440-42-8	-	120	-	50	-	5
Cadmium	7440-43-9	-	0.025	0.005; annual	0.1	0.025	0.005 [A] 0.0098 [B]
Chromium (Total)	7440-47-3	-	0.5	-	1	-	60
Cobalt	7440-48-4	-	0.1	-	0.2	0.1	0.1
Copper	8440-50-8	-	50	-	-	-	-
Iron	15438-31-0	-	4	-	-	-	-
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

Table 2-3 Summary of Air Quality Criteria for Metals

Contaminant	CAS	O. Reg. 419/05 – Schedule 3 Standards			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)
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	-	-	-	-

Notes:

A. Annual Average
B. Carcinogenic Annual Average

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

Contaminant	CAS	O. Reg. 419/05 – Schedule 3 Standards			HHRA Health-Based Criteria			
		1-Hour (ng/m³)	24-Hour (ng/m³)	Other time Period (ng/m³)	1-Hour (ng/m³)	24-Hour (ng/m³)	Annual (ng/m³)	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

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

Contaminant	CAS	O. Reg. 419/05 – Schedule 3 Standards			HHRA Health-Based Criteria			
		1-Hour (ng/m³)	24-Hour (ng/m³)	Other time Period (ng/m³)	1-Hour (ng/m³)	24-Hour (ng/m³)	Annual (ng/m³)	Toxic Equivalency Factor Annual [A, G] (ng/m³)$^{-1}$
Benzo(k)fluoranthene	207 -08-9	-	-	-	500	-	-	100
Benzo(a)fluorene	238-84-6	-	-	-	500	-	50	-
Benzo(b)fluorene	243-17-4	-	-	-	500	-	50	-
Benzo (g,h,i) perylene	191-24-2	-	-	-	500	-	-	100
Benzo(a)pyrene	50-32-8	-	0.05 [B] 5 [C] 1.1 [D]	0.01; annual	-	1	87 [A]	-
Benzo(e)pyrene	192-97-2	-	-	-	500	-	-	10
Biphenyl	92-52-4	-	-	-	-	-	224,000	-
Chrysene	218-01-9	-						-
Dibenzo(a,c)anthracene	215-58-7	-	-	-	-	-	-	100
Dibenzo(a,h)anthracene	53-70-3	-	-	-	500	-	-	1,000
Fluoranthene	206-44-0	-	-	-	500	-	-	1
Indeno(1,2,3-cd)pyrene	193-39-5	-	-	-	500	-	-	100
Naphthalene	91-20-3	-	22,500	-	-	22,500	3,000	-
o-Terphenyl	84-15-1	-	-	-	50,000	-	5,000	-
Perylene	198-55-0	-	-	-	500	-	-	1
Phenanthrene	85-01-8	-	-	-	500	-	-	1
Pyrene	129-00-0	-	-	-	500	-	-	1

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

Contaminant	CAS	O. Reg. 419/05 – Schedule 3 Standards			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] $(ng/m^3)^{-1}$
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]	-	-	-	-	-

Notes:

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

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

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

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

E. Application of the air standard for dioxins, furans, and dioxin-like PCBs requires the calculation of the total toxicity equivalent (TEQ) concentration contributed by all dioxin-like compounds in the mixture. TEQ is calculated using the methodology as per the O. Reg.419/05 Summary of Standards and Guidelines, and the corresponding WHO_{2005} toxic equivalency factors (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 sites 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	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 Monitor Labs Sulphur Dioxide Analyzer Model T100	Pulsed Florescence - SO_2 levels are measured based on the principle that SO_2 has a strong ultraviolet (UV) absorption at a wavelength between 200 and 240 nanometres (nm). The absorption of photons at these wavelengths results in the emission of fluorescence photons at a higher wavelength. The amount of fluorescence measured is directly proportional to the concentration of SO_2.	0 – 1000 ppb	1 second

Two manually operated, hi-volume air samplers are installed at both the Courtice WPCP (predominantly upwind) and Rundle Road (predominantly downwind) monitoring 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. At the request of the Region this was increased to every 12 days starting in September 2016 for a 3-month period.

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 10 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

Some minor operational issues at the sites were encountered this quarter including a $PM_{2.5}$ sampler aspiration pump failure, and a mouse damaging the TSP sampler motor at the Rundle Road Station. A summary of operational issues for each measurement parameter during the monitoring period is 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	Internal clock not synchronized with actual time	22-Sep-16	Adjusted internal clock. All data intact.
NOx	Internal clock not synchronized with actual time	22-Sep-16	Adjusted internal clock. All data intact.
$PM_{2.5}$	Sample pump power trip/high internal relative humidity warning	Noted 25-Jul-16	Restarted pump. The power trip/RH warning was likely caused by a severe thunderstorm the morning of 25-Jul-16. The measurements were reviewed and 6-hours of suspect data were invalidated.
	Instrument errors following automatic zero checks.	Noted on 5, 12, 15 and 18-Aug-16	Reset monitor and replaced suspect data with data downloaded directly from monitor. Valley Environmental repaired monitor on 18-Aug-16. No data lost.
	High Voltage Power Supply (HVPS) issue causing analogue output to data logger to fail.	Noted on 22 and 25-Aug-16	Reset monitor. Adjusted HVPS, downloaded data directly from monitor on 30-Aug-16 and used it to replace suspect hours in the data logger files. Valley Environmental Services calibrated and adjusted HVPS. No data lost.
TSP/Metals Hi-Vol.	None		
PAH/ D/F Hi-Vol	None		
Other	Power tripped	1-Jul-16 at 15:45	Power came back on immediately. All data intact.

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

Parameter	Issues	Time Frame	Remedial Action
SO_2	Internal clock not synchronized with actual time	11-Aug-16	Adjusted internal clock. All data intact
NO_X	Internal clock not synchronized with actual time	11-Aug-16	Adjusted internal clock. All data intact
$PM_{2.5}$	Aspiration pump failed	Noted on 15-Aug-16	Pump repaired on 16-Aug-16. Reviewed and invalidated suspect data.
	Low instrument beta reading.	30-Aug-16	A low beta reading could be due to either a detector or high voltage amplifier issue. The manufacturer was contacted and suggested to isolate and further diagnose the issue. This procedure is scheduled to be completed in October 2016 during annual calibrations. Data collection is not affected.
TSP/Metals Hi-Vol.	Bird feces found on a small portion of filter	23-Jul-16	Bird damage was minor, so the filter was sent for analysis. Lab results were comparable to other stations, therefore the results were considered valid.
	Mouse nest discovered in hi-vol motor housing during filter change. Motor wiring damaged.	Noted on 11-Aug-16	Removed nest, replaced motor with onsite spare and installed barrier. Lab results were comparable to other stations, therefore the results were considered valid.
PAH/ D/F Hi-Vol	None		
Other	Power outage due to storm	17-Sept-16 from 14:57-16:19	Reviewed and invalidated affected data

Table 3-6 Summary of Instrument Issues at 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 3 (July to September 2016) are presented in **Table 3-7** to **Table 3-8**.

Table 3-7 Summary of Data Recovery Rates for the Courtice WPCP Station (Predominately Upwind) – July to September 2016

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
SO_2	2189	99.1% [A]
NO_X	2191	99.2% [A]
$PM_{2.5}$	2184	98.9% [A]
Temperature	2204	99.8% [A]
Rainfall	2203	99.8% [A]
Relative Humidity	2204	99.8% [A]
Pressure	2206	99.9% [A]
Wind Speed/Direction	2208	100% [A]
TSP/Metals	15 [B]	100%
PAHs	7 [B]	100%
Dioxins and Furans	4 [B, C]	100%

Notes:

A. Includes instrumentation issues summarized in Table 3-4, quarterly MOECC audit and monthly calibrations.
B. Number of filters/24-hour average samples.
C. Includes additional dioxins and furans sampling requested by the Regional Municipality of Durham

Table 3-8 Summary of Data Recovery Rates for the Rundle Road Station (Predominately Downwind) – July to September 2016

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
SO_2	2195	99.4% [A]
NO_X	2193	99.3% [A]
$PM_{2.5}$	2136	96.7% [A]
Temperature	2207	100% [A]
Rainfall	2207	100% [A]

Table 3-8 Summary of Data Recovery Rates for the Rundle Road Station (Predominately Downwind) – July to September 2016

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
Relative Humidity	2207	100% [A]
Wind Speed/Direction	2207	100% [A]
TSP/Metals	15 [B]	100%
PAHs	7 [B]	100%
Dioxins and Furans	4 [B, C]	100%

Notes:

A. Includes instrumentation issues summarized in Table 3-5, quarterly MOECC audit, and monthly calibrations.

B. Number of filters/24-hour average samples.

C. Includes additional dioxins and furans sampling requested by the Regional Municipality of Durham

Table 3-9 Summary of Data Recovery Rates for the Fence Line Station – July to September 2016

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

Notes:

A. Includes instrumentation issues summarized in Table 3-6, quarterly MOECC audit, and monthly calibrations

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 Q3 2016 are presented in **Appendix A**. Daily internal zero checks are "unofficial" checks of an analyzer's response intended as quick, convenient ways 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).

During this quarter, the Rundle Road Station had one NOx internal zero check that was greater than 5 ppb (8-Sept). Ambient NOx measurements within 24 hours prior to and post of this check ranged from 0.1 to 13.8 ppb. As these measurements were within the normal operating range of the instrument and did not show evidence of the instrument drift actually being greater than 5 ppb, no adjustments to the data were required. All other automatic zero checks for the month of September were below 2 ppb.

In this quarter, the Rundle Road Station SO_2 monitor had two internal zero checks which were greater than 5 ppb (27-Jul and 2-Aug). Ambient SO_2 measurements within 24 hours prior to and post of these checks ranged from 0.9 – 10.8 ppb on 27-July and 2.6- 22.6 ppb on 2-Aug. As these measurements were within the normal operating range of the instrument and did not show evidence of the instrument drift actually being greater than 5 ppb, no adjustments to the data were required.

3.5 FIELD CONDITION OBSERVATIONS

During Q3 2016 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 and Valley Environmental Services personnel during field visits and by Regional Municipality of Durham personnel located at the DYEC.

Construction of Highway 418, which will connect with Highway 401 between Courtice Road and Crago Road was occurring 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. During the week of August 29th the highway construction contractor excavated a large area immediately north of the DYEC between Energy Drive and Hwy 401. Through September the contractor continued to work in this area on the relocation/re-alignment of South Service Road. The new South Service Road will be located immediately south of the existing South Service Road and run between Courtice Road and Crago Road. Photographs of the South Service Road realignment are shown in **Figures 3-1** and **3-2**. Significant dust/particulate emissions are visible in **Figure 3-2** from these construction activities.

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. Visible dust emissions from heavy trucks entering and exiting this camp were observed by Stantec personnel during site visits. Additionally, construction of Highway 418 from north of Highway 401 was also occurring, with clearing, grading and other activities causing dust suspension from haul truck, bulldozer, grader and excavator activities. This activity was occurring about 1.5-km to the west of the Rundle Road Station. A photograph of construction activities occurring north of Highway 401 is presented in **Figure 3-3**.

Other activities in the vicinities of the monitoring stations that had the potential to affect local air quality included:

- Excavation of fields to the south of the Courtice WPCP Station on 12-Aug.
- Trucks idling while loading and unloading supplies at the WPCP Chemical Building about 50 m north of the Courtice WPCP Station.
- Increased heavy vehicle (dump truck) activity along Baseline Road and Rundle Road north of Baseline Road.

Figure 3-1 View from Crago Road Looking West at the New South Service Road Construction Area

Figure 3-2 View of South Service Road Realignment Construction (Looking North from the DYEC)

Figure 3-3 View from Baseline Road Looking Southwest at Highway 418 Construction Activities

4.0 SUMMARY OF AMBIENT MEASUREMENTS

The following sections provide summaries of the validated data and the validation done 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 July to September 2016 period are presented in **Table 4-1**.

Table 4-1 Summary of Hourly Meteorological Measurements – July to September 2016

Parameter		Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)	Units
Temperature	Maximum	32.5	33.6	C
	Minimum	6.3	4.9	C
	Mean (July)	21.3	21.4	C
	Mean (August)	22.5	22.2	C
	Mean (September)	18.5	17.8	C
	Mean (Period)	20.8	20.5	C
	Standard Deviation	3.9	4.7	C
Rainfall	Maximum	15.6	20.3	mm
	Minimum	0.0	0.0	mm
	Mean (July)	0.04	0.06	mm
	Mean (August)	0.08	0.09	mm
	Mean (September)	0.06	0.05	mm
	Mean (Period)	0.06	0.07	mm
	Standard Deviation	0.59	0.69	mm
Relative Humidity	Maximum	95.1	97.7	%
	Minimum	27.9	27.3	%
	Mean (July)	67.8	70.0	%
	Mean (August)	73.4	75.8	%
	Mean (September)	70.4	74.9	%
	Mean (Period)	70.5	73.6	%
	Standard Deviation	13.3	15.3	%

Table 4-1 Summary of Hourly Meteorological Measurements – July to September 2016

Parameter		Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)	Units
Pressure [A]	Maximum	30.1	-	in Hg
	Minimum	29.3	-	in Hg
	Mean (July)	29.6	-	in Hg
	Mean (August)	29.7	-	in Hg
	Mean (September)	29.8	-	in Hg
	Mean (Period)	29.7	-	in Hg
	Standard Deviation	0.2	-	in Hg
Wind Speed [B]	Maximum	36.5	27.9	km/hr
	Minimum	0.2	0.0	km/hr
	Mean (July)	9.9	9.2	km/hr
	Mean (August)	9.4	7.9	km/hr
	Mean (September)	11.2	8.3	km/hr
	Mean (Period)	10.1	8.5	km/hr
	Standard Deviation	5.8	5.2	km/hr

Notes:

A. Pressure is not measured at the Rundle Road Station.

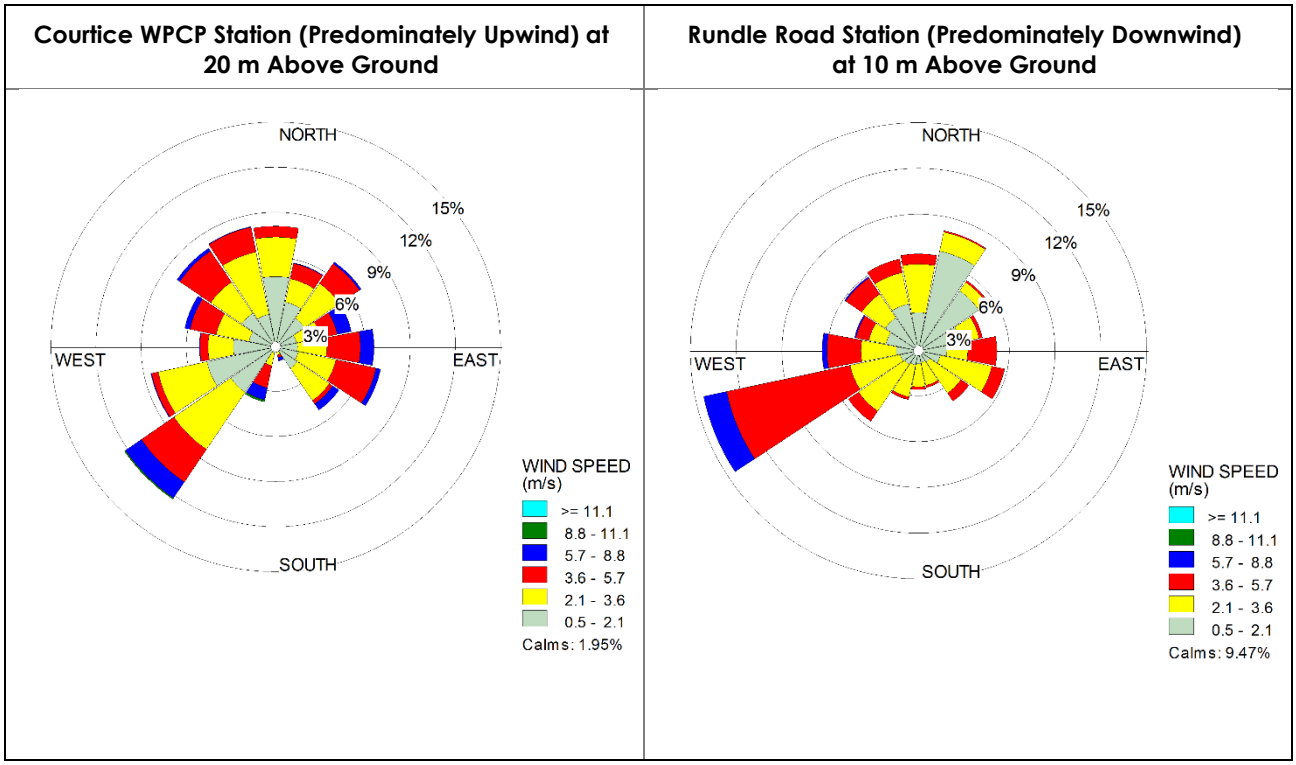
B. Wind speed at Courtice WPCP Station measured at 20 m and at Rundle Road Station at 10 m.

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 directions. Wind contribution from the south was low. Higher wind speeds occurred from southwesterly and easterly directions, and lower wind speeds from northerly directions.

At the Rundle Road Station, the wind rose over the three-month period showed winds predominantly occurring from west-southwesterly and north-northeasterly directions. Higher wind speeds are noted occurring from the west-southwest.

Figure 4-1 Wind Roses for July to September 2016



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 July to September 2016.

Nitric oxide (NO) has no regulatory criteria as discussed in Section 4.2.2 below. There are both hourly and daily AAQCs as well as O. Reg. 419/05 Schedule 3 Standards for NO_X which are based on health effects of NO_2. As specified in the MOECC's listing of AAQCs (MOECC, 2012a) the AAQC were compared to measured NO_2 concentrations in this report. However, as per the current April 2012 version of O. Reg. 419/05 Summary of Standards and Guidelines, the Schedule 3 Standard for NO_X (MOECC, 2012b) was compared to the monitored NO_X levels.

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 – July to September 2016

Pollutant	Averaging Period	AAQC / Schedule 3 / HHRA Health-Based Criteria			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	29.5	82.5	30.7	81.0
				Minimum	0.0	0.0	0.0	0.0
				Mean (July)	1.3	3.4	1.4	3.7
				Mean (August)	1.0	2.8	1.6	4.2
				Mean (September)	2.6	7.0	0.5	1.2
				Mean (Period)	1.6	4.3	1.2	3.1
				Standard Deviation	2.8	7.7	1.8	4.8
				# of Exceedances	0	0	0	0
	24	100	275	Maximum	8.2	22.6	6.2	16.3
				Minimum	0.1	0.2	0.0	0.0
				Mean (July)	1.3	3.5	1.4	3.7
				Mean (August)	1.0	2.8	1.6	4.3
				Mean (September)	2.6	6.9	0.4	1.2
				Mean (Period)	1.6	4.4	1.2	3.1
				Standard Deviation	1.6	4.3	1.2	3.1
				# of Exceedances	0	0	0	0

Table 4-2 Summary of Ambient CAC Monitoring Data – July to September 2016

Pollutant	Averaging Period	AAQC / Schedule 3 / HHRA Health-Based Criteria			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	-	16.8	-	43.0
				Minimum	-	0.5	-	1.0
				Mean (July)	-	6.9	-	8.5
				Mean (August)	-	6.2	-	9.4
				Mean (September)	-	4.6	-	11.9
				Mean (Period)	-	5.9	-	9.9
				Standard Deviation	-	3.1	-	6.4
				# of Exceedances	-	N/A	-	N/A
NO_2	1	200 [B]	400 [B]	Maximum	36.4	70.0	25.9	48.5
				Minimum	0.0	0.0	0.0	0.0
				Mean (July)	5.0	9.5	4.8	9.0
				Mean (August)	4.9	9.4	3.6	6.8
				Mean (September)	4.6	8.9	2.9	5.6
				Mean (Period)	4.9	9.3	3.8	7.1
				Standard Deviation	5.3	10.1	3.4	6.4
				# of Exceedances	0	0	0	0
	24	100 [B]	200 [B]	Maximum	12.3	23.8	10.1	19.0
				Minimum	0.4	0.8	0.0	0.0
				Mean (July)	5.0	9.5	4.8	9.1
				Mean (August)	5.0	9.5	3.6	6.8

Table 4-2 Summary of Ambient CAC Monitoring Data – July to September 2016

Pollutant	Averaging Period	AAQC / Schedule 3 / HHRA Health-Based Criteria			Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		ppb	µg/m³		Concentration (ppbv)	Concentration (µg/m³)	Concentration (ppbv)	Concentration (µg/m³)
				Mean (September)	4.7	9.0	2.9	5.5
				Mean (Period)	4.9	9.4	3.8	7.2
				Standard Deviation	2.5	4.8	2.1	4.0
				# of Exceedances	0	0	0	0
NO[C]	1	NA	NA	Maximum	56.3	71.8	25.9	32.8
				Minimum	0.0	0.0	0.0	0.0
				Mean (July)	2.2	2.7	1.2	1.5
				Mean (August)	2.5	3.2	1.2	1.5
				Mean (September)	2.5	3.2	1.8	2.2
				Mean (Period)	2.4	3.0	1.4	1.7
				Standard Deviation	5.2	6.6	2.0	2.4
				# of Exceedances	N/A	N/A	N/A	N/A
	24	NA	NA	Maximum	14.1	18.0	3.9	4.9
				Minimum	0.5	0.5	0.1	0.2
				Mean (July)	2.2	2.7	1.2	1.5
				Mean (August)	2.5	3.1	1.2	1.5
				Mean (September)	2.5	3.2	1.7	2.2
				Mean (Period)	2.4	3.0	1.4	1.7
				Standard Deviation	2.3	2.9	0.8	1.0
				# of Exceedances	N/A	N/A	N/A	N/A

Table 4-2 Summary of Ambient CAC Monitoring Data – July to September 2016

Pollutant	Averaging Period	AAQC / Schedule 3 / HHRA Health-Based Criteria			Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		ppb	µg/m³		Concentration (ppbv)	Concentration (µg/m³)	Concentration (ppbv)	Concentration (µg/m³)
NO_X	1	200 [B]	400 [B]	Maximum	69.0	135.0	37.7	73.3
				Minimum	0.0	0.0	0.0	0.0
				Mean (July)	7.1	13.5	5.9	11.1
				Mean (August)	7.4	14.0	4.6	8.8
				Mean (September)	7.0	13.5	4.4	8.4
				Mean (Period)	7.1	13.7	5.0	9.4
				Standard Deviation	9.2	17.8	4.7	8.9
				# of Exceedances	0	0	0	0
	24	100 [B]	200 [B]	Maximum	22.3	43.5	12.2	23.7
				Minimum	0.7	1.3	0.1	0.2
				Mean (July)	7.1	13.6	6.0	11.3
				Mean (August)	7.4	14.1	4.6	8.8
				Mean (September)	7.1	13.7	4.4	8.4
				Mean (Period)	7.2	13.8	5.0	9.5
				Standard Deviation	4.3	8.4	2.6	4.9
				# of Exceedances	0	0	0	0

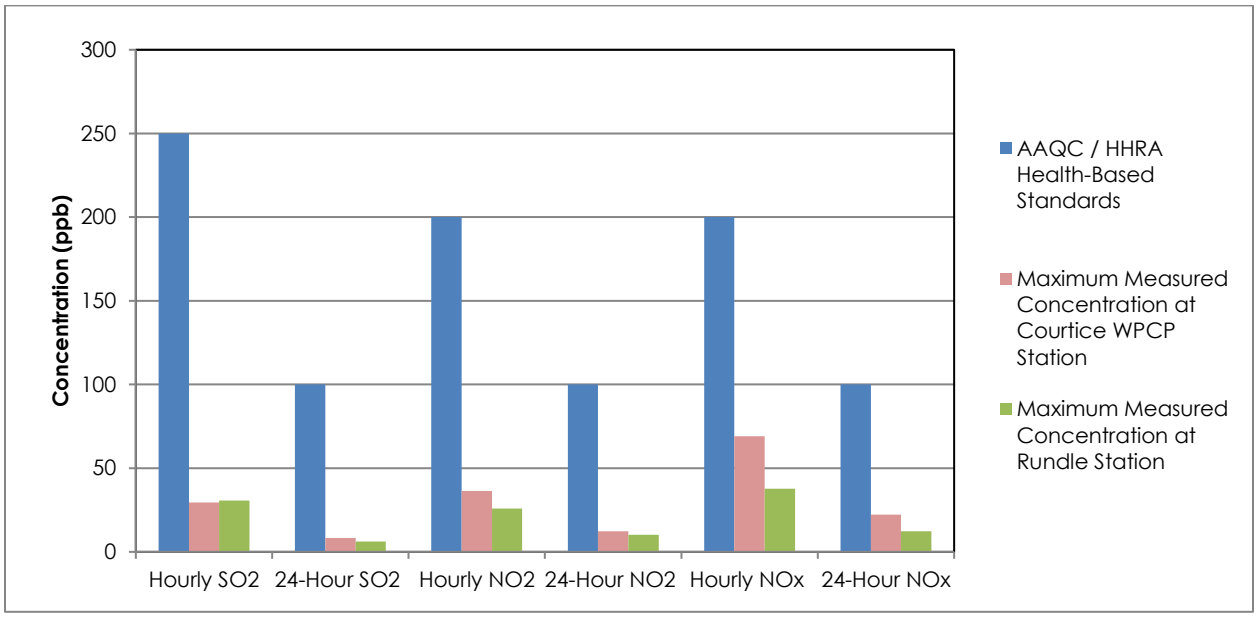
Notes:

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. As per current version (April 2012) of O. Reg. 419/05 Summary of Standards and Guidelines, the air standard for NO_X is compared to a monitored NO_X concentration, although the O. Reg. 419/05 Schedule 3 Standard for NO_X is based on health effects of NO_2.

C. NO has no regulatory criteria.

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



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

4.2.1 Sulphur Dioxide (SO_2)

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

The maximum hourly and 24-hour average SO_2 concentrations measured at the Courtice WPCP Station during July to September 2016 were 29.5 and 8.2 ppb (82.5 and 22.6 µg/m^3) respectively, which are 11.8% and 8.2% 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 30.7 and 6.2 ppb (81 and 16.3 µg/m^3) respectively, which are 12.3% and 6.2% of the applicable 1-hour and 24-hour Ontario AAQCs.

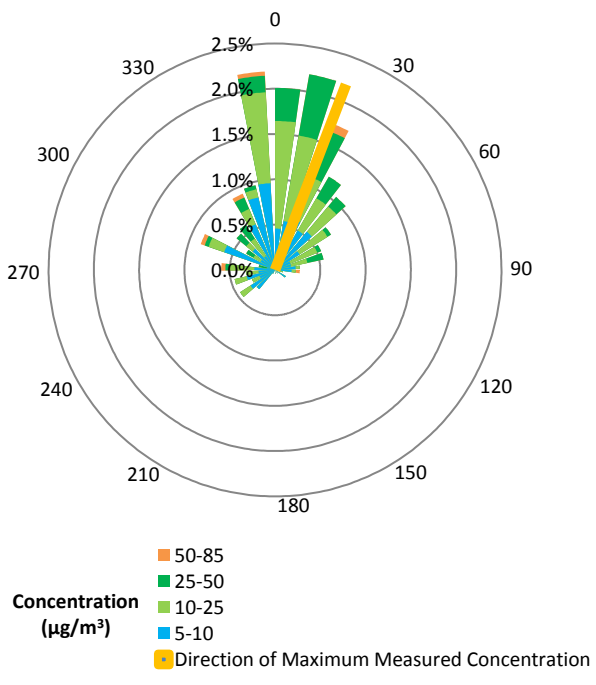
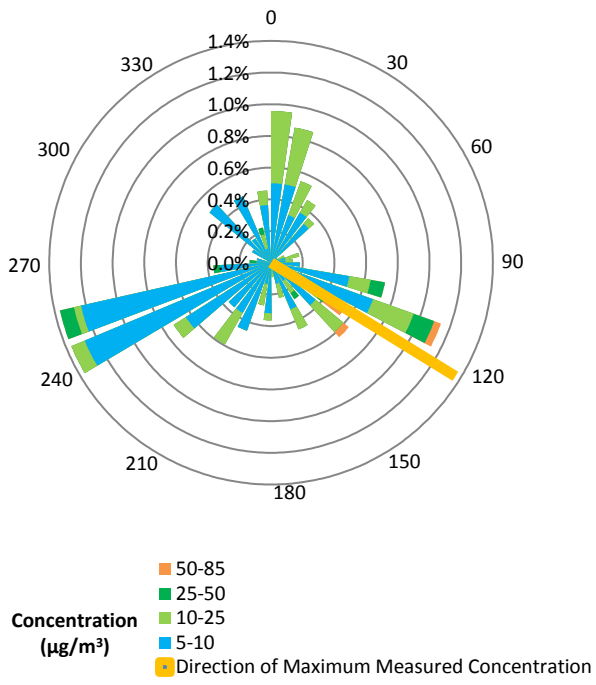
Pollution roses of hourly average SO_2 concentrations measured at the Courtice WPCP Station and Rundle Road Station are presented in **Figure 4-3**. The pollution rose plots present measured hourly average contaminant concentrations versus measured wind direction (over 10° wind sectors). Concentrations less than 5 µg/m^3, which account for 80% of the measurements at the Courtice WPCP and 83% 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 northerly to northeasterly directions. For the Rundle Road Station, higher hourly concentrations occurred for southeasterly and west-southwesterly winds.

The maximum hourly SO_2 concentrations measured at the Courtice WPCP and Rundle Road Stations occurred on 25-Sept at 04:00 and 11-July at 13:00 and were similar at 29.5 and 30.7 ppb, respectively. The highest measured concentration at the Courtice WPCP Station occurred for winds blowing from the north-northeast, for which Highway 401, a CN railroad and Highway 418 construction activities were upwind. The maximum measured concentration at the Rundle Road Station occurred for southeasterly winds for which the St. Mary's Cement Facility and a CP railroad are upwind.

The maximum 24-hour average SO_2 concentrations at the Courtice WPCP and Rundle Road Stations were 8.2 and 6.2 ppb and occurred on 24-Sept and 27-July, respectively. The wind directions during the measurements at the Courtice WPCP and Rundle Road Stations were from the north-northeast and northwest respectively. Highway 401, a CN railroad and Highway 418 construction activities were upwind of the Courtice WPCP Station during this period, while for the Rundle Road Station measurement, agricultural lands and Highway 418 construction activities were generally upwind of the station in this wind direction.

Figure 4-3 Pollution Roses of Measured Hourly Average SO_2 Concentrations – July to September 2016

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 (as per MOECC 2012a). However, as per the current April 2012 version of O. Reg. 419/05 Summary of Standards and Guidelines, the Schedule 3 NO_X criteria were also compared to the monitored NO_X concentrations (see Section 4.2.3 below).

Data summaries are presented in **Appendix C** for nitrogen dioxide for each station and month as well as time history plots of the hourly and 24-hour average NO_2 concentrations. For the hourly and 24-hour averages, the Ontario AAQCs of 200 ppb and 100 ppb (400 µg/m^3 and 200 µg/m^3) are shown with blue lines on the respective 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 36.4 and 12.3 ppb (70 and 23.8 µg/m^3) respectively, which are 18% and 12.3% 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 25.9 and 10.1 ppb (48.5 and 19 µg/m^3), which are 13% and 10.1% 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 20 µg/m^3, which account for 86% of the measurements at the Courtice WPCP Station and 94% at the Rundle Road Station, have been removed from the plots.

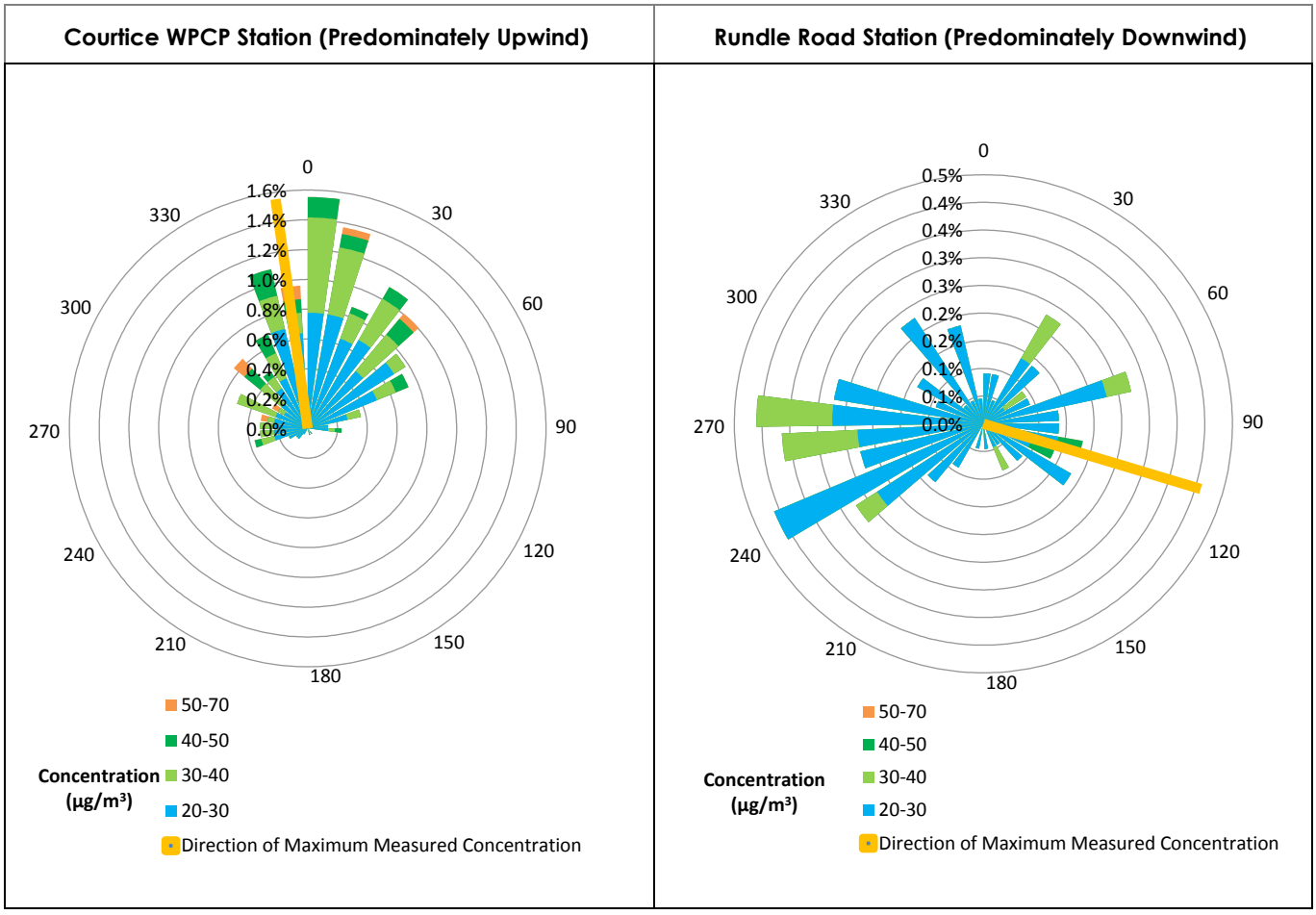
The measured hourly average concentrations at the Courtice WPCP Station were higher for winds from northwesterly to northeasterly directions. For the Rundle Road Station, higher measured hourly average concentrations occurred for winds blowing from the west and east-southeast.

The maximum measured hourly average NO_2 concentrations at the Courtice WPCP and Rundle Road Stations were 36.4 and 25.9 ppb on 20-July at 21:00 and 12-July at 18:00 respectively. For these measurements, winds at the Courtice WPCP and Rundle Road Stations were from the north and east-southeast, respectively. During these periods, Highway 401, the CN Railroad and Highway 418 construction activities were upwind of the Courtice WPCP Station while the St. Mary's Cement facility and a CP Railroad were upwind of the Rundle Road Station. The

maximum measured hourly average NO_2 concentration at the MOECC Oshawa Station during this period was 26 ppb which is comparable to the Courtice WPCP Station measurement.

The maximum measured 24-hour average NO_2 concentrations at the Courtice WPCP and Rundle Road Stations were 12.3 and 10.1 ppb on 21-July and 13-July. The wind direction at the Courtice WPCP Station during this measurement was from the west for which agricultural lands were upwind, while at the Rundle Road Station, winds were from the east for which agricultural and residential areas were upwind. The maximum measured 24-hour average NO_2 concentration at the MOECC Oshawa Station during this quarter was 13.4 ppb which is comparable to the Courtice WPCP and Rundle Road Station measurements.

Figure 4-4 Pollution Roses of Measured Hourly Average NO_2 Concentrations – July to September 2016



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. For the hourly and 24-hour averages, the O. Reg. 419/05 Schedule 3 Standards of 200 ppb and 100 ppb (400 µg/m^3 and 200 µg/m^3) are shown with blue lines on the respective plot. As shown in these figures, the maximum measured ambient hourly and 24-hour average NO_X concentrations at the Courtice WPCP Station were below the Ontario AAQCs during this quarter. The measured concentrations at the Rundle Road Station were also well below the Ontario AAQCs.

As shown in **Table 4-2**, the maximum hourly average NO_X concentration measured at the Courtice WPCP Station was 69 ppb (135 µg/m^3), which is 35% of the 1-hour Ontario AAQCs. The 24-hour average NO_X concentration measured at this station was 22.3 ppb (43.5 µg/m^3), which is 22.3% of the applicable 24-hour Ontario AAQCs. At the Rundle Road Station, the maximum hourly and 24-hour average concentrations measured during this quarter were 37.7 and 12.2 ppb (73.3 and 23.7 µg/m^3), which are 19% and 12.2% of the Ontario AAQCs.

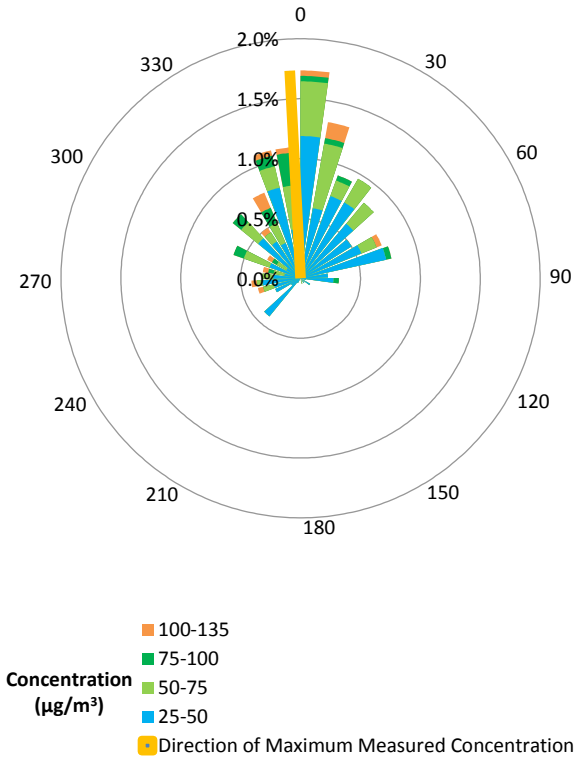
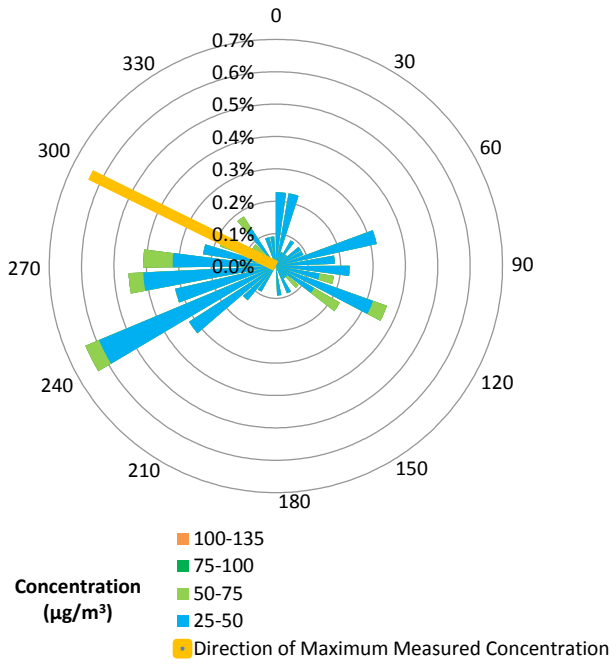
Pollution roses of measured hourly average NO_X concentrations for the Courtice WPCP Station and the Rundle Road Station are presented in **Figure 4-5**. Concentrations less than 25 µg/m^3, which account for 84% of the measurements at the Courtice WPCP and 93% at the Rundle Road Station, have been removed from the plots to allow the distribution of maximum levels to be more clearly shown in the figures.

In **Figure 4-5**, higher measured hourly average NO_X concentrations at the Courtice WPCP Station occurred for winds blowing from westerly to northerly directions. At the Rundle Road Station, higher measured hourly average concentrations occurred for west-southwesterly to northwesterly and east-southeasterly wind directions.

The maximum measured hourly average NOx concentrations at the Courtice WPCP and Rundle Road Stations were 69 and 37.7 ppb measured on 23-Aug at 06:00 and 21-Sept at 07:00 respectively. Winds at the Courtice WPCP Station during this measurement were blowing from the north for which Highway 401, a CN Railroad and Highway 418 construction activities were upwind. Winds at the Rundle Road Station during this measurement were from the northwest for which agricultural lands and Highway 418 construction activities were upwind.

The maximum measured 24-hour average NOx concentrations at the Courtice WPCP and Rundle Road Stations of 22.3 and 12.2 ppb were observed on 23-Aug and 27-Sept respectively. Wind directions during the period at the Courtice WPCP Station were from the northwest while the Rundle Road Station experienced winds blowing from the west. Highway 401, the CN railroad and agricultural lands were upwind of the Courtice WPCP Station, while Highway 418 construction activities, agricultural and commercial lands were upwind of the Rundle Road Station.

Figure 4-5 Pollution Roses of Measured Hourly Average NO_X Concentrations – July to September 2016

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

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

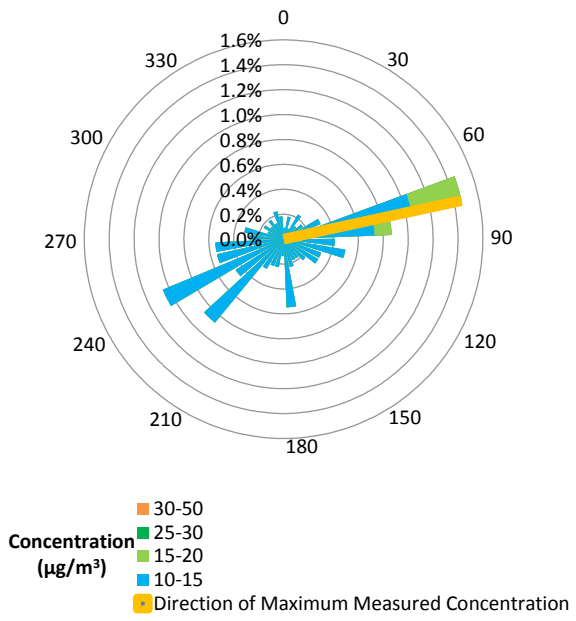
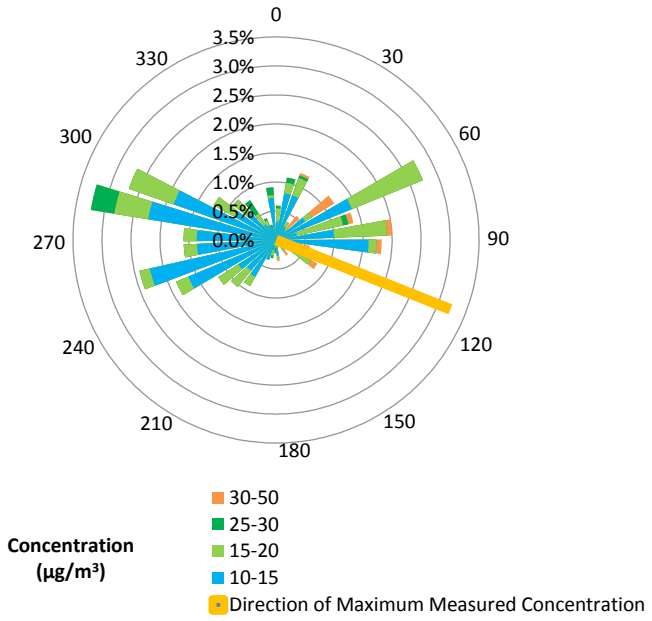
Data summaries and time history plots of measured 24-hour average concentrations are presented in **Appendix E** for $PM_{2.5}$ for the Courtice WPCP and Rundle Road Stations. The maximum measured 24-hour average $PM_{2.5}$ concentrations at the Courtice WPCP and the Rundle Road Stations were 16.8 µg/m^3 and 43 µg/m^3 during this quarter. It should be noted that since an exceedance of the criteria for $PM_{2.5}$ requires the average of the 98th percentile levels in each of three consecutive calendar years to be greater than 28 µg/m^3 (CAAQS) or 30 µg/m^3 (HHRA criteria) whereas the $PM_{2.5}$ measurement period at both stations in the report was three months, there is insufficient data in a quarter to determine with any certainty if exceedances of the CAAQS/HHRA criteria would occur. Discussion of $PM_{2.5}$ measurements with respect to the CAAQS/HHRA criteria will be provided in the 2016 annual report, at which time sufficient data will have been collected to make comparisons.

Pollution roses showing the measured 24-hour average ambient $PM_{2.5}$ concentrations versus direction are shown in **Figure 4-6** for both monitoring stations. Concentrations less than 10 µg/m^3, which account for 88% of the measurements at the Courtice WPCP and 57% 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 east-northeasterly winds for the Courtice WPCP Station. For the Rundle Road Station, higher measured 24-hour average concentrations occurred for northeasterly to southeasterly winds.

The maximum measured 24-hour average $PM_{2.5}$ concentrations at the Courtice WPCP, and Rundle Road Stations occurred on 7-Sept and 17-Sept and were 16.8 and 43 µg/m^3 respectively. The maximum measured concentration at the Courtice WPCP Station occurred when winds were blowing from the east-northeast for which the DYEC, Courtice WPCP and a CN Railroad were upwind. The maximum measured concentration at the Rundle Road Station occurred when winds were from the southeast for which the St. Mary's Cement Facility and a CP Railroad were upwind. The maximum measured 24-hour average $PM_{2.5}$ concentration at the MOECC Oshawa Station during this quarter was 1.8 µg/m^3, which is comparable to the Courtice WPCP Station measurement.

Figure 4-6 Pollution Roses of Measured 24-Hour Average $PM_{2.5}$ Concentrations – July to September 2016

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.

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

Contaminant	Units	MOECC Standard	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	58	15	0	55	19	0	61	20	0
Total Mercury (Hg)	µg/m³	2	2	2.00E-05	6.04E-06 [A]	0	1.96E-05	6.04E-06 [A]	0	2.49E-05	5.85E-06 [A]	0
Aluminum (Al)	µg/m³	4.8	-	2.65E-01	8.63E-02	0	3.77E-01	6.90E-02	0	7.07E-01	8.54E-02	0
Antimony (Sb)	µg/m³	25	25	3.34E-03 [A]	2.94E-03 [A]	0	3.36E-03 [A]	3.02E-03 [A]	0	3.23E-03 [A]	2.92E-03 [A]	0
Arsenic (As)	µg/m³	0.3	0.3	2.00E-03 [A]	1.76E-03 [A]	0	2.01E-03 [A]	1.81E-03 [A]	0	1.94E-03 [A]	1.75E-03 [A]	0
Barium (Ba)	µg/m³	10	10	1.88E-02	5.17E-03	0	1.74E-02	6.13E-03	0	2.20E-02	5.67E-03	0
Beryllium (Be)	µg/m³	0.01	0.01	3.34E-04 [A]	2.94E-04 [A]	0	3.36E-04 [A]	3.02E-04 [A]	0	3.23E-04 [A]	2.92E-04 [A]	0
Bismuth (Bi)	µg/m³	-	-	2.00E-03 [A]	1.76E-03 [A]	-	2.01E-03 [A]	1.81E-03 [A]	-	1.94E-03 [A]	1.75E-03 [A]	-
Boron (B)	µg/m³	120	-	2.00E-03 [A]	1.76E-03 [A]	0	4.51E-03	1.81E-03 [A]	0	4.84E-03	1.75E-03 [A]	0
Cadmium (Cd)	µg/m³	0.025	0.025	6.68E-04 [A]	5.88E-04 [A]	0	6.72E-04 [A]	6.04E-04 [A]	0	6.46E-04 [A]	5.85E-04 [A]	0
Chromium (Cr)	µg/m³	0.5	-	3.45E-03	1.47E-03 [A]	0	4.81E-03	1.51E-03 [A]	0	4.92E-03	1.46E-03 [A]	0
Cobalt (Co)	µg/m³	0.1	0.1	6.68E-04 [A]	5.88E-04 [A]	0	2.78E-03	6.04E-04 [A]	0	6.46E-04 [A]	5.85E-04 [A]	0
Copper (Cu)	µg/m³	50	-	7.07E-02	2.10E-02	0	9.82E-02	4.13E-02	0	6.73E-02	2.28E-02	0
Iron (Fe)	µg/m³	4	-	9.09E-01	1.57E-01	0	1.81E+00	2.60E-01	0	1.29E+00	1.88E-01	0
Lead (Pb)	µg/m³	0.5	0.5	3.94E-03	8.89E-04 [A]	0	6.46E-03	9.05E-04 [A]	0	7.45E-03	9.14E-04 [A]	0
Magnesium (Mg)	µg/m³	-	-	4.47E-01	1.00E-01	-	5.58E-01	9.40E-02	-	5.97E-01	1.14E-01	-
Manganese (Mn)	µg/m³	0.4	-	2.92E-02	4.96E-03	0	3.55E-02	6.65E-03	0	3.93E-02	6.76E-03	0
Molybdenum (Mo)	µg/m³	120	-	1.88E-03	8.89E-04 [A]	0	3.59E-03	9.09E-04 [A]	0	1.99E-03	8.77E-04 [A]	0
Nickel (Ni)	µg/m³	0.2	-	1.00E-03 [A]	8.82E-04 [A]	0	1.26E-02	9.09E-04 [A]	0	2.18E-03	8.77E-04 [A]	0
Phosphorus (P)	µg/m³	-	-	7.03E-02	2.33E-02	-	7.96E-02	2.68E-02	-	9.72E-02	2.83E-02	-
Selenium (Se)	µg/m³	10	10	3.34E-03 [A]	2.94E-03 [A]	0	3.36E-03 [A]	3.02E-03 [A]	0	3.23E-03 [A]	2.92E-03 [A]	0
Silver (Ag)	µg/m³	1	1	1.67E-03 [A]	1.47E-03 [A]	0	1.68E-03 [A]	1.51E-03 [A]	0	1.61E-03 [A]	1.46E-03 [A]	0
Strontium (Sr)	µg/m³	120	-	1.73E-02	2.91E-03	0	1.12E-02	1.81E-03	0	1.07E-02	2.57E-03	0
Thallium (Tl)	µg/m³	-	-	3.34E-03 [A]	2.94E-03 [A]	-	3.36E-03 [A]	3.02E-03 [A]	-	3.23E-03 [A]	2.92E-03 [A]	-
Tin (Sn)	µg/m³	10	10	3.34E-03 [A]	2.94E-03 [A]	0	4.12E-02	3.02E-03 [A]	0	3.23E-03 [A]	2.92E-03 [A]	0
Titanium (Ti)	µg/m³	120	-	1.34E-02	3.10E-03 [A]	0	1.81E-02	3.14E-03 [A]	0	4.63E-02	2.92E-03 [A]	0
Vanadium (V)	µg/m³	2	1	1.67E-03 [A]	1.47E-03 [A]	0	1.68E-03 [A]	1.51E-03 [A]	0	1.61E-03 [A]	1.46E-03 [A]	0
Zinc (Zn)	µg/m³	120	-	4.14E-02	1.31E-02	0	4.53E-02	1.31E-02	0	6.29E-02	1.62E-02	0
Zirconium (Zr)	µg/m³	20	-	1.67E-03 [A]	1.47E-03 [A]	0	1.68E-03 [A]	1.51E-03 [A]	0	1.61E-03 [A]	1.46E-03 [A]	0
Total Uranium (U)	µg/m³	1.5	-	1.50E-04 [A]	1.32E-04 [A]	0	1.51E-04 [A]	1.36E-04 [A]	0	1.45E-04 [A]	1.32E-04 [A]	0

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

4.4 AMBIENT PAH CONCENTRATIONS

A summary of the maximum and minimum ambient PAH concentrations (for a daily averaging period) are presented in **Table 4-4**. 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 well below their applicable 24-hour criteria, with the exception of two (2) measurements of benzo(a)pyrene (B(a)P) collected at the Rundle Road Station.

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% - 6220% 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% - 2920% 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.

Benzo(a)pyrene (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 samples collected at the Rundle Road Station on September 9 and September 21, 2016 exceeded the Ontario AAQC by 28% and 42%, 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. A summary of the wind direction and potential source contributions for this measurement is 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.

Table 4-4 Summary of Measured Ambient PAH 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
Benzo(a)pyrene	ng/m³	0.05 [A] 5 [B] 1.1 [C]	1	4.65E-02	6.69E-03 [F]	0 0 0	7.11E-02	5.18E-03 [F]	2 0 0
1-Methylnaphthalene	ng/m³	12,000	-	2.40E+01	4.31E+00	0	2.38E+02	2.33E+00	0
2-Methylnaphthalene	ng/m³	10,000	-	5.04E+01	7.39E+00	0	5.02E+02	3.75E+00	0
Acenaphthene	ng/m³	-	-	2.96E+01	5.00E+00	-	3.03E+02	1.42E+00	-
Acenaphthylene	ng/m³	3,500	-	1.08E-01 [F]	6.62E-02 [F]	0	3.32E+00	7.48E-02 [F]	0
Anthracene	ng/m³	200	-	5.11E-01	1.00E-01 [F]	0	7.54E+00	1.09E-01 [F]	0
Benzo(a)anthracene	ng/m³	-	-	1.08E-01 [F]	6.62E-02 [F]	-	1.09E-01 [F]	7.22E-02 [F]	-
Benzo(a)fluorene	ng/m³	-	-	2.17E-01 [F]	1.32E-01 [F]	-	3.75E-01	1.50E-01 [F]	-
Benzo(b)fluoranthene	ng/m³	-	-	1.08E-01 [F]	6.62E-02 [F]	-	1.09E-01 [F]	7.22E-02 [F]	-
Benzo(b)fluorene	ng/m³	-	-	2.17E-01 [F]	1.32E-01 [F]	-	2.18E-01 [F]	1.44E-01 [F]	-
Benzo(e)pyrene	ng/m³	-	-	2.17E-01 [F]	1.32E-01 [F]	-	2.18E-01 [F]	1.44E-01 [F]	-
Benzo(g,h,i)perylene	ng/m³	-	-	1.08E-01 [F]	6.62E-02 [F]	-	1.09E-01 [F]	7.22E-02 [F]	-
Benzo(k)fluoranthene	ng/m³	-	-	1.08E-01 [F]	6.62E-02 [F]	-	1.09E-01 [F]	7.22E-02 [F]	-
Biphenyl	ng/m³	-	-	1.11E+01	2.06E+00	-	1.26E+02	7.56E-01	-
Chrysene	ng/m³	-	-	1.08E-01 [F]	6.62E-02 [F]	-	1.09E-01 [F]	7.22E-02 [F]	-
Dibenz(a,h)anthracene [D]	ng/m³	-	-	1.08E-01 [F]	6.62E-02 [F]	-	1.09E-01 [F]	7.22E-02 [F]	-
Dibenzo(a,c) anthracene + Picene [D]	ng/m³	-	-	2.17E-01 [F]	1.32E-01 [F]	-	2.18E-01 [F]	1.44E-01 [F]	-
Fluoranthene	ng/m³	-	-	3.16E+00	1.19E+00	-	1.47E+01	8.73E-01	-

Table 4-4 Summary of Measured Ambient PAH 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
Indeno (1,2,3-cd)pyrene	ng/m³	-	-	1.08E-01 [F]	6.62E-02 [F]	-	1.09E-01 [F]	7.22E-02 [F]	-
Naphthalene	ng/m³	22,500	22,500	6.09E+01	1.27E+01	0	2.95E+02	7.86E+00	0
o-Terphenyl	ng/m³	-	-	2.17E-01 [F]	1.32E-01 [F]	-	2.18E-01 [F]	1.44E-01 [F]	-
Perylene	ng/m³	-	-	2.17E-01 [F]	1.32E-01 [F]	-	2.18E-01 [F]	1.44E-01 [F]	-
Phenanthrene	ng/m³	-	-	2.31E+01	5.86E+00	-	2.10E+02	2.87E+00	-
Pyrene	ng/m³	-	-	1.34E+00	4.74E-01	-	6.58E+00	3.75E-01	-
Tetralin	ng/m³	-	-	3.32E+00	8.54E-01	-	2.56E+00	1.18E+00	-
Total PAH [E]	ng/m³	-	-	2.09E+02	4.20E+01	-	1.71E+03	2.40E+01	-

Notes:

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 analysed PAH species.

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

Table 4-5 Source Contribution Analysis – Quarter 3 2016 B(a)P Exceedances

Date	Station	% above the MOECC B(a)P Criterion	Wind Direction (blowing from)	Potential Source Contributions
September 9, 2016	Rundle Road	28%	Northwest	Land use in this direction is mainly agricultural with some residences. Highway 418 construction activities were also occurring upwind of the Rundle Road Station during this period. Potential sources could be agricultural activities, a residence with a poorly controlled combustion source operating, construction vehicle exhaust, or land clearing associated with the construction activities.
September 21, 2016	Rundle Road	42%	Northwest	Land use in this direction is mainly agricultural with some residences. Highway 418 construction activities were also occurring upwind of the Rundle Road Station during this period. Potential sources could be agricultural activities, a residence with a poorly controlled combustion source operating, construction vehicle exhaust, or land clearing associated with the construction activities.

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 4-6 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			5.54E-03 [A]	3.75E-03 [A]		5.04E-03 [A]	4.03E-03 [A]	
1,2,3,7,8-Penta CDD	pg/m³			5.41E-03 [A]	4.55E-03 [A]		5.53E-03 [A]	4.17E-03 [A]	
1,2,3,4,7,8-Hexa CDD	pg/m³			5.27E-03 [A]	4.48E-03 [A]		5.67E-03 [A]	3.31E-03 [A]	
1,2,3,6,7,8-Hexa CDD	pg/m³			5.55E-03 [A]	4.62E-03 [A]		8.06E-03	4.12E-03 [A]	
1,2,3,7,8,9-Hexa CDD	pg/m³			5.12E-03 [A]	4.19E-03 [A]		7.77E-03	3.72E-03 [A]	
1,2,3,4,6,7,8-Hepta CDD	pg/m³			2.80E-02	1.04E-02		1.23E-01	8.29E-03 [A]	
Octa CDD	pg/m³			1.50E-01	4.44E-02		1.07E+00	4.35E-02	
Total Tetra CDD	pg/m³			2.56E-02 [A]	5.92E-03 [A]		3.06E-02 [A]	9.97E-03 [A]	
Total Penta CDD	pg/m³			1.85E-02 [A]	4.91E-03 [A]		2.33E-02 [A]	8.11E-03 [A]	
Total Hexa CDD	pg/m³			3.70E-02 [A]	1.32E-02 [A]		4.29E-02	2.30E-02 [A]	
Total Hepta CDD	pg/m³			6.73E-02	1.04E-02		4.89E-01	2.07E-02	
2,3,7,8-Tetra CDF **	pg/m³			5.20E-03 [A]	3.70E-03 [A]		1.41E-02	3.99E-03 [A]	
1,2,3,7,8-Penta CDF	pg/m³	-	-	5.00E-03 [A]	3.99E-03 [A]	N/A	8.73E-03 [A]	4.61E-03 [A]	N/A
2,3,4,7,8-Penta CDF	pg/m³			5.00E-03 [A]	3.99E-03 [A]		8.73E-03 [A]	4.61E-03 [A]	
1,2,3,4,7,8-Hexa CDF	pg/m³			4.86E-03 [A]	4.15E-03 [A]		1.01E-02	3.86E-03 [A]	
1,2,3,6,7,8-Hexa CDF	pg/m³			4.59E-03 [A]	3.88E-03 [A]		4.89E-03 [A]	3.72E-03 [A]	
2,3,4,6,7,8-Hexa CDF	pg/m³			5.13E-03 [A]	4.28E-03 [A]		5.47E-03 [A]	3.99E-03 [A]	
1,2,3,7,8,9-Hexa CDF	pg/m³			5.27E-03 [A]	4.55E-03 [A]		5.61E-03 [A]	4.25E-03 [A]	
1,2,3,4,6,7,8-Hepta CDF	pg/m³			1.33E-02	4.13E-03 [A]		3.22E-02	4.07E-03 [A]	
1,2,3,4,7,8,9-Hepta CDF	pg/m³			5.27E-03 [A]	4.15E-03 [A]		5.19E-03 [A]	3.17E-03 [A]	
Octa CDF	pg/m³			1.33E-02	4.70E-03 [A]		6.16E-02	4.46E-03 [A]	
Total Tetra CDF	pg/m³			6.41E-03 [A]	4.46E-03 [A]		1.41E-02	3.99E-03 [A]	
Total Penta CDF	pg/m³			9.82E-03	3.99E-03 [A]		1.15E-02	4.89E-03 [A]	
Total Hexa CDF	pg/m³			5.00E-03 [A]	4.15E-03 [A]		4.09E-02	4.80E-03 [A]	
Total Hepta CDF	pg/m³			2.31E-02	4.70E-03 [A]		9.04E-02	4.51E-03 [A]	
TOTAL TOXIC EQUIVALENCY [B]	pg TEQ/m³	0.1 1 [C]	-	1.63E-02	1.37E-02	0	1.77E-02	1.53E-02	0

Notes:

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 July to September 2016.

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 O. Reg. 419/05 Standards 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 well below their applicable Standard (as presented in **Table 2-3** in this report);
4. The maximum measured concentrations of all PAHs with MOECC air quality Standards were well below their applicable Standard shown in **Table 2-4,** with the exception of the 24-hour benzo(a)pyrene concentration in two samples measured at the Rundle Road Station which exceeded the applicable AAQC by 28% and 42%. 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; and,
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 monitoring period between July to September 2016, with the exception of benzo(a)pyrene. Furthermore, all measured levels of the monitored contaminants were below their applicable HHRA health-based criteria.

6.0 REFERENCES

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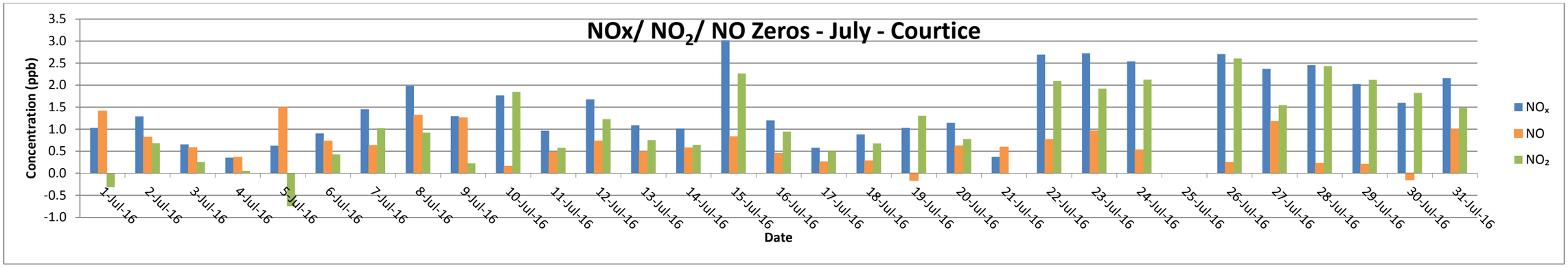
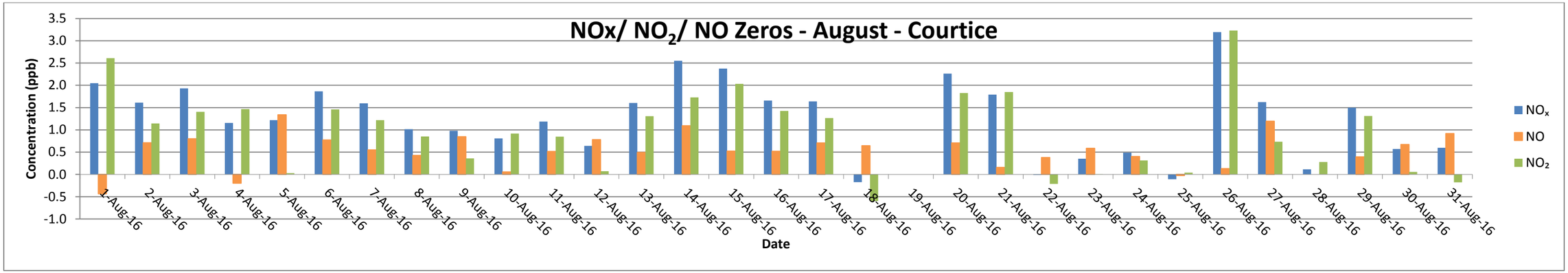
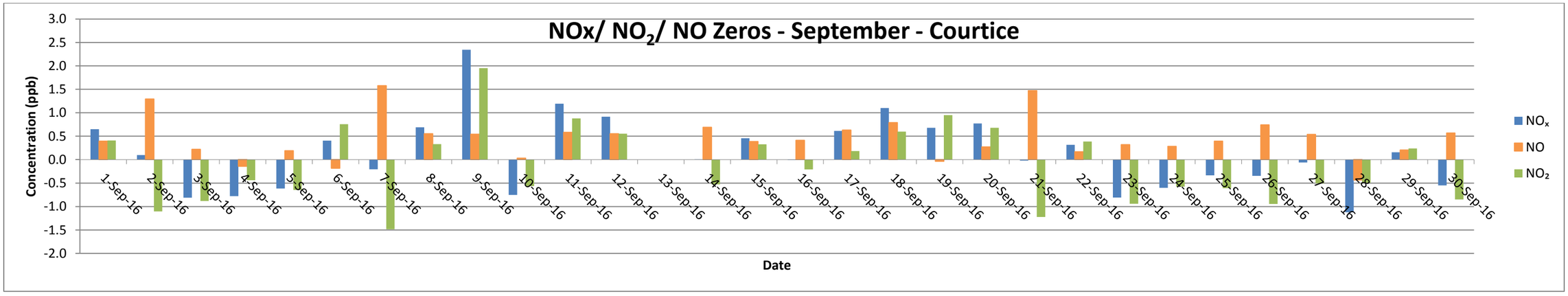
Appendix A SO_2 AND NO_X INSTRUMENT DAILY INTERNAL ZERO CALIBRATION SUMMARIES

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

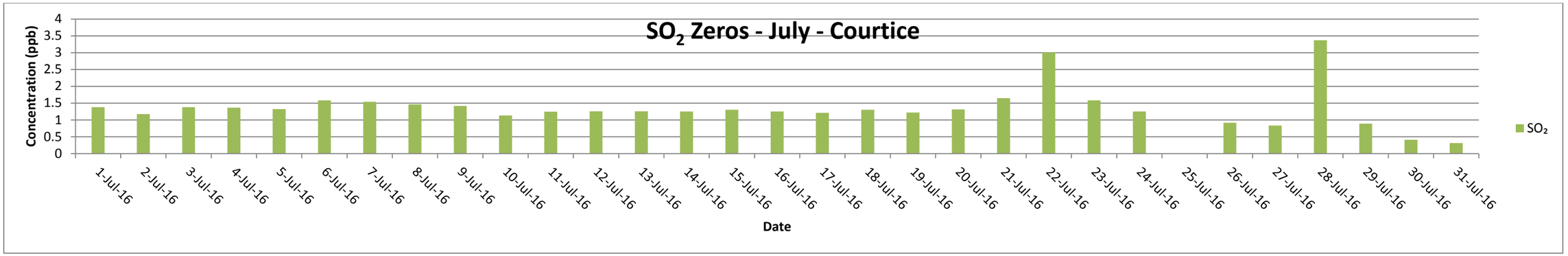


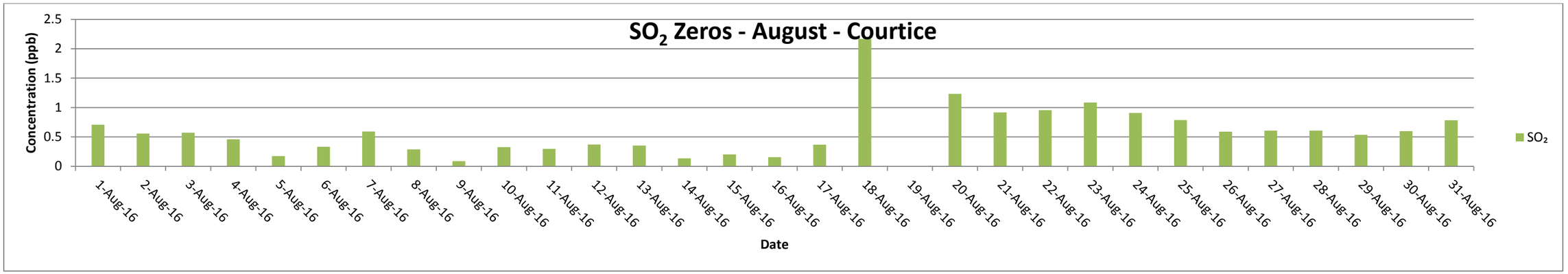


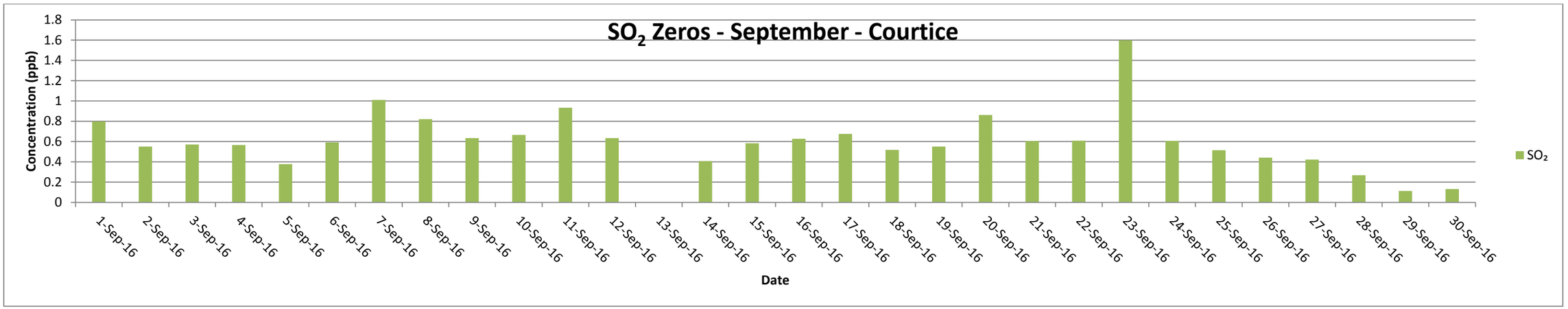


Note: Auto-calibrations occur every 25 hours

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

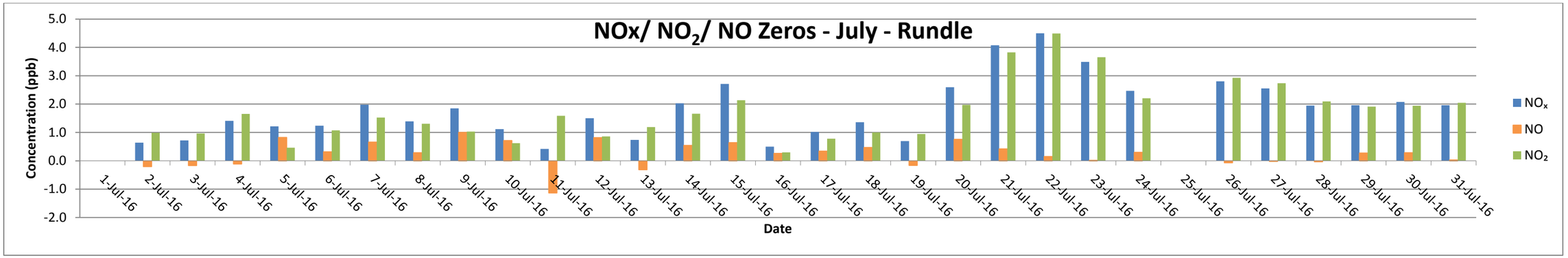


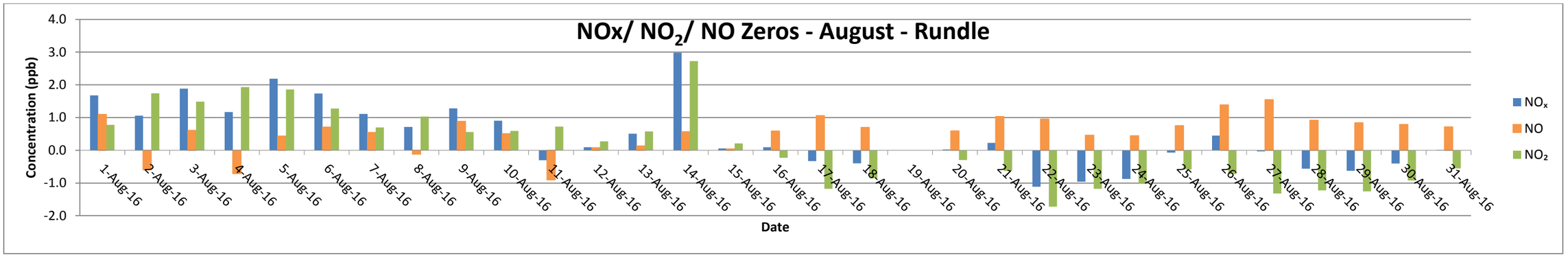


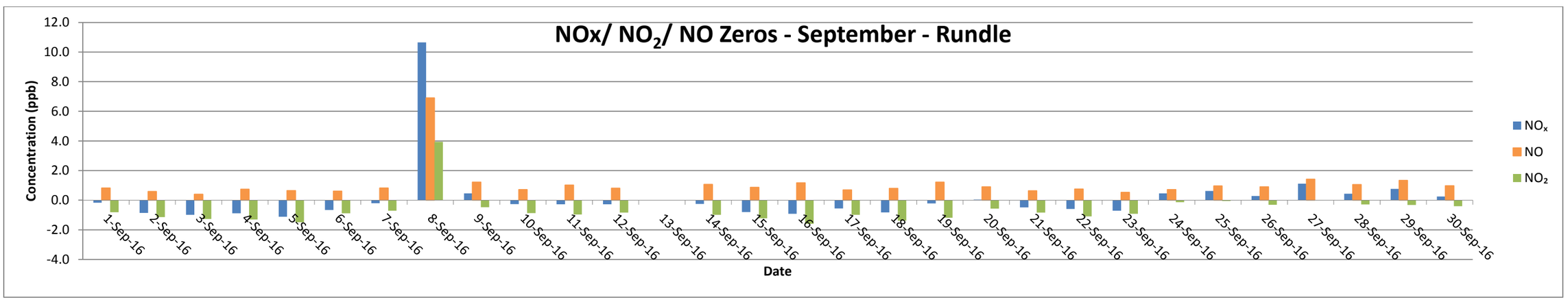


Note: Auto-calibrations occur every 25 hours.

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

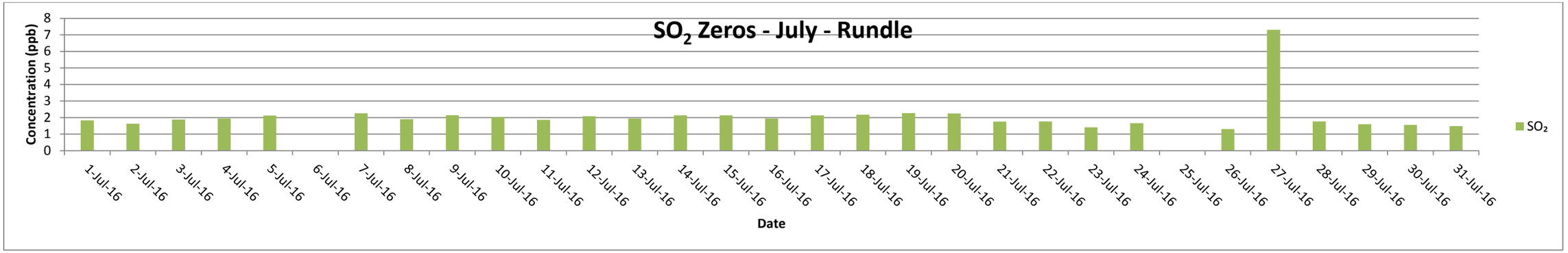


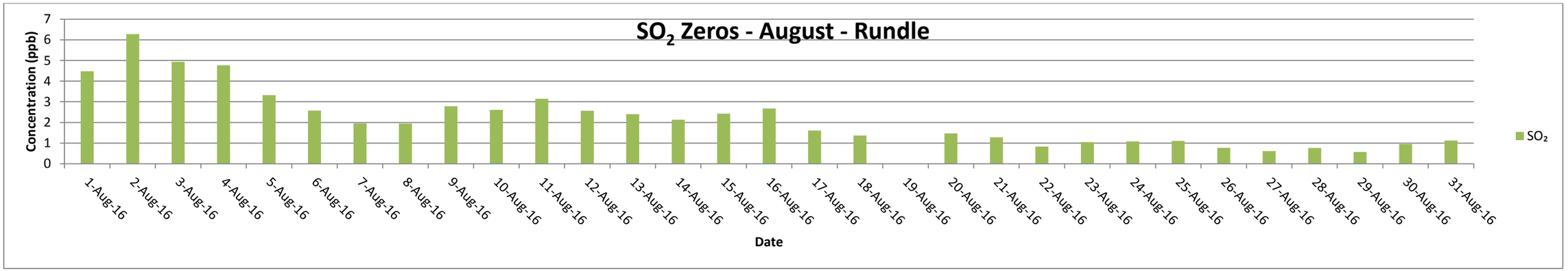


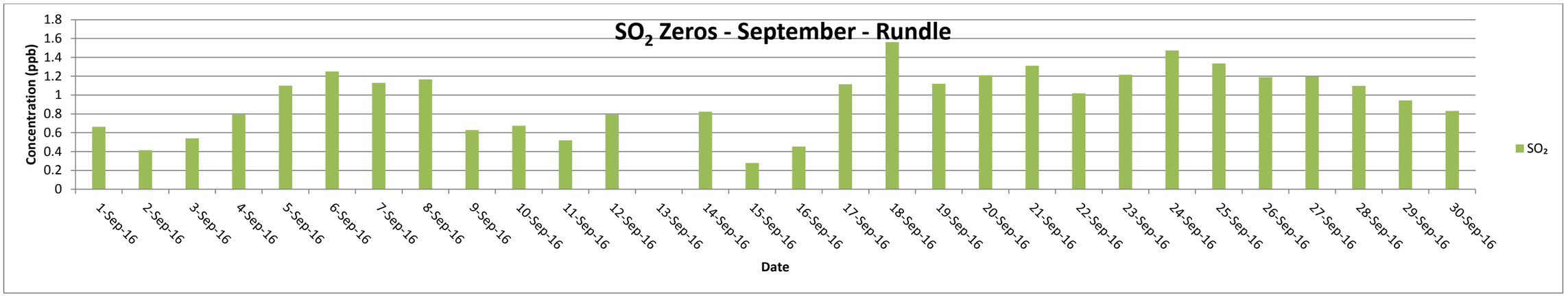


Note: Auto-calibrations occur every 25 hours

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







Note: Auto-calibrations occur every 25 hours

Appendix B SO_2 DATA SUMMARIES AND TIME HISTORY PLOTS

SO_2 - COURTICE
July 2016
(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	11.0	10.9	11.3	8.1	8.7	7.6	2.7	1.5	1.3	1.1	1.0	0.7	0.6	0.6	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	24	11.3	0.2	2.9	0	0
2	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	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	1.8	0.8	24	1.8	0.1	0.2	0	0
3	13.0	3.3	22.0	15.4	13.1	18.2	2.6	1.1	0.7	0.6	0.6	0.7	0.9	0.8	0.4	0.6	0.7	0.8	0.9	0.9	4.6	7.4	6.3	7.0	24	22.0	0.4	5.1	0	0
4	5.7	4.8	4.6	4.9	10.9	6.2	2.2	1.1	0.8	0.7	0.6	0.7	0.8	0.7	0.5	0.3	0.5	0.5	0.3	0.3	0.8	3.9	1.9	4.3	24	10.9	0.3	2.4	0	0
5	2.2	1.6	1.4	1.1	1.0	1.3	0.8	0.7	0.6	0.5	0.5	0.6	1.2	1.2	0.9	0.8	0.6	0.6	0.6	0.4	0.3	0.3	0.8	1.6	24	2.2	0.3	0.9	0	0
6	2.7	2.7	2.8	2.0	3.1	2.7	1.3	0.8	0.7	0.6	0.7	0.4	0.4	1.2	1.4	0.8	0.5	0.2	0.2	0.3	0.3	0.3	0.3	0.3	24	3.1	0.2	1.1	0	0
7	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	24	0.4	0.1	0.3	0	0
8	0.4	0.4	0.4	0.9	0.9	0.6	0.4	0.4	0.5	0.3	0.2	0.2	0.3	0.1	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.2	0.5	4.2	24	4.2	0.1	0.5	0	0
9	1.4	0.8	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.2	24	1.4	0.0	0.3	0	0
10	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.5	0.8	0.6	0.5	0.7	0.3	0.4	0.4	0.2	0.1	0.3	0.5	0.7	1.7	24	1.7	0.1	0.4	0	0
11	2.1	0.5	0.5	0.5	0.7	1.0	0.7	0.5	0.3	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.3	1.7	24	2.1	0.0	0.4	0	0
12	1.7	1.9	1.1	0.7	0.4	0.3	0.5	0.2	0.1	0.2	0.1	0.1	0.3	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0.1	0.3	0.3	0.4	24	1.9	0.1	0.4	0	0
13	0.5	0.6	0.4	0.4	0.6	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.0	0.2	0.1	0.2	0.0	0.2	0.1	0.2	0.1	0.2	0.2	0.1	24	0.6	0.0	0.2	0	0
14	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	24	0.3	0.1	0.1	0	0
15	0.1	0.1	0.0	0.1	0.2	0.1	0.4	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.3	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	24	0.4	0.0	0.1	0	0
16	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.6	2.0	2.1	1.6	24	2.1	0.0	0.3	0	0
17	3.5	2.1	2.5	2.4	2.2	2.6	1.5	0.7	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	24	3.5	0.1	0.8	0	0
18	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.1	24	0.2	0.0	0.1	0	0
19	0.1	0.0	0.0	0.1	0.5	0.6	0.5	0.2	0.2	0.3	0.3	0.7	1.1	0.5	0.2	0.7	0.7	0.1	0.1	0.2	0.2	0.2	0.4	0.8	24	1.1	0.0	0.4	0	0
20	4.4	7.9	13.4	11.7	11.8	17.0	1.9	1.0	0.7	0.5	0.5	0.3	0.4	0.3	0.2	0.2	0.4	0.5	0.3	0.4	9.5	6.5	13.4	18.4	24	18.4	0.2	5.1	0	0
21	3.8	6.0	1.8	2.7	5.2	4.4	1.5	0.9	1.0	1.2	0.8	0.8	0.6	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.3	0.4	0.3	0.2	24	6.0	0.1	1.4	0	0
22	0.3	0.3	0.3	0.3	0.3	0.3	C	C	C	C	M	4.4	4.4	4.0	3.8	3.5	3.3	3.2	3.1	3.1	3.1	3.1	2.6	2.9	19	4.4	0.3	2.4	0	0
23	2.9	2.8	2.6	2.6	2.5	2.4	2.3	2.2	2.1	2.0	1.8	1.8	1.8	1.7	1.6	1.6	1.5	1.5	2.0	1.6	1.6	1.6	1.5	1.1	24	2.9	1.1	2.0	0	0
24	1.9	3.5	3.3	4.9	2.7	2.0	4.7	9.2	2.8	1.6	1.5	1.3	1.2	1.1	1.0	1.1	1.2	1.1	1.0	1.0	1.0	1.0	1.0	0.9	24	9.2	0.9	2.2	0	0
25	1.1	0.9	0.9	0.9	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	24	1.1	0.6	0.8	0	0
26	0.7	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.4	3.6	1.6	1.2	1.2	24	3.6	0.3	0.7	0	0
27	1.3	1.6	1.4	1.5	2.3	3.4	2.1	1.1	0.8	0.7	0.5	0.4	0.4	0.5	1.6	6.9	7.0	6.0	5.3	5.6	5.3	5.1	4.8	5.0	24	7.0	0.4	2.9	0	0
28	4.3	4.0	3.6	3.5	3.8	3.0	2.5	2.0	1.7	1.6	1.9	1.5	1.3	3.2	1.4	1.7	1.7	1.6	1.4	1.2	1.2	1.3	1.2	1.0	24	4.3	1.0	2.1	0	0
29	0.9	1.0	1.4	1.5	1.9	1.7	1.9	1.6	1.4	1.2	0.8	0.6	0.6	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.6	0.6	0.4	24	1.9	0.3	0.9	0	0
30	0.4	0.4	0.4	0.4	0.4	0.8	0.4	0.3	0.3	0.4	0.8	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.8	1.0	1.0	1.2	24	1.2	0.3	0.5	0	0
31	0.9	0.7	0.9	1.3	1.8	1.1	0.9	0.5	1.3	10.4	1.5	0.6	0.4	0.3	0.4	0.4	1.5	0.8	0.5	0.4	0.9	2.1	2.5	2.2	24	10.4	0.3	1.4	0	0
Count	31	31	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	739					
Maximum	13.0	10.9	22.0	15.4	13.1	18.2	4.7	9.2	2.8	10.4	1.9	4.4	4.4	4.0	3.8	6.9	7.0	6.0	5.3	5.6	9.5	7.4	13.4	18.4	24					
Minimum	0.1	0.0	0.0	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	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	19					
Average	2.2	2.0	2.6	2.3	2.5	2.6	1.2	1.0	0.7	0.9	0.6	0.6	0.6	0.7	0.6	0.7	0.8	0.7	0.6	0.6	1.2	1.3	1.5	2.0						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.1	0.1	0.2	0.3	0.5	0.7	1.0	1.6	3.1	5.0	13.1	22.0

Maximum Hourly	22.0
Maximum Daily	5.1
Monthly Average	1.3

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

SO_2 - COURTICE
August 2016
(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	1.3	3.3	2.0	1.8	2.0	2.7	2.1	1.7	0.9	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.3	0.2	0.3	1.5	1.2	1.2	24	3.3	0.1	1.0	0	0
2	0.9	0.7	0.8	1.0	1.0	1.9	1.2	1.0	1.2	0.6	0.4	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.8	1.6	24	1.9	0.1	0.6	0	0
3	1.1	0.9	1.2	2.4	4.0	2.1	1.6	1.0	0.8	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.1	0.3	0.3	0.4	0.3	24	4.0	0.1	0.8	0	0
4	0.3	0.3	0.4	1.2	1.1	1.5	0.9	0.5	0.3	0.3	0.8	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.4	0.2	0.3	24	1.5	0.2	0.5	0	0
5	0.3	0.3	0.3	0.4	0.3	0.2	0.3	0.2	0.1	0.2	0.3	0.8	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	24	0.8	0.1	0.3	0	0
6	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	1.3	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	24	1.3	0.1	0.3	0	0
7	1.4	1.7	0.6	0.4	1.5	0.5	0.4	0.3	0.3	1.0	2.2	0.8	0.5	0.9	0.4	0.4	0.8	0.3	0.4	0.3	0.4	0.7	0.6	0.8	24	2.2	0.3	0.7	0	0
8	0.8	1.3	1.3	3.3	1.2	1.9	1.6	1.3	3.0	0.4	0.3	0.2	0.1	0.1	0.6	0.1	0.1	0.0	0.0	0.4	1.5	6.4	7.6	5.6	24	7.6	0.0	1.6	0	0
9	3.9	2.8	8.2	6.0	7.3	3.0	1.2	1.1	0.5	0.4	0.5	0.4	0.5	0.3	0.1	1.1	0.5	0.5	0.4	0.4	0.4	0.4	4.2	3.4	24	8.2	0.1	2.0	0	0
10	4.0	1.9	3.9	0.6	0.2	0.3	0.5	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	4.2	0.7	0.5	0.4	0.3	0.3	0.3	0.3	24	4.2	0.0	0.8	0	0
11	0.3	0.3	0.3	0.3	0.3	0.3	0.9	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	2.5	0.8	0.6	0.5	0.4	0.4	0.4	24	2.5	0.2	0.5	0	0
12	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	5.4	1.2	1.0	0.7	0.7	0.7	24	5.4	0.1	0.6	0	0
13	0.6	0.6	0.4	0.4	0.4	0.4	0.6	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	6.5	1.7	0.7	0.4	0.4	24	6.5	0.3	0.7	0	0
14	0.5	0.4	0.4	0.4	0.4	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	2.6	0.7	0.5	0.4	24	2.6	0.0	0.3	0	0
15	0.8	0.9	0.8	0.6	0.4	0.8	0.8	0.5	0.4	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.3	0.2	0.2	2.2	0.7	0.4	24	2.2	0.0	0.5	0	0
16	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	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	2.7	0.7	24	2.7	0.0	0.3	0	0
17	0.4	0.3	0.2	0.4	0.8	1.5	1.6	0.4	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.3	3.0	24	3.0	0.0	0.4	0	0
18	1.0	0.7	0.4	0.4	0.9	2.5	0.6	0.4	0.3	0.1	0.2	C	C	C	2.6	2.7	2.2	2.0	1.9	2.0	1.9	1.9	1.9	1.9	21	2.7	0.1	1.4	0	0
19	3.0	2.2	2.2	3.3	3.2	3.1	2.4	1.8	1.8	1.6	1.5	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.3	1.2	1.1	1.2	24	3.3	1.1	1.8	0	0
20	1.2	3.4	1.7	1.5	1.3	1.3	1.3	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	0.9	1.0	0.9	1.0	1.0	1.1	1.0	1.0	1.0	24	3.4	0.9	1.2	0	0
21	0.9	1.0	3.6	1.6	1.2	1.1	1.1	1.1	1.0	0.9	0.8	0.8	0.8	0.8	0.9	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.7	24	3.6	0.6	1.0	0	0
22	1.0	0.7	0.6	3.2	1.9	1.9	1.0	1.3	1.5	0.7	0.8	0.7	0.8	0.8	0.8	0.6	0.5	0.6	0.7	0.7	13.1	14.6	17.1	8.7	24	17.1	0.5	3.1	0	0
23	5.7	11.4	7.3	14.6	10.5	10.8	4.8	3.2	1.8	1.6	2.0	1.6	1.0	0.7	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.6	0.7	2.2	24	14.6	0.5	3.5	0	0
24	3.9	5.0	5.0	2.6	3.2	3.8	2.5	1.8	1.6	1.7	1.0	0.7	0.6	0.6	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.6	0.6	0.6	24	5.0	0.5	1.7	0	0
25	0.5	0.6	0.5	0.6	0.5	0.6	2.0	1.0	0.9	0.8	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	24	2.0	0.5	0.7	0	0
26	0.6	0.6	0.6	0.6	0.6	0.6	0.5	4.3	1.3	1.1	0.9	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.5	0.6	24	4.3	0.4	0.8	0	0
27	0.6	0.4	0.5	0.7	1.4	1.7	1.9	1.1	2.3	0.9	0.6	0.8	0.6	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	24	2.3	0.4	0.8	0	0
28	0.5	0.6	0.6	0.5	0.6	0.5	0.6	0.5	0.4	2.3	0.8	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.4	0.4	0.3	0.3	0.3	24	2.3	0.3	0.6	0	0
29	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.8	0.9	2.1	0.8	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.5	3.5	1.5	1.5	24	3.5	0.3	0.7	0	0
30	0.9	2.8	2.0	3.8	6.7	8.7	6.2	3.0	1.2	0.8	0.6	2.4	1.0	0.7	0.6	0.5	0.5	0.5	0.6	0.6	1.1	1.3	2.4	1.6	24	8.7	0.5	2.1	0	0
31	1.3	1.1	1.1	1.5	1.4	1.5	1.5	1.3	0.8	0.6	0.6	0.7	2.3	1.0	0.8	0.7	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.7	24	2.3	0.6	1.0	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	30	31	31	31	31	31	31	31	31	31	31	741					
Maximum	5.7	11.4	8.2	14.6	10.5	10.8	6.2	4.3	3.0	2.3	2.2	2.4	2.3	1.3	2.6	2.7	4.2	2.5	5.4	6.5	13.1	14.6	17.1	8.7	24					
Minimum	0.3	0.1	0.1	0.1	0.1	0.1	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	0.1	0.1	0.0	0.2	0.1	21					
Average	1.3	1.5	1.6	1.8	1.8	1.8	1.3	1.1	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.6	0.5	0.6	0.7	1.1	1.4	1.6	1.3						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100		
													Maximum Hourly	17.1
													Maximum Daily	3.5
Data	0.2	0.3	0.3	0.4	0.5	0.7	0.9	1.3	2.2	3.4	8.7	17.1	Monthly Average	1.0

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

SO_2 - COURTICE
September 2016
(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	1.7	3.4	4.1	4.8	2.3	1.9	2.2	2.4	2.4	2.5	2.0	2.0	1.9	2.8	2.1	2.9	1.5	1.6	1.2	0.9	1.3	3.0	4.1	1.9	24	4.8	0.9	2.4	0	0
2	2.5	2.5	1.6	2.2	3.7	4.7	3.8	4.8	4.5	2.4	1.5	0.8	1.0	0.8	1.4	0.8	0.7	0.5	0.5	0.5	1.5	5.0	13.9	14.7	24	14.7	0.5	3.2	0	0
3	11.9	9.2	12.4	14.7	15.9	16.6	10.9	3.6	14.2	2.4	1.1	0.8	0.6	0.5	0.6	0.9	0.6	0.5	1.2	9.6	8.8	4.6	6.2	8.5	24	16.6	0.5	6.5	0	0
4	3.9	5.8	5.4	6.2	4.5	6.1	3.0	5.0	4.5	1.4	1.1	0.9	0.8	0.8	0.8	0.8	1.1	0.7	0.5	2.0	3.1	4.4	6.3	5.7	24	6.3	0.5	3.1	0	0
5	5.0	7.6	3.6	8.2	8.8	8.4	3.0	3.7	1.9	1.2	0.8	0.4	0.3	0.3	0.3	0.3	0.3	1.1	0.6	0.6	0.5	0.5	0.5	0.8	24	8.8	0.3	2.4	0	0
6	1.3	1.5	2.9	3.9	7.0	10.5	6.0	2.0	0.9	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.4	0.7	0.5	0.6	0.5	0.5	24	10.5	0.5	1.9	0	0
7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.5	0.5	A	A	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5	8.0	1.6	1.3	1.4	1.0	22	8.0	0.5	1.0	0	0
8	0.9	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.6	0.5	0.5	6.9	2.1	1.3	1.1	24	6.9	0.5	1.1	0	0
9	1.0	1.0	0.9	0.8	0.9	1.1	1.2	0.8	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.9	1.7	3.1	1.5	1.7	24	3.1	0.5	1.0	0	0
10	2.1	1.5	2.4	2.9	2.4	1.4	1.4	1.4	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.6	0.6	0.5	7.9	1.9	24	7.9	0.5	1.4	0	0
11	1.1	0.8	0.6	0.6	0.5	0.4	0.4	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	4.1	23.2	13.5	11.7	9.5	10.9	24	23.2	0.3	3.4	0	0
12	9.9	5.8	5.2	10.5	11.0	5.9	4.7	5.5	2.6	1.2	0.9	1.0	0.8	0.7	0.8	0.8	0.7	0.7	0.7	0.7	1.0	1.6	0.8	0.7	24	11.0	0.7	3.1	0	0
13	1.9	2.7	2.1	9.0	7.3	8.5	7.5	5.5	2.3	1.4	1.1	1.0	0.9	0.6	0.5	0.7	0.6	0.5	0.5	0.6	0.6	0.5	0.5	0.5	24	9.0	0.5	2.4	0	0
14	0.5	1.8	0.8	0.7	0.6	0.6	0.5	0.4	0.6	1.1	0.7	1.1	0.9	2.0	1.9	0.8	1.4	1.0	0.4	0.7	0.8	2.7	8.3	12.0	24	12.0	0.4	1.8	0	0
15	12.2	9.3	5.2	1.5	0.8	0.8	1.2	1.8	0.8	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.9	4.6	13.2	6.5	15.0	13.3	24	15.0	0.2	3.7	0	0
16	16.0	9.8	16.0	8.8	3.7	2.8	1.6	1.7	4.5	C	C	1.0	0.8	0.8	0.7	0.8	0.8	1.6	3.0	1.7	1.6	1.4	0.8	0.6	22	16.0	0.6	3.7	0	0
17	0.6	0.6	0.6	0.6	1.1	0.7	0.6	0.6	0.6	0.6	0.6	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	24	1.1	0.4	0.5	0	0
18	0.5	0.4	0.5	0.4	0.4	1.3	0.7	0.6	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.5	0.3	0.4	0.4	0.4	0.7	0.8	0.7	0.6	24	1.3	0.3	0.5	0	0
19	1.2	2.3	1.2	1.2	1.2	2.5	10.1	6.0	2.1	1.5	1.5	1.1	0.8	0.6	0.5	0.3	0.4	0.5	0.4	0.5	0.5	0.8	1.2	1.3	24	10.1	0.3	1.7	0	0
20	1.6	1.8	2.1	6.4	2.8	2.4	1.1	2.5	1.4	1.2	1.0	0.7	0.5	0.5	0.6	0.6	0.6	0.5	0.3	0.3	0.3	9.6	5.3	1.3	24	9.6	0.3	1.9	0	0
21	1.3	3.5	7.7	17.6	20.0	22.1	7.8	5.3	2.7	1.8	1.4	1.3	1.7	1.1	0.8	0.7	0.6	0.5	0.8	1.4	1.5	1.8	1.8	3.3	24	22.1	0.5	4.5	0	0
22	2.9	2.6	4.4	5.5	5.0	3.9	3.1	1.6	1.2	1.6	0.9	0.7	0.6	1.1	2.6	1.5	1.0	0.9	1.0	1.1	1.2	1.1	1.0	1.0	24	5.5	0.6	2.0	0	0
23	0.9	0.9	0.9	1.0	0.9	0.8	C	C	C	C	C	C	C	2.8	3.8	2.7	5.4	6.1	11.5	5.5	9.3	7.4	7.0	9.2	17	11.5	0.8		0	0
24	12.4	14.8	14.2	11.1	8.8	7.2	9.1	6.5	6.7	4.7	4.0	2.9	3.2	2.3	1.0	0.8	1.0	0.9	1.0	9.2	2.8	2.5	3.4	7.2	24	14.8	0.8	5.7	0	0
25	14.2	10.2	17.1	17.8	29.5	13.1	18.8	5.3	5.7	18.7	1.0	0.6	0.7	0.6	0.6	0.6	0.7	0.6	0.7	2.7	3.7	5.3	7.7	2.0	24	29.5	0.6	7.4	0	0
26	0.8	0.8	0.6	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.8	0.6	0.6	0.6	0.6	0.4	0.3	0.5	0.6	0.7	0.7	24	0.8	0.3	0.6	0	0
27	0.9	8.8	14.9	6.1	1.6	2.1	7.0	3.7	1.8	1.2	0.9	0.5	0.4	0.5	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	24	14.9	0.3	2.3	0	0
28	0.3	0.3	0.3	0.4	3.5	1.0	5.8	1.0	0.7	0.6	0.6	0.4	0.6	0.8	0.3	0.9	10.3	13.1	9.0	6.2	2.6	0.7	1.3	1.0	24	13.1	0.3	2.6	0	0
29	0.5	1.6	3.0	0.8	0.3	0.3	0.2	0.2	0.1	0.1	0.6	3.3	4.1	2.1	1.6	2.6	1.4	0.6	0.3	0.2	0.1	0.2	0.1	0.1	24	4.1	0.1	1.0	0	0
30	0.1	0.1	0.7	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	1.1	2.6	0.5	0.2	0.1	0.4	1.6	8.0	2.1	0.2	0.1	0.0	24	8.0	0.0	0.8	0	0
31																													0	0
Count	30	30	30	30	30	30	29	29	29	27	27	29	29	30	30	30	30	30	30	30	30	30	30	30	709					
Maximum	16.0	14.8	17.1	17.8	29.5	22.1	18.8	6.5	14.2	18.7	4.0	3.3	4.1	2.8	3.8	2.9	10.3	13.1	11.5	23.2	13.5	11.7	15.0	14.7	24					
Minimum	0.1	0.1	0.3	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.2	0.1	0.3	0.3	0.2	0.1	0.2	0.1	0.0	17					
Average	3.7	3.8	4.4	4.9	4.9	4.3	3.9	2.6	2.3	1.8	0.9	0.9	0.9	1.0	0.9	0.8	1.1	1.3	1.5	3.1	2.8	2.7	3.6	3.5						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100		
Data	0.4	0.5	0.6	0.7	0.9	1.3	2.0	3.7	7.7	11.0	17.5	29.5	Maximum Hourly	29.5
													Maximum Daily	7.4
													Monthly Average	2.5

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

SO_2 - Rundle Road
July 2016
(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	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.8	0.8	0.6	0.6	0.7	0.8	0.8	0.6	0.8	0.7	0.6	0.5	0.6	0.5	0.5	0.6	0.5	24	0.8	0.5	0.6	0	0
2	0.5	0.5	0.5	0.4	0.5	0.3	0.4	0.4	0.5	0.6	0.6	0.6	0.7	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.3	0.5	0.5	0.5	24	0.7	0.3	0.5	0	0
3	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.7	1.1	1.2	1.0	0.6	0.8	1.3	1.4	1.3	1.3	0.7	0.5	0.5	0.5	24	1.4	0.4	0.7	0	0
4	0.5	0.5	0.6	0.6	0.5	0.6	0.6	0.8	0.7	0.7	0.7	0.8	0.7	0.7	0.5	4.2	0.8	0.8	1.0	0.8	0.6	0.6	0.5	0.5	24	4.2	0.5	0.8	0	0
5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	1.7	1.7	1.4	2.4	1.6	2.3	2.0	1.8	1.3	1.4	1.3	1.0	0.8	0.7	0.7	0.5	24	2.4	0.5	1.2	0	0
6	0.7	0.8	0.7	0.8	0.6	0.8	0.8	0.9	1.2	1.3	1.3	1.4	1.5	2.9	1.6	1.5	1.1	0.9	0.9	0.8	0.8	0.8	0.8	0.7	24	2.9	0.6	1.1	0	0
7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.7	0.8	1.3	1.4	1.1	0.9	0.9	24	1.4	0.7	0.9	0	0
8	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.9	0.9	1.0	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.7	0.8	24	1.0	0.7	0.8	0	0
9	0.6	0.9	0.9	0.8	0.8	0.8	0.9	0.8	0.9	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.7	0.7	24	0.9	0.6	0.8	0	0
10	0.6	0.6	0.6	0.7	0.8	0.6	0.6	0.5	0.4	0.8	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.6	24	0.8	0.4	0.6	0	0
11	0.7	0.6	0.6	0.4	0.5	0.6	0.6	1.4	6.8	6.2	3.0	23.9	26.2	30.7	12.2	3.1	5.3	2.1	1.1	1.0	1.0	0.9	0.7	0.8	24	30.7	0.4	5.4	0	0
12	0.7	0.6	0.8	0.7	0.6	0.8	0.8	0.7	0.9	3.8	11.0	2.8	1.6	1.5	1.4	2.1	7.4	18.8	12.3	4.4	4.7	1.9	1.3	1.1	24	18.8	0.6	3.4	0	0
13	1.1	0.9	0.9	0.8	0.9	0.8	0.8	1.0	0.9	0.8	0.7	0.6	0.8	0.8	0.8	0.8	0.8	0.7	0.9	0.8	0.8	0.8	0.8	0.8	24	1.1	0.6	0.8	0	0
14	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.9	0.8	0.8	0.8	24	0.9	0.7	0.8	0	0
15	0.8	0.8	0.8	0.8	0.9	1.0	1.0	1.1	1.0	1.3	1.4	1.3	1.0	0.9	1.1	1.0	0.9	0.9	0.8	0.8	0.8	0.8	0.6	0.7	24	1.4	0.6	0.9	0	0
16	0.6	0.7	0.8	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.6	0.7	0.7	0.8	0.6	0.7	0.7	0.6	0.6	0.7	0.6	0.6	24	0.8	0.6	0.7	0	0
17	0.7	0.7	0.7	0.6	0.6	0.7	0.6	0.7	0.8	1.1	0.8	0.7	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	24	1.1	0.6	0.8	0	0
18	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.8	0.7	0.8	0.8	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.8	0.8	24	0.9	0.7	0.8	0	0
19	0.7	0.6	0.0	0.4	0.6	0.6	0.7	0.8	0.9	0.8	1.0	1.3	1.8	1.0	0.7	0.7	0.6	0.6	0.7	0.6	0.7	0.8	0.8	0.7	24	1.8	0.0	0.8	0	0
20	0.6	0.7	0.6	0.7	0.6	C	C	C	1.9	1.9	M	2.1	2.3	2.1	2.3	2.2	2.2	2.2	2.0	1.8	1.5	1.4	1.4	1.4	20	2.3	0.6	1.6	0	0
21	1.4	1.3	1.3	1.3	1.2	1.3	1.4	1.6	2.1	3.1	3.4	2.9	2.1	2.0	1.7	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2	24	3.4	1.2	1.6	0	0
22	1.1	1.3	1.3	1.3	1.4	1.5	1.5	1.6	1.5	1.1	1.1	1.0	1.0	1.0	0.9	1.0	1.2	1.1	1.2	1.2	1.1	1.2	1.1	1.1	24	1.6	0.9	1.2	0	0
23	1.1	1.0	1.0	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	0.9	1.0	1.2	1.6	1.1	1.0	1.0	1.0	1.0	24	1.6	0.9	1.1	0	0
24	0.9	0.9	0.9	0.9	0.9	0.8	0.8	1.0	0.9	0.9	1.1	1.0	1.0	0.9	0.8	0.8	1.0	1.0	3.7	1.8	1.5	1.1	1.1	1.1	24	3.7	0.8	1.1	0	0
25	1.1	1.1	1.0	1.0	0.9	1.0	0.9	0.8	0.9	0.8	0.9	0.9	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.8	0.9	24	1.1	0.8	1.0	0	0
26	0.9	0.9	0.9	1.0	0.9	0.9	0.9	1.0	1.2	1.1	1.1	1.0	1.0	1.1	1.6	6.0	9.7	10.8	10.7	10.1	9.6	8.7	8.0	7.5	24	10.8	0.9	4.0	0	0
27	6.8	6.5	6.0	5.5	5.4	5.1	4.8	4.7	4.8	4.7	3.6	2.4	3.6	1.8	1.8	1.6	1.3	1.3	1.1	1.2	1.1	1.1	1.1	1.1	24	6.8	1.1	3.3	0	0
28	1.1	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.3	5.1	3.8	2.1	1.5	1.3	1.1	1.1	0.9	1.1	1.1	24	5.1	0.9	1.4	0	0
29	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.1	2.3	1.1	1.1	0.8	0.9	1.0	1.0	0.8	0.9	1.0	1.0	0.9	0.8	24	2.3	0.8	1.0	0	0
30	0.9	0.9	0.9	0.8	0.9	1.0	0.9	0.8	0.9	0.8	0.8	0.8	4.7	12.8	6.3	1.8	1.3	3.3	3.9	1.4	1.0	1.0	0.9	0.9	24	12.8	0.8	2.1	0	0
31	0.9	1.0	1.0	0.9	0.9	1.0	1.1	1.0	1.0	1.0	1.1	1.1	1.5	1.6	1.9	2.0	2.0	2.2	2.4	2.5	2.6	2.6	2.8	3.2	24	3.2	0.9	1.6	0	0
Count	31	31	31	31	31	30	30	30	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	740					
Maximum	6.8	6.5	6.0	5.5	5.4	5.1	4.8	4.7	6.8	6.2	11.0	23.9	26.2	30.7	12.2	6.0	9.7	18.8	12.3	10.1	9.6	8.7	8.0	7.5	24					
Minimum	0.5	0.5	0.0	0.4	0.5	0.3	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.3	0.5	0.5	0.5	20					
Average	1.0	1.0	1.0	0.9	0.9	1.0	1.0	1.0	1.3	1.4	1.5	1.9	2.1	2.5	1.7	1.5	1.7	2.0	1.9	1.4	1.3	1.2	1.1	1.1						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100		
Data	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.3	2.0	4.0	10.9	30.7	Maximum Hourly	30.7
													Maximum Daily	5.4
													Monthly Average	1.4

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
August 2016
(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	3.6	3.6	3.6	3.4	3.0	3.0	3.1	3.1	2.8	2.7	4.1	19.1	8.3	3.6	3.3	3.1	3.0	2.9	2.7	2.6	2.7	3.1	3.7	4.0	24	19.1	2.6	4.1	0	0
2	4.0	4.2	4.8	5.3	5.7	6.1	5.8	5.5	5.2	22.6	8.2	4.8	4.2	4.0	4.0	3.9	3.7	3.6	3.4	3.3	3.4	3.5	3.6	3.8	24	22.6	3.3	5.3	0	0
3	3.9	3.8	3.8	3.9	4.1	4.7	4.7	4.4	4.4	4.5	4.8	3.5	3.4	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.5	3.7	3.9	3.9	24	4.8	3.3	3.8	0	0
4	3.9	4.0	4.1	4.3	4.5	4.6	4.4	4.3	4.0	3.9	3.7	3.5	3.3	3.2	3.2	3.7	3.5	3.4	3.1	3.1	3.3	3.2	3.3	3.3	24	4.6	3.1	3.7	0	0
5	3.2	3.2	3.1	3.1	3.0	2.9	2.9	2.8	2.6	2.6	2.7	2.7	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.6	2.5	2.5	24	3.2	2.5	2.7	0	0
6	2.4	2.4	2.4	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.4	2.1	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.7	1.8	24	2.4	1.7	2.1	0	0
7	1.8	1.7	1.7	1.5	1.5	1.6	1.6	1.5	1.8	2.8	4.4	2.0	1.5	1.7	1.5	1.5	2.4	1.7	1.6	1.5	1.6	1.5	1.5	1.5	24	4.4	1.5	1.8	0	0
8	1.5	1.4	1.4	1.4	1.4	1.3	1.4	1.3	1.5	2.0	5.9	1.9	1.6	1.4	1.6	1.5	1.5	1.5	1.5	1.4	1.5	1.7	1.6	1.8	24	5.9	1.3	1.7	0	0
9	2.0	2.1	2.0	1.9	2.0	1.9	1.9	2.0	2.4	4.8	7.6	3.6	10.8	7.2	19.8	4.3	3.3	2.8	2.4	2.4	2.4	2.4	2.3	2.3	24	19.8	1.9	4.0	0	0
10	2.3	2.4	2.4	2.5	2.5	2.3	2.3	2.2	2.0	2.0	2.0	2.0	1.9	1.8	1.8	1.9	2.1	2.0	1.9	2.0	2.2	2.4	2.6	2.6	24	2.6	1.8	2.2	0	0
11	2.6	2.5	2.5	2.4	2.4	2.6	2.7	2.7	3.2	2.9	2.3	2.1	2.3	2.2	2.2	2.2	2.3	2.5	2.3	2.3	2.3	2.2	2.3	2.4	24	3.2	2.1	2.4	0	0
12	2.4	2.5	2.3	2.4	2.3	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.5	2.1	1.9	1.8	1.8	1.8	24	2.5	1.8	2.1	0	0
13	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	1.9	1.9	1.8	1.8	2.0	2.0	2.0	2.0	2.0	1.8	2.3	2.0	1.9	1.9	1.8	24	2.3	1.8	2.0	0	0
14	1.8	1.8	1.8	1.8	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.4	2.1	1.5	1.5	1.4	24	2.1	1.4	1.6	0	0
15	1.4	1.4	1.3	1.3	1.4	1.4	1.5	1.4	1.3	1.3	2.0	3.3	1.6	1.5	1.5	5.5	4.8	2.7	1.8	1.7	1.6	2.2	1.8	1.7	24	5.5	1.3	2.0	0	0
16	1.7	1.6	1.6	1.7	1.7	1.6	1.8	1.8	1.9	1.9	C	C	C	2.2	2.4	2.6	2.2	2.1	1.9	1.9	1.7	1.5	2.3	1.6	21	2.6	1.5	1.9	0	0
17	1.4	1.3	1.2	1.1	1.1	1.2	1.1	1.0	0.9	0.9	1.3	0.8	0.7	0.6	0.5	0.7	0.7	0.5	0.7	0.8	0.9	0.8	0.9	1.5	24	1.5	0.5	0.9	0	0
18	1.0	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.4	0.4	0.4	0.4	0.6	0.5	0.3	0.3	0.4	0.3	0.4	0.5	0.4	0.5	24	1.0	0.3	0.6	0	0
19	1.4	0.9	1.0	1.1	1.1	1.1	1.2	1.1	1.1	0.9	0.8	0.8	0.7	0.6	0.7	0.7	0.7	0.6	0.7	0.8	0.7	0.8	0.7	0.7	24	1.4	0.6	0.9	0	0
20	0.8	1.4	1.0	0.9	1.0	1.0	1.0	1.0	0.9	0.8	0.7	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7	24	1.4	0.6	0.8	0	0
21	0.8	0.7	1.3	0.8	0.8	0.7	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	24	1.3	0.1	0.5	0	0
22	0.0	0.0	0.0	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.4	0.0	0.0	0	0
23	0.0	0.1	0.0	0.1	0.6	0.3	0.3	0.5	0.4	0.4	1.3	1.8	0.7	0.5	0.3	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.0	24	1.8	0.0	0.4	0	0
24	0.1	0.2	0.3	0.4	0.5	0.9	0.7	0.6	1.2	1.0	0.5	0.4	0.6	0.6	0.4	0.3	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.3	24	1.2	0.1	0.5	0	0
25	0.5	0.5	0.3	0.4	0.3	0.3	0.8	0.5	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.1	0.3	0.3	0.2	0.2	0.3	0.3	0.3	24	0.8	0.1	0.3	0	0
26	0.3	0.4	0.3	0.1	0.0	0.2	0.2	0.7	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	24	0.7	0.0	0.1	0	0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.0	0.3	24	0.3	0.0	0.1	0	0
28	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.9	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.2	24	0.9	0.0	0.3	0	0
29	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.1	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.4	0.5	24	0.5	0.0	0.1	0	0
30	0.6	0.7	0.6	0.8	0.8	0.8	0.7	0.7	0.8	1.1	0.6	1.5	1.7	1.9	1.1	0.9	1.2	0.9	0.5	0.4	0.3	0.4	0.4	0.4	24	1.9	0.3	0.8	0	0
31	0.3	0.3	0.3	0.4	0.5	0.7	0.8	0.7	0.6	0.6	0.5	0.5	1.0	0.6	0.5	0.6	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.1	24	1.0	0.1	0.5	0	0
Count	31	31	31	31	31	31	31	31	31	31	30	30	30	31	31	31	31	31	31	31	31	31	31	31	741					
Maximum	4.0	4.2	4.8	5.3	5.7	6.1	5.8	5.5	5.2	22.6	8.2	19.1	10.8	7.2	19.8	5.5	4.8	3.6	3.4	3.4	3.5	3.7	3.9	4.0	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	21					
Average	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.2	2.1	2.1	1.9	1.6	2.0	1.6	1.6	1.4	1.3	1.3	1.3	1.4	1.4	1.4						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100		
Data	0.1	0.3	0.5	0.8	1.4	1.8	2.0	2.5	3.4	4.1	6.7	22.6	Maximum Hourly	22.6
													Maximum Daily	5.3
													Monthly Average	1.6

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

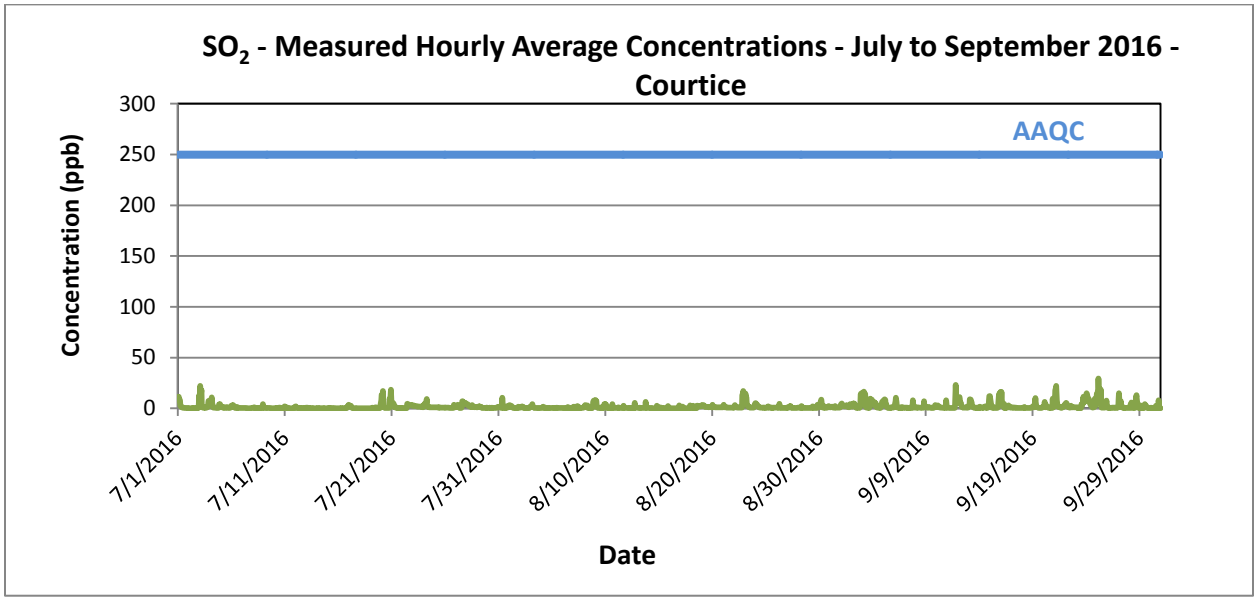
SO_2 - Rundle Road
September 2016
(ppb)

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	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.3	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	0.0	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	24	0.2	0.0	0.0	0	0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.7	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	24	1.3	0.0	0.1	0	0
4	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	7.8	6.5	2.2	2.5	1.2	0.8	0.5	0.7	1.0	0.4	0.4	0.3	0.3	0.4	0.4	24	7.8	0.2	1.1	0	0
5	0.3	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.6	0.3	0.3	0.3	0.3	0.4	0.5	24	0.6	0.0	0.2	0	0
6	0.4	0.4	0.6	0.6	0.7	0.7	0.7	0.8	0.6	0.6	1.4	2.7	1.3	1.2	1.1	1.1	0.7	1.2	1.2	0.8	0.6	0.5	0.5	0.6	24	2.7	0.4	0.9	0	0
7	0.5	0.5	0.5	0.5	0.6	0.7	0.6	0.6	0.5	0.4	0.3	A	A	0.4	0.3	0.5	0.5	0.6	0.4	1.3	0.8	0.7	0.4	0.6	22	1.3	0.3	0.6	0	0
8	0.6	0.5	0.6	0.6	0.8	0.7	0.8	0.7	0.6	0.6	0.6	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.5	1.3	0.5	0.3	0.3	24	1.3	0.3	0.6	0	0
9	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	1.1	0.5	0.3	24	1.1	0.0	0.2	0	0
10	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.1	0.0	0.2	1.1	0.3	24	1.1	0.0	0.3	0	0
11	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	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	0.1	0.0	0.4	24	0.4	0.0	0.1	0	0
12	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	0.1	0.3	0.3	0.4	0.4	0.3	0.1	0.0	0.0	0.0	0.0	24	0.4	0.0	0.1	0	0
13	0.5	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.5	0.8	1.1	0.9	1.1	0.9	0.5	0.2	0.1	0.2	0.2	0.2	0.3	0.3	24	1.1	0.0	0.4	0	0
14	0.3	0.6	0.3	0.2	0.0	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	0.0	0.0	0.0	0.0	0.0	24	0.6	0.0	0.1	0	0
15	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	24	0.0	0.0	0.0	0	0
16	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	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	24	0.2	0.0	0.1	0	0
17	0.1	0.1	0.2	0.2	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	M	M	2.0	0.0	0.0	0.2	0.4	0.4	0.4	22	2.0	0.0	0.3	0	0
18	0.5	0.5	0.4	0.3	0.5	0.3	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.6	0.5	0.5	0.5	0.7	0.5	0.4	0.4	24	0.8	0.3	0.5	0	0
19	0.5	0.5	0.5	0.5	0.5	0.5	0.9	0.7	0.6	0.6	1.0	0.8	0.5	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.5	24	1.0	0.5	0.6	0	0
20	0.5	0.5	0.6	0.6	0.5	0.7	0.8	1.2	1.1	1.0	0.7	0.8	0.8	0.8	0.6	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.3	24	1.2	0.3	0.6	0	0
21	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.7	1.3	1.0	1.0	1.1	1.6	1.1	0.7	1.0	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.4	24	1.6	0.2	0.6	0	0
22	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.7	4.4	1.2	1.0	1.9	4.9	3.0	1.8	1.3	0.8	0.6	0.5	0.5	0.6	0.6	0.5	24	4.9	0.3	1.1	0	0
23	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.5	0.6	0.5	C	C	1.2	1.3	1.1	1.1	1.0	1.0	1.0	0.9	0.8	0.9	22	1.3	0.4	0.8	0	0
24	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.4	0.3	0.7	0.5	0.6	0.6	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	24	0.8	0.3	0.6	0	0
25	0.4	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.3	0.3	4.2	2.4	1.4	0.9	0.6	0.7	1.4	0.7	0.5	0.4	0.5	0.5	0.5	24	4.2	0.3	0.8	0	0
26	0.5	0.8	0.6	0.5	0.5	0.7	0.7	0.6	0.6	0.6	0.7	0.6	0.6	0.8	0.7	0.6	0.6	0.7	0.6	0.5	0.5	0.6	0.7	0.8	24	0.8	0.5	0.6	0	0
27	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.9	1.4	1.3	1.2	0.8	0.7	0.8	0.9	0.8	0.8	0.8	0.6	0.7	0.7	0.6	0.5	0.5	24	1.4	0.5	0.8	0	0
28	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.7	2.2	2.7	1.1	1.4	0.8	0.8	0.8	0.7	0.5	0.5	0.4	0.4	0.4	0.3	0.3	24	2.7	0.3	0.8	0	0
29	0.4	0.4	0.3	0.3	0.4	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.4	0.2	0.2	0.4	0.2	0.2	0.3	0.3	0.3	0.2	0.3	24	0.4	0.2	0.3	0	0
30	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.0	0.3	0.3	0.3	1.5	3.4	3.4	3.2	24	3.4	0.0	0.7	0	0
31																													0	0
Count	30	30	30	30	30	30	30	30	30	30	30	29	28	29	30	29	29	30	30	30	30	30	30	30	714					
Maximum	0.8	0.8	0.8	0.8	0.8	0.7	0.9	1.2	1.4	7.8	6.5	4.2	2.5	4.9	3.0	1.8	1.3	2.0	1.2	1.3	1.5	3.4	3.4	3.2	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.5	0.4	0.3	0.4	0.5	0.5	0.4						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100		
Data	0.0	0.0	0.2	0.3	0.3	0.5	0.5	0.6	0.8	1.2	3.2	7.8	Maximum Hourly	7.8
													Maximum Daily	1.1
													Monthly Average	0.5

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

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



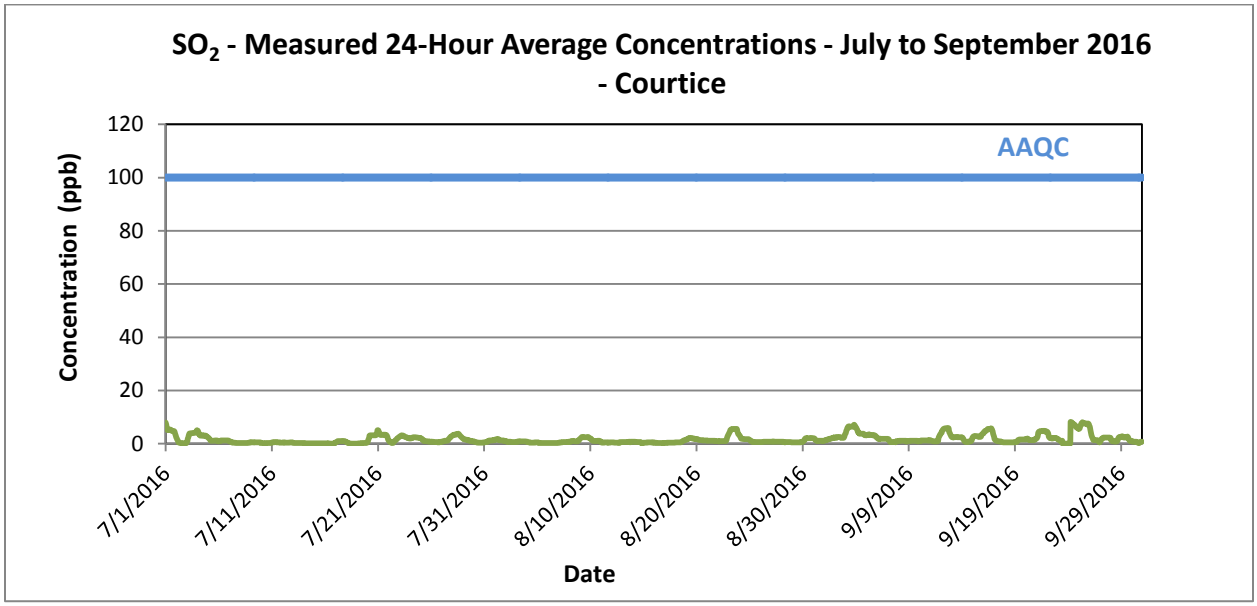
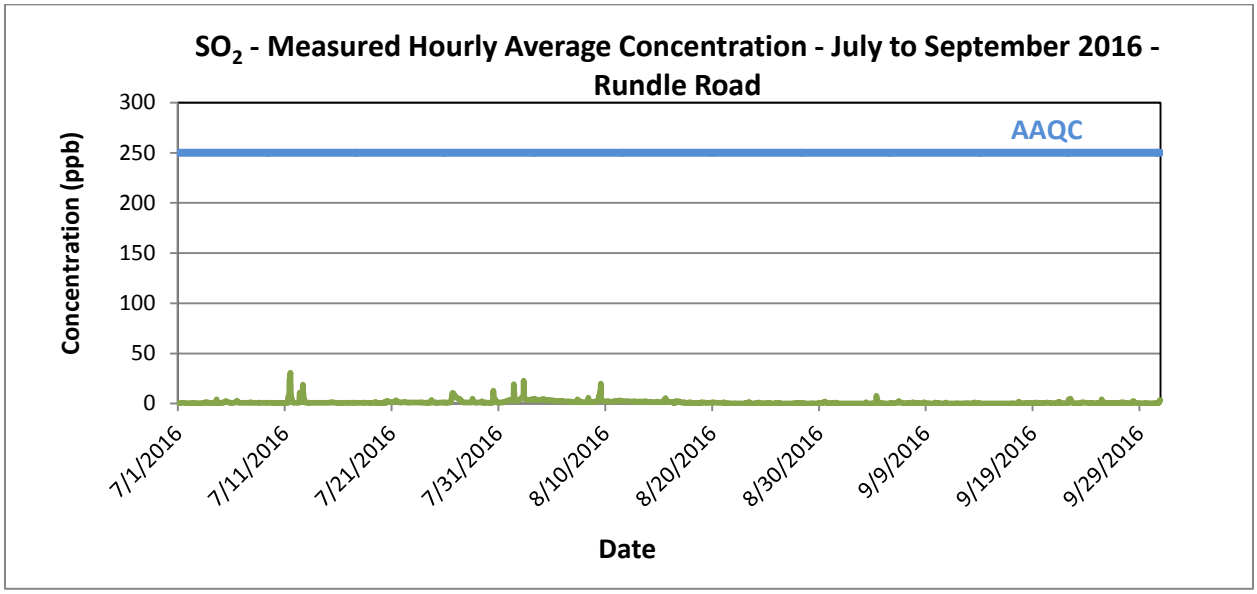
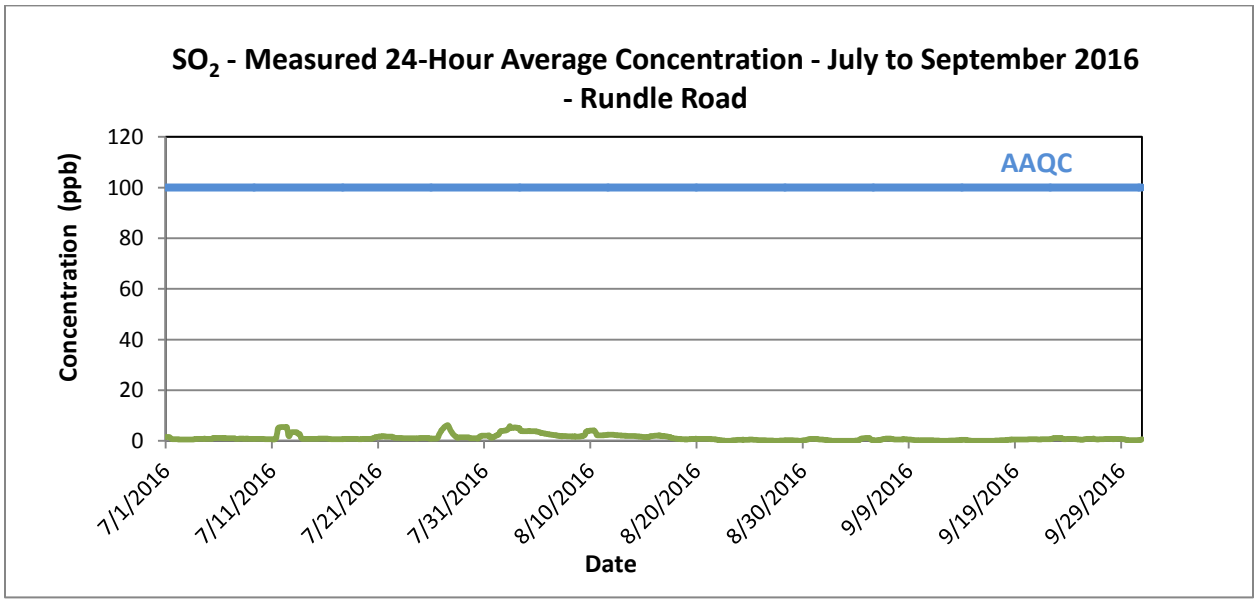


Figure B-2 Time History Plots of Measured Hourly Average and 24-Hour Average SO_2 Concentrations– Rundle Road Station





Appendix C NO_2 DATA SUMMARIES AND TIME HISTORY PLOTS

NO_2 - July (ppb) COURTICE 2016

Day \ Hour	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	21.0	14.7	13.1	17.5	10.6	11.5	7.8	11.3	8.9	7.0	7.4	3.4	2.6	3.3	2.4	1.8	1.7	1.8	1.7	1.8	2.2	1.9	2.1	3.9	24	21.0	1.7	6.7	0	0
2	2.7	2.8	3.0	3.5	3.8	3.7	3.3	2.5	1.1	1.3	1.4	1.4	1.1	0.7	0.8	1.6	1.2	1.6	2.0	2.3	5.9	8.1	10.4	8.4	24	10.4	0.7	3.1	0	0
3	4.8	6.0	5.4	12.4	8.6	8.5	5.8	4.3	4.0	3.4	2.9	1.8	1.5	1.7	0.4	0.2	0.3	0.8	1.2	1.9	2.1	20.8	19.3	19.2	24	20.8	0.2	5.7	0	0
4	15.7	12.2	11.9	13.3	12.0	12.7	9.3	7.5	6.0	3.7	4.5	4.3	2.2	1.6	0.9	0.6	0.9	0.6	0.7	2.7	3.2	26.6	28.1	21.3	24	28.1	0.6	8.4	0	0
5	17.0	10.3	9.3	12.5	12.3	14.9	12.3	8.4	8.2	7.0	5.7	5.5	5.0	2.4	1.0	0.8	1.0	1.0	1.4	3.8	8.8	10.3	16.4	34.1	24	34.1	0.8	8.7	0	0
6	30.0	23.9	22.6	21.5	20.1	16.5	14.9	10.9	5.7	8.0	5.8	3.0	2.1	1.7	1.4	1.1	0.9	0.8	1.0	4.3	3.6	7.6	4.8	2.0	24	30.0	0.8	8.9	0	0
7	1.6	2.2	2.8	2.5	3.6	2.9	1.8	1.5	2.2	3.5	2.6	2.0	1.7	1.9	2.4	2.3	2.1	2.1	2.8	4.6	6.3	6.3	4.8	5.7	24	6.3	1.5	3.0	0	0
8	5.0	4.3	5.6	11.5	13.4	10.5	8.1	5.9	10.1	6.8	1.8	1.6	1.7	1.4	0.8	0.8	0.9	1.0	2.2	3.9	3.2	2.5	8.6	18.5	24	18.5	0.8	5.4	0	0
9	6.5	4.2	5.2	2.7	1.5	1.0	2.3	4.9	1.7	1.7	1.4	1.9	6.3	1.8	0.8	1.3	2.1	2.5	2.6	2.3	4.3	4.0	3.0	1.9	24	6.5	0.8	2.8	0	0
10	1.4	1.5	1.6	2.1	1.9	2.3	1.2	1.6	1.5	1.8	1.6	2.0	1.9	1.7	1.8	2.0	2.2	1.8	2.5	2.3	4.8	11.0	5.5	6.6	24	11.0	1.2	2.7	0	0
11	9.6	5.1	5.0	6.1	8.0	9.5	9.0	5.3	2.1	1.5	1.1	1.2	1.3	0.8	1.1	0.9	0.6	1.9	4.3	2.1	3.5	5.0	12.5	16.4	24	16.4	0.6	4.8	0	0
12	14.7	10.9	8.7	10.4	14.6	12.6	10.9	4.0	3.9	3.0	2.1	1.7	1.8	2.2	2.6	2.0	1.6	2.3	2.3	5.7	5.3	9.0	8.7	15.1	24	15.1	1.6	6.5	0	0
13	20.2	15.0	10.8	21.0	25.1	8.9	2.1	2.1	1.6	1.3	1.1	1.2	0.9	0.7	0.5	0.3	0.2	0.5	0.6	1.2	0.9	1.5	1.5	1.6	24	25.1	0.2	5.0	0	0
14	1.2	2.8	1.2	0.4	0.5	0.8	1.5	1.5	1.8	1.8	1.7	1.3	1.2	1.2	1.4	0.8	0.7	0.7	0.9	1.1	1.6	1.8	1.4	1.8	24	2.8	0.4	1.3	0	0
15	2.6	5.8	7.9	5.2	8.9	8.5	16.2	6.3	3.7	3.9	4.2	2.3	1.1	2.1	2.6	2.1	2.4	2.1	1.7	2.5	2.6	2.2	1.9	2.9	24	16.2	1.1	4.2	0	0
16	1.9	2.1	1.9	2.3	1.8	2.1	1.6	1.9	1.9	1.3	0.7	0.5	0.3	0.3	0.4	0.3	0.4	0.4	0.6	1.8	8.0	10.4	9.3	12.7	24	12.7	0.3	2.7	0	0
17	8.2	9.1	7.4	5.9	5.5	4.9	5.9	3.6	3.4	1.3	1.0	1.0	1.8	1.5	0.9	1.7	0.7	0.9	1.0	0.9	0.8	1.1	3.2	2.3	24	9.1	0.7	3.1	0	0
18	2.5	1.4	1.9	2.4	2.3	1.5	1.6	1.4	2.2	1.9	1.8	2.1	1.8	2.1	1.9	1.7	2.1	1.8	2.1	2.6	3.7	3.3	4.7	5.5	24	5.5	1.4	2.3	0	0
19	4.7	4.5	5.1	8.1	10.0	12.2	9.8	7.8	3.1	1.8	1.4	1.8	1.7	2.2	1.4	2.3	2.1	1.9	3.3	6.0	7.6	5.2	7.6	10.1	24	12.2	1.4	5.1	0	0
20	9.4	12.4	14.2	13.2	13.6	12.8	9.8	6.4	4.6	6.4	4.1	1.5	1.7	0.6	0.6	0.4	0.7	1.5	1.6	3.6	22.7	36.4	33.4	31.0	24	36.4	0.4	10.1	0	0
21	18.5	23.1	19.5	19.9	21.4	21.8	15.0	5.8	3.9	3.1	1.3	0.9	0.8	0.7	0.8	0.5	0.6	0.6	0.3	0.5	1.1	0.9	1.1	1.2	24	23.1	0.3	6.8	0	0
22	1.2	1.7	2.5	2.5	2.5	3.3	C	C	C	M	M	1.3	1.5	1.6	2.2	1.6	0.4	2.1	2.7	2.3	4.6	8.4	11.1	12.5	19	12.5	0.4	3.5	0	0
23	7.2	7.6	5.9	6.6	6.4	4.9	5.2	3.1	1.5	1.6	1.5	1.4	1.1	1.0	1.0	1.9	1.9	1.4	2.3	3.0	4.8	5.9	5.5	3.9	24	7.6	1.0	3.6	0	0
24	4.5	4.9	3.6	5.4	3.7	3.3	7.0	10.7	1.8	2.1	1.9	1.9	1.4	1.8	1.3	2.2	1.7	2.1	5.1	3.8	4.6	3.9	2.1	1.6	24	10.7	1.3	3.4	0	0
25	1.8	2.0	2.1	4.6	6.2	1.5	1.8	1.5	1.4	1.3	1.4	2.4	1.6	1.4	1.3	1.8	2.1	3.4	4.1	8.0	12.3	10.0	5.8	6.5	24	12.3	1.3	3.6	0	0
26	5.8	5.8	6.1	8.6	3.6	4.5	5.7	3.4	2.5	2.3	2.4	4.8	4.0	2.6	1.7	1.2	0.8	0.5	0.8	2.6	3.4	21.9	24.6	21.1	24	24.6	0.5	5.9	0	0
27	14.1	10.6	11.2	12.1	12.3	12.6	13.0	11.1	8.7	7.2	5.2	2.3	1.9	1.7	3.2	5.1	5.5	7.0	2.6	9.3	10.3	9.4	8.5	15.5	24	15.5	1.7	8.4	0	0
28	16.0	11.4	8.4	10.6	10.0	11.4	9.0	6.8	6.5	5.0	5.8	4.1	3.0	3.3	1.8	1.4	1.7	1.4	1.9	2.0	6.1	22.6	10.5	9.4	24	22.6	1.4	7.1	0	0
29	9.7	8.9	5.2	3.4	5.0	5.2	5.7	4.8	3.9	3.7	1.7	0.9	0.7	0.8	0.8	0.6	0.7	0.6	0.5	1.0	1.8	6.2	4.3	4.3	24	9.7	0.5	3.4	0	0
30	3.3	3.8	3.0	2.9	2.7	5.8	4.0	3.3	2.7	2.6	2.4	1.2	1.1	0.7	0.8	0.8	0.6	0.7	2.8	3.4	6.7	9.5	8.8	7.8	24	9.5	0.6	3.4	0	0
31	4.5	3.5	4.3	3.4	3.5	4.6	3.3	2.5	3.6	9.9	2.3	2.0	2.0	3.1	4.0	3.6	9.2	2.4	4.3	6.3	14.9	7.0	9.5	9.0	24	14.9	2.0	5.1	0	0
Count	31	31	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	739					
Maximum	30.0	23.9	22.6	21.5	25.1	21.8	16.2	11.3	10.1	9.9	7.4	5.5	6.3	3.3	4.0	5.1	9.2	7.0	5.1	9.3	22.7	36.4	33.4	34.1	24					
Minimum	1.2	1.4	1.2	0.4	0.5	0.8	1.2	1.4	1.1	1.3	0.7	0.5	0.3	0.3	0.4	0.2	0.2	0.4	0.3	0.5	0.8	0.9	1.1	1.2	19					
Average	8.6	7.6	7.0	8.2	8.2	7.6	6.8	5.1	3.8	3.6	2.7	2.1	1.9	1.6	1.4	1.5	1.6	1.6	2.1	3.2	5.5	9.1	9.0	10.1						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.9	1.4	1.8	2.1	2.7	3.9	5.5	8.1	12.0	16.0	24.9	36.4

Maximum Hourly	36.4
Maximum Daily	10.1
Monthly Average	5.0

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

NO_2 - COURTICE
August 2016
(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	8.1	7.6	4.8	6.2	4.8	6.3	6.3	5.5	3.2	1.5	0.8	0.9	0.8	0.4	0.3	0.3	0.3	0.3	0.5	0.8	1.6	2.0	9.1	17.4	24	17.4	0.3	3.7	0	0
2	11.9	13.3	12.7	12.0	14.9	15.9	14.6	12.8	3.9	1.8	1.2	0.7	0.4	0.2	0.2	0.2	0.2	0.3	0.7	1.1	4.6	21.7	17.6	18.9	24	21.7	0.2	7.6	0	0
3	15.2	14.6	14.1	13.9	18.2	17.7	16.4	10.0	8.0	1.7	1.0	0.9	0.7	0.5	0.6	0.5	0.6	0.7	1.0	1.2	3.0	5.4	19.7	11.4	24	19.7	0.5	7.4	0	0
4	13.7	12.9	11.6	14.6	15.7	23.8	17.2	11.6	6.6	2.9	1.2	2.3	1.9	1.5	1.3	0.9	0.9	0.8	1.1	1.2	2.8	1.3	1.7	2.6	24	23.8	0.8	6.3	0	0
5	2.2	2.8	1.9	1.9	1.7	2.7	1.8	2.1	2.0	1.6	1.5	1.1	1.1	1.0	0.9	0.8	0.9	0.9	0.8	3.5	7.4	4.4	5.2	8.1	24	8.1	0.8	2.4	0	0
6	3.4	2.4	2.8	2.0	2.5	3.0	6.1	4.9	2.9	2.5	2.4	2.4	2.2	2.2	2.1	2.0	2.6	2.0	2.5	3.7	4.3	5.2	5.8	6.8	24	6.8	2.0	3.3	0	0
7	11.7	12.6	8.2	5.9	4.7	4.5	2.7	1.9	1.9	1.6	1.5	1.5	1.6	1.8	1.5	1.6	1.8	2.0	3.3	3.7	4.3	4.5	3.5	3.6	24	12.6	1.5	3.8	0	0
8	3.3	2.9	3.1	5.5	4.3	4.9	7.2	5.7	5.1	4.3	1.4	0.4	0.3	0.2	0.0	0.0	0.0	0.2	0.4	5.9	20.8	19.3	17.1	17.3	24	20.8	0.0	5.4	0	0
9	16.5	14.9	16.5	14.9	14.0	13.6	13.3	7.4	4.8	2.5	1.6	1.4	1.8	1.2	1.5	2.2	2.2	4.9	5.5	3.6	4.1	3.8	7.4	19.1	24	19.1	1.2	7.4	0	0
10	24.2	20.1	18.2	5.3	1.2	1.2	11.3	3.2	5.3	4.8	2.5	2.1	1.7	1.6	0.9	1.1	1.3	1.6	1.4	1.1	2.0	4.2	4.2	16.4	24	24.2	0.9	5.7	0	0
11	9.6	7.8	5.2	8.6	12.5	14.1	16.8	10.8	3.1	2.4	4.4	2.9	2.9	2.8	2.8	2.1	2.1	2.6	1.7	1.6	1.8	2.2	2.9	2.1	24	16.8	1.6	5.2	0	0
12	1.9	1.9	2.7	1.6	1.9	2.5	2.5	1.9	1.6	2.2	2.2	2.2	1.2	0.8	0.7	0.9	1.1	0.8	1.5	4.8	4.2	2.9	2.6	7.0	24	7.0	0.7	2.2	0	0
13	7.2	4.4	2.7	1.9	1.8	2.6	6.2	8.2	7.9	7.1	3.9	2.6	2.6	3.2	3.0	2.1	2.7	1.7	1.9	2.2	4.1	2.0	3.1	3.9	24	8.2	1.7	3.7	0	0
14	3.4	4.1	3.4	3.6	2.4	2.8	2.5	3.0	3.0	2.3	2.3	1.9	1.9	1.7	1.3	1.3	1.8	3.6	4.7	3.6	5.2	4.0	4.0	7.7	24	7.7	1.3	3.2	0	0
15	11.6	12.8	11.7	9.4	10.1	10.0	8.8	7.7	6.2	5.7	2.9	1.9	1.6	1.5	1.5	1.7	1.5	2.7	5.7	8.0	5.5	12.2	10.4	12.9	24	12.9	1.5	6.8	0	0
16	11.8	6.1	1.2	1.1	1.2	4.2	9.3	7.2	2.3	1.7	1.3	2.0	1.4	1.3	0.9	0.7	0.7	1.3	1.6	1.8	1.9	2.9	3.2	6.0	24	11.8	0.7	3.0	0	0
17	4.0	6.1	6.0	7.2	6.7	10.7	15.2	7.2	4.3	3.9	2.7	1.5	1.1	0.9	1.0	1.5	1.2	1.2	2.1	6.0	11.8	13.3	12.5	13.0	24	15.2	0.9	5.9	0	0
18	11.2	10.9	7.7	9.2	8.2	13.0	10.9	5.6	4.3	3.5	3.8	C	C	C	C	1.2	0.0	0.0	0.0	0.7	1.4	10.7	31.4	20.4	20	31.4	0.0	7.7	0	0
19	14.5	12.8	13.7	21.9	20.0	17.9	18.3	13.2	8.5	2.6	1.5	1.4	2.8	3.8	2.9	2.4	1.1	1.0	1.0	2.1	3.8	2.5	6.0	7.0	24	21.9	1.0	7.6	0	0
20	7.9	7.8	6.7	4.4	6.1	7.0	2.7	1.7	1.5	0.8	0.8	0.8	2.4	1.8	1.0	1.1	0.7	0.7	1.6	0.5	1.0	0.2	0.7	0.0	24	7.9	0.0	2.5	0	0
21	0.6	0.6	0.5	0.4	0.3	0.0	0.0	0.0	0.8	1.1	0.0	0.0	0.0	0.0	0.0	0.8	2.5	1.6	2.1	2.5	2.7	2.8	3.0	6.5	24	6.5	0.0	1.2	0	0
22	4.9	5.6	4.8	11.1	8.3	9.9	8.5	6.9	2.6	1.6	1.5	0.3	0.3	0.8	0.7	0.8	1.7	1.8	3.8	6.3	7.8	20.0	17.5	13.6	24	20.0	0.3	5.9	0	0
23	12.2	11.3	9.8	9.9	12.3	12.2	12.6	12.7	9.8	8.8	4.7	2.9	0.9	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.9	1.3	3.7	21.5	24	21.5	0.0	6.2	0	0
24	24.8	20.5	16.0	20.4	21.8	17.0	15.6	17.9	12.1	8.0	5.6	1.5	1.4	1.2	0.7	0.2	0.2	0.2	0.2	1.3	0.6	1.3	1.2	1.3	24	24.8	0.2	8.0	0	0
25	1.8	2.1	1.4	1.2	1.0	1.2	1.6	1.6	0.9	0.7	1.5	1.9	1.0	0.3	0.0	0.2	0.2	0.0	0.0	4.5	11.1	4.8	0.6	3.8	24	11.1	0.0	1.8	0	0
26	15.5	10.5	4.0	2.9	3.3	8.9	8.9	5.3	6.3	6.1	7.4	9.0	3.7	0.0	0.0	0.1	0.5	0.3	1.9	4.9	3.5	2.1	2.1	3.3	24	15.5	0.0	4.6	0	0
27	4.8	2.1	6.8	5.5	3.6	3.4	3.9	5.7	2.8	1.7	0.7	1.0	0.1	0.0	0.0	0.0	0.0	0.9	5.2	8.2	7.1	5.8	2.3	1.6	24	8.2	0.0	3.1	0	0
28	3.2	5.8	3.9	2.9	2.7	2.8	4.2	2.8	1.9	0.9	0.1	0.7	0.1	1.0	0.8	0.5	0.6	1.0	1.4	0.8	1.1	1.1	1.7	3.5	24	5.8	0.1	1.9	0	0
29	4.0	4.2	3.3	4.0	6.9	8.5	5.7	3.8	2.5	1.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4	19.0	21.4	18.7	16.1	24	21.4	0.0	5.1	0	0
30	10.8	6.7	9.6	10.8	12.3	13.3	12.3	9.7	3.4	3.8	3.6	8.3	4.4	3.5	0.9	0.0	0.1	1.5	4.1	9.9	12.0	11.2	17.2	15.8	24	17.2	0.0	7.7	0	0
31	11.8	11.5	13.7	15.0	13.6	17.1	16.0	17.3	10.7	4.0	3.7	3.9	3.2	1.6	0.5	1.1	1.9	3.0	3.0	3.1	2.9	6.3	5.0	5.1	24	17.3	0.5	7.3	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31	740					
Maximum	24.8	20.5	18.2	21.9	21.8	23.8	18.3	17.9	12.1	8.8	7.4	9.0	4.4	3.8	3.0	2.4	2.7	4.9	5.7	9.9	20.8	21.7	31.4	21.5	24					
Minimum	0.6	0.6	0.5	0.4	0.3	0.0	0.0	0.0	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.2	0.6	0.0	20					
Average	9.3	8.4	7.4	7.6	7.7	8.8	9.0	6.9	4.5	3.1	2.3	2.0	1.5	1.2	0.9	0.9	1.0	1.3	2.0	3.2	5.3	6.5	7.8	9.5						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.4	1.0	1.5	2.0	2.8	3.8	5.5	8.5	13.3	17.1	21.4	31.4

Maximum Hourly	31.4
Maximum Daily	8.0
Monthly Average	5.0

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

NO_2 - COURTICE

September 2016

(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	4.8	2.9	2.2	3.3	2.5	2.9	3.9	2.1	1.2	1.3	0.6	0.6	0.7	0.8	1.0	2.3	1.6	1.9	3.5	4.3	3.6	2.5	2.0	1.6	24	4.8	0.6	2.3	0	0
2	2.2	1.4	1.2	1.1	1.5	2.0	2.0	2.0	1.8	1.1	0.5	0.4	0.3	0.1	0.0	0.0	0.0	0.0	4.6	8.9	6.2	5.2	4.6	8.2	24	8.9	0.0	2.3	0	0
3	6.6	4.5	4.1	4.7	4.0	4.4	5.3	2.0	7.5	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	12.0	8.0	7.8	7.7	24	12.0	0.0	3.7	0	0
4	5.1	4.2	4.4	9.2	4.1	5.8	5.1	2.7	2.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	12.9	17.6	10.8	5.9	8.1	24	17.6	0.0	4.2	0	0
5	4.9	3.2	2.0	2.7	3.4	6.1	5.8	6.2	2.2	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.9	11.2	14.2	8.0	11.4	24	14.2	0.0	3.5	0	0
6	8.9	8.1	10.3	14.9	15.6	17.1	17.5	11.4	4.3	0.7	0.8	1.1	0.6	0.9	0.6	0.2	0.0	2.0	2.8	1.9	4.0	1.7	7.1	7.5	24	17.5	0.0	5.8	0	0
7	7.7	10.0	9.9	10.9	10.4	12.7	14.4	10.3	3.1	A	A	0.2	0.4	0.7	0.6	0.3	1.6	3.5	4.4	5.8	3.0	0.6	8.0	4.0	22	14.4	0.2	5.6	0	0
8	12.5	2.6	4.8	11.4	3.3	2.6	1.0	0.7	0.7	0.6	1.2	1.8	1.5	0.3	0.0	0.0	0.1	0.7	4.2	4.1	2.8	3.6	4.8	9.6	24	12.5	0.0	3.1	0	0
9	9.7	7.9	7.1	7.5	7.7	9.1	9.9	6.1	3.2	1.7	1.5	0.4	0.2	1.2	2.0	1.8	1.5	1.8	6.0	4.5	7.0	15.5	10.9	12.2	24	15.5	0.2	5.7	0	0
10	13.3	7.5	8.2	5.1	5.0	5.9	6.0	5.9	2.9	1.7	1.1	1.8	1.1	0.7	0.2	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.5	1.4	24	13.3	0.0	2.9	0	0
11	0.9	1.9	1.0	0.8	1.5	2.3	2.0	1.6	1.7	1.4	1.1	0.8	0.9	0.8	0.8	1.1	1.2	2.2	7.1	7.6	11.2	13.4	11.1	9.1	24	13.4	0.8	3.5	0	0
12	7.0	6.0	3.5	7.2	8.2	7.9	9.4	10.0	7.9	2.0	0.8	0.5	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.8	8.2	17.6	1.1	0.3	24	17.6	0.0	4.1	0	0
13	4.0	10.8	9.5	10.1	11.7	12.5	13.1	12.6	8.1	5.3	6.1	6.5	4.3	1.3	0.5	0.3	0.1	0.1	0.3	0.2	0.5	1.3	1.0	1.1	24	13.1	0.1	5.1	0	0
14	1.1	2.7	4.8	2.0	1.3	1.7	2.4	2.3	2.0	1.1	2.0	1.0	0.7	0.7	0.6	0.8	2.3	2.7	5.4	8.2	9.0	4.3	3.0	4.3	24	9.0	0.6	2.8	0	0
15	8.0	6.3	6.8	4.8	4.7	4.8	4.3	2.7	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	11.1	15.9	12.6	11.3	10.4	24	15.9	0.0	4.5	0	0
16	9.1	7.0	8.9	8.4	8.4	9.2	8.6	6.9	8.7	C	C	C	0.9	0.4	0.8	0.9	1.6	5.7	12.8	12.1	11.9	11.5	4.1	0.9	21	12.8	0.4	6.6	0	0
17	0.6	1.0	1.6	1.3	1.4	1.3	1.2	1.7	1.2	0.8	0.7	0.4	0.2	0.5	0.1	0.3	0.3	0.0	0.0	0.0	0.1	0.8	1.0	2.2	24	2.2	0.0	0.8	0	0
18	3.0	7.1	2.6	2.7	2.1	2.3	5.4	5.8	3.6	1.1	1.0	1.7	1.0	1.2	0.8	0.4	0.5	0.0	0.1	3.5	16.9	12.1	7.9	4.4	24	16.9	0.0	3.6	0	0
19	3.8	3.6	3.2	4.8	6.7	10.1	15.1	10.7	8.4	5.1	1.7	0.6	0.4	0.5	0.3	0.0	0.0	0.0	0.8	3.1	7.4	12.7	20.1	16.9	24	20.1	0.0	5.7	0	0
20	13.5	12.8	9.4	9.0	10.6	6.2	2.7	10.4	10.6	8.1	10.2	9.1	7.3	5.6	3.1	1.8	2.5	4.6	4.8	6.5	10.0	16.2	12.8	7.8	24	16.2	1.8	8.1	0	0
21	7.2	8.7	7.9	14.8	17.5	17.5	15.9	14.7	14.3	11.5	13.6	6.2	4.6	3.1	1.6	1.7	0.6	0.6	0.5	13.4	23.2	21.9	19.9	11.3	24	23.2	0.5	10.5	0	0
22	14.2	11.3	8.6	9.2	11.3	17.6	17.5	11.9	6.1	2.1	1.5	1.1	0.7	1.3	1.4	1.0	2.7	12.2	18.7	23.0	24.7	22.5	17.9	11.1	24	24.7	0.7	10.4	0	0
23	11.5	13.4	14.6	18.8	13.7	10.4	C	C	C	3.2	2.9	3.1	3.9	1.8	1.7	1.7	1.4	3.0	6.1	4.1	4.3	4.8	3.8	3.2	21	18.8	1.4	6.3	0	0
24	2.3	2.2	2.9	0.9	2.8	1.3	2.9	2.7	1.5	1.5	0.5	0.6	0.2	0.0	0.0	0.0	0.0	0.7	6.3	9.2	5.5	3.1	1.9	2.0	24	9.2	0.0	2.1	0	0
25	1.4	1.3	2.6	3.5	3.2	3.0	3.9	1.9	3.7	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	10.2	7.1	8.9	1.0	24	10.2	0.0	2.6	0	0
26	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.6	0.8	0.8	0.7	1.3	1.8	8.1	7.9	8.5	6.8	16.3	12.8	8.7	4.9	24	16.3	0.0	3.4	0	0
27	12.2	20.5	15.3	11.8	8.3	21.5	19.7	16.6	10.2	1.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	21.5	0.0	5.8	0	0
28	0.7	0.5	0.2	0.8	11.9	14.9	16.2	15.3	3.6	1.0	0.6	1.2	1.7	1.7	1.1	3.0	15.2	19.2	15.7	10.3	7.6	5.8	7.8	6.4	24	19.2	0.2	6.8	0	0
29	3.7	5.2	7.3	3.1	3.9	4.0	3.5	3.3	4.2	3.9	4.9	9.4	8.4	4.6	4.2	8.5	5.1	5.0	5.3	3.5	4.6	4.0	5.4	3.6	24	9.4	3.1	4.9	0	0
30	3.1	3.1	4.8	3.1	3.5	4.5	5.3	4.8	3.8	2.6	1.8	1.4	1.8	2.3	1.5	0.6	2.0	2.7	4.3	10.7	3.0	0.0	0.0	0.0	24	10.7	0.0	3.0	0	0
31																													0	0
Count	30	30	30	30	30	30	29	29	29	28	28	29	30	30	30	30	30	30	30	30	30	30	30	30	712					
Maximum	14.2	20.5	15.3	18.8	17.5	21.5	19.7	16.6	14.3	11.5	13.6	9.4	8.4	5.6	4.2	8.5	15.2	19.2	18.7	23.0	24.7	22.5	20.1	16.9	24					
Minimum	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	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	0.0	0.0	21					
Average	6.1	5.9	5.7	6.3	6.3	7.4	7.6	6.4	4.5	2.5	2.0	1.7	1.4	1.0	0.8	0.9	1.6	2.6	4.3	6.4	8.6	8.2	6.9	5.8						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100		
Data	0.0	0.5	1.1	1.7	2.8	4.2	6.1	8.5	11.9	15.1	20.0	24.7	Maximum Hourly	24.7
													Maximum Daily	10.5
													Monthly Average	4.7

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

NO_2 - Rundle Road
July 2016
(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	7.5	6.3	5.5	5.5	5.1	4.6	4.4	9.6	8.1	6.3	5.7	5.9	5.3	5.2	4.8	3.8	1.6	1.2	1.4	1.5	1.3	1.4	1.3	1.5	24	9.6	1.2	4.4	0	0
2	2.8	4.2	5.8	2.5	2.3	1.9	1.6	1.5	1.0	1.1	2.5	3.1	2.5	2.2	2.3	1.1	0.9	1.0	1.3	1.5	3.0	3.8	3.9	2.8	24	5.8	0.9	2.4	0	0
3	2.2	2.1	2.8	3.2	2.9	2.5	4.4	7.3	5.5	5.3	5.3	3.2	2.7	2.7	3.0	2.8	4.8	3.3	5.0	5.3	6.7	7.0	5.8	5.1	24	7.3	2.1	4.2	0	0
4	3.0	4.1	3.8	5.3	5.1	4.5	8.1	13.2	7.8	6.6	6.0	3.5	1.9	1.7	1.5	2.6	2.6	3.0	6.6	8.6	10.6	7.8	6.7	5.8	24	13.2	1.5	5.4	0	0
5	4.1	4.0	3.7	3.6	4.4	5.0	5.2	8.1	15.7	12.7	10.6	15.7	7.4	5.0	3.1	2.9	4.5	4.9	6.8	7.7	2.3	3.4	2.9	3.5	24	15.7	2.3	6.1	0	0
6	2.8	6.7	12.0	7.8	5.9	5.4	13.4	17.1	10.3	15.0	12.4	7.2	5.2	3.7	2.0	3.3	5.7	5.1	8.5	11.7	8.4	9.0	14.9	14.9	24	17.1	2.0	8.7	0	0
7	7.1	7.3	10.1	10.4	7.7	14.7	8.3	8.2	8.5	10.8	9.6	8.1	6.7	6.6	5.5	5.0	5.6	2.8	1.2	1.4	3.2	2.5	2.5	2.2	24	14.7	1.2	6.5	0	0
8	2.1	1.8	1.7	2.6	3.2	3.5	6.3	9.0	8.8	5.8	7.3	6.5	11.7	9.2	3.1	1.9	3.1	3.4	5.6	3.5	2.6	2.5	6.0	3.5	24	11.7	1.7	4.8	0	0
9	3.3	5.0	6.4	5.3	7.3	6.0	10.6	10.4	4.6	3.7	4.2	2.2	1.4	1.6	2.8	2.7	1.5	1.7	1.7	2.1	1.6	1.9	1.6	1.3	24	10.6	1.3	3.8	0	0
10	1.4	1.3	1.3	1.4	1.5	1.4	1.3	1.0	1.3	1.5	1.7	1.7	1.8	1.9	2.1	1.8	2.2	2.9	2.7	9.7	11.5	4.9	5.0	4.9	24	11.5	1.0	2.8	0	0
11	7.6	4.9	4.2	3.0	2.8	9.1	4.3	7.1	8.0	5.2	2.3	14.1	14.3	12.8	4.5	2.1	5.1	2.4	3.2	5.1	6.9	15.6	12.1	11.9	24	15.6	2.1	7.0	0	0
12	7.9	7.7	8.7	4.3	4.3	7.4	8.8	5.3	5.2	9.3	12.4	3.4	3.3	3.8	6.4	7.0	10.5	23.7	25.9	15.5	11.1	9.5	7.0	8.6	24	25.9	3.3	9.0	0	0
13	10.7	10.5	9.5	7.9	11.0	13.7	8.8	7.0	6.7	5.8	4.8	4.0	4.5	3.0	2.6	2.7	2.6	3.1	4.6	6.9	4.9	6.9	5.6	5.0	24	13.7	2.6	6.4	0	0
14	4.6	2.9	4.3	6.8	5.8	5.6	6.1	6.3	8.6	5.9	5.6	5.0	4.6	4.6	4.2	3.1	4.2	4.2	4.1	5.9	6.9	8.0	5.7	9.4	24	9.4	2.9	5.5	0	0
15	15.0	7.0	13.6	12.7	12.6	14.9	15.0	13.0	7.2	8.9	7.8	5.3	4.2	5.1	2.0	2.0	1.4	1.4	1.3	1.6	1.6	1.8	1.3	1.5	24	15.0	1.3	6.6	0	0
16	1.5	1.2	1.1	1.1	1.0	1.4	1.2	1.0	1.1	1.0	2.1	2.1	2.2	1.6	1.8	1.7	1.7	2.1	2.2	4.1	6.5	4.2	5.4	5.0	24	6.5	1.0	2.3	0	0
17	5.3	5.5	4.3	3.9	3.9	3.4	2.6	2.8	3.4	2.8	1.7	2.2	2.4	2.3	1.7	2.1	3.6	3.4	3.9	5.2	3.4	4.4	4.5	5.8	24	5.8	1.7	3.5	0	0
18	7.0	6.9	4.1	10.0	7.5	5.8	6.0	5.9	6.7	1.9	1.4	1.7	1.8	1.7	1.4	1.5	2.2	1.6	1.0	1.3	1.5	1.4	1.7	1.7	24	10.0	1.0	3.5	0	0
19	1.8	1.7	1.7	1.8	1.7	2.3	3.1	8.2	2.1	1.4	1.0	1.0	1.0	1.2	1.0	1.1	1.5	1.1	0.8	1.3	1.5	1.5	1.4	1.7	24	8.2	0.8	1.8	0	0
20	3.2	7.4	11.4	7.9	3.8	C	C	C	C	3.9	M	3.0	4.6	3.4	3.5	2.8	4.1	4.5	7.4	9.7	10.5	9.3	7.9	10.5	19	11.4	2.8	6.3	0	0
21	15.4	6.7	4.9	3.9	5.1	11.8	10.6	9.0	9.4	5.7	4.7	4.9	3.6	3.0	3.6	3.9	3.3	5.7	5.8	8.9	6.5	8.4	6.8	5.3	24	15.4	3.0	6.5	0	0
22	4.1	4.6	7.3	6.3	7.8	10.1	12.3	11.4	13.3	9.5	6.5	4.1	3.7	3.9	4.3	4.5	4.4	1.6	0.7	1.0	3.2	2.2	2.1	3.1	24	13.3	0.7	5.5	0	0
23	3.3	2.3	1.9	1.7	1.6	1.2	2.4	0.9	0.7	0.5	0.5	0.5	0.4	0.6	0.3	0.3	0.4	0.4	0.5	0.9	1.0	1.4	1.8	2.3	24	3.3	0.3	1.2	0	0
24	1.8	1.9	1.5	1.5	1.7	1.3	1.0	3.6	0.8	1.6	1.1	2.4	2.2	2.3	2.4	1.2	1.9	2.5	11.4	5.7	7.2	4.1	6.0	4.7	24	11.4	0.8	3.0	0	0
25	9.5	5.5	5.3	3.2	4.5	7.7	5.3	4.5	6.0	5.2	6.4	6.6	5.6	3.8	4.4	4.5	2.2	0.8	0.9	2.0	3.4	4.3	3.9	2.1	24	9.5	0.8	4.5	0	0
26	1.9	1.7	1.4	1.6	3.1	5.8	4.1	1.7	1.4	1.0	3.4	6.1	6.0	5.9	5.1	4.2	3.1	3.5	4.6	8.1	9.4	10.2	11.5	14.3	24	14.3	1.0	5.0	0	0
27	10.0	7.7	5.0	4.8	8.1	5.1	5.8	10.7	11.9	9.8	7.1	6.5	7.2	3.9	3.4	4.0	2.4	5.1	5.5	5.2	4.3	3.1	3.0	3.8	24	11.9	2.4	6.0	0	0
28	4.0	3.9	3.4	4.1	3.2	2.7	2.4	2.1	8.7	8.0	6.5	6.4	8.1	2.9	6.5	3.7	4.6	5.5	6.0	13.2	13.6	10.4	5.0	2.9	24	13.6	2.1	5.7	0	0
29	2.8	4.2	2.0	1.1	1.1	1.4	2.1	2.0	1.8	1.6	1.3	3.3	1.5	1.5	1.5	1.5	1.9	3.0	3.6	7.8	16.2	6.4	1.2	1.2	24	16.2	1.1	3.0	0	0
30	4.2	1.4	3.8	1.5	1.5	3.2	1.1	3.3	4.4	1.0	0.7	0.8	2.7	4.4	3.7	1.0	0.9	3.1	3.5	4.3	11.8	4.7	6.2	3.4	24	11.8	0.7	3.2	0	0
31	2.5	6.7	2.7	1.5	1.4	2.3	1.3	1.2	1.6	2.0	2.7	1.9	3.0	2.4	1.7	2.3	1.5	2.6	2.5	9.3	6.6	2.7	3.8	10.8	24	10.8	1.2	3.2	0	0
Count	31	31	31	31	31	30	30	30	30	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	739					
Maximum	15.4	10.5	13.6	12.7	12.6	14.9	15.0	17.1	15.7	15.0	12.4	15.7	14.3	12.8	6.5	7.0	10.5	23.7	25.9	15.5	16.2	15.6	14.9	14.9	24					
Minimum	1.4	1.2	1.1	1.1	1.0	1.2	1.0	0.9	0.7	0.5	0.5	0.5	0.4	0.6	0.3	0.3	0.4	0.4	0.5	0.9	1.0	1.4	1.2	1.2	19					
Average	5.2	4.7	5.0	4.5	4.5	5.5	5.6	6.4	6.0	5.2	4.8	4.6	4.3	3.7	3.1	2.7	3.1	3.6	4.5	5.7	6.1	5.3	5.0	5.2						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.3	1.7	2.3	3.1	3.9	4.8	5.8	7.1	9.6	11.9	15.5	25.9

Maximum Hourly	25.9
Maximum Daily	9.0
Monthly Average	4.8

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
August 2016
(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	5.8	3.1	2.5	2.2	2.1	2.1	2.0	3.8	1.3	1.1	4.5	11.6	2.4	1.8	2.7	2.1	2.0	2.1	3.3	11.4	9.9	8.7	6.4	5.6	24	11.6	1.1	4.2	0	0
2	4.4	4.8	4.9	3.3	4.8	11.3	11.9	9.2	3.1	9.0	2.3	1.7	1.8	1.9	2.9	1.9	3.6	3.3	4.2	7.1	10.4	8.2	6.6	4.3	24	11.9	1.7	5.3	0	0
3	3.3	3.3	3.4	3.6	4.2	4.6	3.6	4.3	6.6	4.7	7.6	4.0	3.1	1.7	1.9	2.4	2.2	2.6	4.0	5.9	7.5	7.1	5.5	3.3	24	7.6	1.7	4.2	0	0
4	4.1	3.5	2.4	3.8	3.6	2.9	4.2	8.0	5.8	3.4	2.3	3.2	1.8	2.1	1.8	2.8	4.8	3.5	3.7	6.8	16.1	9.2	7.2	5.3	24	16.1	1.8	4.7	0	0
5	6.0	6.7	6.4	4.6	5.0	9.4	6.4	4.9	3.4	3.6	3.9	2.7	2.6	2.9	3.4	3.4	3.2	2.8	3.7	2.1	3.0	1.4	3.1	1.3	24	9.4	1.3	4.0	0	0
6	1.2	1.1	1.0	2.9	2.0	1.9	1.3	1.2	1.1	0.9	0.6	0.8	0.8	1.0	0.6	0.8	0.7	0.6	0.9	0.8	1.3	1.6	1.8	2.4	24	2.9	0.6	1.2	0	0
7	2.5	2.5	2.5	2.6	1.5	1.0	1.0	0.7	0.5	0.3	0.5	0.3	0.4	0.5	0.5	0.6	0.6	0.5	0.6	1.3	1.1	1.2	1.4	1.1	24	2.6	0.3	1.1	0	0
8	1.2	1.3	1.3	1.3	1.2	1.6	3.4	3.2	1.5	6.1	2.8	1.2	1.1	1.2	1.1	1.4	1.3	1.7	3.6	3.9	3.5	4.2	4.6	3.7	24	6.1	1.1	2.4	0	0
9	3.0	4.6	3.2	3.9	3.5	4.3	5.8	7.7	5.1	6.4	6.7	2.2	8.5	7.5	11.0	4.7	4.1	2.7	5.5	7.0	6.3	17.9	12.0	6.3	24	17.9	2.2	6.2	0	0
10	4.4	4.9	4.6	7.4	13.8	7.8	4.4	8.1	6.9	10.0	8.4	5.2	3.2	2.6	2.7	2.7	2.7	3.0	5.7	7.2	7.1	9.3	16.0	7.1	24	16.0	2.6	6.5	0	0
11	3.6	1.8	1.4	1.3	9.8	8.7	11.8	12.6	6.3	4.2	5.4	2.9	4.1	4.0	2.6	3.8	3.2	5.5	6.1	8.0	10.3	6.6	8.6	14.6	24	14.6	1.3	6.1	0	0
12	6.6	5.2	4.7	5.9	5.8	7.3	5.7	4.8	4.0	5.1	4.8	4.4	4.1	3.4	3.2	3.7	3.1	2.7	5.4	2.0	1.5	1.3	1.3	1.3	24	7.3	1.3	4.1	0	0
13	1.5	7.2	4.5	2.8	2.8	2.9	2.8	3.6	4.1	4.8	3.5	3.2	5.0	7.8	2.8	6.2	4.0	2.9	3.5	6.8	5.1	2.7	3.8	6.1	24	7.8	1.5	4.2	0	0
14	6.1	4.7	1.8	1.7	1.7	1.4	1.0	1.2	1.0	1.1	1.3	1.4	2.6	2.6	3.0	3.0	3.5	2.2	2.0	2.8	4.2	2.6	2.7	2.7	24	6.1	1.0	2.4	0	0
15	2.6	2.9	2.8	2.2	3.2	3.8	3.0	3.0	3.0	2.2	4.0	4.7	2.3	2.6	3.6	7.8	4.9	3.8	6.3	9.4	11.3	9.5	8.9	7.4	24	11.3	2.2	4.8	0	0
16	11.1	6.7	3.9	9.1	7.7	5.9	7.1	14.2	5.8	2.8	C	C	C	C	C	1.4	1.0	2.1	0.0	0.0	0.0	0.0	0.7	0.0	19	14.2	0.0	4.2	0	0
17	0.0	0.0	0.0	0.0	3.2	7.6	5.4	2.3	0.6	2.1	3.0	1.1	0.2	0.4	0.4	0.9	1.6	2.7	5.3	11.2	16.3	6.6	7.6	3.4	24	16.3	0.0	3.4	0	0
18	2.0	1.1	1.4	0.8	3.0	1.7	1.2	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.2	2.7	4.9	7.8	6.5	17.3	10.5	4.6	24	17.3	0.0	2.8	0	0
19	5.8	5.2	3.4	3.7	3.7	3.4	3.9	9.0	9.0	6.9	1.5	1.1	5.1	4.1	6.4	2.2	2.0	1.5	2.6	5.8	1.9	7.8	5.7	2.1	24	9.0	1.1	4.3	0	0
20	1.7	3.7	2.0	1.3	3.2	2.9	3.6	4.7	1.7	2.1	1.6	1.1	2.4	4.5	0.8	0.5	1.1	6.4	2.9	2.7	3.9	1.2	2.2	1.2	24	6.4	0.5	2.5	0	0
21	3.4	0.4	0.5	0.6	0.5	0.0	0.3	0.3	1.0	0.0	0.0	0.7	1.2	2.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	3.4	0.0	0.5	0	0
22	0.0	0.0	0.0	0.0	0.1	0.0	3.0	1.4	0.0	2.8	1.6	0.9	1.2	2.3	1.3	0.0	0.0	0.0	0.3	0.5	3.5	3.9	5.0	2.9	24	5.0	0.0	1.3	0	0
23	2.2	1.1	0.5	0.2	3.8	3.1	3.0	8.1	9.4	10.3	5.6	4.7	2.9	2.0	2.1	2.7	2.5	2.0	4.7	5.9	6.3	6.7	7.5	8.8	24	10.3	0.2	4.4	0	0
24	6.3	4.1	3.4	3.1	3.1	5.4	4.7	5.5	10.0	4.9	3.7	2.3	2.2	2.5	3.5	2.1	4.3	7.2	6.1	11.2	8.3	12.6	7.5	9.3	24	12.6	2.1	5.5	0	0
25	10.9	13.5	6.4	6.4	3.8	6.5	10.7	7.6	5.0	3.2	4.2	4.5	2.7	2.8	3.7	4.6	5.3	3.3	3.1	1.4	7.0	6.0	6.6	6.0	24	13.5	1.4	5.6	0	0
26	5.9	1.8	0.0	0.0	0.0	0.6	2.1	3.4	3.2	6.1	8.1	8.7	8.1	3.6	1.5	1.9	3.3	2.2	3.2	0.2	1.0	0.0	0.0	0.0	24	8.7	0.0	2.7	0	0
27	0.0	0.0	0.0	0.0	0.0	0.0	3.4	1.7	0.0	1.3	0.3	0.3	0.0	0.0	0.0	0.0	0.4	1.2	5.1	6.4	2.9	4.8	4.3	0.9	24	6.4	0.0	1.4	0	0
28	1.5	4.3	1.2	1.5	2.9	0.5	1.0	0.8	2.3	1.1	2.6	1.6	2.7	1.4	1.6	1.8	1.8	0.1	0.0	0.0	0.0	0.0	0.3	2.0	24	4.3	0.0	1.4	0	0
29	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.0	0.9	1.0	0.6	1.1	1.1	0.8	1.4	3.6	4.3	3.7	3.7	6.0	5.1	24	6.0	0.0	1.5	0	0
30	0.5	1.9	0.0	0.0	1.3	0.9	1.3	3.9	5.6	4.9	5.4	10.8	7.7	4.8	1.9	2.3	5.3	3.2	1.5	1.2	4.2	1.7	1.4	1.8	24	10.8	0.0	3.1	0	0
31	1.7	1.3	6.6	10.1	9.5	13.5	13.1	19.3	14.0	10.5	6.1	5.5	5.6	3.1	3.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	19.3	0.0	5.2	0	0
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	11.1	13.5	6.6	10.1	13.8	13.5	13.1	19.3	14.0	10.5	8.4	11.6	8.5	7.8	11.0	7.8	5.3	7.2	6.3	11.4	16.3	17.9	16.0	14.6	24					
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	19					
Average	3.6	3.3	2.5	2.8	3.6	4.0	4.3	5.1	3.9	3.9	3.4	3.1	2.9	2.6	2.4	2.3	2.4	2.4	3.3	4.6	5.3	5.3	5.0	3.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.0	1.0	1.5	2.2	2.9	3.5	4.5	5.8	7.7	9.9	14.1	19.3

Maximum Hourly	19.3
Maximum Daily	6.5
Monthly Average	3.6

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

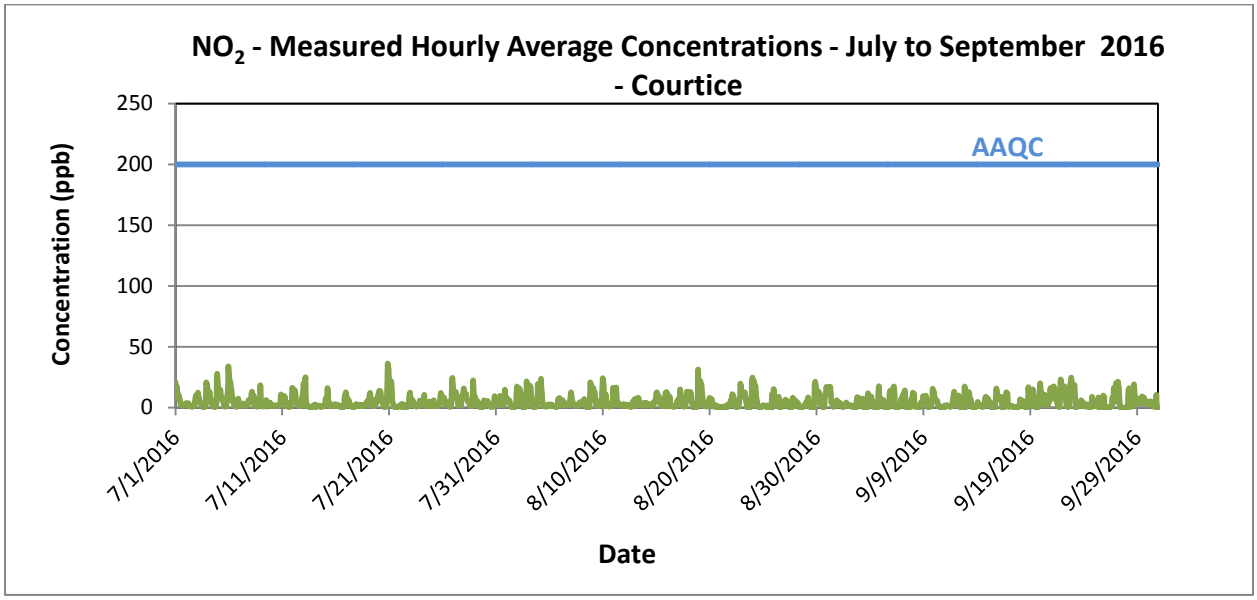
NO_2 - Rundle Road
September 2016
(ppb)

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	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	24	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	0.0	0.0	0.0	0.0	0.3	1.8	1.2	0.3	0.4	0.0	0.1	1.5	0.3	0.4	0.2	24	1.8	0.0	0.3	0	0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.5	1.1	0.9	0.3	3.0	4.6	2.0	24	4.6	0.0	0.7	0	0
4	1.2	0.0	0.2	0.5	0.3	1.3	1.2	0.0	0.5	9.4	6.5	1.3	2.0	0.1	3.1	0.0	0.3	1.4	1.0	2.8	1.9	2.5	1.4	0.8	24	9.4	0.0	1.6	0	0
5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	1.3	0.0	0.1	0.0	0.0	0.0	1.5	0.0	2.2	4.3	3.1	1.7	2.9	1.5	0.9	24	4.3	0.0	0.9	0	0
6	0.5	0.2	0.5	1.8	1.4	3.6	4.5	12.2	8.9	2.5	2.1	1.4	0.5	2.1	1.4	3.6	3.1	5.4	4.4	7.0	7.6	8.0	3.6	1.8	24	12.2	0.2	3.7	0	0
7	1.1	0.9	1.3	1.4	1.8	2.5	5.6	11.6	7.0	4.1	3.1	A	A	1.0	3.2	11.7	8.7	4.8	6.7	4.9	4.6	7.2	7.0	3.1	22	11.7	0.9	4.7	0	0
8	4.7	7.4	8.4	11.6	11.4	9.3	10.4	6.8	4.1	4.6	4.4	5.3	5.3	7.2	5.5	4.2	4.0	5.8	0.8	0.5	0.2	0.0	0.2	0.1	24	11.6	0.0	5.1	0	0
9	0.5	0.6	0.8	1.9	2.2	3.3	6.3	6.4	1.7	0.6	0.4	1.0	3.0	2.5	3.5	3.5	2.4	3.8	3.1	2.3	3.8	2.4	4.4	2.5	24	6.4	0.4	2.6	0	0
10	3.3	3.5	1.7	0.5	0.7	1.5	2.9	2.9	2.5	2.9	2.4	3.4	1.7	1.5	0.5	1.2	0.5	1.4	0.8	1.1	1.9	0.6	1.5	0.0	24	3.5	0.0	1.7	0	0
11	0.0	0.0	0.0	0.3	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	0.3	3.0	1.1	3.6	0.3	0.1	24	3.6	0.0	0.4	0	0
12	0.0	0.0	0.1	0.0	0.2	2.0	1.4	1.6	1.7	1.5	0.3	0.4	0.7	0.0	0.5	0.2	1.5	4.5	16.5	12.5	8.3	4.6	4.0	2.3	24	16.5	0.0	2.7	0	0
13	1.7	1.2	0.7	0.9	1.8	2.3	2.8	4.3	8.3	4.6	6.0	7.5	6.0	2.6	2.7	4.0	3.8	3.2	3.1	4.9	5.1	6.5	4.3	5.1	24	8.3	0.7	3.9	0	0
14	4.3	6.5	2.9	0.2	0.0	0.7	0.7	0.8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	24	6.5	0.0	0.7	0	0
15	0.0	4.5	0.9	0.2	1.9	0.9	0.8	0.7	0.6	0.7	0.6	1.2	0.2	0.1	0.0	0.1	0.0	0.7	4.9	4.7	6.2	2.6	1.5	1.4	24	6.2	0.0	1.5	0	0
16	0.5	0.2	0.4	0.6	1.1	3.7	7.8	2.3	3.0	1.2	0.8	1.8	0.2	0.2	2.5	0.6	1.1	1.1	8.1	3.4	12.1	3.9	4.2	5.1	24	12.1	0.2	2.8	0	0
17	4.0	3.6	4.8	6.2	5.5	5.1	3.6	5.9	5.2	3.3	2.0	3.3	1.8	1.4	1.5	M	M	1.2	0.8	1.2	1.2	2.6	3.2	5.3	22	6.2	0.8	3.3	0	0
18	5.9	9.6	4.5	3.4	3.1	4.4	6.0	7.3	5.2	3.8	2.6	3.0	2.1	3.1	2.3	2.7	1.1	2.3	2.8	2.7	3.7	2.0	1.1	0.1	24	9.6	0.1	3.5	0	0
19	0.2	0.1	0.0	0.3	0.1	0.8	8.9	4.5	2.7	4.7	5.4	2.4	4.8	1.6	2.1	1.4	2.3	5.6	5.3	6.8	7.9	5.9	4.0	3.0	24	8.9	0.0	3.4	0	0
20	1.6	1.9	1.4	0.6	4.2	4.5	13.1	13.9	19.0	5.3	1.5	10.3	9.6	9.8	9.3	6.0	2.1	0.1	1.9	1.0	1.0	1.6	0.7	0.0	24	19.0	0.0	5.0	0	0
21	0.5	1.0	0.6	1.0	1.3	3.1	6.7	12.0	17.6	9.7	8.9	5.9	7.5	9.3	6.7	6.0	3.5	5.4	6.8	4.7	3.9	5.8	2.3	1.4	24	17.6	0.5	5.5	0	0
22	1.0	0.6	0.8	1.0	0.9	1.5	3.9	5.5	9.9	6.6	2.2	5.5	3.3	7.5	4.2	5.7	10.1	6.0	5.7	13.1	12.0	7.3	3.5	2.5	24	13.1	0.6	5.0	0	0
23	2.1	5.2	7.0	3.8	3.1	2.0	2.1	1.4	0.8	0.4	0.3	0.5	C	1.9	0.8	1.8	0.7	1.1	2.5	1.8	1.7	1.3	0.9	0.8	23	7.0	0.3	1.9	0	0
24	0.5	0.5	0.4	0.1	0.0	0.0	0.1	0.4	0.5	0.2	0.1	0.5	0.0	0.0	0.4	1.1	0.0	0.0	2.2	1.8	1.3	1.0	0.9	0.7	24	2.2	0.0	0.5	0	0
25	0.4	0.5	0.3	0.6	0.7	1.4	1.7	0.7	0.9	1.9	0.1	3.4	1.4	1.2	0.4	0.1	0.6	3.7	6.4	4.9	4.0	2.4	2.2	1.8	24	6.4	0.1	1.7	0	0
26	2.0	1.5	1.4	1.7	2.3	2.7	5.0	3.6	3.7	3.4	4.0	5.2	10.8	13.1	9.4	6.8	6.5	13.7	5.4	3.9	13.8	17.9	13.0	11.0	24	17.9	1.4	6.7	0	0
27	14.6	11.0	4.5	6.2	8.7	8.4	7.7	11.2	13.8	4.9	4.0	2.2	4.4	2.8	2.9	2.9	3.3	4.6	5.3	8.2	7.3	4.7	5.4	4.4	24	14.6	2.2	6.4	0	0
28	6.9	7.1	3.8	2.9	3.1	3.6	6.3	12.7	9.6	4.1	3.8	3.0	2.9	1.8	4.3	1.9	2.9	5.1	5.1	4.3	2.0	2.1	3.9	4.9	24	12.7	1.8	4.5	0	0
29	3.1	2.2	2.3	1.7	1.9	1.9	4.7	2.0	2.1	1.8	2.4	6.6	4.0	8.5	5.1	3.6	4.7	2.4	1.7	2.1	2.4	3.0	1.7	3.2	24	8.5	1.7	3.1	0	0
30	3.7	1.5	1.4	3.0	1.6	2.1	2.3	4.7	4.9	2.9	3.0	4.9	1.8	2.0	3.4	1.6	1.4	2.5	3.8	6.2	5.1	4.5	8.1	6.9	24	8.1	1.4	3.5	0	0
31																													0	0
Count	30	30	30	30	30	30	30	30	30	30	30	29	28	30	30	29	29	30	30	30	30	30	30	30	715					
Maximum	14.6	11.0	8.4	11.6	11.4	9.3	13.1	13.9	19.0	9.7	8.9	10.3	10.8	13.1	9.4	11.7	10.1	13.7	16.5	13.1	13.8	17.9	13.0	11.0	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	2.2	2.4	1.7	1.7	2.0	2.4	3.9	4.5	4.7	2.9	2.3	2.8	2.6	2.7	2.6	2.5	2.2	3.0	3.7	3.8	4.1	3.7	3.0	2.4						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100		
Data	0.0	0.2	0.7	1.4	1.9	2.8	3.8	4.9	7.0	9.5	13.8	19.0	Maximum Hourly	19.0
													Maximum Daily	6.7
													Monthly Average	2.9

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



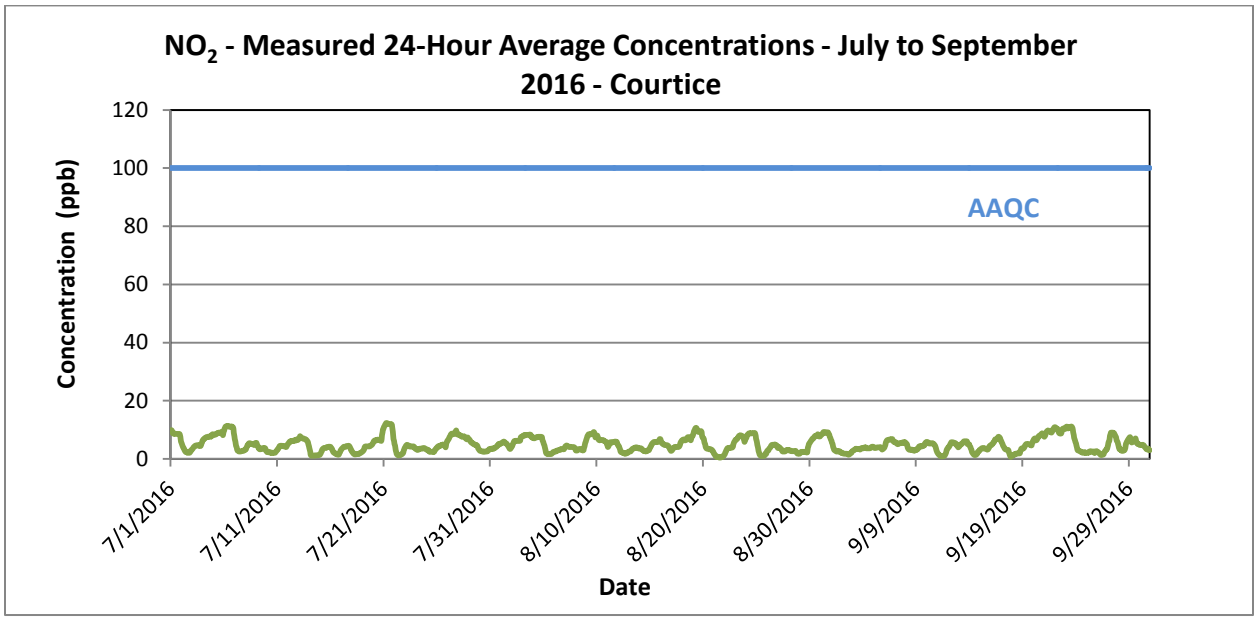
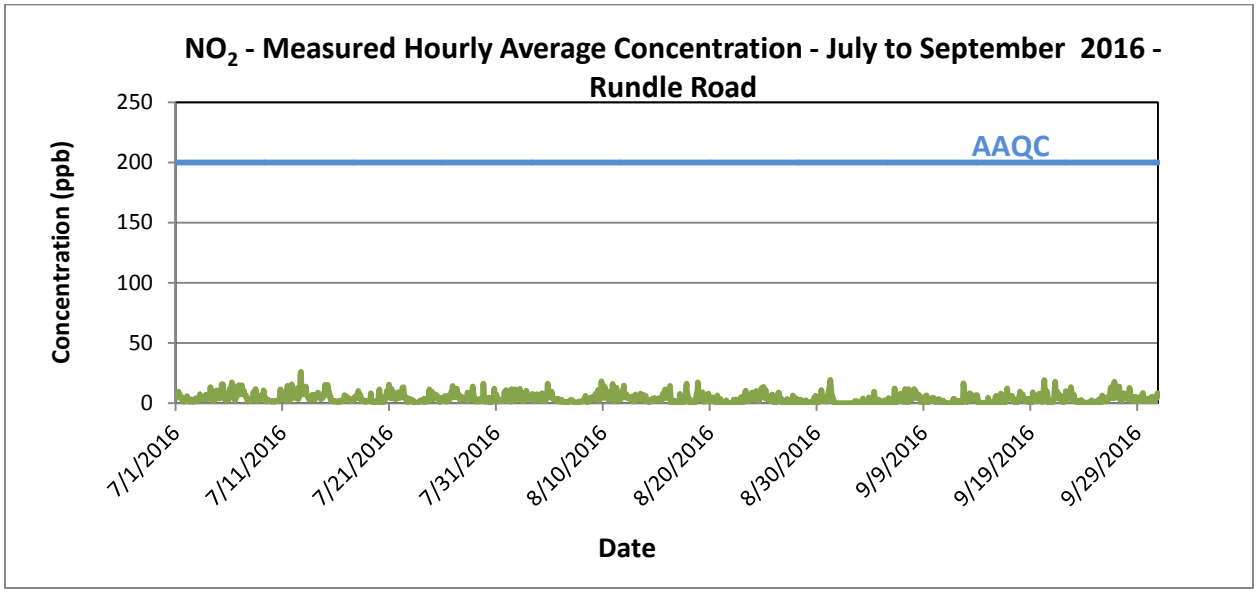
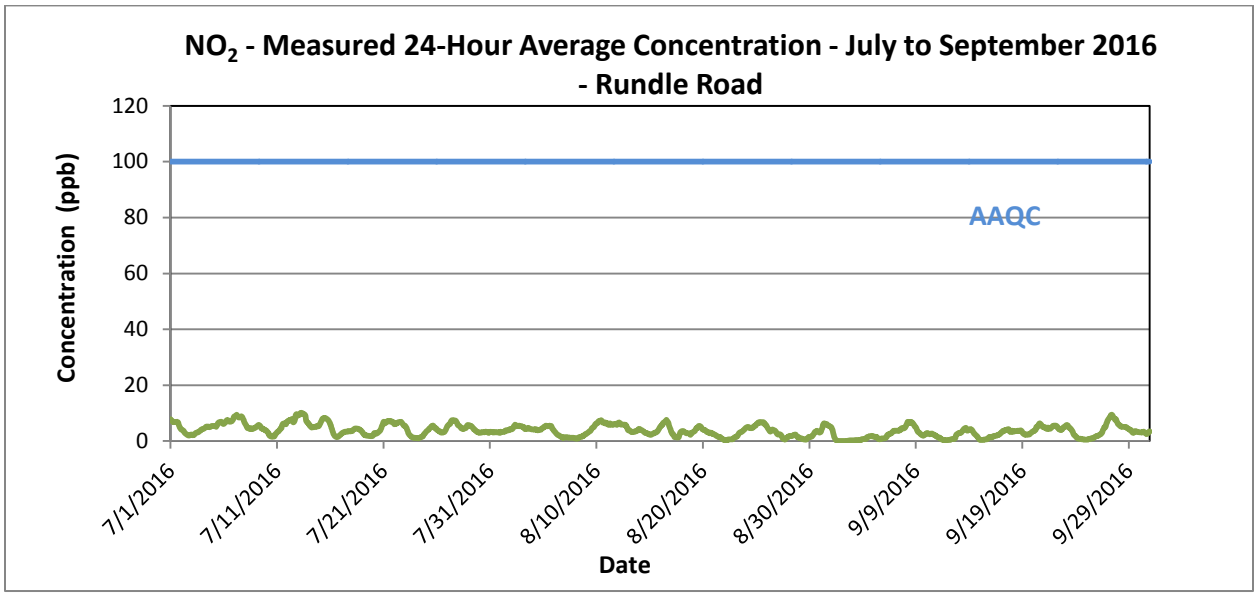


Figure C-2 Time History Plots of Measured Hourly Average and 24-Hour Average NO_2 Concentrations – Rundle Road Station





Appendix D NO_X DATA SUMMARIES AND TIME HISTORY PLOTS

NOx COURTICE
July 2016
(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	22.8	17.0	15.0	22.2	12.0	12.6	9.4	15.9	10.4	7.9	8.7	4.5	3.8	4.2	3.0	2.4	2.2	2.2	2.2	2.2	2.8	2.5	2.5	4.4	24	22.8	2.2	8.0	0	0
2	3.2	3.6	4.0	4.3	4.6	5.0	5.3	4.2	2.2	2.7	2.9	2.7	1.7	1.4	1.4	2.3	1.6	2.3	2.8	2.9	6.9	9.2	11.3	11.3	24	11.3	1.4	4.2	0	0
3	5.5	6.9	6.1	21.2	11.2	12.1	9.1	6.9	6.7	5.9	4.6	2.7	2.4	2.6	1.0	0.7	0.9	1.2	1.7	2.4	2.5	23.0	22.0	28.3	24	28.3	0.7	7.8	0	0
4	29.2	17.6	20.1	29.5	21.4	38.0	19.5	12.1	9.2	5.3	6.2	5.6	2.9	2.1	1.2	1.1	1.4	1.1	1.2	3.3	3.7	29.9	33.8	27.5	24	38.0	1.1	13.5	0	0
5	19.9	11.4	10.1	13.5	12.9	17.7	15.5	12.7	12.4	11.3	9.2	7.6	6.8	3.4	1.3	1.2	1.2	1.3	1.8	4.4	9.6	10.6	17.3	41.9	24	41.9	1.2	10.6	0	0
6	36.3	32.7	29.6	34.5	27.6	29.3	32.7	17.0	8.1	10.9	7.4	3.7	2.7	2.0	1.7	1.5	1.3	1.3	1.3	4.7	4.0	8.3	5.3	2.5	24	36.3	1.3	12.8	0	0
7	1.9	2.7	3.4	3.1	4.4	3.5	2.6	2.4	3.3	5.0	3.8	2.7	2.3	2.4	3.1	2.8	2.3	2.7	3.6	5.3	6.9	7.2	5.6	6.4	24	7.2	1.9	3.7	0	0
8	5.8	4.9	6.1	12.9	15.7	12.3	10.3	7.1	13.9	8.8	2.4	2.3	2.7	1.9	1.4	1.3	1.2	1.4	2.8	4.8	4.0	3.1	9.7	21.8	24	21.8	1.2	6.6	0	0
9	7.3	4.8	6.5	3.4	2.0	1.5	3.0	6.4	2.6	3.1	2.4	2.6	7.3	2.5	1.1	1.7	2.4	3.2	3.1	2.9	5.3	4.9	4.0	2.9	24	7.3	1.1	3.6	0	0
10	2.3	2.2	2.5	3.3	2.9	3.7	2.2	2.9	2.7	3.1	3.2	3.5	3.3	2.7	2.4	3.2	3.2	2.4	3.3	3.0	5.5	12.8	7.0	9.0	24	12.8	2.2	3.8	0	0
11	13.4	6.1	5.7	7.4	9.5	11.7	17.0	8.4	3.6	2.4	2.1	1.9	1.7	1.4	1.6	1.7	1.3	2.9	5.6	3.0	4.5	6.4	14.3	21.6	24	21.6	1.3	6.5	0	0
12	17.5	12.5	10.3	11.4	15.8	14.8	14.9	5.9	5.8	4.2	3.2	2.3	2.5	3.0	3.3	2.8	2.2	3.1	2.7	6.2	5.9	9.6	9.4	15.9	24	17.5	2.2	7.7	0	0
13	21.5	16.0	11.9	22.6	29.1	9.9	2.6	2.7	2.1	1.9	1.7	1.7	1.3	1.3	1.1	0.5	0.6	0.8	1.0	1.6	1.3	1.9	1.8	1.8	24	29.1	0.5	5.8	0	0
14	1.5	3.3	1.7	0.9	0.6	0.9	1.8	1.9	2.2	2.7	2.3	1.8	1.8	1.6	2.3	1.4	1.0	1.1	1.3	1.5	2.0	2.2	1.7	2.1	24	3.3	0.6	1.7	0	0
15	3.2	6.2	8.4	5.9	10.0	9.9	33.3	9.2	5.4	5.4	5.7	3.1	1.7	3.0	3.6	3.3	3.5	3.0	2.6	3.5	3.5	2.9	2.4	3.5	24	33.3	1.7	5.9	0	0
16	2.5	2.8	2.4	3.1	2.4	2.6	2.7	3.1	3.2	2.3	1.2	1.1	0.9	0.9	0.9	0.7	1.1	0.8	1.0	2.2	9.4	11.5	9.9	14.6	24	14.6	0.7	3.5	0	0
17	9.3	11.2	10.0	7.3	7.0	6.6	10.0	5.4	5.3	1.8	1.6	1.4	2.8	2.0	1.1	2.3	0.9	1.5	1.5	1.5	1.0	1.2	3.9	2.8	24	11.2	0.9	4.1	0	0
18	3.2	1.7	2.3	2.6	2.6	1.9	2.0	1.9	3.0	2.5	2.2	2.7	2.3	3.0	2.4	2.0	3.0	2.5	3.0	3.4	4.3	3.9	5.2	6.3	24	6.3	1.7	2.9	0	0
19	5.3	5.2	6.1	9.2	11.5	17.5	17.8	15.5	5.6	2.5	2.1	2.7	2.4	3.4	2.0	3.4	3.0	2.8	4.8	7.2	8.5	6.1	8.5	11.4	24	17.8	2.0	6.8	0	0
20	10.3	21.8	40.5	64.0	63.1	52.1	24.6	14.3	9.3	13.1	7.6	2.4	2.8	1.2	1.2	0.8	1.3	2.0	2.1	4.2	25.7	41.1	39.0	44.7	24	64.0	0.8	20.4	0	0
21	21.1	25.3	21.9	30.4	31.0	61.2	30.7	7.8	5.6	4.3	1.8	1.4	1.2	1.3	1.3	0.7	1.0	0.8	0.7	0.9	1.4	1.5	1.5	1.5	24	61.2	0.7	10.7	0	0
22	1.6	2.2	2.9	3.1	2.8	3.8	C	C	C	M	M	1.7	1.7	2.3	2.9	2.3	0.9	2.8	3.4	2.7	5.3	8.9	12.6	13.8	19	13.8	0.9	4.1	0	0
23	7.8	8.5	6.6	7.4	7.0	5.6	6.7	4.1	1.8	2.1	1.9	2.1	1.6	1.5	1.4	3.0	2.8	1.9	3.1	3.7	5.6	7.3	6.3	5.1	24	8.5	1.4	4.4	0	0
24	5.5	6.0	4.7	6.7	4.7	4.2	10.6	22.4	2.6	3.2	3.2	2.8	1.9	2.9	2.0	3.1	2.4	3.0	8.6	5.1	6.0	5.1	3.0	2.1	24	22.4	1.9	5.1	0	0
25	2.8	2.7	2.7	5.4	6.8	1.8	2.2	2.1	1.7	1.6	1.7	3.2	2.1	1.9	1.7	2.2	2.9	4.8	5.4	9.1	13.2	11.2	6.6	7.4	24	13.2	1.6	4.3	0	0
26	6.7	7.0	7.1	9.9	4.4	5.5	8.5	5.4	4.1	3.9	3.7	7.5	5.6	3.0	2.1	1.4	1.4	0.9	1.4	3.1	3.8	35.5	42.9	44.9	24	44.9	0.9	9.1	0	0
27	27.9	26.7	19.8	17.3	18.9	51.5	52.5	22.2	14.8	12.2	8.6	3.3	2.7	2.1	4.0	6.0	6.2	7.8	3.2	10.1	11.1	10.3	9.5	18.1	24	52.5	2.1	15.3	0	0
28	28.7	23.9	11.5	15.8	24.8	24.6	14.0	11.4	9.2	7.1	7.4	5.4	3.6	4.1	2.1	1.6	2.0	1.9	2.0	2.5	8.3	38.1	11.7	11.4	24	38.1	1.6	11.4	0	0
29	11.1	10.8	5.5	3.6	6.2	5.5	7.0	6.0	4.5	3.9	1.3	0.5	0.4	0.7	0.6	0.7	0.6	0.7	0.7	1.3	2.0	7.0	6.0	5.6	24	11.1	0.4	3.8	0	0
30	3.8	3.9	2.9	3.3	2.7	7.3	5.1	4.6	3.5	3.8	3.5	1.4	1.0	0.9	0.4	0.8	0.8	0.7	3.5	3.8	7.0	11.6	9.3	9.4	24	11.6	0.4	4.0	0	0
31	4.6	4.2	5.1	3.8	3.7	5.1	4.2	2.7	5.0	17.1	2.6	2.2	2.1	3.7	5.4	4.7	13.1	2.8	4.8	7.7	18.2	8.0	10.4	11.0	24	18.2	2.1	6.3	0	0
Count	31	31	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	739					
Maximum	36.3	32.7	40.5	64.0	63.1	61.2	52.5	22.4	14.8	17.1	9.2	7.6	7.3	4.2	5.4	6.0	13.1	7.8	8.6	10.1	25.7	41.1	42.9	44.9	24					
Minimum	1.5	1.7	1.7	0.9	0.6	0.9	1.8	1.9	1.7	1.6	1.2	0.5	0.4	0.7	0.4	0.5	0.6	0.7	0.7	0.9	1.0	1.2	1.5	1.5	19					
Average	11.1	10.1	9.5	12.5	12.2	14.2	12.6	8.2	5.7	5.4	3.9	2.9	2.6	2.3	2.0	2.0	2.3	2.2	2.8	3.9	6.4	11.1	10.8	13.3						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	64.0
													Maximum Daily	20.4
Data	1.3	1.9	2.4	2.9	3.5	5.1	6.9	9.9	17.0	25.8	44.0	64.0	Monthly Average	7.0

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

NOx COURTICE
August 2016
(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	8.9	8.2	5.4	7.5	5.6	7.5	8.6	7.2	3.9	1.9	1.1	1.0	1.0	0.6	0.5	0.3	0.4	0.4	0.7	1.1	1.8	2.3	13.1	24.0	24	24.0	0.3	4.7	0	0
2	14.1	14.7	14.3	13.3	17.2	21.8	28.0	23.2	5.4	2.3	1.4	1.0	0.8	0.4	0.4	0.5	0.5	0.7	1.1	1.4	6.7	30.5	20.3	24.4	24	30.5	0.4	10.2	0	0
3	19.1	19.5	16.8	16.5	23.9	28.0	29.2	14.1	11.9	3.0	1.5	1.1	0.9	1.0	1.1	0.8	0.9	1.0	1.2	1.6	3.5	6.0	20.8	12.4	24	29.2	0.8	9.8	0	0
4	14.9	14.4	12.8	18.2	17.7	34.3	28.7	15.8	8.6	3.8	1.8	2.7	2.2	2.0	1.6	1.5	1.5	1.0	1.4	1.7	3.2	1.7	2.1	2.9	24	34.3	1.0	8.2	0	0
5	2.7	3.2	2.2	2.1	1.9	3.1	2.5	2.8	2.7	2.1	1.9	1.9	1.5	1.2	1.5	1.0	1.3	1.2	1.4	4.0	8.1	4.8	5.7	8.8	24	8.8	1.0	2.9	0	0
6	4.2	3.2	3.6	2.8	3.3	3.9	7.6	6.7	4.6	3.7	3.6	3.2	3.2	3.1	2.6	2.5	4.1	2.6	3.1	4.6	4.8	6.1	6.8	7.6	24	7.6	2.5	4.2	0	0
7	15.5	18.1	9.7	6.8	5.3	5.5	3.9	2.7	2.9	2.4	2.1	2.0	2.2	3.1	2.0	2.3	2.6	2.7	4.4	4.3	5.2	5.3	4.2	4.4	24	18.1	2.0	5.0	0	0
8	3.9	3.3	3.6	7.1	5.2	6.4	11.0	9.1	9.4	7.2	2.2	0.7	0.8	0.7	0.7	0.6	0.4	0.5	0.8	6.8	34.3	43.1	28.2	24.7	24	43.1	0.4	8.8	0	0
9	20.6	18.0	23.1	20.5	17.0	17.0	18.3	10.4	6.9	3.3	2.0	1.9	2.3	1.5	1.8	3.1	2.7	5.9	6.0	4.2	4.8	4.2	7.9	21.8	24	23.1	1.5	9.4	0	0
10	27.9	21.3	19.3	5.7	1.6	1.7	22.2	4.4	6.9	6.4	3.3	2.9	2.2	2.1	1.3	1.5	1.9	2.1	1.6	1.4	2.5	4.7	4.5	17.5	24	27.9	1.3	7.0	0	0
11	10.6	8.6	5.5	9.2	13.6	15.8	45.9	17.2	3.7	3.2	5.5	3.6	3.3	3.5	3.1	2.2	2.3	3.3	2.1	1.9	2.0	2.4	3.5	2.3	24	45.9	1.9	7.3	0	0
12	2.1	2.3	3.2	1.9	2.2	2.7	3.1	2.3	2.4	3.3	3.0	2.8	1.5	1.2	1.1	1.2	1.3	1.3	1.9	5.4	4.8	3.3	2.8	7.5	24	7.5	1.1	2.7	0	0
13	7.8	5.1	3.1	2.4	2.4	3.5	10.1	13.3	15.7	13.7	7.3	4.4	3.5	3.8	3.5	2.7	3.3	1.8	2.2	3.2	4.5	2.3	3.6	4.5	24	15.7	1.8	5.3	0	0
14	4.1	4.8	4.0	4.4	3.0	3.5	3.7	4.2	3.9	3.2	3.0	2.7	2.4	2.0	1.7	1.8	2.1	4.7	6.8	4.4	6.6	4.9	5.2	11.5	24	11.5	1.7	4.1	0	0
15	14.6	16.1	14.0	12.2	17.5	23.8	26.6	14.4	9.5	9.0	3.7	2.4	2.0	2.1	1.7	2.0	1.9	3.4	6.8	9.0	6.4	14.2	11.6	15.3	24	26.6	1.7	10.0	0	0
16	13.1	6.8	1.8	1.8	1.6	4.8	11.0	8.6	2.8	1.9	1.5	2.4	1.8	1.6	1.2	1.3	0.8	1.6	2.0	2.4	2.5	3.7	4.0	7.1	24	13.1	0.8	3.7	0	0
17	4.9	7.3	7.3	8.4	8.0	21.2	57.2	12.6	5.9	5.8	3.8	2.0	1.5	1.3	1.6	2.0	1.6	1.5	2.6	6.9	12.9	14.6	13.3	15.4	24	57.2	1.3	9.1	0	0
18	12.5	12.5	9.4	10.9	9.6	17.8	14.8	7.7	5.6	4.4	5.0	C	C	C	C	1.8	0.0	0.0	0.1	0.8	1.7	11.5	35.4	22.8	20	35.4	0.0	9.2	0	0
19	15.9	13.7	15.6	25.4	27.2	30.9	34.4	17.3	11.1	3.5	1.9	1.7	3.5	4.3	3.4	2.7	1.3	1.2	1.2	2.4	4.5	2.9	6.6	8.3	24	34.4	1.2	10.0	0	0
20	10.9	9.5	8.4	5.6	7.8	8.8	3.4	2.3	1.8	1.1	1.4	1.2	3.0	2.4	1.5	1.4	1.0	0.8	1.9	1.1	1.3	0.3	0.9	0.1	24	10.9	0.1	3.2	0	0
21	0.8	0.8	1.3	0.6	0.4	0.0	0.0	0.4	1.1	1.8	0.2	0.0	0.0	0.0	0.0	1.3	3.0	2.3	2.9	3.2	3.4	3.3	3.4	7.2	24	7.2	0.0	1.6	0	0
22	5.9	6.8	6.1	14.9	10.2	13.3	14.3	14.9	4.3	2.6	2.9	0.7	0.6	1.5	1.0	1.2	2.4	2.5	5.0	7.1	9.8	66.9	56.4	30.9	24	66.9	0.6	11.8	0	0
23	22.5	26.4	26.3	30.4	50.8	50.6	69.0	31.7	16.8	13.1	6.8	4.0	1.5	0.5	0.0	0.0	0.1	0.2	0.2	0.4	1.3	1.3	3.8	41.7	24	69.0	0.0	16.6	0	0
24	60.6	52.2	26.4	26.1	31.6	48.5	64.5	40.8	18.2	11.0	7.8	2.1	1.5	1.5	0.8	0.5	0.4	0.5	0.5	1.6	0.8	1.4	1.7	1.7	24	64.5	0.4	16.8	0	0
25	1.9	2.5	1.5	1.3	1.0	1.4	2.4	2.1	1.4	1.2	2.4	3.5	1.6	0.7	0.1	0.5	0.3	0.2	0.0	4.9	11.9	5.3	0.9	4.5	24	11.9	0.0	2.2	0	0
26	17.0	12.4	5.2	3.7	4.1	13.0	12.8	8.8	11.1	10.9	12.9	15.4	6.4	0.0	0.0	0.6	0.5	0.4	2.3	6.0	4.3	2.8	2.8	3.6	24	17.0	0.0	6.6	0	0
27	5.5	2.7	7.7	6.6	4.6	3.9	5.2	8.7	4.9	2.9	1.2	1.8	0.4	0.2	0.2	0.2	0.3	1.4	6.4	9.5	8.3	7.1	3.0	2.1	24	9.5	0.2	3.9	0	0
28	3.7	6.9	4.4	3.5	3.5	3.2	5.6	4.1	3.1	1.9	0.6	0.9	0.2	1.3	1.2	0.7	0.9	1.5	1.9	1.4	1.5	1.5	2.1	3.9	24	6.9	0.2	2.5	0	0
29	4.7	5.4	4.3	4.8	8.4	9.8	7.9	6.5	3.8	2.8	1.0	0.2	0.1	0.0	0.5	0.2	0.0	0.0	0.7	1.9	24.6	38.2	42.6	27.8	24	42.6	0.0	8.2	0	0
30	15.5	8.2	10.9	21.6	21.2	29.5	36.9	19.3	5.3	6.1	5.7	12.6	6.3	4.7	1.2	0.1	0.3	2.0	4.7	10.9	12.9	12.2	22.4	22.4	24	36.9	0.1	12.2	0	0
31	15.2	14.3	21.1	18.4	16.8	26.9	40.7	37.8	13.5	5.4	5.2	5.6	5.1	2.4	0.9	1.4	2.5	5.0	4.7	3.5	3.7	7.5	5.9	6.6	24	40.7	0.9	11.3	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31	740					
Maximum	60.6	52.2	26.4	30.4	50.8	50.6	69.0	40.8	18.2	13.7	12.9	15.4	6.4	4.7	3.5	3.1	4.1	5.9	6.8	10.9	34.3	66.9	56.4	41.7	24					
Minimum	0.8	0.8	1.3	0.6	0.4	0.0	0.0	0.4	1.1	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.3	0.9	0.1	20					
Average	12.3	11.3	9.6	10.2	11.1	14.9	20.3	12.0	6.7	4.7	3.3	3.0	2.1	1.7	1.3	1.3	1.4	1.7	2.5	3.8	6.6	10.2	11.2	12.8						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	69.0
													Maximum Daily	16.8
Data	0.8	1.4	2.0	2.7	3.5	4.8	6.9	11.6	18.3	27.3	50.8	69.0	Monthly Average	7.4

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

NOx COURTICE
September 2016
(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	6.9	3.9	3.0	5.1	4.3	5.6	8.5	5.3	3.0	3.5	1.6	1.5	1.7	2.1	1.8	4.8	2.6	2.8	5.5	5.7	4.9	4.4	2.7	2.7	24	8.5	1.5	3.9	0	0
2	4.2	2.2	1.9	1.9	2.4	3.2	3.9	4.0	3.9	2.1	1.3	1.0	1.0	0.3	0.7	0.0	0.0	0.0	5.8	10.3	6.8	6.3	5.2	11.6	24	11.6	0.0	3.3	0	0
3	8.6	5.4	4.7	6.7	4.9	6.0	8.7	2.9	19.0	3.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.9	15.2	9.9	9.0	10.5	24	19.0	0.0	5.4	0	0
4	6.1	5.5	8.3	18.9	5.6	7.2	7.0	4.2	3.1	0.7	0.2	0.4	0.5	0.0	0.2	0.2	0.5	0.1	2.2	15.6	20.1	12.3	6.7	9.9	24	20.1	0.0	5.6	0	0
5	6.4	3.8	2.4	3.0	3.9	8.2	14.6	9.9	3.2	1.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.7	2.6	13.6	17.6	9.1	12.6	24	17.6	0.0	4.8	0	0
6	10.4	9.4	12.6	19.4	25.6	45.2	46.3	17.2	5.8	1.3	1.1	1.7	0.9	1.2	1.1	0.1	0.3	2.5	3.7	2.2	4.4	1.9	7.5	8.1	24	46.3	0.1	9.6	0	0
7	8.2	11.0	10.7	11.9	11.5	14.2	17.6	13.6	3.8	A	A	0.7	0.7	1.0	1.1	0.6	1.7	3.8	4.6	6.5	3.5	1.1	8.6	4.2	22	17.6	0.6	6.4	0	0
8	13.6	3.0	5.3	12.2	3.9	3.1	1.3	0.9	1.3	1.0	1.8	2.8	2.4	1.0	0.5	0.1	0.4	1.0	4.7	4.7	3.5	4.5	5.6	10.6	24	13.6	0.1	3.7	0	0
9	11.3	10.2	9.0	10.6	10.4	26.2	35.6	13.6	5.5	2.6	2.5	0.8	0.5	1.5	2.4	2.2	1.7	2.1	6.4	5.2	7.9	19.2	12.1	15.2	24	35.6	0.5	9.0	0	0
10	18.9	9.1	10.1	7.5	5.6	6.5	7.8	7.4	3.9	2.3	1.5	2.2	1.5	1.1	0.6	0.2	0.2	0.0	0.3	0.5	0.3	0.3	1.1	1.4	24	18.9	0.0	3.8	0	0
11	1.3	2.2	1.3	1.1	2.0	2.6	2.5	1.9	2.3	2.3	1.8	1.3	1.4	1.5	1.4	2.0	1.9	3.4	12.8	8.6	17.7	20.5	24.9	23.1	24	24.9	1.1	5.9	0	0
12	16.5	12.7	5.3	12.3	26.4	31.0	47.8	37.5	20.8	4.0	1.5	1.0	0.4	0.3	0.0	0.3	0.5	0.4	0.4	1.0	9.8	21.4	1.6	0.7	24	47.8	0.0	10.6	0	0
13	5.3	15.0	13.3	16.4	21.1	29.7	52.0	33.8	13.3	9.0	10.7	10.4	5.9	1.8	0.8	0.5	0.4	0.2	0.5	0.5	0.8	1.4	1.4	1.3	24	52.0	0.2	10.2	0	0
14	1.3	3.3	5.3	2.4	1.8	2.2	3.3	3.2	4.0	2.1	3.4	2.2	1.6	1.4	1.2	1.9	4.3	4.0	6.9	10.0	12.2	5.0	3.9	5.7	24	12.2	1.2	3.9	0	0
15	10.7	8.7	10.2	6.9	6.8	6.6	6.8	5.4	2.6	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	21.3	35.7	23.4	19.3	17.1	24	35.7	0.0	7.9	0	0
16	12.6	8.5	10.9	10.9	11.4	12.4	11.8	11.7	21.2	C	C	C	1.6	1.0	1.1	1.3	1.9	6.5	14.3	13.1	12.9	12.3	4.5	1.2	21	21.2	1.0	8.7	0	0
17	0.8	1.2	1.8	1.6	2.0	1.7	1.2	2.2	1.8	1.3	1.0	0.9	0.6	0.9	0.4	0.4	0.6	0.2	0.0	0.1	0.1	1.0	1.3	2.6	24	2.6	0.0	1.1	0	0
18	3.5	7.7	2.9	3.0	2.4	3.0	6.8	8.4	6.1	2.2	2.0	3.1	1.6	1.4	1.3	0.6	0.8	0.0	0.3	4.4	20.5	16.4	11.6	5.5	24	20.5	0.0	4.8	0	0
19	5.0	4.5	4.2	5.8	7.8	12.7	62.6	32.3	17.2	8.8	2.8	1.3	1.0	0.9	0.4	0.0	0.0	0.2	1.3	3.6	8.3	15.4	38.0	31.8	24	62.6	0.0	11.1	0	0
20	21.3	36.5	26.3	29.8	13.8	6.9	3.3	14.2	15.2	11.9	16.1	13.4	10.8	7.6	3.9	2.2	2.8	6.0	5.5	7.1	10.6	17.3	14.0	8.6	24	36.5	2.2	12.7	0	0
21	8.0	9.6	9.0	21.1	43.2	57.6	49.7	34.9	23.8	19.6	25.0	9.9	6.8	4.5	2.0	2.1	0.9	0.9	1.0	14.5	29.5	27.8	24.5	13.0	24	57.6	0.9	18.3	0	0
22	16.0	13.2	9.4	10.9	12.4	25.1	26.9	17.1	8.4	3.3	2.2	1.6	0.8	1.7	1.8	1.3	2.8	13.1	21.2	25.6	31.3	26.1	20.4	13.2	24	31.3	0.8	12.7	0	0
23	12.4	15.4	16.2	23.5	15.4	11.6	C	C	C	5.5	4.3	4.3	5.6	2.5	2.8	2.9	2.5	4.3	7.5	4.5	5.2	6.1	4.6	4.5	21	23.5	2.5	7.7	0	0
24	3.4	2.6	5.9	1.2	6.5	2.0	5.8	6.0	3.0	3.5	0.9	1.5	0.8	0.3	0.0	0.0	0.0	1.1	7.9	10.3	7.4	4.2	2.5	3.0	24	10.3	0.0	3.3	0	0
25	1.7	1.7	2.9	4.6	3.9	3.3	5.3	2.8	7.7	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	12.3	7.8	10.0	1.3	24	22.4	0.0	3.8	0	0
26	0.3	0.1	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.6	0.9	1.1	0.9	1.2	1.6	2.0	9.0	8.6	9.6	7.3	25.4	20.5	9.8	5.2	24	25.4	0.0	4.4	0	0
27	13.1	25.9	21.3	15.3	8.9	32.1	36.5	30.3	16.3	2.6	1.3	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	36.5	0.0	8.5	0	0
28	0.7	0.4	0.4	0.8	15.2	16.7	26.9	22.4	5.9	1.3	1.0	1.4	1.9	2.4	1.4	4.5	18.8	23.9	17.3	11.5	8.8	6.1	8.2	7.9	24	26.9	0.4	8.6	0	0
29	4.1	6.4	9.6	3.4	4.3	5.0	4.8	4.2	5.9	5.6	7.8	15.8	15.2	6.9	6.0	13.7	7.6	6.2	6.3	3.9	4.8	5.2	6.1	4.9	24	15.8	3.4	6.8	0	0
30	3.9	3.6	5.5	4.0	3.8	4.9	6.6	5.7	5.2	4.3	2.8	2.4	3.4	3.9	2.5	0.9	3.5	4.5	5.6	15.6	4.3	0.0	0.0	0.1	24	15.6	0.0	4.0	0	0
31																													0	0
Count	30	30	30	30	30	30	29	29	29	28	28	29	30	30	30	30	30	30	30	30	30	30	30	30	712					
Maximum	21.3	36.5	26.3	29.8	43.2	57.6	62.6	37.5	23.8	22.4	25.0	15.8	15.2	7.6	6.0	13.7	18.8	23.9	21.2	25.6	35.7	27.8	38.0	31.8	24					
Minimum	0.3	0.1	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.5	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	21					
Average	7.9	8.1	7.7	9.1	9.6	13.1	17.7	12.2	8.1	4.6	3.5	2.9	2.3	1.6	1.2	1.5	2.2	3.2	5.3	7.8	11.3	10.5	9.1	7.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.2	0.9	1.5	2.5	3.9	5.5	7.8	11.6	17.5	25.3	42.6	62.6

Maximum Hourly	62.6
Maximum Daily	18.3
Monthly Average	7.0

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

NOx Rundle Road
July 2016
(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	7.8	6.8	6.1	5.3	5.1	4.9	4.8	11.9	8.5	6.8	6.5	7.1	6.3	5.7	5.0	4.3	1.4	1.2	1.5	1.2	1.2	1.3	1.5	1.5	24	11.9	1.2	4.7	0	0
2	2.5	4.2	6.1	2.7	2.5	2.1	1.8	2.0	1.1	1.3	4.0	4.2	3.0	2.4	2.8	1.1	1.1	1.2	1.6	1.6	3.3	4.5	4.0	2.6	24	6.1	1.1	2.6	0	0
3	2.2	2.5	2.6	3.2	2.9	3.0	5.8	11.0	8.2	7.5	7.1	3.9	3.5	3.6	3.9	3.5	7.2	3.6	5.4	5.9	7.7	8.4	5.9	5.6	24	11.0	2.2	5.2	0	0
4	3.2	4.3	4.1	5.7	7.7	8.4	16.4	24.7	11.6	8.8	8.5	4.0	2.1	2.0	1.9	3.0	3.2	3.5	9.5	11.6	11.1	9.2	7.2	5.8	24	24.7	1.9	7.4	0	0
5	4.2	4.0	4.1	3.9	4.6	5.5	6.6	11.8	26.8	17.7	14.6	21.2	8.8	6.1	3.5	2.9	4.7	5.0	6.6	8.0	2.2	3.3	3.1	3.4	24	26.8	2.2	7.6	0	0
6	2.5	7.0	12.6	8.2	6.5	7.8	21.4	26.0	13.7	20.2	14.9	9.6	5.7	4.2	2.2	3.8	7.5	5.2	12.7	12.5	8.6	8.9	15.0	15.0	24	26.0	2.2	10.5	0	0
7	7.1	7.5	10.1	10.5	7.7	16.5	9.7	10.5	10.8	14.1	12.7	9.6	7.3	6.8	5.6	5.3	6.1	2.9	1.4	1.4	3.5	2.7	2.8	2.3	24	16.5	1.4	7.3	0	0
8	2.3	1.7	1.8	2.5	2.9	3.4	6.9	10.2	13.6	7.9	10.5	11.8	20.6	14.0	3.5	1.9	3.8	3.8	7.0	4.0	2.5	2.3	7.3	3.6	24	20.6	1.7	6.2	0	0
9	3.3	5.3	8.3	5.4	7.2	6.0	11.8	12.6	5.9	4.8	5.0	2.4	1.5	1.5	3.0	2.6	1.6	1.6	1.6	2.1	1.4	1.8	1.5	1.5	24	12.6	1.4	4.1	0	0
10	1.5	1.3	1.3	1.5	1.5	1.4	1.4	1.3	1.5	1.9	2.0	2.1	2.2	2.2	2.8	2.2	2.4	3.1	2.7	13.8	12.8	5.6	5.5	5.3	24	13.8	1.3	3.3	0	0
11	10.5	4.9	4.5	2.9	2.8	13.3	5.2	10.7	15.6	8.8	3.4	29.7	27.6	31.0	8.5	5.8	7.7	3.2	3.5	5.7	9.6	15.7	13.0	13.5	24	31.0	2.8	10.7	0	0
12	8.2	8.0	10.8	4.5	4.4	11.3	11.1	6.8	6.9	16.8	20.1	4.0	3.3	4.3	11.2	10.1	13.5	28.8	29.7	16.5	11.0	9.7	6.8	9.5	24	29.7	3.3	11.1	0	0
13	11.1	10.6	9.5	8.2	11.1	13.6	9.4	8.0	8.7	6.9	6.0	4.4	5.8	3.6	3.2	3.0	2.9	3.2	4.6	8.1	4.8	8.0	5.6	4.7	24	13.6	2.9	6.9	0	0
14	4.9	2.8	4.2	8.1	6.7	5.7	6.8	6.9	11.4	6.7	6.1	5.9	5.9	5.7	5.0	3.8	5.2	5.0	4.4	6.1	7.1	8.0	5.7	9.2	24	11.4	2.8	6.1	0	0
15	15.9	7.1	16.6	12.7	12.9	17.6	20.8	18.6	9.9	13.0	9.9	6.3	4.6	5.9	2.5	2.4	1.6	1.7	1.5	1.6	2.0	1.6	1.5	1.4	24	20.8	1.4	7.9	0	0
16	1.4	1.2	1.1	1.0	1.0	1.5	1.5	1.1	1.0	0.7	5.2	3.1	2.9	1.9	2.1	1.9	2.0	2.1	2.5	4.2	6.7	4.6	5.7	5.3	24	6.7	0.7	2.6	0	0
17	5.6	6.0	4.3	3.7	3.8	4.1	2.9	3.5	5.0	3.3	1.9	2.6	2.7	2.6	1.9	2.5	3.8	6.3	5.3	10.6	3.4	4.6	4.3	5.8	24	10.6	1.9	4.2	0	0
18	7.1	6.9	4.0	9.7	7.4	5.9	6.7	7.0	8.6	1.9	1.3	1.9	2.2	2.0	1.8	1.7	3.1	2.1	1.4	1.6	1.4	1.4	1.8	1.6	24	9.7	1.3	3.8	0	0
19	1.6	1.6	1.6	2.0	2.0	3.0	4.4	15.8	3.3	1.5	1.3	1.4	1.3	1.4	1.2	1.8	2.2	1.5	1.0	1.1	1.6	1.5	1.3	1.9	24	15.8	1.0	2.4	0	0
20	3.1	17.5	13.2	10.0	3.9	C	C	C	C	6.6	M	4.3	6.6	4.6	4.6	3.5	4.6	5.2	8.1	9.9	11.1	9.8	12.0	10.9	19	17.5	3.1	7.9	0	0
21	18.8	6.8	5.3	3.9	6.2	24.5	16.1	12.0	14.7	7.6	6.1	6.2	4.3	3.7	4.0	4.4	3.7	7.6	7.2	10.1	6.7	9.0	7.1	5.3	24	24.5	3.7	8.4	0	0
22	4.3	4.6	7.4	6.4	7.8	11.3	14.2	15.1	19.2	12.3	8.3	4.5	4.2	4.6	5.0	5.0	5.2	1.9	0.9	1.2	5.4	2.4	2.4	2.8	24	19.2	0.9	6.5	0	0
23	3.3	2.5	1.9	1.8	1.6	1.5	2.9	1.1	0.5	0.4	0.6	0.5	0.3	0.6	0.4	0.6	0.5	0.4	0.7	1.2	1.1	1.6	2.1	2.6	24	3.3	0.3	1.3	0	0
24	1.9	2.0	1.6	1.4	1.7	1.3	0.9	7.7	0.9	2.1	1.5	3.0	2.7	3.1	2.9	1.6	2.0	3.1	14.8	5.9	8.9	4.2	8.0	4.6	24	14.8	0.9	3.7	0	0
25	15.6	5.7	5.5	3.4	4.5	9.0	5.6	4.8	9.7	6.3	7.5	7.5	6.6	4.8	5.2	5.1	2.5	1.1	1.4	2.2	4.3	4.3	4.3	2.4	24	15.6	1.1	5.4	0	0
26	2.0	1.9	1.6	1.6	3.6	6.5	6.1	2.7	2.1	1.5	5.0	8.6	7.7	7.2	6.0	4.9	3.5	4.1	4.9	8.6	9.8	10.8	13.4	21.9	24	21.9	1.5	6.1	0	0
27	16.9	13.9	8.0	6.9	21.5	10.4	15.6	18.5	21.7	15.3	10.3	8.4	8.6	4.6	4.0	3.9	2.7	5.5	6.0	5.6	4.5	3.4	3.2	4.0	24	21.7	2.7	9.3	0	0
28	5.1	4.4	3.7	6.6	5.1	3.3	3.3	2.7	14.1	11.3	9.4	9.0	11.6	3.6	8.5	4.6	6.2	6.4	6.6	14.3	14.7	12.3	5.2	3.3	24	14.7	2.7	7.3	0	0
29	3.1	4.9	2.1	1.2	1.4	1.7	2.5	2.8	2.4	2.0	1.9	5.2	2.1	2.0	2.2	1.9	2.4	3.9	4.0	8.1	26.1	6.9	1.2	1.4	24	26.1	1.2	3.9	0	0
30	8.0	1.8	7.7	1.5	1.4	3.7	1.5	5.6	10.6	1.5	1.2	1.4	4.7	9.3	6.7	1.1	1.1	4.4	5.2	8.1	15.4	4.9	6.4	3.7	24	15.4	1.1	4.9	0	0
31	2.6	7.4	2.7	1.4	1.3	2.4	1.6	1.5	2.9	2.5	3.6	2.0	3.3	2.7	1.8	3.2	1.7	2.5	2.4	9.6	6.7	3.0	4.2	12.7	24	12.7	1.3	3.6	0	0
Count	31	31	31	31	31	30	30	30	30	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	739					
Maximum	18.8	17.5	16.6	12.7	21.5	24.5	21.4	26.0	26.8	20.2	20.1	29.7	27.6	31.0	11.2	10.1	13.5	28.8	29.7	16.5	26.1	15.7	15.0	21.9	24					
Minimum	1.4	1.2	1.1	1.0	1.0	1.3	0.9	1.1	0.5	0.4	0.6	0.5	0.3	0.6	0.4	0.6	0.5	0.4	0.7	1.1	1.1	1.3	1.2	1.4	19					
Average	6.0	5.4	5.6	4.8	5.2	7.0	7.5	9.2	9.0	7.1	6.6	6.3	5.8	5.1	4.0	3.3	3.8	4.2	5.4	6.5	7.0	5.7	5.4	5.7						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100		
Data	1.5	1.9	2.7	3.5	4.5	5.6	6.9	8.6	12.5	15.6	25.5	31.0	Maximum Hourly	31.0
													Maximum Daily	11.1
													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

NOx Rundle Road
August 2016
(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	6.2	2.9	2.2	2.0	2.1	2.0	2.3	4.6	1.7	1.2	6.6	21.7	3.0	1.6	4.3	2.9	2.5	2.1	3.3	12.9	9.6	9.4	6.5	5.7	24	21.7	1.2	5.0	0	0
2	4.0	4.9	4.6	2.8	4.9	23.9	16.9	13.2	4.2	15.4	3.0	1.9	1.8	2.3	3.2	1.9	9.9	4.0	4.2	7.2	12.2	8.4	6.5	4.1	24	23.9	1.8	6.9	0	0
3	3.1	3.1	3.1	3.6	4.0	5.1	4.1	5.6	9.2	6.3	10.7	5.4	5.2	1.5	6.4	3.1	2.3	2.5	3.8	5.7	7.2	7.4	5.1	3.0	24	10.7	1.5	4.8	0	0
4	3.9	3.1	2.5	4.6	3.8	3.1	6.8	10.2	8.9	3.8	2.2	3.6	1.7	2.2	1.8	3.1	6.1	3.7	3.6	6.7	20.5	9.2	7.0	5.1	24	20.5	1.7	5.3	0	0
5	5.8	6.7	6.9	4.6	4.9	11.0	7.2	7.6	4.1	4.1	4.7	3.1	3.1	3.3	3.6	3.9	3.5	3.3	3.9	2.1	2.9	1.2	3.1	1.1	24	11.0	1.1	4.4	0	0
6	1.3	1.2	1.2	3.1	2.3	2.1	1.6	1.2	1.3	1.4	0.7	1.2	1.4	1.0	0.4	0.8	1.1	0.9	0.9	1.1	1.4	1.8	1.7	2.6	24	3.1	0.4	1.4	0	0
7	2.7	2.9	2.7	2.8	1.4	0.8	1.0	1.1	0.6	0.6	0.7	0.6	0.9	0.9	0.8	0.8	0.9	0.8	1.0	1.9	2.0	1.2	1.5	1.1	24	2.9	0.6	1.3	0	0
8	1.3	1.4	1.4	1.5	1.5	1.9	5.6	5.1	2.7	9.6	4.7	1.7	8.5	1.5	1.6	1.8	1.5	2.5	4.1	4.1	3.7	4.8	4.8	3.6	24	9.6	1.3	3.4	0	0
9	3.0	4.9	3.4	4.2	3.8	5.4	7.5	11.6	7.3	9.1	8.7	2.6	10.5	9.0	14.6	5.4	4.7	2.9	6.4	7.0	7.4	20.8	12.1	6.5	24	20.8	2.6	7.4	0	0
10	4.7	5.6	4.7	7.2	17.4	8.4	5.3	10.0	10.7	12.8	10.0	5.6	3.5	3.0	2.8	2.7	3.0	3.0	5.9	8.8	7.6	9.5	16.0	7.2	24	17.4	2.7	7.3	0	0
11	3.6	1.6	1.3	1.4	10.1	9.4	17.3	15.1	8.5	4.7	6.3	3.0	4.5	4.2	2.8	5.4	3.0	5.9	6.2	8.0	10.5	6.8	9.2	14.7	24	17.3	1.3	6.8	0	0
12	7.1	5.8	5.3	7.1	6.3	8.7	7.0	6.0	5.5	6.9	6.1	5.6	4.6	4.0	3.8	4.2	3.7	2.7	6.2	2.3	1.6	1.5	1.4	1.3	24	8.7	1.3	4.8	0	0
13	1.4	8.5	4.4	2.9	3.1	3.1	3.2	3.7	7.8	6.3	6.8	4.6	8.5	9.1	2.8	7.1	4.5	3.1	3.3	7.6	5.3	2.7	3.8	6.3	24	9.1	1.4	5.0	0	0
14	6.1	4.7	1.8	1.8	1.5	1.5	1.0	1.2	1.3	1.1	1.2	1.6	2.8	3.1	3.7	3.6	4.3	2.6	2.1	3.1	4.8	3.3	3.1	2.9	24	6.1	1.0	2.7	0	0
15	3.0	3.0	2.6	2.5	4.2	5.4	5.9	4.4	4.5	2.6	5.7	6.4	2.9	3.6	5.4	11.2	6.5	4.5	7.7	11.2	11.5	14.0	10.6	7.7	24	14.0	2.5	6.1	0	0
16	15.5	6.9	3.7	10.9	7.5	6.0	7.5	17.9	6.1	3.0	C	C	C	C	C	2.6	1.9	3.2	0.6	0.0	0.0	0.1	1.3	0.0	19	17.9	0.0	5.0	0	0
17	0.1	0.0	0.0	0.0	4.3	18.1	12.1	4.0	1.6	4.2	5.5	2.0	0.7	1.0	0.9	1.4	1.9	3.1	5.9	11.9	20.9	7.0	10.1	3.8	24	20.9	0.0	5.0	0	0
18	2.4	1.5	2.1	1.0	4.5	2.3	2.0	1.2	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.7	1.5	3.2	5.3	8.3	7.1	21.2	11.0	5.1	24	21.2	0.0	3.4	0	0
19	6.5	6.1	4.0	4.5	4.7	5.4	5.4	11.2	12.9	11.0	2.1	1.6	6.2	4.8	8.9	2.8	2.5	1.8	2.9	6.5	2.1	9.0	6.5	2.3	24	12.9	1.6	5.5	0	0
20	2.0	8.6	2.3	1.7	4.4	3.2	5.6	5.5	2.1	3.1	2.2	1.7	3.2	7.6	1.2	0.7	1.7	7.4	3.6	3.6	4.1	1.6	3.8	1.6	24	8.6	0.7	3.4	0	0
21	6.5	1.1	0.9	0.9	0.9	0.0	0.7	0.8	1.8	0.2	0.4	1.3	1.6	4.3	2.1	0.4	0.1	0.0	0.0	0.1	0.3	0.2	0.0	0.4	24	6.5	0.0	1.0	0	0
22	0.1	0.0	0.0	0.6	1.1	0.8	10.1	3.1	0.3	6.3	3.6	2.1	3.6	3.5	2.4	0.0	0.0	0.0	1.5	1.4	4.9	5.0	10.8	4.5	24	10.8	0.0	2.7	0	0
23	3.7	3.3	1.2	0.8	12.3	7.9	8.2	16.5	14.7	15.8	8.7	7.1	4.2	3.1	3.2	4.0	3.4	2.5	5.8	6.8	6.7	7.0	9.0	10.5	24	16.5	0.8	6.9	0	0
24	8.3	5.6	5.0	5.6	10.5	13.6	10.8	8.9	14.9	6.9	5.4	3.1	2.7	3.1	4.7	2.7	5.2	8.0	6.6	11.7	8.7	13.2	8.1	10.1	24	14.9	2.7	7.7	0	0
25	11.5	16.5	7.1	6.7	4.2	7.2	13.1	10.3	7.4	4.9	6.9	6.9	3.9	3.9	4.5	6.2	6.3	3.8	3.6	1.4	9.6	6.4	7.0	7.1	24	16.5	1.4	6.9	0	0
26	6.9	2.3	0.4	0.0	0.6	1.0	3.2	5.6	5.6	10.8	14.6	13.1	11.8	5.1	2.0	2.5	4.1	2.8	3.7	0.8	2.3	0.4	0.5	0.3	24	14.6	0.0	4.2	0	0
27	0.1	0.2	0.0	0.3	0.0	0.0	5.6	3.5	0.4	3.0	0.9	1.1	0.2	0.2	0.3	0.5	1.0	1.7	8.4	9.0	3.2	5.2	6.0	1.1	24	9.0	0.0	2.2	0	0
28	1.7	6.8	1.3	1.7	5.3	0.7	1.5	1.5	5.0	2.0	6.9	2.5	4.3	1.9	2.1	2.3	2.6	0.6	0.0	0.0	0.0	0.0	0.9	4.6	24	6.9	0.0	2.3	0	0
29	4.4	0.1	0.0	0.0	0.1	0.0	0.5	0.6	0.6	0.7	2.2	1.9	2.2	1.6	2.4	2.5	1.2	1.8	4.1	5.4	4.1	4.4	10.5	7.4	24	10.5	0.0	2.4	0	0
30	1.1	2.6	0.1	0.0	4.0	2.0	3.2	7.3	9.9	7.3	8.1	15.6	10.8	6.6	2.7	3.0	6.9	3.8	1.7	1.5	5.1	2.1	1.9	2.5	24	15.6	0.0	4.6	0	0
31	2.1	1.7	7.9	12.1	11.6	26.1	32.1	27.6	18.2	15.2	8.3	7.7	7.5	4.0	4.1	2.7	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.0	24	32.1	0.0	7.9	0	0
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	15.5	16.5	7.9	12.1	17.4	26.1	32.1	27.6	18.2	15.8	14.6	21.7	11.8	9.1	14.6	11.2	9.9	8.0	8.4	12.9	20.9	21.2	16.0	14.7	24					
Minimum	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.3	0.2	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	19					
Average	4.2	4.0	2.7	3.2	4.8	6.0	6.9	7.3	5.8	5.8	5.1	4.5	4.2	3.4	3.3	3.0	3.2	2.8	3.7	5.1	6.0	6.0	5.8	4.3						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100		
Data	0.6	1.3	2.0	2.8	3.6	4.5	5.7	7.1	10.1	12.8	20.7	32.1	Maximum Hourly	32.1
													Maximum Daily	7.9
													Monthly Average	4.6

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

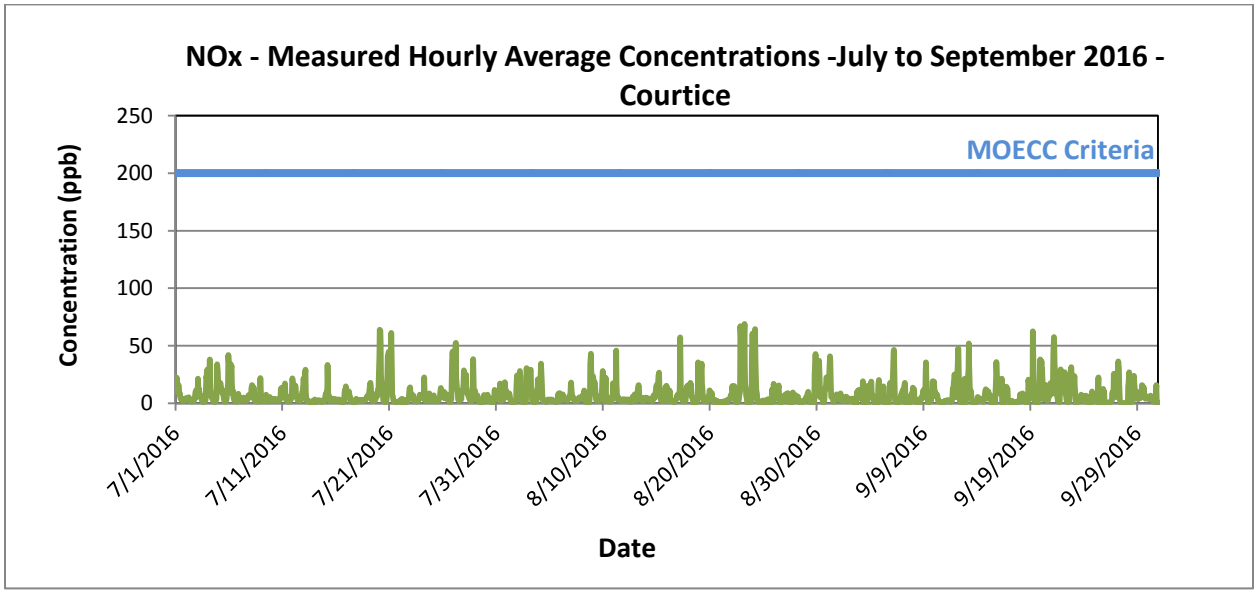
NOx Rundle Road
September 2016
(ppb)

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	0.3	0.2	0.1	0.0	0.0	0.2	0.7	0.9	0.3	0.0	0.1	0.0	0.1	0.4	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	24	0.9	0.0	0.2	0	0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.5	0.3	0.9	0.3	0.7	1.5	4.0	2.5	1.1	1.2	0.5	0.7	3.5	0.6	0.8	0.4	24	4.0	0.0	0.9	0	0
3	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.2	12.5	0.0	2.2	1.4	0.2	0.5	0.0	0.1	0.0	1.4	1.6	1.6	1.1	3.5	5.3	2.5	24	12.5	0.0	1.4	0	0
4	1.5	0.3	0.5	0.7	0.6	1.9	2.4	0.9	1.9	16.4	11.4	3.5	4.0	0.7	6.4	0.0	1.1	2.0	1.3	3.8	2.7	2.9	2.0	1.4	24	16.4	0.0	2.9	0	0
5	0.8	0.1	0.0	0.0	0.0	0.5	0.6	0.5	5.0	3.3	0.3	0.6	0.7	0.0	0.3	3.6	0.3	2.8	4.8	4.1	2.6	4.3	2.0	1.2	24	5.0	0.0	1.6	0	0
6	1.0	0.4	1.3	2.4	2.8	7.2	8.5	23.7	13.2	3.1	2.9	2.1	0.8	3.3	1.9	4.6	3.7	6.0	4.9	8.5	8.2	8.8	4.0	2.0	24	23.7	0.4	5.2	0	0
7	1.4	1.2	1.7	1.6	2.0	2.9	6.6	15.9	9.1	6.2	4.5	A	A	1.3	4.5	16.2	9.5	5.3	7.1	5.6	5.1	8.6	8.2	3.7	22	16.2	1.2	5.8	0	0
8	5.0	7.8	9.1	13.3	12.5	10.6	13.8	9.0	5.5	6.2	6.6	7.9	8.7	10.6	7.5	5.5	5.1	6.9	0.9	0.8	0.7	0.1	0.6	0.6	24	13.8	0.1	6.5	0	0
9	0.9	1.2	1.2	2.4	4.3	6.6	10.5	10.9	3.0	1.1	1.1	1.7	4.4	3.5	4.6	4.4	3.1	4.4	3.8	3.4	6.5	3.0	4.9	3.8	24	10.9	0.9	4.0	0	0
10	5.1	4.3	2.0	0.8	1.1	2.1	4.1	4.1	3.3	4.2	3.4	4.3	2.3	2.3	1.3	1.8	0.8	2.8	0.8	1.3	2.5	1.2	1.8	0.1	24	5.1	0.1	2.4	0	0
11	0.0	0.2	0.0	0.8	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	0.9	7.3	3.3	12.7	1.2	1.0	24	12.7	0.0	1.1	0	0
12	0.4	0.0	0.5	0.1	1.4	7.6	4.7	5.1	4.0	3.6	1.6	1.6	2.1	0.6	4.6	0.7	2.3	6.1	18.2	15.3	9.4	5.3	4.9	2.8	24	18.2	0.0	4.3	0	0
13	2.3	1.7	1.1	1.5	2.9	4.3	6.8	9.2	14.7	7.6	9.4	12.1	8.3	3.6	3.7	8.3	5.0	3.9	3.4	5.4	5.7	7.0	4.7	5.8	24	14.7	1.1	5.8	0	0
14	4.8	7.2	3.3	0.6	0.1	1.4	1.4	2.4	1.2	0.1	2.1	1.1	0.2	0.8	0.7	0.0	0.1	0.1	0.0	0.4	0.6	0.6	0.2	0.4	24	7.2	0.0	1.2	0	0
15	0.3	14.4	1.4	1.5	3.7	1.8	2.1	3.3	2.7	2.7	2.5	5.6	1.2	1.3	0.9	1.4	0.5	1.5	9.6	6.1	8.1	3.6	2.3	2.3	24	14.4	0.3	3.4	0	0
16	1.0	0.7	0.8	1.2	1.7	5.9	10.7	4.2	8.0	2.9	1.9	5.2	0.9	1.0	6.1	1.2	1.7	1.6	9.5	3.7	17.6	4.7	4.7	7.2	24	17.6	0.7	4.3	0	0
17	5.8	3.7	5.0	6.4	6.1	6.8	4.2	7.8	6.1	4.1	2.5	4.2	2.2	1.9	2.1	M	M	1.5	1.2	1.6	1.4	3.0	3.5	5.6	22	7.8	1.2	3.9	0	0
18	6.4	10.2	5.1	3.7	3.5	5.2	7.0	10.3	8.5	7.7	4.8	5.5	3.4	4.3	3.0	4.2	1.8	3.3	3.3	4.4	22.9	2.8	1.4	0.5	24	22.9	0.5	5.6	0	0
19	0.5	0.5	0.0	0.7	0.6	2.0	19.4	10.5	4.8	7.6	8.6	4.3	7.2	2.4	3.5	2.1	3.1	6.3	6.2	8.5	8.9	6.6	5.6	4.3	24	19.4	0.0	5.2	0	0
20	3.2	2.6	2.4	2.3	6.7	15.6	21.8	23.5	33.1	7.9	2.5	15.0	12.9	12.8	11.9	7.3	2.9	0.6	3.9	1.5	1.2	2.1	1.9	0.1	24	33.1	0.1	8.2	0	0
21	1.0	1.2	0.7	1.8	2.4	6.1	15.9	37.7	31.7	15.9	14.9	9.3	11.5	13.0	8.6	8.0	4.5	6.2	7.8	5.1	4.5	6.9	2.6	1.7	24	37.7	0.7	9.1	0	0
22	1.1	0.8	1.1	1.4	1.4	2.1	6.0	7.7	14.5	11.6	3.3	7.5	4.7	10.1	5.6	6.5	11.0	6.6	6.6	14.5	12.8	8.1	4.5	2.9	24	14.5	0.8	6.3	0	0
23	2.5	7.0	8.0	4.8	3.6	2.9	3.1	2.0	1.6	1.0	1.2	1.2	C	3.6	1.8	5.0	1.6	1.9	3.7	2.5	2.3	1.9	1.7	1.6	23	8.0	1.0	2.9	0	0
24	1.3	1.1	1.0	0.8	0.7	0.9	1.0	1.6	1.4	1.2	1.0	2.2	0.9	0.8	1.5	2.4	0.9	0.9	4.2	2.6	2.1	1.7	1.7	1.5	24	4.2	0.7	1.5	0	0
25	1.0	1.3	1.1	1.2	1.4	2.1	3.6	1.6	2.8	4.6	1.1	6.6	3.2	2.8	1.2	1.1	1.7	5.1	9.5	5.8	5.1	3.4	3.4	2.3	24	9.5	1.0	3.0	0	0
26	2.8	2.3	2.2	2.4	3.4	3.8	9.9	5.0	6.2	4.8	5.9	6.9	13.1	15.7	10.8	7.9	7.6	15.2	6.5	4.8	15.6	19.2	14.3	11.9	24	19.2	2.2	8.3	0	0
27	15.6	11.9	8.2	7.8	10.7	11.9	11.6	26.1	23.4	10.4	6.8	4.0	7.2	4.6	4.5	4.2	4.7	6.7	6.3	9.2	9.3	5.9	7.0	5.2	24	26.1	4.0	9.3	0	0
28	10.1	8.0	4.6	4.0	4.2	5.1	8.9	18.8	15.8	6.0	5.6	7.6	4.0	2.8	7.7	2.8	4.8	6.1	6.0	6.4	2.7	3.0	5.2	6.8	24	18.8	2.7	6.5	0	0
29	4.4	3.0	3.2	2.5	2.6	2.7	9.8	2.9	3.6	2.9	4.2	11.9	5.9	17.8	7.4	5.2	5.9	3.2	2.4	4.5	3.4	5.0	2.5	5.6	24	17.8	2.4	5.1	0	0
30	6.5	2.2	2.0	5.7	2.4	3.0	3.2	8.8	10.0	4.7	4.7	7.7	3.3	3.5	7.2	2.6	2.2	3.7	4.5	10.7	6.5	6.2	13.5	14.5	24	14.5	2.0	5.8	0	0
31																													0	0
Count	30	30	30	30	30	30	30	30	30	30	30	29	28	30	30	29	29	30	30	30	30	30	30	30	715					
Maximum	15.6	14.4	9.1	13.3	12.5	15.6	21.8	37.7	33.1	16.4	14.9	15.0	13.1	17.8	11.9	16.2	11.0	15.2	18.2	15.3	22.9	19.2	14.3	14.5	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	0.1	0.0	0.0	0.0	0.0	22					
Average	2.9	3.2	2.3	2.4	2.8	4.1	6.6	8.5	8.3	4.9	3.9	4.9	4.1	4.3	4.1	3.8	3.0	3.8	4.6	5.0	5.9	4.7	3.9	3.3						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	37.7
													Maximum Daily	9.3
Data	0.2	0.9	1.4	2.2	3.0	4.2	5.2	6.9	10.0	13.6	22.7	37.7	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

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



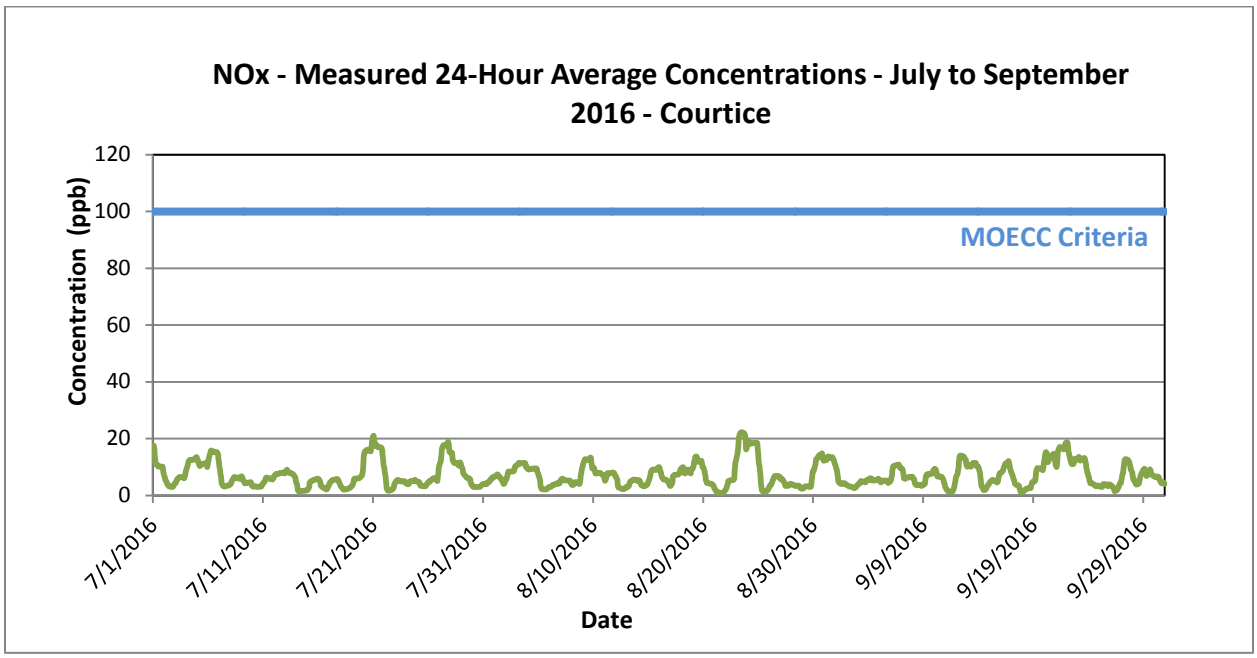
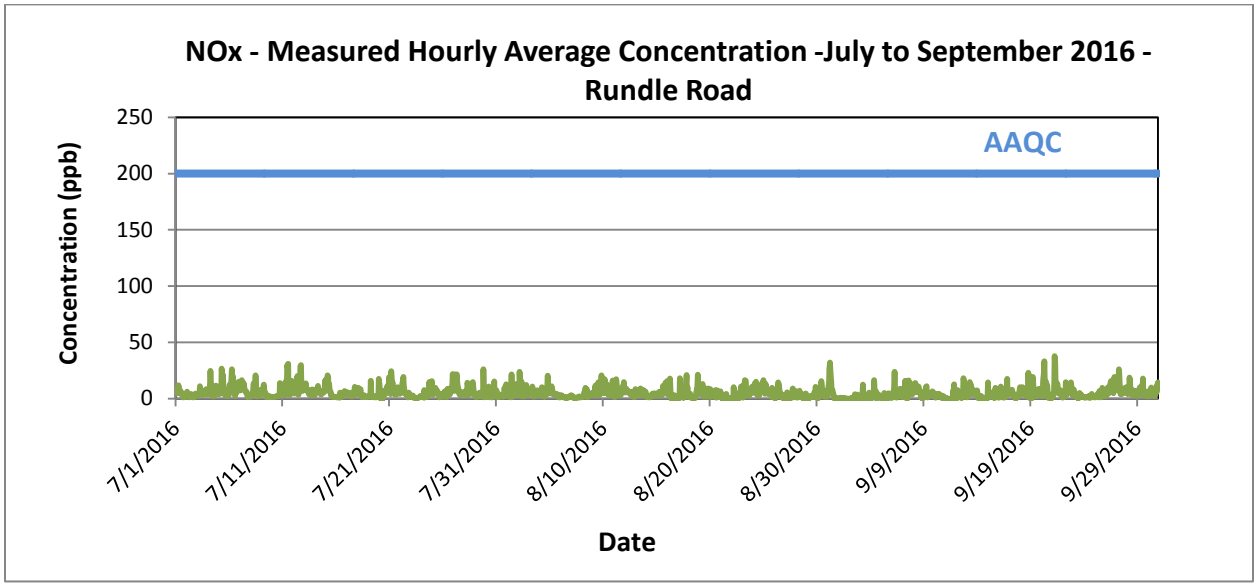
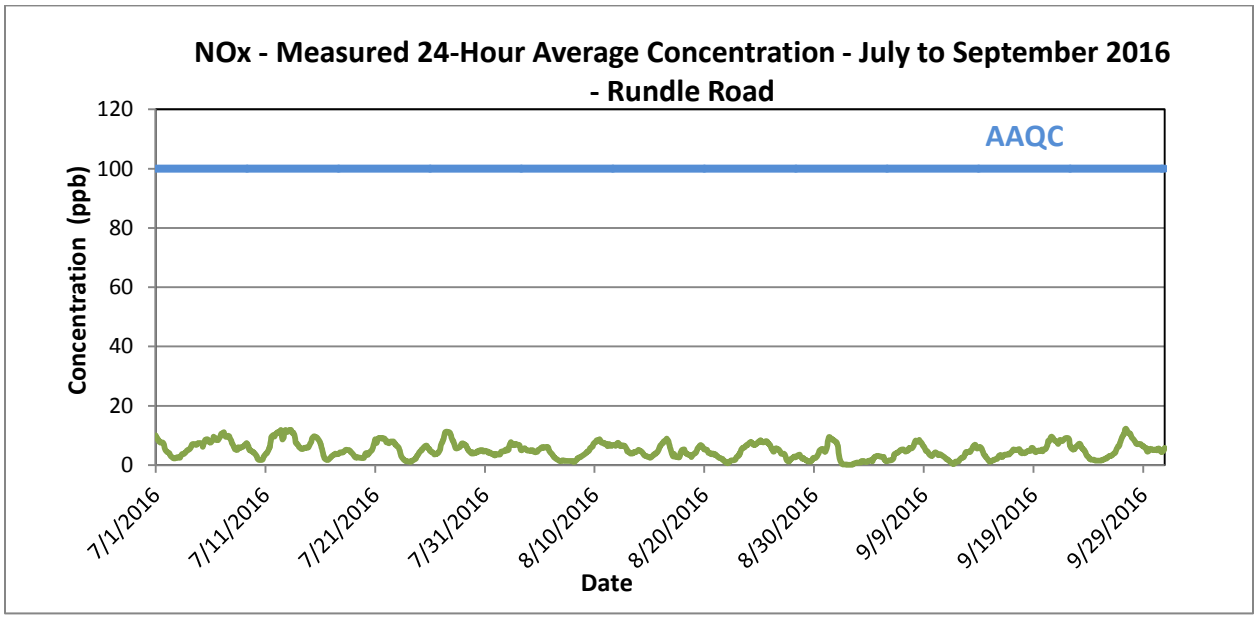


Figure D-2 Time History Plots of Measured Hourly Average and 24-Hour Average NO_X Concentrations – Rundle Road Station





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

$PM_{2.5}$ - COURTICE
July 2016
(µg/m³)

Day \ Hour	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	12.0	10.3	8.6	9.4	8.4	6.5	5.7	6.1	6.6	6.0	5.5	4.7	4.9	6.5	8.5	4.3	0.7	0.9	1.1	1.2	3.2	4.1	4.4	5.4	24	12.0	0.7	5.6
2	4.5	3.7	3.3	2.7	2.2	2.3	2.2	2.0	2.1	2.6	3.2	3.3	3.5	3.5	3.5	3.4	3.9	4.2	4.5	4.6	6.5	10.4	15.4	11.6	24	15.4	2.0	4.5
3	9.1	11.4	13.7	11.1	10.4	8.5	7.3	6.9	6.8	8.3	7.0	6.6	5.5	5.6	4.9	4.7	6.4	8.4	9.7	10.8	12.3	12.2	12.3	14.3	24	14.3	4.7	8.9
4	13.2	10.8	10.2	9.5	8.9	9.9	9.6	10.8	12.0	11.4	16.5	18.9	11.3	7.5	6.2	6.0	6.3	5.6	5.2	6.2	7.7	10.3	10.7	10.9	24	18.9	5.2	9.8
5	8.8	7.1	6.8	7.0	6.8	8.2	7.9	7.7	7.9	6.0	6.4	8.8	9.5	9.1	6.9	6.5	8.3	12.7	14.9	13.6	9.6	9.3	8.5	11.7	24	14.9	6.0	8.7
6	10.3	10.8	12.9	11.4	15.2	12.5	13.3	14.6	12.3	16.2	19.4	18.1	14.2	9.9	7.2	8.5	9.7	12.1	10.0	9.4	10.2	11.3	13.2	8.8	24	19.4	7.2	12.1
7	8.1	8.4	9.1	9.2	11.8	11.9	9.2	8.4	9.9	11.9	15.4	20.6	23.6	21.5	19.4	22.1	22.5	14.8	9.8	10.8	8.4	7.5	10.5	15.5	24	23.6	7.5	13.3
8	14.9	15.9	15.0	14.3	12.2	9.1	8.5	7.8	9.1	9.7	8.7	8.4	8.1	7.8	9.5	11.0	8.1	10.6	10.1	8.7	9.2	6.4	3.4	7.4	24	15.9	3.4	9.7
9	4.0	5.9	7.8	8.2	5.9	8.7	11.8	8.4	3.6	3.4	3.5	1.3	0.9	0.8	0.7	1.1	1.4	1.4	0.8	0.8	0.9	0.8	0.5	0.2	24	11.8	0.2	3.4
10	0.4	0.5	0.6	0.6	0.6	0.8	1.1	1.1	1.6	1.7	2.1	2.2	2.6	2.5	3.2	3.3	4.8	6.2	6.7	9.2	21.0	9.8	8.0	7.4	24	21.0	0.4	4.1
11	6.2	5.1	5.4	4.6	4.3	4.6	4.1	3.1	2.3	1.8	1.6	2.0	2.3	1.7	1.8	1.5	1.1	1.4	1.9	2.1	2.1	2.6	2.9	3.8	24	6.2	1.1	2.9
12	3.5	3.2	3.0	2.7	3.1	3.1	2.7	2.2	2.9	4.5	3.1	2.7	3.2	4.9	4.9	5.6	5.2	6.1	6.0	6.0	7.2	9.0	11.0	11.1	24	11.1	2.2	4.9
13	11.5	10.4	11.7	12.3	14.0	14.4	14.5	14.8	14.6	15.1	15.2	15.8	20.2	20.7	19.6	16.3	13.5	14.0	10.9	7.9	6.1	6.5	7.5	8.1	24	20.7	6.1	13.1
14	9.9	5.5	6.1	7.8	8.1	9.0	8.8	8.6	9.3	9.3	8.1	8.5	9.6	15.3	18.0	12.7	9.8	8.4	9.1	9.9	9.5	8.0	7.8	5.8	24	18.0	5.5	9.3
15	5.6	4.9	7.0	8.9	10.2	10.6	9.6	10.1	7.6	7.5	7.2	4.9	3.2	2.4	2.0	1.9	2.0	1.7	2.0	3.4	3.5	4.9	6.8	6.5	24	10.6	1.7	5.6
16	3.8	2.4	2.4	1.9	1.4	1.4	1.1	1.3	1.7	1.8	1.8	2.0	2.0	2.1	1.9	1.9	1.9	2.4	2.5	6.5	5.8	5.0	7.8	8.8	24	8.8	1.1	3.0
17	13.5	13.3	10.4	9.5	8.5	7.9	6.6	7.9	4.9	3.9	3.9	3.7	4.5	5.7	5.0	4.1	4.7	5.1	7.9	8.1	6.4	5.4	5.3	5.3	24	13.5	3.7	6.7
18	6.2	6.5	7.0	8.2	9.4	8.9	8.9	9.4	10.8	7.9	4.8	4.2	4.5	4.9	11.4	10.7	9.9	13.8	12.6	10.5	8.2	6.8	6.4	5.9	24	13.8	4.2	8.2
19	5.3	5.2	5.1	4.8	5.2	6.0	4.9	4.6	3.1	2.9	3.3	4.5	5.9	5.3	3.9	3.8	4.1	4.4	4.9	5.2	5.9	5.2	6.2	6.9	24	6.9	2.9	4.9
20	7.8	9.9	9.4	10.0	8.0	6.6	4.1	2.9	3.9	5.0	5.0	5.5	5.0	4.7	4.8	4.5	4.5	4.4	5.3	8.4	9.9	12.3	14.8	16.5	24	16.5	2.9	7.2
21	10.5	8.9	9.8	11.6	12.0	13.5	11.6	7.7	7.0	6.3	6.0	5.6	5.9	7.0	7.9	10.2	12.2	13.4	12.6	11.1	11.1	13.0	14.5	15.5	24	15.5	5.6	10.2
22	15.5	13.1	10.9	9.1	8.6	8.4	C	C	C	M	M	16.4	18.0	17.4	13.2	6.0	5.1	4.3	6.7	7.8	8.9	8.7	8.6	9.6	19	18.0	4.3	10.3
23	8.4	8.8	8.5	8.6	7.0	5.2	5.8	4.5	3.1	2.7	3.0	3.0	3.7	3.9	4.0	4.6	4.6	4.9	5.8	5.5	6.2	7.6	8.2	7.6	24	8.8	2.7	5.6
24	6.8	6.6	6.3	6.9	6.6	5.4	4.6	3.8	2.8	3.4	4.1	4.7	4.5	3.7	3.6	3.5	4.1	3.2	2.8	2.8	2.9	2.7	2.9	3.0	24	6.9	2.7	4.2
25	2.9	2.7	3.3	4.2	8.2	5.9	3.2	M	M	M	M	M	M	9.4	22.9	25.4	14.2	5.2	4.4	4.9	15.4	5.0	3.8	3.7	18	25.4	2.7	8.1
26	3.6	3.1	2.7	2.9	2.9	3.0	3.2	2.8	3.0	3.3	4.2	5.4	5.5	5.4	5.3	4.3	3.3	1.9	1.8	2.8	4.2	6.2	8.9	12.7	24	12.7	1.8	4.3
27	11.2	11.1	9.4	7.6	6.7	8.5	7.4	6.6	6.6	5.9	5.5	4.6	5.4	5.9	5.8	6.7	4.6	6.6	5.5	4.6	4.5	4.3	4.5	4.9	24	11.2	4.3	6.4
28	5.1	4.3	4.8	4.7	4.8	5.5	5.8	5.4	6.4	8.2	8.4	8.5	9.3	9.1	8.8	9.3	9.5	7.6	7.5	9.3	9.3	8.6	6.0	5.9	24	9.5	4.3	7.2
29	5.6	5.8	5.7	5.4	5.2	4.6	4.1	3.9	2.5	2.1	2.1	2.7	2.6	2.8	3.0	2.9	2.6	2.0	2.2	3.2	6.3	5.0	2.5	2.7	24	6.3	2.0	3.6
30	2.9	2.3	2.5	2.5	2.9	3.0	2.8	2.6	2.2	2.0	1.8	1.9	1.9	1.9	1.8	2.0	1.5	1.8	1.8	1.7	2.0	2.2	2.3	2.2	24	3.0	1.5	2.2
31	2.4	2.7	2.7	3.0	2.9	3.2	3.0	3.0	2.7	2.8	2.5	2.7	2.8	3.0	2.7	2.5	2.3	1.7	1.6	1.7	2.4	3.1	3.8	4.4	24	4.4	1.6	2.7
Count	31	31	31	31	31	31	30	29	29	29	29	30	30	31	31	31	31	31	31	31	31	31	31	31	733			
Maximum	15.5	15.9	15.0	14.3	15.2	14.4	14.5	14.8	14.6	16.2	19.4	20.6	23.6	21.5	22.9	25.4	22.5	14.8	14.9	13.6	21.0	13.0	15.4	16.5	24			
Minimum	0.4	0.5	0.6	0.6	0.6	0.8	1.1	1.1	1.6	1.7	1.6	1.3	0.9	0.8	0.7	1.1	0.7	0.9	0.8	0.8	0.9	0.8	0.5	0.2	18			
Average	7.5	7.1	7.2	7.1	7.2	7.0	6.4	6.2	5.8	6.0	6.2	6.7	6.8	6.8	7.2	6.8	6.2	6.2	6.1	6.4	7.3	6.9	7.4	7.9				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	2.1	2.9	3.9	4.9	5.9	7.2	8.5	9.9	12.3	14.9	20.6	25.4

Maximum Hourly	25.4
Maximum Daily	13.3
Monthly Average	6.8

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

$PM_{2.5}$ - COURTICE
August 2016
(µg/m³)

Day \ Hour	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	4.6	4.3	3.9	3.2	2.7	2.8	3.1	3.2	3.0	3.1	2.6	3.2	3.2	3.4	3.3	3.2	3.2	2.7	3.0	2.8	5.2	5.8	4.6	5.2	24	5.8	2.6	3.5
2	5.3	4.6	4.2	4.4	5.7	6.0	5.8	5.0	3.7	2.9	2.1	2.2	2.5	3.0	3.0	3.2	3.5	2.9	2.9	2.8	3.4	4.9	5.7	6.4	24	6.4	2.1	4.0
3	6.1	5.6	5.2	4.9	5.2	5.1	3.9	2.9	2.9	3.3	3.5	4.1	4.7	4.5	4.6	4.6	8.0	9.7	9.6	11.3	11.7	13.0	15.5	13.0	24	15.5	2.9	6.8
4	13.0	11.2	10.4	9.3	8.6	8.3	7.4	6.7	7.6	8.6	9.0	10.1	9.9	9.0	8.1	7.7	7.0	7.9	9.8	9.8	9.9	10.2	11.0	11.1	24	13.0	6.7	9.2
5	11.5	13.0	12.1	11.6	10.3	9.4	8.5	7.6	6.7	6.3	6.8	7.3	8.1	8.1	8.5	9.1	11.6	11.4	9.2	9.0	9.2	9.0	8.6	6.2	24	13.0	6.2	9.1
6	6.4	5.7	5.0	4.4	4.3	4.1	3.9	3.5	2.6	2.3	2.3	2.5	3.2	3.5	3.3	3.2	3.7	4.3	4.4	4.5	4.4	4.3	4.4	6.7	24	6.7	2.3	4.0
7	8.6	6.9	5.6	5.0	7.1	5.9	3.5	3.0	2.4	2.9	3.0	2.9	3.0	3.0	3.3	3.2	4.8	4.5	4.4	4.3	4.3	4.2	4.1	3.8	24	8.6	2.4	4.3
8	2.2	1.7	1.7	1.8	1.7	1.7	1.9	1.8	1.8	2.0	1.8	1.8	1.8	1.7	1.7	1.8	1.9	1.8	2.0	2.2	2.2	3.2	4.1	4.9	24	4.9	1.7	2.1
9	5.0	4.8	5.6	5.2	5.1	4.3	3.1	2.5	2.6	2.9	3.2	3.3	3.6	3.7	3.8	4.5	4.8	5.1	5.3	5.7	5.9	5.8	5.6	6.4	24	6.4	2.5	4.5
10	7.0	6.3	6.1	5.0	4.2	4.5	6.0	5.6	6.5	7.2	7.1	7.8	8.4	9.0	10.0	11.4	11.8	12.6	14.7	15.1	14.4	13.9	13.9	17.6	24	17.6	4.2	9.4
11	17.0	11.1	9.4	9.3	10.0	10.1	11.6	8.5	8.2	9.1	11.2	13.7	13.7	15.7	16.2	16.1	13.2	10.8	11.7	11.1	10.4	10.5	11.2	11.1	24	17.0	8.2	11.7
12	11.9	8.1	7.2	7.0	7.1	7.0	7.1	7.0	6.0	4.8	5.8	13.9	19.2	16.7	13.6	14.6	14.8	13.3	13.7	11.7	7.9	6.4	5.6	5.8	24	19.2	4.8	9.8
13	5.7	5.6	6.5	8.2	8.4	7.2	7.2	7.7	7.6	6.9	6.0	5.9	6.4	7.2	5.4	4.1	2.9	2.5	2.6	3.9	3.6	3.0	3.0	3.1	24	8.4	2.5	5.5
14	2.4	1.5	1.3	1.5	1.4	1.6	1.9	1.4	1.8	2.0	1.8	2.1	2.8	3.2	3.0	3.0	3.4	3.4	3.2	3.1	3.1	2.9	3.5	3.5	24	3.5	1.3	2.5
15	3.2	2.7	2.6	2.9	3.1	3.3	3.7	3.3	3.8	3.8	3.1	4.0	4.6	12.8	17.0	16.5	15.4	14.8	16.2	16.6	18.1	18.6	18.0	17.1	24	18.6	2.6	9.4
16	16.6	14.6	11.1	11.2	11.3	11.8	12.2	12.0	12.5	13.6	12.1	13.0	12.5	13.9	12.9	12.7	12.6	10.5	9.4	8.9	8.7	8.9	8.9	9.2	24	16.6	8.7	11.7
17	9.6	10.2	10.3	10.4	10.6	11.4	13.2	10.4	5.8	2.2	2.4	2.8	2.7	2.6	2.6	2.6	2.1	2.0	1.9	2.0	2.4	2.8	3.1	3.2	24	13.2	1.9	5.4
18	3.7	4.4	4.6	4.6	4.7	5.2	4.7	4.0	4.1	3.7	4.0	C	C	C	C	10.4	4.9	4.3	3.9	5.0	5.9	7.8	8.7	8.9	20	10.4	3.7	5.4
19	10.6	14.2	13.0	11.8	11.8	11.1	11.8	19.3	20.6	14.0	17.9	13.1	11.6	11.5	10.4	11.5	8.3	9.3	9.1	5.6	6.5	8.2	9.9	9.8	24	20.6	5.6	11.7
20	11.6	11.4	11.3	10.6	11.4	11.7	7.2	3.0	5.1	9.4	13.5	16.0	14.8	11.6	8.6	10.7	10.4	8.9	11.7	3.6	4.2	7.5	11.7	10.2	24	16.0	3.0	9.8
21	7.3	5.4	5.0	4.4	3.3	1.6	1.4	1.8	1.2	-0.3	-0.6	-0.3	0.2	0.8	0.8	0.7	0.6	0.1	0.1	0.0	0.1	0.1	0.3	0.5	24	7.3	-0.6	1.4
22	0.7	0.4	0.4	0.6	0.6	0.9	1.4	1.6	1.4	1.8	1.7	1.5	1.6	2.3	2.9	3.2	3.4	3.2	3.6	4.4	7.4	7.4	3.1	3.0	24	7.4	0.4	2.4
23	2.1	1.7	1.3	1.3	1.7	2.4	2.5	1.8	1.3	1.6	1.5	1.2	0.9	0.9	1.4	1.1	1.3	1.2	1.1	1.3	1.7	2.0	2.9	6.7	24	6.7	0.9	1.8
24	7.3	6.7	5.5	5.1	7.4	10.6	10.8	7.9	4.5	4.2	4.9	4.9	5.9	5.6	5.3	5.6	8.0	8.2	6.9	9.0	8.9	7.4	7.0	7.2	24	10.8	4.2	6.9
25	8.3	8.1	11.2	12.3	13.3	14.7	12.9	9.8	7.8	8.3	10.6	15.1	14.9	11.5	9.3	9.1	9.1	8.1	4.1	3.2	3.4	3.0	2.2	3.2	24	15.1	2.2	8.9
26	6.7	4.4	2.2	2.8	3.5	4.0	4.3	3.3	3.7	4.6	5.7	7.1	5.6	4.1	4.3	5.3	4.2	4.2	4.5	3.6	3.1	2.8	2.5	2.5	24	7.1	2.2	4.1
27	3.0	2.8	3.3	3.3	2.8	2.7	2.4	2.5	2.1	2.0	2.2	2.3	1.8	1.6	1.7	1.7	2.1	3.9	6.2	6.0	8.2	6.0	3.6	3.6	24	8.2	1.6	3.2
28	5.0	5.6	5.8	6.5	5.7	5.4	5.0	5.2	4.2	3.8	4.4	4.4	4.7	7.6	10.2	10.6	12.1	9.0	5.4	4.2	3.8	3.8	3.8	3.8	24	12.1	3.8	5.8
29	4.1	3.6	3.8	4.0	4.3	4.5	4.6	3.9	2.1	1.6	1.7	2.0	2.0	1.6	3.4	4.2	4.5	4.2	4.2	4.6	4.5	12.6	19.9	10.4	24	19.9	1.6	4.8
30	7.4	6.3	6.7	6.9	6.5	7.5	M	M	M	6.2	7.5	8.9	8.5	9.5	8.3	6.2	7.8	10.5	8.3	6.2	6.4	6.2	6.2	7.0	21	10.5	6.2	7.4
31	7.5	7.2	8.0	8.7	11.0	11.8	14.7	13.1	9.9	7.3	8.5	9.9	10.2	9.4	7.1	8.8	4.3	8.3	4.1	2.9	2.6	3.1	2.8	2.9	24	14.7	2.6	7.7
Count	31	31	31	31	31	31	30	30	30	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31	737			
Maximum	17.0	14.6	13.0	12.3	13.3	14.7	14.7	19.3	20.6	14.0	17.9	16.0	19.2	16.7	17.0	16.5	15.4	14.8	16.2	16.6	18.1	18.6	19.9	17.6	24			
Minimum	0.7	0.4	0.4	0.6	0.6	0.9	1.4	1.4	1.2	-0.3	-0.6	-0.3	0.2	0.8	0.8	0.7	0.6	0.1	0.1	0.0	0.1	0.1	0.3	0.5	20			
Average	7.1	6.5	6.1	6.1	6.3	6.4	6.3	5.6	5.1	4.9	5.4	6.2	6.4	6.6	6.5	6.8	6.6	6.6	6.4	5.9	6.2	6.6	7.0	6.9				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.8	2.8	3.3	4.2	5.1	6.5	8.1	10.0	11.9	14.0	17.8	20.6

Maximum Hourly	20.6
Maximum Daily	11.7
Monthly Average	6.3

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

$PM_{2.5}$ - COURTICE
September 2016
(µg/m³)

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	2.5	2.3	2.4	2.5	2.3	2.5	3.5	2.9	2.7	2.6	2.2	2.2	2.1	1.9	2.0	2.3	2.0	2.3	2.8	3.5	3.3	3.1	3.3	3.8	24	3.8	1.9	2.6
2	3.5	2.6	2.6	2.4	2.2	2.5	2.6	2.3	2.2	2.2	2.3	2.5	3.0	2.5	2.9	2.6	2.6	2.4	2.4	2.8	3.5	3.9	4.1	4.8	24	4.8	2.2	2.8
3	4.7	5.3	5.1	5.3	5.1	4.4	4.4	3.2	3.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.2	2.2	3.6	6.5	6.0	7.4	8.2	24	8.2	2.2	4.0
4	7.1	4.8	7.0	5.2	3.7	3.9	3.8	2.6	2.2	2.0	1.9	2.1	2.1	2.2	2.5	2.5	2.8	3.2	2.9	4.6	5.4	10.3	10.1	9.1	24	10.3	1.9	4.3
5	6.9	5.1	4.0	3.4	3.3	4.2	4.0	3.3	2.2	1.6	2.0	2.6	2.7	2.6	2.8	2.7	3.1	4.5	5.7	6.4	7.9	12.3	9.8	8.3	24	12.3	1.6	4.6
6	8.3	7.3	7.3	8.5	10.5	12.5	13.3	10.7	8.3	8.1	9.5	10.6	11.1	10.2	11.5	9.6	9.5	10.8	10.1	9.8	11.0	12.6	12.2	12.1	24	13.3	7.3	10.2
7	11.7	11.7	13.4	13.7	13.9	26.9	37.1	32.8	14.5	A	A	12.4	12.0	13.9	14.8	13.8	15.7	16.5	19.9	21.2	16.2	5.0	5.3	5.7	22	37.1	5.0	15.8
8	6.7	5.1	8.7	9.2	5.8	4.7	3.8	7.9	9.2	8.6	9.5	9.4	6.9	6.1	5.1	6.0	5.4	4.1	2.9	2.9	2.3	2.1	2.1	2.3	24	9.5	2.1	5.7
9	2.4	2.9	2.9	3.1	2.9	4.2	4.5	3.0	2.7	1.7	1.4	1.6	1.8	2.7	4.6	4.4	4.2	4.0	2.9	1.8	2.0	3.2	3.5	3.5	24	4.6	1.4	3.0
10	4.5	3.8	4.1	3.9	4.1	4.7	4.1	3.6	3.5	3.8	4.9	7.2	8.8	10.6	10.9	7.8	9.0	8.9	9.3	8.4	7.1	7.3	5.6	2.6	24	10.9	2.6	6.2
11	2.1	2.0	1.8	1.6	1.3	1.9	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.6	2.6	2.5	2.7	3.1	4.0	4.4	5.3	4.8	24	5.3	1.3	2.6
12	6.6	6.4	4.9	5.1	6.2	6.0	7.3	5.7	3.0	1.9	1.7	2.0	1.9	1.9	1.9	2.0	2.2	2.1	2.4	2.7	2.9	3.0	2.1	2.1	24	7.3	1.7	3.5
13	2.4	3.2	3.8	4.1	4.5	5.8	7.6	4.9	2.9	3.0	4.6	5.5	5.4	5.2	5.5	4.4	4.1	3.9	3.7	3.9	4.2	4.7	4.7	6.3	24	7.6	2.4	4.5
14	6.1	5.7	6.2	4.3	2.5	3.8	3.2	2.2	2.2	1.9	2.2	1.9	1.9	2.1	2.9	2.9	3.1	3.6	3.3	5.7	7.3	4.4	5.0	5.2	24	7.3	1.9	3.7
15	6.5	6.9	6.4	5.5	4.7	4.5	4.6	3.8	4.1	3.4	3.4	3.2	3.0	2.5	2.3	2.3	2.2	2.2	2.7	4.3	6.0	6.5	6.8	5.5	24	6.9	2.2	4.3
16	4.9	3.9	3.6	3.2	3.5	2.8	2.6	2.7	1.4	C	C	1.3	1.4	1.3	1.3	1.6	1.6	1.8	2.6	3.1	3.5	4.5	5.1	7.5	22	7.5	1.3	3.0
17	7.7	6.9	6.8	6.1	5.3	4.8	4.9	4.5	3.8	3.5	4.6	5.0	6.7	6.8	6.9	6.2	6.3	4.7	3.7	3.1	1.8	1.4	1.6	1.8	24	7.7	1.4	4.8
18	2.7	5.6	2.6	3.8	6.0	7.1	9.3	8.0	5.4	5.2	6.2	8.7	10.5	10.4	9.3	5.9	4.6	3.6	3.5	3.8	4.6	7.8	7.9	4.0	24	10.5	2.6	6.1
19	3.1	2.5	2.5	2.5	2.6	3.0	6.7	4.4	3.6	2.9	2.6	2.9	2.9	3.6	4.7	4.2	4.4	5.2	5.3	7.4	8.0	8.8	11.0	11.4	24	11.4	2.5	4.8
20	8.9	7.5	10.1	10.5	9.6	6.5	6.2	7.0	6.4	5.0	6.6	6.9	7.9	9.1	8.2	4.7	3.6	2.7	3.1	4.3	4.7	6.0	5.2	5.0	24	10.5	2.7	6.5
21	5.5	6.4	6.0	7.1	11.2	15.0	10.6	8.3	5.4	3.9	3.6	2.8	2.3	2.1	1.7	1.5	1.1	1.2	1.5	2.6	5.7	5.7	5.3	4.2	24	15.0	1.1	5.0
22	3.8	3.5	3.2	3.6	3.3	3.9	4.1	3.2	2.0	1.5	1.8	2.5	2.8	3.5	3.5	3.8	3.9	4.7	6.5	7.6	9.9	9.9	8.8	9.1	24	9.9	1.5	4.6
23	8.3	8.7	9.6	10.1	10.9	7.9	C	C	1.7	0.5	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.4	1.0	1.1	1.1	1.4	1.8	1.7	22	10.9	0.2	3.1
24	1.4	2.3	2.6	2.6	2.8	2.8	3.2	3.2	3.1	2.9	3.1	3.4	3.5	3.1	2.8	3.0	1.9	1.8	2.2	3.0	3.6	2.9	3.7	3.7	24	3.7	1.4	2.9
25	3.6	3.3	3.0	3.0	2.6	2.4	2.4	1.4	1.3	1.4	0.9	0.8	0.7	0.7	0.7	0.9	1.1	1.2	1.1	1.3	1.7	1.5	1.6	1.1	24	3.6	0.7	1.7
26	1.4	2.1	2.1	1.9	1.7	1.6	1.7	1.7	1.8	1.8	1.9	2.2	2.7	2.7	2.5	2.8	3.8	3.0	1.7	2.1	3.3	3.4	3.1	3.0	24	3.8	1.4	2.3
27	3.7	4.6	4.8	4.7	4.1	7.0	7.2	6.3	3.7	3.0	3.6	3.1	2.7	2.8	2.6	2.3	2.3	1.9	1.9	2.0	1.8	2.1	2.0	2.1	24	7.2	1.8	3.4
28	1.8	1.8	2.1	2.4	3.6	4.5	4.9	4.2	2.8	2.8	3.0	3.3	3.9	4.5	3.9	3.9	6.0	5.7	5.2	4.3	3.7	5.3	7.1	6.0	24	7.1	1.8	4.0
29	4.3	2.5	2.4	2.4	2.7	3.3	3.3	3.2	2.9	2.7	2.5	3.1	3.3	3.4	3.8	3.3	2.7	2.5	2.9	3.0	2.7	2.7	3.2	3.2	24	4.3	2.4	3.0
30	3.3	3.2	3.2	2.8	2.9	2.9	2.8	2.8	3.2	4.2	3.3	3.2	3.3	2.7	2.4	2.5	2.7	2.6	3.6	5.3	2.9	1.8	1.8	1.6	24	5.3	1.6	3.0
31																												
Count	30	30	30	30	30	30	29	29	30	28	28	30	30	30	30	30	30	30	30	30	30	30	30	30	714			
Maximum	11.7	11.7	13.4	13.7	13.9	26.9	37.1	32.8	14.5	8.6	9.5	12.4	12.0	13.9	14.8	13.8	15.7	16.5	19.9	21.2	16.2	12.6	12.2	12.1	24			
Minimum	1.4	1.8	1.8	1.6	1.3	1.6	1.7	1.4	1.3	0.5	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.4	1.0	1.1	1.1	1.4	1.6	1.1	22			
Average	4.9	4.7	4.8	4.8	4.9	5.6	6.1	5.2	3.8	3.1	3.4	3.9	4.1	4.2	4.3	3.8	3.9	3.9	4.1	4.6	5.0	5.1	5.2	5.0				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.8	2.2	2.6	2.9	3.4	4.0	4.9	6.3	8.8	10.6	15.6	37.1

Maximum Hourly	37.1
Maximum Daily	15.8
Monthly Average	4.5

Notes C - Calibration / Span Cycle NA - No Data Available T - Test A- MOE Audit M - Equipment Malfunction / Down S - Temporary source affected short term readings

$PM_{2.5}$ - Rundle Road
July 2016
(µg/m³)

Day \ Hour	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	4.8	8.5	8.2	8.7	10.2	12.0	13.0	13.7	15.4	15.5	15.0	13.7	15.2	15.2	21.7	16.0	5.4	3.2	4.2	3.3	4.4	3.2	2.2	2.2	24	21.7	2.2	9.8
2	2.2	2.1	2.1	1.9	1.8	1.8	1.8	1.8	2.5	4.7	5.5	6.6	6.5	4.2	4.7	2.8	2.1	1.9	2.9	3.6	6.4	7.7	3.7	2.2	24	7.7	1.8	3.5
3	2.3	5.1	8.3	7.4	4.6	2.9	4.6	8.4	10.8	15.1	15.5	12.7	10.1	9.9	10.1	9.8	12.6	15.6	14.1	14.7	16.3	17.3	14.7	11.0	24	17.3	2.3	10.6
4	7.8	8.4	8.6	7.7	8.5	10.3	8.7	12.9	16.0	17.6	17.4	14.3	11.3	8.6	7.6	7.7	8.1	8.1	10.7	12.0	13.2	9.6	5.7	7.5	24	17.6	5.7	10.3
5	12.3	11.9	11.9	10.8	9.7	9.1	9.4	9.1	6.1	4.2	8.1	10.2	7.9	8.8	9.0	9.6	17.3	22.0	22.1	19.4	17.3	16.7	15.7	16.0	24	22.1	4.2	12.3
6	13.8	11.3	13.0	11.5	9.4	9.8	6.9	11.6	10.6	11.2	15.0	13.9	12.7	9.6	8.8	9.8	11.8	15.8	18.6	18.4	16.9	15.8	14.1	12.8	24	18.6	6.9	12.6
7	13.4	10.1	13.5	13.8	11.7	15.9	14.0	13.4	10.1	14.4	19.4	22.5	23.3	24.5	19.6	20.0	17.7	9.7	11.4	14.0	16.4	16.0	18.5	18.6	24	24.5	9.7	15.9
8	20.3	24.6	24.9	22.3	22.9	15.2	14.4	14.5	15.2	14.5	12.7	9.5	11.4	13.7	14.6	11.1	10.9	10.6	16.4	14.7	12.3	11.4	6.7	6.9	24	24.9	6.7	14.7
9	7.1	10.4	10.1	13.6	11.5	13.0	16.3	14.3	5.2	7.6	7.8	3.6	3.7	3.4	3.7	3.0	2.8	3.5	3.5	2.5	3.0	2.3	2.0	1.7	24	16.3	1.7	6.5
10	1.5	1.3	1.2	1.2	1.3	1.5	1.5	1.5	1.8	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.3	3.1	3.5	3.4	3.7	3.4	24	3.7	1.2	2.1
11	3.1	5.0	6.6	6.0	2.2	2.2	2.1	2.8	2.7	2.4	1.9	2.0	2.5	3.6	3.2	2.3	5.7	7.9	8.1	9.1	5.1	3.5	2.5	2.6	24	9.1	1.9	4.0
12	2.3	2.2	2.4	2.6	2.8	3.0	3.2	3.5	3.5	3.7	5.4	5.7	9.0	10.7	11.1	13.5	13.4	18.2	18.9	20.0	19.8	17.6	18.0	16.9	24	20.0	2.2	9.5
13	14.2	5.6	8.7	9.0	8.1	13.4	12.9	14.2	13.1	12.3	13.9	14.2	16.7	18.4	13.5	13.7	11.6	7.8	9.4	9.3	9.0	8.3	9.1	9.5	24	18.4	5.6	11.5
14	11.0	4.8	5.7	9.2	7.3	7.5	9.8	8.3	12.7	13.7	12.9	17.0	18.3	21.0	16.4	12.0	8.2	8.4	9.0	10.1	10.3	8.5	8.2	6.9	24	21.0	4.8	10.7
15	8.8	7.1	5.9	6.6	7.0	6.5	3.4	6.1	4.5	2.5	2.2	1.8	1.8	1.4	1.3	1.0	1.1	1.0	1.0	1.2	1.5	1.8	2.1	2.0	24	8.8	1.0	3.3
16	1.9	1.8	1.8	1.5	1.5	1.4	1.3	1.2	1.3	1.3	2.2	6.5	6.3	5.7	6.2	6.2	6.4	8.3	8.6	9.9	8.7	4.6	3.2	3.2	24	9.9	1.2	4.2
17	3.9	2.8	2.6	2.4	2.2	2.5	3.4	13.1	13.4	15.1	14.5	13.8	13.3	11.8	7.4	6.2	6.3	3.2	4.2	4.2	7.4	10.2	11.1	11.8	24	15.1	2.2	7.8
18	12.6	14.1	14.9	18.1	20.2	19.9	18.3	20.3	23.5	15.0	13.4	13.0	11.8	12.5	17.8	13.7	14.0	12.2	7.6	2.9	1.6	1.8	2.0	2.2	24	23.5	1.6	12.6
19	2.2	2.2	2.2	2.2	2.2	2.9	5.4	10.7	11.0	10.2	7.6	6.2	4.2	2.6	2.5	2.5	4.3	6.1	6.9	6.7	3.3	2.3	1.8	2.0	24	11.0	1.8	4.6
20	2.2	2.9	3.0	3.0	3.2	C	C	C	C	19.3	M	15.9	12.0	7.8	7.5	6.4	5.7	5.0	3.8	7.3	17.0	6.4	5.9	3.8	19	19.3	2.2	7.3
21	3.6	3.6	5.8	6.0	6.6	7.2	10.2	12.6	14.0	15.6	14.2	11.7	10.1	10.9	14.0	20.0	22.8	21.3	20.0	17.2	16.3	19.5	20.1	18.3	24	22.8	3.6	13.4
22	14.2	12.5	11.2	9.1	8.4	9.1	10.6	10.5	8.2	7.1	15.7	15.9	15.3	15.5	7.2	2.4	2.0	0.3	1.6	5.4	9.4	6.4	2.3	1.9	24	15.9	0.3	8.4
23	2.1	2.0	2.0	2.0	1.6	1.7	2.0	2.7	4.8	7.4	8.6	6.8	5.9	5.0	5.8	6.4	7.0	7.3	8.8	8.0	7.6	9.8	10.0	8.8	24	10.0	1.6	5.6
24	8.6	9.0	7.0	7.4	6.3	5.4	4.3	4.1	3.4	3.6	5.7	7.4	6.2	7.0	9.0	8.1	7.2	6.7	6.9	7.6	8.0	8.2	8.0	9.2	24	9.2	3.4	6.8
25	10.5	10.1	10.5	13.9	13.8	10.6	8.8	10.5	17.0	22.8	18.2	16.5	19.8	35.6	42.1	30.3	5.6	0.3	0.2	0.9	4.5	4.8	6.2	4.7	24	42.1	0.2	13.2
26	4.3	4.1	2.1	2.2	2.2	1.9	2.2	2.5	3.1	3.7	5.2	8.7	9.1	9.7	7.7	6.9	5.1	4.4	4.5	7.9	9.7	8.4	5.8	6.6	24	9.7	1.9	5.3
27	8.0	8.0	6.3	4.0	4.2	3.3	4.3	4.3	4.2	5.1	7.0	11.5	11.9	14.4	13.2	12.5	12.1	14.3	9.8	7.9	8.1	8.2	7.0	5.9	24	14.4	3.3	8.1
28	9.7	12.4	13.8	12.7	13.6	15.8	13.0	10.3	10.0	10.0	8.5	8.0	8.5	6.8	8.7	9.3	11.6	12.3	11.5	13.7	13.2	9.7	7.3	6.1	24	15.8	6.1	10.7
29	4.2	3.5	3.1	1.9	1.5	1.2	1.0	1.3	1.6	1.9	2.0	2.8	2.7	3.0	2.9	2.6	3.2	5.1	5.5	10.5	10.9	5.8	0.8	0.9	24	10.9	0.8	3.3
30	1.5	1.2	1.1	0.9	1.0	1.2	1.3	1.5	2.9	7.2	8.2	11.9	15.0	11.3	8.7	11.1	11.4	15.0	12.9	12.3	11.5	7.3	7.6	9.2	24	15.0	0.9	7.2
31	6.2	3.6	2.5	1.5	1.8	1.9	2.1	2.9	4.5	7.8	13.6	12.7	13.8	14.2	10.8	9.9	8.4	6.0	7.4	9.2	7.5	5.2	5.1	5.2	24	14.2	1.5	6.8
Count	31	31	31	31	31	30	30	30	30	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	739			
Maximum	20.3	24.6	24.9	22.3	22.9	19.9	18.3	20.3	23.5	22.8	19.4	22.5	23.3	35.6	42.1	30.3	22.8	22.0	22.1	20.0	19.8	19.5	20.1	18.6	24			
Minimum	1.5	1.2	1.1	0.9	1.0	1.2	1.0	1.2	1.3	1.3	1.9	1.8	1.8	1.4	1.3	1.0	1.1	0.3	0.2	0.9	1.5	1.8	0.8	0.9	19			
Average	7.1	6.8	7.1	7.1	6.8	7.0	7.0	8.2	8.4	9.5	10.0	10.3	10.3	10.6	10.3	9.3	8.5	8.5	8.8	9.3	9.7	8.4	7.5	7.1				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	2.0	2.8	4.2	6.2	7.8	9.2	11.2	13.5	15.9	18.5	23.1	42.1

Maximum Hourly	42.1
Maximum Daily	15.9
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

$PM_{2.5}$ - Rundle Road
August 2016
(µg/m³)

Day \ Hour	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	6.6	7.4	7.9	7.5	6.2	6.5	11.6	5.1	5.1	3.9	3.9	8.3	7.1	8.9	8.2	8.1	5.0	4.9	6.3	11.4	15.8	10.3	6.6	5.8	24	15.8	3.9	7.4
2	9.4	13.5	9.7	9.4	9.0	10.9	10.0	7.3	4.1	3.7	1.9	2.6	3.8	3.8	3.2	3.0	3.8	1.9	2.3	5.2	6.5	5.0	3.3	3.0	24	13.5	1.9	5.7
3	2.6	2.3	2.3	2.2	2.3	2.4	2.6	2.7	2.7	6.6	9.1	10.5	12.0	8.5	8.5	9.7	16.7	19.4	20.7	28.7	28.3	26.0	32.1	22.3	24	32.1	2.2	11.7
4	15.6	11.9	8.7	8.4	7.6	5.4	5.1	4.1	11.9	10.1	11.9	10.7	8.4	10.6	6.3	3.1	3.4	2.8	5.7	8.5	9.6	9.1	9.9	10.5	24	15.6	2.8	8.3
5	9.1	10.4	13.9	12.8	11.6	10.3	9.2	9.6	11.7	14.2	14.7	17.0	15.8	14.3	16.1	19.6	24.2	23.8	17.3	18.7	20.1	17.5	12.8	4.6	24	24.2	4.6	14.6
6	4.4	2.5	1.4	2.0	2.1	1.3	1.0	1.5	1.7	2.2	1.6	0.7	3.3	1.7	0.8	0.6	0.5	0.4	1.0	4.0	4.2	4.9	4.6	4.2	24	4.9	0.4	2.2
7	7.8	10.5	11.2	10.2	8.2	8.0	8.6	15.1	10.5	5.5	3.7	1.7	1.7	0.9	0.5	0.7	2.1	1.5	1.1	0.8	1.1	2.1	3.5	4.0	24	15.1	0.5	5.0
8	3.9	3.9	11.8	14.7	14.9	14.2	15.6	13.2	8.7	10.5	4.7	6.0	6.0	2.8	4.1	3.0	2.7	3.8	2.9	3.9	4.8	4.6	4.5	4.2	24	15.6	2.7	7.1
9	5.6	6.1	2.7	2.7	2.6	2.7	10.3	30.8	46.8	39.1	34.1	30.1	35.5	35.3	31.0	25.8	23.8	17.1	15.8	14.7	15.3	11.8	11.9	12.8	24	46.8	2.6	19.4
10	12.7	11.8	12.6	19.7	18.1	14.4	16.4	16.2	14.4	14.7	13.6	10.3	11.2	8.9	11.5	16.5	17.8	17.6	17.6	24.4	25.8	26.3	28.7	25.9	24	28.7	8.9	17.0
11	23.9	13.5	10.1	10.0	12.5	12.3	13.6	9.5	11.4	19.4	22.4	16.4	15.4	22.2	23.9	20.6	28.4	24.4	24.3	20.3	19.0	18.9	19.1	18.4	24	28.4	9.5	17.9
12	17.7	10.2	6.7	7.5	8.7	8.7	11.2	11.5	13.3	8.9	10.1	11.4	13.4	14.1	14.0	14.2	12.6	10.1	8.2	4.6	3.6	4.2	3.8	4.5	24	17.7	3.6	9.7
13	7.4	10.3	16.4	16.0	17.7	16.2	18.0	15.3	19.7	18.2	16.5	18.2	21.4	23.6	7.3	7.4	2.9	3.2	6.1	12.3	7.7	3.9	3.7	3.6	24	23.6	2.9	12.2
14	3.5	1.5	0.2	0.2	0.3	0.9	1.0	0.8	0.3	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	9	3.5	0.2	
15	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0	0.0	0.0	
16	M	M	M	M	M	M	C	C	C	C	C	C	C	34.0	28.1	22.0	19.1	17.7	18.5	19.0	20.0	20.6	21.3	22.4	11	34.0	17.7	
17	23.9	24.3	24.8	25.1	15.9	2.2	2.3	2.3	2.5	2.7	3.1	3.5	2.3	2.3	2.3	5.2	7.2	4.7	5.2	8.2	7.0	4.8	4.9	8.4	24	25.1	2.2	8.1
18	9.2	5.9	5.4	6.3	7.2	5.9	3.7	3.1	6.4	9.6	10.8	11.2	10.1	14.9	19.3	14.0	11.4	13.1	11.5	10.1	10.3	9.9	10.2	9.8	24	19.3	3.1	9.6
19	7.7	5.0	5.8	6.5	5.7	4.8	4.1	4.4	4.3	4.2	5.0	5.2	7.7	9.4	8.6	9.5	7.5	5.6	8.1	9.0	8.8	8.1	8.5	7.8	24	9.5	4.1	6.7
20	8.9	10.3	8.9	10.1	8.9	8.1	8.7	6.3	5.0	3.4	3.7	6.4	5.5	6.9	7.4	7.6	7.2	6.5	7.6	7.1	6.7	6.7	7.9	7.6	24	10.3	3.4	7.2
21	5.1	4.0	4.1	3.1	3.5	2.8	4.5	3.4	2.3	2.0	1.9	2.0	2.0	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.3	2.3	24	5.1	1.9	2.7
22	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	6.1	27.1	35.2	35.0	33.1	31.2	26.4	23.0	22.9	21.7	19.7	15.4	4.8	2.6	2.6	2.6	24	35.2	2.3	13.6
23	2.6	2.6	2.6	2.6	2.6	2.6	3.0	28.1	52.9	61.1	61.0	54.5	45.5	40.4	35.5	33.3	29.6	27.4	25.6	24.1	21.8	18.6	17.6	17.3	24	61.1	2.6	25.5
24	15.8	13.8	12.4	10.8	9.2	7.6	6.5	4.7	3.9	3.9	4.3	5.9	6.8	7.4	8.7	8.7	9.0	8.7	8.9	11.1	10.2	9.1	8.2	8.7	24	15.8	3.9	8.5
25	11.6	13.6	14.8	13.9	12.0	12.1	12.0	9.9	8.3	8.3	8.0	9.3	9.9	9.5	9.8	9.9	8.6	7.8	6.8	6.5	6.3	6.3	6.7	5.4	24	14.8	5.4	9.5
26	6.3	5.8	6.5	5.9	7.3	6.5	6.4	5.3	2.8	2.7	2.8	3.0	3.3	3.5	4.0	3.0	2.7	2.8	2.9	3.8	4.2	3.8	3.8	2.3	24	7.3	2.3	4.2
27	2.3	2.3	2.3	2.3	2.3	2.3	2.6	2.6	2.4	2.5	2.6	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.5	2.7	2.7	2.9	3.0	2.9	24	3.0	2.2	2.5
28	6.4	11.9	12.5	12.4	11.3	11.4	11.1	10.4	11.8	12.1	14.1	13.6	14.1	15.2	15.3	14.3	14.9	13.4	10.8	12.2	11.8	10.2	8.4	7.8	24	15.3	6.4	12.0
29	5.0	2.3	2.3	2.4	2.6	2.6	2.6	2.6	2.6	2.5	2.6	2.6	2.5	2.4	2.3	2.5	2.6	2.5	2.5	2.6	2.6	2.6	2.6	2.6	24	5.0	2.3	2.6
30	2.3	2.3	2.3	2.3	2.5	2.6	2.8	3.1	C	C	C	C	3.2	3.5	2.3	2.5	4.2	4.8	3.1	2.1	1.7	1.2	1.6	2.1	20	4.8	1.2	2.6
31	1.8	1.1	2.0	2.7	3.3	6.2	6.1	8.7	10.9	10.9	12.0	15.2	15.8	14.6	6.4	6.8	1.7	14.1	4.8	2.0	1.1	1.2	1.2	1.1	24	15.8	1.1	6.3
Count	29	29	29	29	29	29	29	29	28	27	27	27	28	29	29	29	29	29	29	29	29	29	29	29	688			
Maximum	23.9	24.3	24.8	25.1	18.1	16.2	18.0	30.8	52.9	61.1	61.0	54.5	45.5	40.4	35.5	33.3	29.6	27.4	25.6	28.7	28.3	26.3	32.1	25.9	24			
Minimum	1.8	1.1	0.2	0.2	0.3	0.9	1.0	0.8	0.3	2.0	1.6	0.7	1.7	0.9	0.5	0.6	0.5	0.4	1.0	0.8	1.1	1.2	1.2	1.1	0			
Average	8.3	7.7	7.7	8.0	7.5	6.7	7.3	8.3	10.2	11.5	11.7	11.6	11.4	12.2	10.9	10.3	10.2	9.9	9.3	10.2	9.8	8.8	8.8	8.1				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	61.1
													Maximum Daily	25.5
Data	2.3	2.6	3.6	5.1	7.3	9.0	11.2	14.4	19.8	25.9	39.3	61.1	Monthly Average	9.3

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

$PM_{2.5}$ - Rundle Road
September 2016
(µg/m³)

Day \ Hour	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	1.2	1.2	1.2	1.4	1.5	1.5	1.7	2.5	8.9	14.8	16.3	16.0	12.9	9.1	7.2	5.7	3.0	3.1	2.8	2.9	2.7	2.7	2.8	2.6	24	16.3	1.2	5.2
2	3.0	3.2	1.8	1.6	1.5	1.5	1.6	1.5	2.0	13.8	24.3	22.8	26.9	23.3	26.3	31.7	27.6	22.1	13.0	8.6	2.2	2.1	2.3	2.2	24	31.7	1.5	11.1
3	1.9	1.9	1.9	1.9	1.8	1.5	1.6	2.0	11.3	21.4	28.7	31.1	31.0	31.0	25.0	21.9	25.9	27.8	24.9	19.4	5.1	6.4	4.8	3.7	24	31.1	1.5	13.9
4	3.4	2.7	2.5	2.2	1.9	2.0	2.8	5.7	24.1	45.9	46.9	42.3	41.5	36.5	32.4	26.7	22.0	22.6	16.7	15.6	17.3	22.8	15.9	9.9	24	46.9	1.9	19.3
5	5.0	3.2	2.7	2.6	2.0	1.9	1.9	3.4	6.1	10.7	12.3	11.2	8.7	7.3	7.6	5.7	6.0	10.3	9.9	7.3	7.4	9.6	7.2	6.6	24	12.3	1.9	6.5
6	6.9	6.6	5.9	5.8	4.3	4.4	4.1	4.1	4.0	2.4	2.7	4.4	6.7	9.4	9.6	9.7	10.8	7.4	6.8	8.1	9.2	7.6	7.5	8.6	24	10.8	2.4	6.5
7	8.7	7.3	9.3	10.5	9.9	13.8	26.6	26.1	17.5	14.0	15.2	A	A	21.1	16.0	17.1	19.2	16.2	11.3	13.4	12.1	4.1	3.9	4.0	22	26.6	3.9	13.5
8	4.4	4.0	11.5	13.4	9.7	10.0	11.9	11.7	11.4	11.2	12.9	15.2	11.7	13.7	11.0	11.7	11.8	8.5	5.5	5.6	2.4	1.6	1.7	2.0	24	15.2	1.6	8.9
9	2.1	2.1	1.4	1.2	1.4	2.0	2.5	2.5	2.9	2.0	1.1	1.7	1.6	2.6	4.0	4.5	3.6	2.6	1.8	0.7	0.9	1.4	3.1	2.8	24	4.5	0.7	2.2
10	2.7	2.4	2.2	2.1	2.3	2.6	3.1	3.3	6.5	15.3	21.0	23.1	26.4	27.9	26.9	17.5	16.0	13.9	11.4	8.7	8.5	7.9	5.3	0.3	24	27.9	0.3	10.7
11	1.0	1.2	1.7	1.9	2.1	1.1	0.4	0.4	0.6	0.9	0.9	0.9	3.6	9.2	12.9	16.0	15.7	13.6	9.5	4.0	3.4	3.6	3.0	2.8	24	16.0	0.4	4.6
12	2.6	2.7	2.8	2.6	2.5	2.8	3.4	6.5	51.4	67.3	73.1	92.3	77.0	60.2	61.2	49.2	51.1	56.5	65.2	60.3	35.8	20.6	13.5	11.3	24	92.3	2.5	36.3
13	12.1	10.4	9.2	4.8	2.0	2.3	2.7	8.4	29.5	24.2	24.2	26.6	23.0	16.7	13.5	11.9	13.4	18.0	16.4	15.9	13.7	13.5	12.7	14.9	24	29.5	2.0	14.2
14	15.0	14.7	13.1	10.0	6.8	6.6	5.4	4.0	2.5	1.6	1.3	1.5	1.3	1.3	1.0	0.8	0.8	1.2	1.6	2.0	2.1	2.2	2.3	2.3	24	15.0	0.8	4.2
15	2.2	2.3	2.0	2.0	1.9	1.9	1.9	2.0	2.9	33.2	56.1	57.5	53.6	52.1	44.6	39.8	34.6	27.3	31.1	16.8	2.8	2.9	2.9	2.3	24	57.5	1.9	19.9
16	2.0	2.1	2.2	2.3	2.6	2.5	8.4	23.5	43.3	57.7	55.1	45.7	43.1	39.9	31.7	C	59.3	56.5	65.7	61.3	52.1	46.0	43.9	62.4	23	65.7	2.0	35.2
17	46.3	35.5	29.3	26.2	27.3	20.5	15.8	13.4	11.6	12.7	17.8	17.0	17.2	14.6	14.5	M	M	M	M	M	M	6.1	5.6	8.3	18	46.3	5.6	18.9
18	7.9	12.7	10.1	11.0	14.5	18.6	7.7	3.8	3.2	4.5	5.7	7.9	11.4	12.1	8.1	6.0	6.5	6.5	7.2	7.9	8.5	13.2	12.0	6.5	24	18.6	3.2	8.9
19	4.7	3.6	3.1	2.7	2.3	2.1	2.2	3.4	2.5	1.8	3.7	3.3	3.8	4.2	5.4	4.1	3.5	2.6	4.8	4.8	3.2	3.0	3.5	2.9	24	5.4	1.8	3.4
20	2.2	2.4	2.8	3.4	4.0	3.3	3.4	4.9	5.0	2.4	2.0	6.8	8.7	11.1	7.2	4.8	2.8	0.8	0.5	0.3	0.4	0.5	0.4	0.5	24	11.1	0.3	3.4
21	0.7	0.9	0.8	0.9	1.0	1.1	1.3	2.1	30.0	63.0	76.5	62.9	57.8	56.4	47.1	34.2	28.0	26.3	32.2	28.2	15.7	6.0	4.3	4.7	24	76.5	0.7	24.2
22	10.8	13.4	12.7	14.5	15.0	15.5	16.9	20.8	21.7	18.5	11.7	15.8	12.7	13.9	11.4	12.2	20.2	17.1	16.5	17.7	24.8	15.5	11.8	10.9	24	24.8	10.8	15.5
23	9.6	10.6	11.8	10.3	9.8	9.8	9.0	4.8	2.1	1.6	1.2	0.7	C	C	0.7	0.8	1.1	1.0	1.8	1.0	1.0	1.0	1.0	1.0	22	11.8	0.7	4.2
24	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	12.0	15.4	17.8	17.2	14.5	18.8	23.4	16.9	21.8	37.4	28.9	9.5	2.7	3.1	3.5	24	37.4	0.9	10.5
25	2.9	2.4	2.2	2.1	2.0	2.0	1.9	2.1	1.7	13.9	17.6	23.2	20.2	20.6	25.0	37.0	47.0	49.1	45.0	28.6	9.8	2.4	2.1	2.0	24	49.1	1.7	15.1
26	1.9	4.5	9.4	11.8	13.2	14.1	13.6	11.2	13.5	16.1	18.1	21.5	24.5	26.0	29.2	36.4	36.0	32.8	13.2	13.6	16.1	17.0	14.6	11.2	24	36.4	1.9	17.5
27	8.1	3.0	1.8	1.8	2.0	2.0	1.9	2.7	2.3	5.3	17.5	20.4	15.8	17.4	15.2	13.1	15.3	12.9	11.1	10.2	6.7	5.3	4.4	2.7	24	20.4	1.8	8.3
28	3.9	4.5	2.9	2.1	2.1	2.0	2.1	2.8	2.6	7.2	16.0	18.0	17.5	17.4	15.5	15.8	13.0	10.0	10.7	8.6	7.1	6.8	6.9	7.3	24	18.0	2.0	8.5
29	8.0	8.4	7.7	8.4	7.3	5.8	4.3	1.9	1.7	1.9	1.9	1.9	1.9	2.0	2.1	2.0	1.9	1.9	1.9	1.7	1.6	1.5	1.5	1.5	24	8.4	1.5	3.4
30	1.4	1.4	1.5	1.4	1.3	1.5	1.5	1.5	1.6	1.7	1.7	4.6	6.5	8.0	9.8	9.9	9.6	7.5	5.4	2.5	1.9	1.9	1.9	2.1	24	9.9	1.3	3.7
31																												
Count	30	30	30	30	30	30	30	30	30	30	30	29	28	29	30	28	29	29	29	29	29	30	30	30	709			
Maximum	46.3	35.5	29.3	26.2	27.3	20.5	26.6	26.1	51.4	67.3	76.5	92.3	77.0	60.2	61.2	49.2	59.3	56.5	65.7	61.3	52.1	46.0	43.9	62.4	24			
Minimum	0.7	0.9	0.8	0.9	0.9	0.9	0.4	0.4	0.6	0.9	0.9	0.7	1.3	1.3	0.7	0.8	0.8	0.8	0.5	0.3	0.4	0.5	0.4	0.3	18			
Average	6.1	5.7	5.6	5.5	5.2	5.3	5.4	6.1	10.8	16.6	20.0	21.2	20.9	20.0	18.0	16.8	18.0	17.2	16.6	14.0	9.8	7.9	6.9	6.8				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.5	2.0	2.6	3.9	6.8	9.9	13.4	17.4	28.6	45.8	62.9	92.3

Maximum Hourly	92.3
Maximum Daily	36.3
Monthly Average	11.9

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

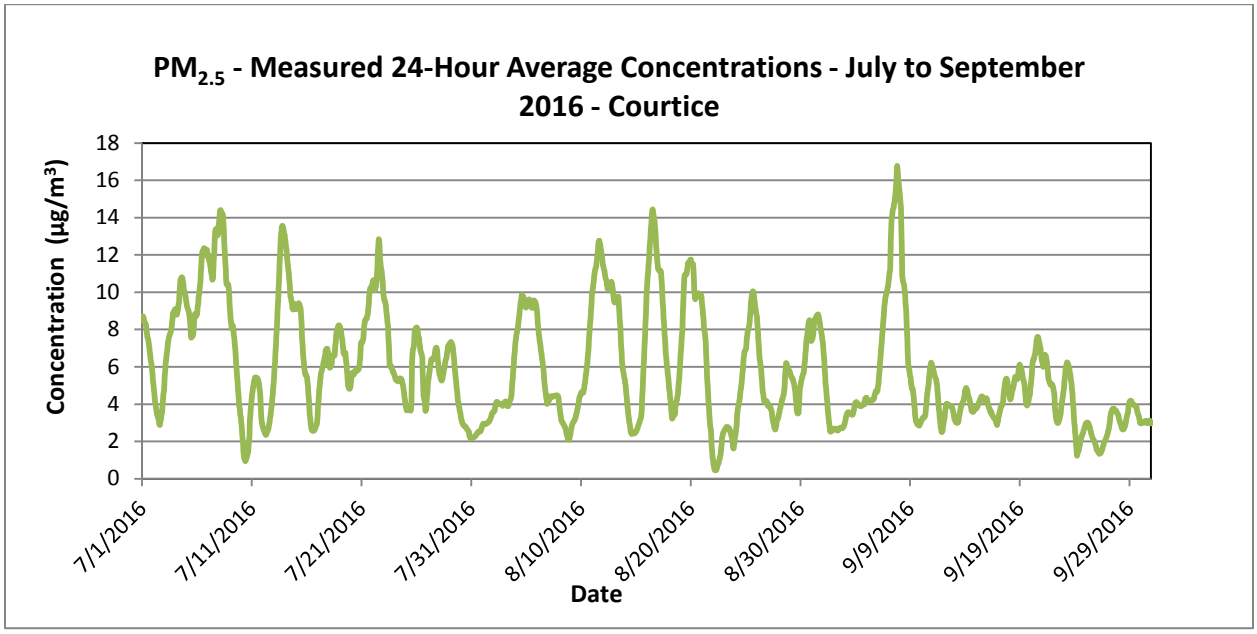
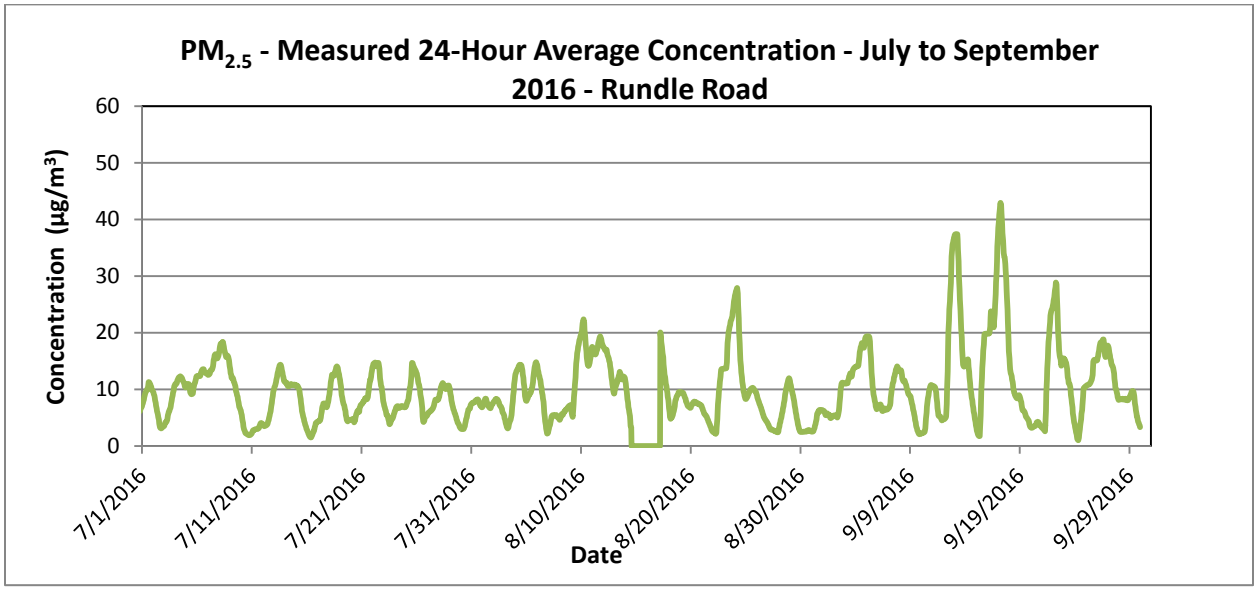


Figure E-2 Time History Plot of Measured 24-Hour Average $PM_{2.5}$ Concentrations – Rundle Road Station



Appendix F CONTINUOUS PARAMETER EDIT LOGS

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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-Jul-16**	**End date:**	**30-Sep-16**	**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)**	
21	27-Jul-16	TH	Invalidate	22-Jul-16	06:00	22-Jul-16	09:00	Monthly calibration
22	27-Jul-16	TH	Invalidate	22-Jul-16	10:00	22-Jul-16	10:00	Hour during which data logger was removed for calibration (spare installed) was invalidated.
23	13-Aug-16	TH	Data Review	3-Jul-16	02:00	3-Jul-16	05:00	An elevated SO_2 level of 22 ppb was measured at the Courtice WPCP station on July 3 at 2:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the north - potential emission sources in this direction include Highway 401, local roads or the CN railroad. Therefore, the data was deemed valid.
24	13-Aug-16	TH	Data Review	20-Jul-16	05:00	20-Jul-16	05:00	An elevated SO_2 level of 17 ppb was measured at the Courtice WPCP station on July 20 at 5:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the north-northwest - potential emission sources in this direction include Highway 401, local roads or the CN railroad. Therefore, the data was deemed valid.
25	13-Aug-16	TH	Data Review	20-Jul-16	23:00	20-Jul-16	23:00	An elevated SO_2 level of 18 ppb was measured at the Courtice WPCP station on July 20 at 23:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the west - potential emission sources in this direction include agricultural activities or local roads. Therefore, the data was deemed valid.
26	30-Aug-16	TH	Invalidate	18-Aug-16	11:00	18-Aug-16	13:00	August monthly calibration
27	13-Sep-16	TH	Invalidate	7-Sep-16	09:00	7-Sep-16	10:00	MOECC audit
28	23-Sep-16	TH	Data Review	22-Aug-16	20:00	23-Aug-16	05:00	An elevated SO_2 level of 17 ppb was measured at the Courtice WPCP station on August 22 at 22:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the north - potential emission sources in this direction include Highway 401, local roads or the CN railroad. Therefore, the data was deemed valid.
29	26-Sep-16	TH	Invalidate	16-Sep-16	09:00	16-Sep-16	10:00	Data logger calibration
30	28-Sep-16	CL	Invalidate	23-Sep-16	06:00	23-Sep-16	12:00	September monthly calibration

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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-Jul-16**	**End date:**	**30-Sep-16**		**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)**	
31	9-Oct-16	TH	Data Review	11-Sep-16	19:00	11-Sep-16	22:00	An elevated SO_2 level of 23 ppb was measured at the Courtice WPCP station on September 11 at 19:00 without a corresponding trend at the Rundle Road Station. Slightly elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the north - potential emission sources in this direction incldue Highway 401, local roads or the CN railroad. Therefore, the data was deemed valid.
32	9-Oct-16	TH	Data Review	21-Sep-16	03:00	21-Sep-16	05:00	An elevated SO_2 level of 22 ppb was measured at the Courtice WPCP station on September 21 at 5:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the north - potential emission sources in this direction include Highway 401, local roads or the CN railroad. Therefore, the data was deemed valid.
33	9-Oct-16	TH	Data Review	25-Sep-16	00:00	25-Sep-16	09:00	An elevated SO_2 level of 30 ppb was measured at the Courtice WPCP station on September 25 at 4:00 without a corresponding trend at the Rundle Road Station. Winds were from the northeast for which the DYEC, Highway 401, Highway 418 construction activities and CN railroad were upwind. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.

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 / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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:	**NOx**	**Instrument make & model:**		**API Model 200E Chemiluminescence Analyzer**			**Serial Number:**	**675**
Data edit period	**Start date:**	**1-Jul-16**	**End date:**	**30-Sep-16**	**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)**	
31	27-Jul-16	TH	Invalidate	22-Jul-16	06:00	22-Jul-16	08:00	Monthly calibration
32	27-Jul-16	TH	Invalidate	22-Jul-16	09:00	22-Jul-16	10:00	Hours during which data logger was removed for calibration (spare installed) was invalidated.
33	13-Aug-16	TH	Data Review	20-Jul-16	03:00	20-Jul-16	05:00	An elevated NOx level of 64 ppb was measured at the Courtice WPCP station on July 20 at 3:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby combustion source. Elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north-northwest - potential emission sources in this direction include local roads or the CN railroad. Therefore, the data was deemed valid.
34	13-Aug-16	TH	Data Review	20-Jul-16	23:00	20-Jul-16	23:00	An elevated NOx level of 45 ppb was measured at the Courtice WPCP station on July 20 at 23:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was lower than NO_2 which suggests a combustion source located relatively far away. Elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the west - potential emission sources in this direction include local roads, agricultural actvities or the CN railroad. Therefore, the data was deemed valid.
35	13-Aug-16	TH	Data Review	21-Jul-16	05:00	21-Jul-16	05:00	An elevated NOx level of 61 ppb was measured at the Courtice WPCP station on July 21 at 5:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby combustion source. Slightly elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north - potential emission sources in this direction include local roads or the CN railroad. Therefore, the data was deemed valid.
36	13-Aug-16	TH	Data Review	27-Jul-16	06:00	27-Jul-16	06:00	An elevated NOx level of 52 ppb was measured at the Courtice WPCP station on July 27 at 6:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby emissions source. Winds were blowing from the north - from the WPCP Chemical Building to the station. Idling trucks have been observed next to the Chemical Building (off-loading supplies) – since this measurement occurred during WPCP operating hours, the elevated measurement may have been due to an idling truck, the CN railroad or Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
37	30-Aug-16	TH	Invalidate	18-Aug-16	11:00	18-Aug-16	14:00	Monthly calibration
38	13-Sep-16	TH	Invalidate	7-Sep-16	09:00	7-Sep-16	10:00	MOECC audit
39	23-Sep-16	TH	Data Review	8-Aug-16	21:00	8-Aug-16	21:00	An elevated NOx level of 43 ppb was measured at the Courtice WPCP station on August 8 at 21:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was similar to NO_2 which suggests an intermediate distance emissions source. Winds were blowing from the north - for which local roads or the CN railroad are upwind. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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:	**NOx**	**Instrument make & model:**		**API Model 200E Chemiluminescence Analyzer**			**Serial Number:**	**675**
Data edit period	**Start date:**	**1-Jul-16**	**End date:**	**30-Sep-16**	**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)**	
40	23-Sep-16	TH	Data Review	11-Aug-16	06:00	11-Aug-16	06:00	An elevated NOx level of 46 ppb was measured at the Courtice WPCP station on August 11 at 6:00 with a less pronounced trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby emissions source. Winds were blowing from the north - from the WPCP Chemical Building to the station. Idling trucks have been observed next to the Chemical Building (off-loading supplies) – since this measurement occurred during WPCP operating hours, the elevated measurement may have been due to an idling truck, the CN railroad or Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
41	23-Sep-16	TH	Data Review	17-Aug-16	06:00	17-Aug-16	06:00	An elevated NOx level of 57 ppb was measured at the Courtice WPCP station on August 17 at 6:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby emissions source. Winds were blowing from the north - from the WPCP Chemical Building to the station. Idling trucks have been observed next to the Chemical Building (off-loading supplies) – since this measurement occurred during WPCP operating hours, the elevated measurement may have been due to an idling truck, the CN railroad or Highway 401. Minute data was reviewed and higher concentrations were measured over a 15-minute period but overall data considered reasonable. Therefore, the data was deemed valid
42	23-Sep-16	TH	Data Review	22-Aug-16	21:00	22-Aug-16	21:00	An elevated NOx level of 67 ppb was measured at the Courtice WPCP station on August 22 at 21:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby combustion source. Elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north - potential emission sources in this direction include local roads or the CN railroad. Therefore, the data was deemed valid.
43	23-Sep-16	TH	Data Review	23-Aug-16	06:00	23-Aug-16	06:00	An elevated NOx level of 69 ppb was measured at the Courtice WPCP station on August 23 at 6:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby combustion source. Elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north - from the WPCP Chemical Building to the station. Idling trucks have been observed next to the Chemical Building (off-loading supplies) – since this measurement occurred during WPCP operating hours, the elevated measurement may have been due to an idling truck, the CN railroad or Highway 401. Therefore, the data was deemed valid.
44	23-Sep-16	TH	Data Review	24-Aug-16	00:00	24-Aug-16	00:00	An elevated NOx level of 61 ppb was measured at the Courtice WPCP station on August 24 at 00:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby emissions source. Winds were blowing from the north for which local roads and the CN railroad are upwind. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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:	**NOx**	**Instrument make & model:**		**API Model 200E Chemiluminescence Analyzer**			**Serial Number:**	**675**
Data edit period	**Start date:**	**1-Jul-16**	**End date:**	**30-Sep-16**	**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)**	
45	23-Sep-16	TH	Data Review	24-Aug-16	06:00	24-Aug-16	06:00	An elevated NOx level of 65 ppb was measured at the Courtice WPCP station on August 24 at 6:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby emissions source. Winds were blowing from the north - from the WPCP Chemical Building to the station. Idling trucks have been observed next to the Chemical Building (off-loading supplies) – since this measurement occurred during WPCP operating hours, the elevated measurement may have been due to an idling truck, the CN railroad or Highway 401. Minute data was reviewed and generally higher concentrations were measured over the hour with a 6-minute spike which gradually decreased afterwards and still considered reasonably consistent. Therefore, the data was deemed valid
46	23-Sep-16	TH	Data Review	29-Aug-16	22:00	29-Aug-16	22:00	An elevated NOx level of 43 ppb was measured at the Courtice WPCP station on August 29 at 22:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration similar to NO_2 which suggests an intermediate distance emissions source. Winds were blowing from the north for which local roads and the CN railroad areupwind. Minute data was reviewed and generally high concentrations were measured over the hour with a 3-minute spike which gradually decreased afterwards and considered reasonably consistent. Therefore, the data was deemed valid
47	23-Sep-16	TH	Data Review	30-Aug-16	06:00	30-Aug-16	06:00	An elevated NOx level of 37 ppb was measured at the Courtice WPCP station on August 30 at 6:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby combustion source. Slightly elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north - from the WPCP Chemical Building to the station. Idling trucks have been observed next to the Chemical Building (off-loading supplies) – since this measurement occurred during WPCP operating hours, the elevated measurement may have been due to an idling truck, the CN railroad or Highway 401. Therefore, the data was deemed valid.
48	26-Sep-16	TH	Invalidate	16-Sep-16	09:00	16-Sep-16	11:00	Data logger calibrated. Spanned instrument to test alarms.
49	28-Sep-16	CL	Invalidate	23-Sep-16	06:00	23-Sep-16	08:00	September monthly calibration
50	7-Oct-16	TH	Data Review	27-Sep-16	12:00	27-Sep-16	23:00	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

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Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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:	**NOx**	**Instrument make & model:**		**API Model 200E Chemiluminescence Analyzer**			**Serial Number:**	**675**
Data edit period	**Start date:**	**1-Jul-16**	**End date:**	**30-Sep-16**	**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-Oct-16	TH	Data Review	6-Sep-16	05:00	6-Sep-16	06:00	An elevated NOx level of 46 ppb was measured at the Courtice WPCP station on September 6 at 6:00 with a less pronounced, corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby combustion source. Slightly elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north - from the WPCP Chemical Building to the station. Idling trucks have been observed next to the Chemical Building (off-loading supplies) – since this measurement occurred during WPCP operating hours, the elevated measurement may have been due to an idling truck, the CN railroad or Highway 401. Therefore, the data was deemed valid.
52	9-Oct-16	TH	Data Review	9-Sep-16	06:00	9-Sep-16	06:00	An elevated NOx level of 36 ppb was measured at the Courtice WPCP station on September 9 at 6:00 with a less prounounced, corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration larger than NO_2 which suggests an nearby emissions source. Winds were blowing from the northwest for which local roads and the CN railroad were upwind. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid
53	9-Oct-16	TH	Data Review	12-Sep-16	04:00	12-Sep-16	07:00	An elevated NOx level of 48 ppb was measured at the Courtice WPCP station on September 12 at 6:00 without corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby combustion source. Slightly elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north-northwest - from the WPCP Chemical Building to the station. Idling trucks have been observed next to the Chemical Building (off-loading supplies) – since this measurement occurred during WPCP operating hours, the elevated measurement may have been due to an idling truck, the CN railroad or Highway 401. Therefore, the data was deemed valid.

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Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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:	**NOx**	**Instrument make & model:**		**API Model 200E Chemiluminescence Analyzer**			**Serial Number:**	**675**
Data edit period	**Start date:**	**1-Jul-16**	**End date:**	**30-Sep-16**	**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)**	
54	9-Oct-16	TH	Data Review	13-Sep-16	06:00	13-Sep-16	06:00	An elevated NOx level of 52 ppb was measured at the Courtice WPCP station on September 13 at 6:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration larger than NO_2 which suggests a nearby combustion source. Slightly elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the northeast - potential emission sources in this direction include the DYEC, local roads, Highway 418 construction activities or the CN railroad. Therefore, the data was deemed valid.
55	9-Oct-16	TH	Data Review	19-Sep-16	06:00	19-Sep-16	06:00	An elevated NOx level of 63 ppb was measured at the Courtice WPCP station on September 19 at 6:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was larger than NO_2 which suggests a nearby combustion source. Slightly elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north - from the WPCP Chemical Building to the station. Idling trucks have been observed next to the Chemical Building (off-loading supplies) – since this measurement occurred during WPCP operating hours, the elevated measurement may have been due to an idling truck, the CN railroad or Highway 401. Therefore, the data was deemed valid.

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 / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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-Jul-16**	**End date:**	**30-Sep-16**		**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)**	
12	27-Jul-16	TH	Invalidate	22-Jul-16	06:00	22-Jul-16	08:00	Monthly calibration
13	27-Jul-16	TH	Invalidate	22-Jul-16	09:00	22-Jul-16	10:00	Hours during which data logger was removed for calibration (spare installed) was invalidated.
14	27-Jul-16	TH	Invalidate	25-Jul-16	07:00	25-Jul-16	12:00	Pump was shut off when field technician arrived in the afternoon - suspected to be due to thunderstorms in the morning. Pump was restarted. Upon review of the collected data, repeating measurements of approximately 0.14 $\mu g/m^3$ were identified. This data was invalidated.
15	13-Aug-16	TH	Data Review	10-Jul-16	20:00	10-Jul-16	20:00	An elevated $PM_{2.5}$ level of 21$\mu g/m^3$ was measured at the Courtice WPCP on July 10 at 20:00 without a corresponding trend at the Rundle or Oshawa stations. Winds were blowing from the northwest - emisson sources may have been the CN railroad, Highway 401 or agricultural activities. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
16	30-Aug-16	TH	Invalidate	18-Aug-16	11:00	18-Aug-16	14:00	Monthly calibration and Valley Environemntal Services performed a new leak check procedure as recommended by the MOECC.
17	8-Sep-16	CL	Manual entry	30-Jul-16	00:00	30-Jul-16	15:00	Issue with monitor analog output to data logger. Replaced with data downloaded directly from the monitor
18	8-Sep-16	CL	Manual entry	3-Aug-16	16:00	7-Aug-16	23:00	
19	8-Sep-16	CL	Manual entry	12-Aug-16	00:00	12-Aug-16	10:00	
20	8-Sep-16	CL	Manual entry	15-Aug-16	08:00	15-Aug-16	12:00	
21	8-Sep-16	CL	Manual entry	18-Aug-16	08:00	18-Aug-16	10:00	
22	8-Sep-16	CL	Invalidate	30-Aug-16	06:00	30-Aug-16	08:00	High Voltage Power Supply adjustment
23	13-Sep-16	TH	Invalidate	7-Sep-16	09:00	7-Sep-16	10:00	MOECC audit
24	20-Sep-16	TH	Manual entry	21-Aug-16	09:00	22-Aug-16	13:00	Issue with monitor analog output to data logger. Replaced with data downloaded directly from the monitor on September 16, 2016
25	20-Sep-16	TH	Manual entry	26-Aug-16	16:00	29-Aug-16	12:00	
26	26-Sep-16	TH	Invalidate	16-Sep-16	09:00	16-Sep-16	10:00	Data logger calibration
27	28-Sep-16	CL	Invalidate	23-Sep-16	06:00	23-Sep-16	07:00	September 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.
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EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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-Jul-16**	**End date:**	**30-Sep-16**		**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	27-Jul-16	TH	Invalidate	22-Jul-16	09:00	22-Jul-16	10:00	Hours during which data logger was removed for calibration (spare installed) was invalidated.
2	26-Sep-16	TH	Invalidate	16-Sep-16	09:00	16-Sep-16	10:00	Annual instrument calibration

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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-Jul-16**	**End date:**	**30-Sep-16**		**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)**	
4	27-Jul-16	Timothy Hung	Invalidate	22-Jul-16	09:00	22-Jul-16	10:00	Hours during which data logger was removed for calibration (spare installed) was invalidated.
5	26-Sep-16	Timothy Hung	Invalidate	16-Sep-16	08:00	16-Sep-16	08:00	Annual calibration
6	26-Sep-16	Timothy Hung	Invalidate	16-Sep-16	09:00	16-Sep-16	10:00	Data logger 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
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EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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-Jul-16**	**End date:**	**30-Sep-16**	**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	27-Jul-16	TH	Invalidate	22-Jul-16	09:00	22-Jul-16	10:00	Hours during which data logger was removed for calibration (spare installed) was invalidated.
2	26-Sep-16	TH	Invalidate	16-Sep-16	09:00	16-Sep-16	10:00	Annual instrument calibration

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@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-Jul-16**	**End date:**	**30-Sep-16**	**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	27-Jul-16	TH	Invalidate	22-Jul-16	09:00	22-Jul-16	10:00	Hours during which data logger was removed for calibration (spare installed) was invalidated.
2	26-Sep-16	TH	Invalidate	16-Sep-16	08:00	16-Sep-16	10:00	Barometer calibration. Data replaced with pressure measurements from hour before and after for calculation purposes.

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-Jul-16**	**End date:**	**30-Sep-16**	**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 / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**SO_2**	**Instrument make & model:**		**Teledyne Monitor Labs Sulphur Dioxide**		**Serial Number:**	**565**	
Data edit period	**Start date:**	**1-Apr-16**	**End date:**	**30-Jun-16**	**Time Zone : EST**			
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd-mm-yy)	**Hour (xx:xx)**	**Date (dd-mm-yy)**	**Hour (xx:xx)**	
17	27-Jul-16	TH	Invalidate	20-Jul-16	05:00	20-Jul-16	07:00	Monthly calibration
18	27-Jul-16	TH	Invalidate	20-Jul-16	10:00	20-Jul-16	10:00	Hour during which data logger was reinstalled after calibration (spare removed)
19	13-Aug-16	TH	Data review	11-Jul-16	11:00	11-Jul-16	13:00	An elevated SO_2 level of 31ppb was measured at the Rundle Road station on July 11 at 13:00 without a corresponding trend at the Courtice WPCP station. Elevated NOx levels were also measured at the Rundle Station suggesting a local combustion source. Winds were blowing from the east - potential emission sources in this direction include local roads or the CP railroad. Therefore, the data was deemed valid.
20	13-Aug-16	TH	Data review	12-Jul-16	17:00	12-Jul-16	17:00	An elevated SO_2 level of 19ppb was measured at the Rundle Road station on July 12 at 17:00 without a corresponding trend at the Courtice WPCP station. Elevated NOx levels were also measured at the Rundle Station suggesting a local combustion source. Winds were blowing from the east-southeast - potential emission sources in this direction include the St. Mary's Cement plant or CP railroad. Therefore, the data was deemed valid.
21	30-Aug-16	TH	Invalidate	16-Aug-16	10:00	16-Aug-16	12:00	Monthly calibration
22	13-Sep-16	TH	Invalidate	7-Sep-16	11:00	7-Sep-16	12:00	MOECC Audit
23	23-Sep-16	TH	Data review	1-Aug-16	11:00	1-Aug-16	11:00	An elevated SO_2 level of 19ppb was measured at the Rundle Road station on August 1 at 11:00 without a corresponding trend at the Courtice WPCP station. Elevated NOx levels were also measured at the Rundle Station suggesting a local combustion source. Winds were blowing from the southeast - potential emission sources in this direction include the St. Mary's Cement plant, CP railroad or Highway 401. Therefore, the data was deemed valid.
24	23-Sep-16	TH	Data review	2-Aug-16	09:00	2-Aug-16	09:00	An elevated SO_2 level of 23ppb was measured at the Rundle Road station on August 2 at 9:00 without a corresponding trend at the Courtice WPCP station. Slightly elevated NOx levels were also measured at the Rundle Station suggesting a local combustion source. Winds were blowing from the southeast - potential emission sources in this direction include the St. Mary's Cement plant, CP railroad or Highway 401. Therefore, the data was deemed valid.
25	23-Sep-16	TH	Data review	9-Aug-16	14:00	9-Aug-16	14:00	An elevated SO_2 level of 20ppb was measured at the Rundle Road station on August 9 at 14:00 without a corresponding trend at the Courtice WPCP station. Slightly elevated NOx and PM2.5 levels were also measured at the Rundle Station suggesting a local combustion source. Winds were blowing from the southeast - potential emission sources in this direction include the St. Mary's Cement plant, CP railroad or Highway 401. Therefore, the data was deemed valid.
26	23-Sep-16	TH	Data review	22-Aug-16	07:00	23-Aug-16	00:00	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.
				26-Aug-16	22:00	27-Aug-16	10:00	
27	26-Sep-16	TH	Invalidate	17-Sep-16	15:00	17-Sep-16	16:00	Power outage
28	28-Sep-16	Cl	Invalidate	23-Sep-16	12:00	23-Sep-16	13:00	September monthly calibration
29	7-Oct-16	TH	Data review	1-Sep-16	08:00	3-Sep-16	20:00	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.
				11-Sep-16	05:00	12-Sep-16	12:00	
				14-Sep-16	07:00	16-Sep-16	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

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**NOx**	**Instrument make & model:**		**API Model 200E Chemiluminescence Analyzer**		**Serial Number:**	**675**	
Data edit period	**Start date:**	**1-Apr-16**	**End date:**	**30-Jun-16**	**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)**	
20	27-Jul-16	TH	Invalidate	20-Jul-16	05:00	20-Jul-16	08:00	Monthly calibration
21	27-Jul-16	TH	Invalidate	20-Jul-16	10:00	20-Jul-16	10:00	Hour during which data logger was reinstalled after calibration (spare removed)
22	13-Aug-16	TH	Data review	11-Jul-16	11:00	11-Jul-16	13:00	An elevated NOx level of 31ppb was measured at the Rundle Road station on July 11 at 13:00 without a corresponding trend at the Courtice WPCP Station. For this hour, the measured NO concentration was approximately equal to NO_2 which suggests a nearby combustion source. Elevated SO_2 levels were also measured at the Rundle Station. Winds were blowing from the east - potential emission sources in this direction include local roads or the CP railroad. Therefore, the data was deemed valid.
23	13-Aug-16	TH	Data review	12-Jul-16	17:00	12-Jul-16	18:00	An elevated NOx level of 30ppb was measured at the Rundle Road station on July 12 at 18:00 without a corresponding trend at the Courtice WPCP Station. For this hour, the measured NO concentration was lower than NO_2 which suggests a combustion source located a relatively long distance away. Elevated SO_2 levels were also measured at the Rundle Station. Winds were blowing from the east-southeast - potential emission sources in this direction include the St. Mary's Cement Plant or CP railroad. Therefore, the data was deemed valid.
24	30-Aug-16	TH	Invalidate	16-Aug-16	10:00	16-Aug-16	14:00	Monthly calibration
25	13-Sep-16	TH	Invalidate	7-Sep-16	11:00	7-Sep-16	12:00	MOECC Audit
26	26-Sep-16	TH	Invalidate	17-Sep-16	15:00	17-Sep-16	16:00	Power outage
27	28-Sep-16	CI	Invalidate	23-Sep-16	12:00	23-Sep-16	12:00	September monthly calibration
28	7-Oct-16	TH	Data review	1-Sep-16	17:00	2-Sep-16	05:00	Instances of repeating NOx zero values in these timeframes were due to negative instrument zero drift less than -5 ppb. As per the
				11-Sep-16	00:00	11-Sep-16	17:00	MOECC Ambient Monitoring Guideline, no drift correction was applied.

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 / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**$PM_{2.5}$**	**Instrument make & model:**		**Thermo Sharp 5030 Synchronized Hybrid Ambient Real-time**		**Serial Number:**	**E-1569**	
Data edit period	**Start date:**	**1-Apr-16**	**End date:**	**30-Jun-16**	**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)**	
23	27-Jul-16	TH	Invalidate	20-Jul-16	05:00	20-Jul-16	08:00	Monthly calibration
24	27-Jul-16	TH	Invalidate	20-Jul-16	10:00	20-Jul-16	10:00	Hour during which data logger was reinstalled after calibration (spare removed)
25	16-Aug-16	TH	Invalidate	14-Aug-16	09:00	16-Aug-16	05:00	Pump failure. Invalidate suspect data.
26	30-Aug-16	TH	Invalidate	16-Aug-16	06:00	16-Aug-16	12:00	Monthly calibration, pump repair and Valley Environemntal Services performed a new leak check procedure as recommended by the MOECC.
27	13-Sep-16	TH	Invalidate	30-Aug-16	08:00	30-Aug-16	11:00	High Voltage Power Supply adjustment
28	13-Sep-16	TH	Invalidate	7-Sep-16	11:00	7-Sep-16	12:00	MOECC Audit
29	23-Sep-16	TH	Data review	3-Aug-16	22:00	3-Aug-16	22:00	Elevated level of up to 32 µg/m³ measured on August 3 at 22:00 without at corresponding trend at the Oshawa station and a less pronounced corresponding trend at Courtice station. The wind was blowing from the north - potential emission sources in this direction include from agricultural activities. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
30	23-Sep-16	TH	Data review	9-Aug-16	07:00	9-Aug-16	16:00	Elevated level of up to 47 µg/m³ measured on August 9 at 8:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the southeast - potential emission sources in this direction include the St. Mary's Cement Plant, CP railroad or Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
31	23-Sep-16	TH	Data review	22-Aug-16	08:00	22-Aug-16	19:00	Elevated level of up to 35 µg/m³ measured on August 22 at 10:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the southwest - the elevated readings occurred during the daytime and may have been due to Highway 418 construction activities, CP railroad or Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
32	23-Sep-16	TH	Data review	23-Aug-16	07:00	23-Aug-16	20:00	Elevated level of up to 61 µg/m³ measured on August 23 at 10:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the southwest - the elevated readings occurred during the daytime and may have been due to Highway 418 construction activities, CP railroad or Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
33	26-Sep-16	TH	Invalidate	16-Sep-16	15:00	16-Sep-16	15:00	Changed filter tape
34	26-Sep-16	TH	Invalidate	17-Sep-16	15:00	17-Sep-16	20:00	Power outage. Sharpe required additional time to stabilize
35	28-Sep-16	Cl	Invalidate	23-Sep-16	12:00	23-Sep-16	13:00	September monthly calibration
36	9-Oct-16	TH	Data review	2-Sep-16	10:00	2-Sep-16	18:00	Elevated level of up to 32 µg/m³ measured on September 2 at 15:00 without a corresponding trend at Oshawa or Courtice stations The wind was blowing from the west-southwest - the elevated readings occurred during the daytime and may have been due to Highway 418 construction activities, CP railroad or Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
37	9-Oct-16	TH	Data review	3-Sep-16	10:00	3-Sep-16	19:00	Elevated level of up to 31 µg/m³ measured on September 3 at 11:00 without a corresponding trend at Oshawa or Courtice stations The wind was blowing from the south-southeast - potential emission sources in this direction include local roads or the CP railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
38	9-Oct-16	TH	Data review	4-Sep-16	09:00	4-Sep-16	16:00	Elevated level of up to 47 µg/m³ measured on September 4 at 10:00 without a corresponding trend at Oshawa or Courtice stations The wind was blowing from the east-southeast - potential emission sources in this direction include the St. Mary's Cement Plant, CP railroad or Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
39	9-Oct-16	TH	Data review	12-Sep-16	08:00	12-Sep-16	19:00	Elevated level of up to 92 µg/m³ measured on September 12 at 11:00 without a corresponding trend at the Oshawa or Courtice stations. The wind was blowing from the south - potential emission sources in this direction include local roads or the CP railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**$PM_{2.5}$**	**Instrument make & model:**		**Thermo Sharp 5030 Synchronized Hybrid Ambient Real-time**		**Serial Number:**	**E-1569**	
Data edit period	**Start date:**	**1-Apr-16**	**End date:**	**30-Jun-16**	**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)**	
40	9-Oct-16	TH	Data review	15-Sep-16	10:00	15-Sep-16	18:00	Elevated level of up to 58 µg/m³ measured on September 15 at 11:00 without a corresponding trend at Oshawa or Courtice stations. The wind was blowing from the south-southeast - potential emission sources in this direction include local roads or the CP railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
41	9-Oct-16	TH	Data review	16-Sep-16	08:00	16-Sep-16	23:00	Elevated level of up to 66 µg/m³ measured on September 16 at 18:00 without a corresponding trend at Oshawa or Courtice stations. Winds were generally blowing from the east - potential emission sources in this direction include from local roads or the CP railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period (1 large spike of 341µg/m³ was measured during the filter tape change but this was already invalidated). Therefore, the data was deemed valid.
42	9-Oct-16	TH	Data review	21-Sep-16	09:00	21-Sep-16	15:00	Elevated level of up to 77 µg/m³ measured on September 21 at 18:00 without a corresponding trend at Courtice station and a less prounounced trend at the Oshawa station. Winds were generally blowing from the west-southwest - the elevated readings occurred during the daytime and may have been due to Highway 418 construction activities, the CP railroad or Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
43	9-Oct-16	TH	Data review	24-Sep-16	11:00	24-Sep-16	20:00	Elevated level of up to 37 µg/m³ measured on September 24 at 18:00 without a corresponding trend at Oshawa or Courtice stations. The wind was blowing from the north - potential emission sources in this direction include agricultural activities. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
44	9-Oct-16	TH	Data review	25-Sep-16	09:00	25-Sep-16	19:00	Elevated level of up to 49 µg/m³ measured on September 25 at 17:00 without a corresponding trend at Oshawa or Courtice stations. The wind was blowing from the southeast - potential emission sources in this direction include the St. Mary's Cement Plant, CP railroad or Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
45	9-Oct-16	TH	Data review	26-Sep-16	07:00	26-Sep-16	21:00	Elevated level of up to 36 µg/m³ measured on September 26 at 15:00 without a corresponding trend at Oshawa or Courtice stations. The wind was blowing from the northwest - potential emission sources in this direction include agricultural activities. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.

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 / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Temperature**	**Instrument make & model:**		**Campbell Scientific Model HMP60**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-16**	**End date:**	**30-Jun-16**	**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 / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Rainfall**	**Instrument make & model:**		**Texas Electronic TE525M**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-16**	**End date:**	**30-Jun-16**	**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)**	
3	27-Jul-16	TH	Invalidate	20-Jul-16	10:00	20-Jul-16	10:00	Hour during which data logger was reinstalled after calibration (spare removed)

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 / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Relative Humidity**	**Instrument make & model:**		**Campbell Scientific Model HMP60**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-16**	**End date:**	**30-Jun-16**	**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)**	
3	27-Jul-16	TH	Invalidate	20-Jul-16	10:00	20-Jul-16	10:00	Hour during which data logger was reinstalled after calibration (spare removed)

EDIT LOG TABLE

Project Name	**Durham York Energy Centre Ambient Air Monitoring Program**							
Contact	**Greg Crooks / Connie Lim / Tim Hung**		**Phone:**	**905-944-7777**	**E-mail:**	**greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com**		
Station number:	**45200**		**Station Name:**	**Rundle Road Station**				
Station address:	**Rundle Road / Baseline Road**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Wind Speed/Wind Direction**	**Instrument make & model:**		**Met One Instruments Inc. Model 034B**			**Serial Number:**	
Data edit period	**Start date:**	**1-Apr-16**	**End date:**	**30-Jun-16**	**Time Zone : EST**			
Edit #	**Edit date**	**Editor's Name**	**Edit Action**	**Starting**		**Ending**		**Reason**
				Date (dd-mm-yy)	**Hour (xx:xx)**	**Date (dd-mm-yy)**	**Hour (xx:xx)**	
4	27-Jul-16	TH	Invalidate	20-Jul-16	10:00	20-Jul-16	10:00	Hour during which data logger was reinstalled after calibration (spare removed)

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

Appendix G METALS DATA SUMMARY

Metals and Total Particulates	Courtice WPCP Station																													
Location			Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice	
Date	dd/mm/yyyy		05/07/2016		11/07/2016		17/07/2016		23/07/2016		29/07/2016		04/08/2016		10/08/2016		16/08/2016		22/08/2016		28/08/2016		03/09/2016		09/09/2016		15/09/2016		21/09/2016		27/09/2016	
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		23.21		23.56		23.19		23.6		23.45		24.7		23.67		23.22		24.06		23.48		23.63		25.14		24.41		23.7		23	
Technician			TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH	
Filter Number			16061377		16061722		16061725		16070715		16070719		16070754		16070758		16070797		16071244		16071263		16071267		16080597		16081901		16082278		16082282	
Analytical Report #			B6E0144		B6E4985		B6F4131		B6F6607		B6G2464		B6G6161		B6H2047		B6H5406		B6I2903		B6I5095		B6J0697		B6J5866		B6K2144		B6K5679		DDV250	
Total Volumetric Flow	Am^3/sample		1563.62		1528.43		1496.65		1567.72		1578.47		1700.75		1640.20		1613.47		1655.46		1642.07		1557.11		1686.95		1628.31		1583.78		1563.98	
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		91.2	5	32.5	5	50.2	5	46.5	5	40.8	5	52.6	5	93.2	5	31.3	5	55.6	5	42.3	5	37.4	5	45.2	5	24.6	5	57.4	5	47.4	5
Total Mercury (Hg)	µg		0.03	0.02	0.02	0.02	0.03	0.02	<0.02	0.02	<0.02	0.02	0.03	0.02	0.03	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.03	0.02	<0.02	0.02	0.03	0.02	0.02	0.02
Aluminum (Al)	µg		302	50	154	50	166	50	181	50	162	50	194	50	435	50	161	50	339	50	159	50	171	50	178	50	176	50	301	50	135	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		27.0	1.0	7.9	1.0	12.1	1.0	16.7	1.0	8.8	1.0	14.8	1.0	19.6	1.0	9.3	1.0	22.2	1.0	10.4	1.0	10.3	1.0	22.6	1.0	15.0	1.0	29.8	1.0	14.1	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	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0
Cadmium (Cd)	µg		<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0
Chromium (Cr)	µg		5.4	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	5.5	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	5.0	5.0	<5.0	5.0	<5.0	5.0	5.2	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		73.4	5.0	51.0	5.0	87.8	5.0	80.8	5.0	44.4	5.0	108	5.0	91.4	5.0	71.8	5.0	117	5.0	61.7	5.0	76.0	5.0	109	5.0	36.9	5.0	81.4	5.0	32.8	5.0
Iron (Fe)	µg		967	50	391	50	577	50	573	50	408	50	659	50	1200	50	254	50	1120	50	442	50	690	50	811	50	809	50	1440	50	535	50
Lead (Pb)	µg		5.4	3.0	<3.0	3.0	5.9	3.0	<3.0	3.0	<3.0	3.0	4.5	3.0	4.9	3.0	<3.0	3.0	3.9	3.0	3.5	3.0	3.4	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	3.4	3.0
Magnesium (Mg)	µg		699	50	194	50	351	50	312	50	213	50	320	50	702	50	162	50	464	50	220	50	177	50	253	50	198	50	665	50	415	50
Manganese (Mn)	µg		38.7	1.0	11.8	1.0	18.6	1.0	20.0	1.0	11.5	1.0	16.1	1.0	42.2	1.0	8.0	1.0	32.0	1.0	12.6	1.0	14.4	1.0	17.6	1.0	16.2	1.0	46.2	1.0	26.3	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	3.2	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	<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		62	25	63	25	49	25	53	25	47	25	82	25	75	25	47	25	63	25	61	25	43	25	82	25	38	25	81	25	110	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		27.0	1.0	6.7	1.0	12.0	1.0	8.5	1.0	6.2	1.0	5.9	1.0	21.4	1.0	4.7	1.0	12.9	1.0	7.8	1.0	5.0	1.0	6.1	1.0	5.5	1.0	11.1	1.0	5.2	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		16	10	<10	10	11	10	11	10	13	10	11	10	22	10	<10	10	22	10	11	10	11	10	12	10	12	10	20	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		60.5	5.0	20.0	5.0	36.4	5.0	28.5	5.0	44.5	5.0	32.6	5.0	65.8	5.0	34.6	5.0	33.6	5.0	37.7	5.0	25.1	5.0	30.2	5.0	22.3	5.0	65.5	5.0	48.4	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

Calculated Concentrations	Quarter 3			Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice
				26	27	28	29	30	31	32	33	34	35	36	37	38	39	40			
	Units	Maximum	Minimum	05/07/2016	11/07/2016	17/07/2016	23/07/2016	29/07/2016	04/08/2016	10/08/2016	16/08/2016	22/08/2016	28/08/2016	03/09/2016	09/09/2016	15/09/2016	21/09/2016	27/09/2016			
Particulate	µg/m^3	58.33	15.11	58.33	21.26	33.54	29.66	25.85	30.93	56.82	19.40	33.59	25.76	24.02	26.79	15.11	36.24	30.31			
Total Mercury (Hg)	µg/m^3	2.00E-05	6.04E-06	1.92E-05	1.31E-05	2.00E-05	6.38E-06	6.34E-06	1.76E-05	1.83E-05	6.20E-06	6.04E-06	6.09E-06	6.42E-06	1.78E-05	6.14E-06	1.89E-05	1.28E-05			
Aluminum (Al)	µg/m^3	2.65E-01	8.63E-02	1.93E-01	1.01E-01	1.11E-01	1.15E-01	1.03E-01	1.14E-01	2.65E-01	9.98E-02	2.05E-01	9.68E-02	1.10E-01	1.06E-01	1.08E-01	1.90E-01	8.63E-02			
Antimony (Sb)	µg/m^3	3.34E-03	2.94E-03	3.20E-03	3.27E-03	3.34E-03	3.19E-03	3.17E-03	2.94E-03	3.05E-03	3.10E-03	3.02E-03	3.04E-03	3.21E-03	2.96E-03	3.07E-03	3.16E-03	3.20E-03			
Arsenic (As)	µg/m^3	2.00E-03	1.76E-03	1.92E-03	1.96E-03	2.00E-03	1.91E-03	1.90E-03	1.76E-03	1.83E-03	1.86E-03	1.81E-03	1.83E-03	1.93E-03	1.78E-03	1.84E-03	1.89E-03	1.92E-03			
Barium (Ba)	µg/m^3	1.88E-02	5.17E-03	1.73E-02	5.17E-03	8.08E-03	1.07E-02	5.58E-03	8.70E-03	1.19E-02	5.76E-03	1.34E-02	6.33E-03	6.61E-03	1.34E-02	9.21E-03	1.88E-02	9.02E-03			
Beryllium (Be)	µg/m^3	3.34E-04	2.94E-04	3.20E-04	3.27E-04	3.34E-04	3.19E-04	3.17E-04	2.94E-04	3.05E-04	3.10E-04	3.02E-04	3.04E-04	3.21E-04	2.96E-04	3.07E-04	3.16E-04	3.20E-04			
Bismuth (Bi)	µg/m^3	2.00E-03	1.76E-03	1.92E-03	1.96E-03	2.00E-03	1.91E-03	1.90E-03	1.76E-03	1.83E-03	1.86E-03	1.81E-03	1.83E-03	1.93E-03	1.78E-03	1.84E-03	1.89E-03	1.92E-03			
Boron (B)	µg/m^3	2.00E-03	1.76E-03	1.92E-03	1.96E-03	2.00E-03	1.91E-03	1.90E-03	1.76E-03	1.83E-03	1.86E-03	1.81E-03	1.83E-03	1.93E-03	1.78E-03	1.84E-03	1.89E-03	1.92E-03			
Cadmium (Cd)	µg/m^3	6.68E-04	5.88E-04	6.40E-04	6.54E-04	6.68E-04	6.38E-04	6.34E-04	5.88E-04	6.10E-04	6.20E-04	6.04E-04	6.09E-04	6.42E-04	5.93E-04	6.14E-04	6.31E-04	6.39E-04			
Chromium (Cr)	µg/m^3	3.45E-03	1.47E-03	3.45E-03	1.64E-03	1.67E-03	1.59E-03	1.58E-03	1.47E-03	3.35E-03	1.55E-03	1.51E-03	1.52E-03	3.21E-03	1.48E-03	1.54E-03	3.28E-03	1.60E-03			
Cobalt (Co)	µg/m^3	6.68E-04	5.88E-04	6.40E-04	6.54E-04	6.68E-04	6.38E-04	6.34E-04	5.88E-04	6.10E-04	6.20E-04	6.04E-04	6.09E-04	6.42E-04	5.93E-04	6.14E-04	6.31E-04	6.39E-04			
Copper (Cu)	µg/m^3	7.07E-02	2.10E-02	4.69E-02	3.34E-02	5.87E-02	5.15E-02	2.81E-02	6.35E-02	5.57E-02	4.45E-02	7.07E-02	3.76E-02	4.88E-02	6.46E-02	2.27E-02	5.14E-02	2.10E-02			
Iron (Fe)	µg/m^3	9.09E-01	1.57E-01	6.18E-01	2.56E-01	3.86E-01	3.66E-01	2.58E-01	3.87E-01	7.32E-01	1.57E-01	6.77E-01	2.69E-01	4.43E-01	4.81E-01	4.97E-01	9.09E-01	3.42E-01			
Lead (Pb)	µg/m^3	3.94E-03	8.89E-04	3.45E-03	9.81E-04	3.94E-03	9.57E-04	9.50E-04	2.65E-03	2.99E-03	9.30E-04	2.36E-03	2.13E-03	2.18E-03	8.89E-04	9.21E-04	9.47E-04	2.17E-03			
Magnesium (Mg)	µg/m^3	4.47E-01	1.00E-01	4.47E-01	1.27E-01	2.35E-01	1.99E-01	1.35E-01	1.88E-01	4.28E-01	1.00E-01	2.80E-01	1.34E-01	1.14E-01	1.50E-01	1.22E-01	4.20E-01	2.65E-01			
Manganese (Mn)	µg/m^3	2.92E-02	4.96E-03	2.48E-02	7.72E-03	1.24E-02	1.28E-02	7.29E-03	9.47E-03	2.57E-02	4.96E-03	1.93E-02	7.67E-03	9.25E-03	1.04E-02	9.95E-03	2.92E-02	1.68E-02			
Molybdenum (Mo)	µg/m^3	1.88E-03	8.89E-04	9.59E-04	9.81E-04	1.00E-03	9.57E-04	9.50E-04	1.88E-03	9.15E-04	9.30E-04	9.06E-04	9.13E-04	9.63E-04	8.89E-04	9.21E-04	9.47E-04	9.59E-04			
Nickel (Ni)	µg/m^3	1.00E-03	8.82E-04	9.59E-04	9.81E-04	1.00E-03	9.57E-04	9.50E-04	8.82E-04	9.15E-04	9.30E-04	9.06E-04	9.13E-04	9.63E-04	8.89E-04	9.21E-04	9.47E-04	9.59E-04			
Phosphorus (P)	µg/m^3	7.03E-02	2.33E-02	3.97E-02	4.12E-02	3.27E-02	3.38E-02	2.98E-02	4.82E-02	4.57E-02	2.91E-02	3.81E-02	3.71E-02	2.76E-02	4.86E-02	2.33E-02	5.11E-02	7.03E-02			
Selenium (Se)	µg/m^3	3.34E-03	2.94E-03	3.20E-03	3.27E-03	3.34E-03	3.19E-03	3.17E-03	2.94E-03	3.05E-03	3.10E-03	3.02E-03	3.04E-03	3.21E-03	2.96E-03	3.07E-03	3.16E-03	3.20E-03			
Silver (Ag)	µg/m^3	1.67E-03	1.47E-03	1.60E-03	1.64E-03	1.67E-03	1.59E-03	1.58E-03	1.47E-03	1.52E-03	1.55E-03	1.51E-03	1.52E-03	1.61E-03	1.48E-03	1.54E-03	1.58E-03	1.60E-03			
Strontium (Sr)	µg/m^3	1.73E-02	2.91E-03	1.73E-02	4.38E-03	8.02E-03	5.42E-03	3.93E-03	3.47E-03	1.30E-02	2.91E-03	7.79E-03	4.75E-03	3.21E-03	3.62E-03	3.38E-03	7.01E-03	3.32E-03			
Thallium (Tl)	µg/m^3	3.34E-03	2.94E-03	3.20E-03	3.27E-03	3.34E-03	3.19E-03	3.17E-03	2.94E-03	3.05E-03	3.10E-03	3.02E-03	3.04E-03	3.21E-03	2.96E-03	3.07E-03	3.16E-03	3.20E-03			
Tin (Sn)	µg/m^3	3.34E-03	2.94E-03	3.20E-03	3.27E-03	3.34E-03	3.19E-03	3.17E-03	2.94E-03	3.05E-03	3.10E-03	3.02E-03	3.04E-03	3.21E-03	2.96E-03	3.07E-03	3.16E-03	3.20E-03			
Titanium (Ti)	µg/m^3	1.34E-02	3.10E-03	1.02E-02	3.27E-03	7.35E-03	7.02E-03	8.24E-03	6.47E-03	1.34E-02	3.10E-03	1.33E-02	6.70E-03	7.06E-03	7.11E-03	7.37E-03	1.26E-02	3.20E-03			
Vanadium (V)	µg/m^3	1.67E-03	1.47E-03	1.60E-03	1.64E-03	1.67E-03	1.59E-03	1.58E-03	1.47E-03	1.52E-03	1.55E-03	1.51E-03	1.52E-03	1.61E-03	1.48E-03	1.54E-03	1.58E-03	1.60E-03			
Zinc (Zn)	µg/m^3	4.14E-02	1.31E-02	3.87E-02	1.31E-02	2.43E-02	1.82E-02	2.82E-02	1.92E-02	4.01E-02	2.14E-02	2.03E-02	2.30E-02	1.61E-02	1.79E-02	1.37E-02	4.14E-02	3.09E-02			
Zirconium (Zr)	µg/m^3	1.67E-03	1.47E-03	1.60E-03	1.64E-03	1.67E-03	1.59E-03	1.58E-03	1.47E-03	1.52E-03	1.55E-03	1.51E-03	1.52E-03	1.61E-03	1.48E-03	1.54E-03	1.58E-03	1.60E-03			
Total Uranium (U)	µg/m^3	1.50E-04	1.32E-04	1.44E-04	1.47E-04	1.50E-04	1.44E-04	1.43E-04	1.32E-04	1.37E-04	1.39E-04	1.36E-04	1.37E-04	1.44E-04	1.33E-04	1.38E-04	1.42E-04	1.44E-04			

Metals and Total Particulates	Rundle Station																													
Location				Rundle		Rundle		Rundle		Rundle[1]		Rundle		Rundle		Rundle[2]		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle	
Date	dd/mm/yyyy			05/07/2016		11/07/2016		17/07/2016		23/07/2016		29/07/2016		04/08/2016		10/08/2016		16/08/2016		22/08/2016		28/08/2016		03/09/2016		09/09/2016		15/09/2016		21/09/2016		27/09/2016	
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			23.9		23.46		23.87		23.48		24.15		24.12		23.72		21.97		23.32		23.71		23.52		23.19		24.03		24.57		23.55	
Technician				TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH	
Filter Number				16061378		16061721		16061726		16070716		16070720		16070755		16070759		16070798		16071245		16071264		16071268		16080598		16081902		16082279		16082283	
Analytical Report #				B6E0144		B6E4985		B6F4131		B6F6607		B6G2464		B6G6161		B6H2047		B6H5406		B6I2903		B6I5095		B6J0697		B6J5866		B6K2144		B6K5679		B6K9799
Total Volumetric Flow	Am^3/sample			1531.18		1527.28		1532.16		1598.07		1650.98		1649.89		1634.87		1488.86		1591.42		1594.13		1587.77		1621.55		1606.47		1656.78		1596.35	
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			62.5	5	48.6	5	49	5	43.4	5	36.1	5	51.3	5	73.3	5	29.8	5	46.2	5	39.2	5	36.7	5	71.1	5	30.3	5	91.7	5	60.3	5
Total Mercury (Hg)	µg			0.03	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	<0.02	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
Aluminum (Al)	µg			328	50	269	50	204	50	239	50	182	50	228	50	481	50	130	50	258	50	110	50	150	50	524	50	208	50	624	50	197	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			26.7	1.0	12.3	1.0	12.5	1.0	9.8	1.0	11.7	1.0	15.2	1.0	24.8	1.0	11.6	1.0	14.1	1.0	9.9	1.0	11.1	1.0	19.8	1.0	14.7	1.0	28.7	1.0	18.4	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			6.9	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
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			6.1	5.0	<5.0	5.0	5.6	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	7.3	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	7.8	5.0	<5.0	5.0	6.6	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	4.5	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0
Copper (Cu)	µg			79.1	5.0	68.2	5.0	124	5.0	126	5.0	68.2	5.0	162	5.0	148	5.0	76.0	5.0	153	5.0	99.7	5.0	128	5.0	157	5.0	72.4	5.0	137	5.0	86.3	5.0
Iron (Fe)	µg			888	50	891	50	710	50	511	50	607	50	749	50	1640	50	387	50	582	50	465	50	433	50	2930	50	684	50	1680	50	751	50
Lead (Pb)	µg			7.8	3.0	<3.0	3.0	9.9	3.0	3.4	3.0	<3.0	3.0	4.3	3.0	5.4	3.0	<3.0	3.0	3.9	3.0	3.5	3.0	3.2	3.0	3.4	3.0	<3.0	3.0	<3.0	3.0	3.9	3.0
Magnesium (Mg)	µg			605	50	332	50	333	50	340	50	214	50	350	50	684	50	140	50	370	50	172	50	170	50	506	50	214	50	925	50	516	50
Manganese (Mn)	µg			37.6	1.0	17.3	1.0	23.4	1.0	22.3	1.0	14.6	1.0	17.1	1.0	48.1	1.0	9.9	1.0	18.1	1.0	11.8	1.0	11.1	1.0	41.2	1.0	13.8	1.0	58.8	1.0	31.3	1.0
Molybdenum (Mo)	µg			4.1	3.0	3.0	3.0	4.2	3.0	3.3	3.0	<3.0	3.0	5.1	3.0	5.1	3.0	<3.0	3.0	4.5	3.0	3.3	3.0	5.7	3.0	5.0	3.0	4.3	3.0	5.5	3.0	4.3	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	3.3	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	20.5	3.0	<3.0	3.0	3.6	3.0	<3.0	3.0
Phosphorus (P)	µg			60	25	110	25	61	25	61	25	76	25	71	25	90	25	60	25	64	25	75	25	45	25	117	25	43	25	122	25	127	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			15.0	1.0	12.5	1.0	6.7	1.0	5.9	1.0	4.7	1.0	6.3	1.0	14.9	1.0	2.7	1.0	7.3	1.0	3.7	1.0	5.0	1.0	9.5	1.0	7.2	1.0	18.6	1.0	9.0	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	68	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Titanium (Ti)	µg			17	10	15	10	13	10	14	10	14	10	12	10	26	10	<10	10	16	10	<10	10	10	10	29	10	13	10	30	10	11	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			59.6	5.0	23.6	5.0	34.3	5.0	40.2	5.0	29.3	5.0	30.8	5.0	74.0	5.0	32.5	5.0	30.0	5.0	37.1	5.0	22.0	5.0	34.3	5.0	21.1	5.0	62.1	5.0	57.0	5.0
Zirconium (Zr)	µg			<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<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	Quarter 3			Rundle	Rundle	Rundle	Rundle1	Rundle	Rundle	Rundle2	Rundle	Rundle	Rundle	Rundle	Rundle	Rundle	Rundle	Rundle
				26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
	Units	Maximum	Minimum	05/07/2016	11/07/2016	17/07/2016	23/07/2016	29/07/2016	04/08/2016	10/08/2016	16/08/2016	22/08/2016	28/08/2016	03/09/2016	09/09/2016	15/09/2016	21/09/2016	27/09/2016
Particulate	µg/m^3	55.35	18.86	40.82	31.82	31.98	27.16	21.87	31.09	44.84	20.02	29.03	24.59	23.11	43.85	18.86	55.35	37.77
Total Mercury (Hg)	µg/m^3	1.96E-05	6.04E-06	1.96E-05	6.55E-06	1.96E-05	6.26E-06	6.06E-06	6.06E-06	1.22E-05	6.72E-06	6.28E-06	6.27E-06	6.30E-06	1.23E-05	6.22E-06	6.04E-06	1.88E-05
Aluminum (Al)	µg/m^3	3.77E-01	6.90E-02	2.14E-01	1.76E-01	1.33E-01	1.50E-01	1.10E-01	1.38E-01	2.94E-01	8.73E-02	1.62E-01	6.90E-02	9.45E-02	3.23E-01	1.29E-01	3.77E-01	1.23E-01
Antimony (Sb)	µg/m^3	3.36E-03	3.02E-03	3.27E-03	3.27E-03	3.26E-03	3.13E-03	3.03E-03	3.03E-03	3.06E-03	3.36E-03	3.14E-03	3.14E-03	3.15E-03	3.08E-03	3.11E-03	3.02E-03	3.13E-03
Arsenic (As)	µg/m^3	2.01E-03	1.81E-03	1.96E-03	1.96E-03	1.96E-03	1.88E-03	1.82E-03	1.82E-03	1.84E-03	2.01E-03	1.89E-03	1.88E-03	1.89E-03	1.85E-03	1.87E-03	1.81E-03	1.88E-03
Barium (Ba)	µg/m^3	1.74E-02	6.13E-03	1.74E-02	8.05E-03	8.16E-03	6.13E-03	7.09E-03	9.21E-03	1.52E-02	7.79E-03	8.86E-03	6.21E-03	6.99E-03	1.22E-02	9.15E-03	1.73E-02	1.15E-02
Beryllium (Be)	µg/m^3	3.36E-04	3.02E-04	3.27E-04	3.27E-04	3.26E-04	3.13E-04	3.03E-04	3.03E-04	3.06E-04	3.36E-04	3.14E-04	3.14E-04	3.15E-04	3.08E-04	3.11E-04	3.02E-04	3.13E-04
Bismuth (Bi)	µg/m^3	2.01E-03	1.81E-03	1.96E-03	1.96E-03	1.96E-03	1.88E-03	1.82E-03	1.82E-03	1.84E-03	2.01E-03	1.89E-03	1.88E-03	1.89E-03	1.85E-03	1.87E-03	1.81E-03	1.88E-03
Boron (B)	µg/m^3	4.51E-03	1.81E-03	4.51E-03	1.96E-03	1.96E-03	1.88E-03	1.82E-03	1.82E-03	1.84E-03	2.01E-03	1.89E-03	1.88E-03	1.89E-03	1.85E-03	1.87E-03	1.81E-03	1.88E-03
Cadmium (Cd)	µg/m^3	6.72E-04	6.04E-04	6.53E-04	6.55E-04	6.53E-04	6.26E-04	6.06E-04	6.06E-04	6.12E-04	6.72E-04	6.28E-04	6.27E-04	6.30E-04	6.17E-04	6.22E-04	6.04E-04	6.26E-04
Chromium (Cr)	µg/m^3	4.81E-03	1.51E-03	3.98E-03	1.64E-03	3.65E-03	1.56E-03	1.51E-03	1.52E-03	4.47E-03	1.68E-03	1.57E-03	1.57E-03	1.57E-03	4.81E-03	1.56E-03	3.98E-03	1.57E-03
Cobalt (Co)	µg/m^3	2.78E-03	6.04E-04	6.53E-04	6.55E-04	6.53E-04	6.26E-04	6.06E-04	6.06E-04	6.12E-04	6.72E-04	6.28E-04	6.27E-04	6.30E-04	2.78E-03	6.22E-04	6.04E-04	6.26E-04
Copper (Cu)	µg/m^3	9.82E-02	4.13E-02	5.17E-02	4.47E-02	8.09E-02	7.88E-02	4.13E-02	9.82E-02	9.05E-02	5.10E-02	9.61E-02	6.25E-02	8.06E-02	9.68E-02	4.51E-02	8.27E-02	5.41E-02
Iron (Fe)	µg/m^3	1.81E+00	2.60E-01	5.80E-01	5.83E-01	4.63E-01	3.20E-01	3.68E-01	4.54E-01	1.00E+00	2.60E-01	3.66E-01	2.92E-01	2.73E-01	1.81E+00	4.26E-01	1.01E+00	4.70E-01
Lead (Pb)	µg/m^3	6.46E-03	9.05E-04	5.09E-03	9.82E-04	6.46E-03	2.13E-03	9.09E-04	2.61E-03	3.30E-03	1.01E-03	2.45E-03	2.20E-03	2.02E-03	2.10E-03	9.34E-04	9.05E-04	2.44E-03
Magnesium (Mg)	µg/m^3	5.58E-01	9.40E-02	3.95E-01	2.17E-01	2.17E-01	2.13E-01	1.30E-01	2.12E-01	4.18E-01	9.40E-02	2.32E-01	1.08E-01	1.07E-01	3.12E-01	1.33E-01	5.58E-01	3.23E-01
Manganese (Mn)	µg/m^3	3.55E-02	6.65E-03	2.46E-02	1.13E-02	1.53E-02	1.40E-02	8.84E-03	1.04E-02	2.94E-02	6.65E-03	1.14E-02	7.40E-03	6.99E-03	2.54E-02	8.59E-03	3.55E-02	1.96E-02
Molybdenum (Mo)	µg/m^3	3.59E-03	9.09E-04	2.68E-03	1.96E-03	2.74E-03	2.06E-03	9.09E-04	3.09E-03	3.12E-03	1.01E-03	2.83E-03	2.07E-03	3.59E-03	3.08E-03	2.68E-03	3.32E-03	2.69E-03
Nickel (Ni)	µg/m^3	1.26E-02	9.09E-04	9.80E-04	9.82E-04	9.79E-04	9.39E-04	9.09E-04	9.09E-04	2.02E-03	1.01E-03	9.43E-04	9.41E-04	9.45E-04	1.26E-02	9.34E-04	2.17E-03	9.40E-04
Phosphorus (P)	µg/m^3	7.96E-02	2.68E-02	3.92E-02	7.20E-02	3.98E-02	3.82E-02	4.60E-02	4.30E-02	5.51E-02	4.03E-02	4.02E-02	4.70E-02	2.83E-02	7.22E-02	2.68E-02	7.36E-02	7.96E-02
Selenium (Se)	µg/m^3	3.36E-03	3.02E-03	3.27E-03	3.27E-03	3.26E-03	3.13E-03	3.03E-03	3.03E-03	3.06E-03	3.36E-03	3.14E-03	3.14E-03	3.15E-03	3.08E-03	3.11E-03	3.02E-03	3.13E-03
Silver (Ag)	µg/m^3	1.68E-03	1.51E-03	1.63E-03	1.64E-03	1.63E-03	1.56E-03	1.51E-03	1.52E-03	1.53E-03	1.68E-03	1.57E-03	1.57E-03	1.57E-03	1.54E-03	1.56E-03	1.51E-03	1.57E-03
Strontium (Sr)	µg/m^3	1.12E-02	1.81E-03	9.80E-03	8.18E-03	4.37E-03	3.69E-03	2.85E-03	3.82E-03	9.11E-03	1.81E-03	4.59E-03	2.32E-03	3.15E-03	5.86E-03	4.48E-03	1.12E-02	5.64E-03
Thallium (Tl)	µg/m^3	3.36E-03	3.02E-03	3.27E-03	3.27E-03	3.26E-03	3.13E-03	3.03E-03	3.03E-03	3.06E-03	3.36E-03	3.14E-03	3.14E-03	3.15E-03	3.08E-03	3.11E-03	3.02E-03	3.13E-03
Tin (Sn)	µg/m^3	4.12E-02	3.02E-03	3.27E-03	3.27E-03	3.26E-03	3.13E-03	3.03E-03	4.12E-02	3.06E-03	3.36E-03	3.14E-03	3.14E-03	3.15E-03	3.08E-03	3.11E-03	3.02E-03	3.13E-03
Titanium (Ti)	µg/m^3	1.81E-02	3.14E-03	1.11E-02	9.82E-03	8.48E-03	8.76E-03	8.48E-03	7.27E-03	1.59E-02	3.36E-03	1.01E-02	3.14E-03	6.30E-03	1.79E-02	8.09E-03	1.81E-02	6.89E-03
Vanadium (V)	µg/m^3	1.68E-03	1.51E-03	1.63E-03	1.64E-03	1.63E-03	1.56E-03	1.51E-03	1.52E-03	1.53E-03	1.68E-03	1.57E-03	1.57E-03	1.57E-03	1.54E-03	1.56E-03	1.51E-03	1.57E-03
Zinc (Zn)	µg/m^3	4.53E-02	1.31E-02	3.89E-02	1.55E-02	2.24E-02	2.52E-02	1.77E-02	1.87E-02	4.53E-02	2.18E-02	1.89E-02	2.33E-02	1.39E-02	2.12E-02	1.31E-02	3.75E-02	3.57E-02
Zirconium (Zr)	µg/m^3	1.68E-03	1.51E-03	1.63E-03	1.64E-03	1.63E-03	1.56E-03	1.51E-03	1.52E-03	1.53E-03	1.68E-03	1.57E-03	1.57E-03	1.57E-03	1.54E-03	1.56E-03	1.51E-03	1.57E-03
Total Uranium (U)	µg/m^3	1.51E-04	1.36E-04	1.47E-04	1.47E-04	1.47E-04	1.41E-04	1.36E-04	1.36E-04	1.38E-04	1.51E-04	1.41E-04	1.41E-04	1.42E-04	1.39E-04	1.40E-04	1.36E-04	1.41E-04

Notes:

1 - Small amount of bird droppings on filter noted. The sample results were comparable to other stations, therefore the results were considered valid

2 - Mouse nest discovered in motor housing during filter retreival. The sample results were comparable to other stations, therefore the results were considered valid

Metals and Total Particulates	Fenceline Station																													
Location		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline		Fenceline	
Date	dd/mm/yyyy	05/07/2016		11/07/2016		17/07/2016		23/07/2016		29/07/2016		04/08/2016		10/08/2016		16/08/2016		22/08/2016		28/08/2016		03/09/2016		09/09/2016		15/09/2016		21/09/2016		27/09/2016	
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	24.08		23.72		24.12		23.17		24.31		23.73		23.02		23.84		24.04		24.76		23.67		23.91		23.76		23.82		24.17	
Technician		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH		TH	
Filter Number		16061379		16061723		16061727		16070717		16070721		16070756		16070760		16070799		16071246		16071265		16071269		16080599		16081903		16082280		16082284	
Analytical Report #		B6E0144		B6E4985		B6F4131		B6F6607		B6G2464		B6G6161		B6H2047		B6H5406		B6I2903		B6I5095		B6J0697		B6J5866		B6K2144		B6K5679		B6K9799
Total Volumetric Flow	Am^3/sample	1609.93		1577.58		1578.08		1606.20		1611.60		1638.66		1549.11		1641.44		1641.50		1709.61		1588.91		1620.75		1587.86		1604.75		1643.87	
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	73.1	5	39.2	5.0	38.3	5	39.7	5	45.7	5	58.6	5	68.1	5	32.1	5.0	99.7	5	38.4	5	41.6	5	63.4	5	40.2	5	95.3	5.0	76.6	5
Total Mercury (Hg)	µg	0.03	0.02	<0.02	0.02	0.03	0.02	<0.02	0.02	0.02	0.02	0.03	0.02	0.03	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.03	0.02	<0.02	0.02	0.04	0.02	0.04	0.02
Aluminum (Al)	µg	446	50	155	50	142	50	214	50	254	50	224	50	428	50	171	50	1160	50	146	50	219	50	330	50	258	50	661	50	302	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	35.4	1.0	9.0	1.0	13.0	1.0	10.4	1.0	10.2	1.0	16.2	1.0	17.9	1.0	10.6	1.0	29.3	1.0	9.7	1.0	12.6	1.0	25.6	1.0	19.6	1.0	34.9	1.0	20.9	1.0
Beryllium (Be)	µg	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<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	7.8	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
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	6.9	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	6.8	5.0	<5.0	5.0	<5.0	5.0	6.6	5.0	<5.0	5.0	5.0	5.0	5.5	5.0	5.6	5.0	7.9	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	64.9	5.0	63.3	5.0	49.6	5.0	102	5.0	36.7	5.0	55.1	5.0	57.6	5.0	68.1	5.0	77.6	5.0	83.8	5.0	79.9	5.0	81.1	5.0	102	5.0	108	5.0	97.1	5.0
Iron (Fe)	µg	1140	50	391	50	508	50	549	50	606	50	707	50	1020	50	309	50	2120	50	381	50	605	50	937	50	808	50	1760	50	925	50
Lead (Pb)	µg	12.0	3.0	<3.0	3.0	6.9	3.0	5.9	3.0	3.6	3.0	5.0	3.0	6.3	3.0	<3.0	3.0	7.7	3.0	3.5	3.0	3.6	3.0	5.0	3.0	<3.0	3.0	3.5	3.0	6.3	3.0
Magnesium (Mg)	µg	765	50	233	50	269	50	303	50	285	50	406	50	606	50	212	50	921	50	195	50	298	50	583	50	312	50	958	50	657	50
Manganese (Mn)	µg	41.0	1.0	17.6	1.0	17.1	1.0	21.2	1.0	18.6	1.0	28.0	1.0	36.2	1.0	11.1	1.0	62.9	1.0	11.6	1.0	17.0	1.0	33.3	1.0	31.6	1.0	63.0	1.0	40.7	1.0
Molybdenum (Mo)	µg	3.2	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	<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	3.2	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	3.5	3.0	<3.0	3.0
Phosphorus (P)	µg	103	25	51	25	49	25	61	25	85	25	86	25	77	25	51	25	107	25	67	25	47	25	93	25	45	25	156	25	121	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	17.3	1.0	7.4	1.0	4.6	1.0	4.8	1.0	5.0	1.0	7.3	1.0	10.4	1.0	5.2	1.0	16.5	1.0	4.4	1.0	5.2	1.0	10.5	1.0	9.7	1.0	16.6	1.0	11.6	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	26	10	<10	10	<10	10	11	10	17	10	13	10	21	10	<10	10	76	10	<10	10	17	10	22	10	16	10	40	10	19	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	93.2	5.0	25.6	5.0	40.2	5.0	69.9	5.0	29.2	5.0	35.8	5.0	81.4	5.0	29.9	5.0	52.5	5.0	40.4	5.0	31.9	5.0	58.5	5.0	32.4	5.0	101	5.0	79.3	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	Quarter 3			Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline
				26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
	Units	Maximum	Minimum	05/07/2016	11/07/2016	17/07/2016	23/07/2016	29/07/2016	04/08/2016	10/08/2016	16/08/2016	22/08/2016	28/08/2016	03/09/2016	09/09/2016	15/09/2016	21/09/2016	27/09/2016
Particulate	$\mu g/m^3$	60.74	19.56	45.41	24.85	24.27	24.72	28.36	35.76	43.96	19.56	60.74	22.46	26.18	39.12	25.32	59.39	46.60
Total Mercury (Hg)	$\mu g/m^3$	2.49E-05	5.85E-06	1.86E-05	6.34E-06	1.90E-05	6.23E-06	1.24E-05	1.83E-05	1.94E-05	6.09E-06	6.09E-06	5.85E-06	6.29E-06	1.85E-05	6.30E-06	2.49E-05	2.43E-05
Aluminum (Al)	$\mu g/m^3$	7.07E-01	8.54E-02	2.77E-01	9.83E-02	9.00E-02	1.33E-01	1.58E-01	1.37E-01	2.76E-01	1.04E-01	7.07E-01	8.54E-02	1.38E-01	2.04E-01	1.62E-01	4.12E-01	1.84E-01
Antimony (Sb)	$\mu g/m^3$	3.23E-03	2.92E-03	3.11E-03	3.17E-03	3.17E-03	3.11E-03	3.10E-03	3.05E-03	3.23E-03	3.05E-03	3.05E-03	2.92E-03	3.15E-03	3.09E-03	3.15E-03	3.12E-03	3.04E-03
Arsenic (As)	$\mu g/m^3$	1.94E-03	1.75E-03	1.86E-03	1.90E-03	1.90E-03	1.87E-03	1.86E-03	1.83E-03	1.94E-03	1.83E-03	1.83E-03	1.75E-03	1.89E-03	1.85E-03	1.89E-03	1.87E-03	1.82E-03
Barium (Ba)	$\mu g/m^3$	2.20E-02	5.67E-03	2.20E-02	5.70E-03	8.24E-03	6.47E-03	6.33E-03	9.89E-03	1.16E-02	6.46E-03	1.78E-02	5.67E-03	7.93E-03	1.58E-02	1.23E-02	2.17E-02	1.27E-02
Beryllium (Be)	$\mu g/m^3$	3.23E-04	2.92E-04	3.11E-04	3.17E-04	3.17E-04	3.11E-04	3.10E-04	3.05E-04	3.23E-04	3.05E-04	3.05E-04	2.92E-04	3.15E-04	3.09E-04	3.15E-04	3.12E-04	3.04E-04
Bismuth (Bi)	$\mu g/m^3$	1.94E-03	1.75E-03	1.86E-03	1.90E-03	1.90E-03	1.87E-03	1.86E-03	1.83E-03	1.94E-03	1.83E-03	1.83E-03	1.75E-03	1.89E-03	1.85E-03	1.89E-03	1.87E-03	1.82E-03
Boron (B)	$\mu g/m^3$	4.84E-03	1.75E-03	4.84E-03	1.90E-03	1.90E-03	1.87E-03	1.86E-03	1.83E-03	1.94E-03	1.83E-03	1.83E-03	1.75E-03	1.89E-03	1.85E-03	1.89E-03	1.87E-03	1.82E-03
Cadmium (Cd)	$\mu g/m^3$	6.46E-04	5.85E-04	6.21E-04	6.34E-04	6.34E-04	6.23E-04	6.21E-04	6.10E-04	6.46E-04	6.09E-04	6.09E-04	5.85E-04	6.29E-04	6.17E-04	6.30E-04	6.23E-04	6.08E-04
Chromium (Cr)	$\mu g/m^3$	4.92E-03	1.46E-03	4.29E-03	1.58E-03	1.58E-03	1.56E-03	1.55E-03	4.15E-03	1.61E-03	1.52E-03	4.02E-03	1.46E-03	3.15E-03	3.39E-03	3.53E-03	4.92E-03	1.52E-03
Cobalt (Co)	$\mu g/m^3$	6.46E-04	5.85E-04	6.21E-04	6.34E-04	6.34E-04	6.23E-04	6.21E-04	6.10E-04	6.46E-04	6.09E-04	6.09E-04	5.85E-04	6.29E-04	6.17E-04	6.30E-04	6.23E-04	6.08E-04
Copper (Cu)	$\mu g/m^3$	6.73E-02	2.28E-02	4.03E-02	4.01E-02	3.14E-02	6.35E-02	2.28E-02	3.36E-02	3.72E-02	4.15E-02	4.73E-02	4.90E-02	5.03E-02	5.00E-02	6.42E-02	6.73E-02	5.91E-02
Iron (Fe)	$\mu g/m^3$	1.29E+00	1.88E-01	7.08E-01	2.48E-01	3.22E-01	3.42E-01	3.76E-01	4.31E-01	6.58E-01	1.88E-01	1.29E+00	2.23E-01	3.81E-01	5.78E-01	5.09E-01	1.10E+00	5.63E-01
Lead (Pb)	$\mu g/m^3$	7.45E-03	9.14E-04	7.45E-03	9.51E-04	4.37E-03	3.67E-03	2.23E-03	3.05E-03	4.07E-03	9.14E-04	4.69E-03	2.05E-03	2.27E-03	3.09E-03	9.45E-04	2.18E-03	3.83E-03
Magnesium (Mg)	$\mu g/m^3$	5.97E-01	1.14E-01	4.75E-01	1.48E-01	1.70E-01	1.89E-01	1.77E-01	2.48E-01	3.91E-01	1.29E-01	5.61E-01	1.14E-01	1.88E-01	3.60E-01	1.96E-01	5.97E-01	4.00E-01
Manganese (Mn)	$\mu g/m^3$	3.93E-02	6.76E-03	2.55E-02	1.12E-02	1.08E-02	1.32E-02	1.15E-02	1.71E-02	2.34E-02	6.76E-03	3.83E-02	6.79E-03	1.07E-02	2.05E-02	1.99E-02	3.93E-02	2.48E-02
Molybdenum (Mo)	$\mu g/m^3$	1.99E-03	8.77E-04	1.99E-03	9.51E-04	9.51E-04	9.34E-04	9.31E-04	9.15E-04	9.68E-04	9.14E-04	9.14E-04	8.77E-04	9.44E-04	9.26E-04	9.45E-04	9.35E-04	9.12E-04
Nickel (Ni)	$\mu g/m^3$	2.18E-03	8.77E-04	9.32E-04	9.51E-04	9.51E-04	9.34E-04	9.31E-04	9.15E-04	9.68E-04	9.14E-04	1.95E-03	8.77E-04	9.44E-04	9.26E-04	9.45E-04	2.18E-03	9.12E-04
Phosphorus (P)	$\mu g/m^3$	9.72E-02	2.83E-02	6.40E-02	3.23E-02	3.11E-02	3.80E-02	5.27E-02	5.25E-02	4.97E-02	3.11E-02	6.52E-02	3.92E-02	2.96E-02	5.74E-02	2.83E-02	9.72E-02	7.36E-02
Selenium (Se)	$\mu g/m^3$	3.23E-03	2.92E-03	3.11E-03	3.17E-03	3.17E-03	3.11E-03	3.10E-03	3.05E-03	3.23E-03	3.05E-03	3.05E-03	2.92E-03	3.15E-03	3.09E-03	3.15E-03	3.12E-03	3.04E-03
Silver (Ag)	$\mu g/m^3$	1.61E-03	1.46E-03	1.55E-03	1.58E-03	1.58E-03	1.56E-03	1.55E-03	1.53E-03	1.61E-03	1.52E-03	1.52E-03	1.46E-03	1.57E-03	1.54E-03	1.57E-03	1.56E-03	1.52E-03
Strontium (Sr)	$\mu g/m^3$	1.07E-02	2.57E-03	1.07E-02	4.69E-03	2.91E-03	2.99E-03	3.10E-03	4.45E-03	6.71E-03	3.17E-03	1.01E-02	2.57E-03	3.27E-03	6.48E-03	6.11E-03	1.03E-02	7.06E-03
Thallium (Tl)	$\mu g/m^3$	3.23E-03	2.92E-03	3.11E-03	3.17E-03	3.17E-03	3.11E-03	3.10E-03	3.05E-03	3.23E-03	3.05E-03	3.05E-03	2.92E-03	3.15E-03	3.09E-03	3.15E-03	3.12E-03	3.04E-03
Tin (Sn)	$\mu g/m^3$	3.23E-03	2.92E-03	3.11E-03	3.17E-03	3.17E-03	3.11E-03	3.10E-03	3.05E-03	3.23E-03	3.05E-03	3.05E-03	2.92E-03	3.15E-03	3.09E-03	3.15E-03	3.12E-03	3.04E-03
Titanium (Ti)	$\mu g/m^3$	4.63E-02	2.92E-03	1.61E-02	3.17E-03	3.17E-03	6.85E-03	1.05E-02	7.93E-03	1.36E-02	3.05E-03	4.63E-02	2.92E-03	1.07E-02	1.36E-02	1.01E-02	2.49E-02	1.16E-02
Vanadium (V)	$\mu g/m^3$	1.61E-03	1.46E-03	1.55E-03	1.58E-03	1.58E-03	1.56E-03	1.55E-03	1.53E-03	1.61E-03	1.52E-03	1.52E-03	1.46E-03	1.57E-03	1.54E-03	1.57E-03	1.56E-03	1.52E-03
Zinc (Zn)	$\mu g/m^3$	6.29E-02	1.62E-02	5.79E-02	1.62E-02	2.55E-02	4.35E-02	1.81E-02	2.18E-02	5.25E-02	1.82E-02	3.20E-02	2.36E-02	2.01E-02	3.61E-02	2.04E-02	6.29E-02	4.82E-02
Zirconium (Zr)	$\mu g/m^3$	1.61E-03	1.46E-03	1.55E-03	1.58E-03	1.58E-03	1.56E-03	1.55E-03	1.53E-03	1.61E-03	1.52E-03	1.52E-03	1.46E-03	1.57E-03	1.54E-03	1.57E-03	1.56E-03	1.52E-03
Total Uranium (U)	$\mu g/m^3$	1.45E-04	1.32E-04	1.40E-04	1.43E-04	1.43E-04	1.40E-04	1.40E-04	1.37E-04	1.45E-04	1.37E-04	1.37E-04	1.32E-04	1.42E-04	1.39E-04	1.42E-04	1.40E-04	1.37E-04

Appendix H PAHS DATA SUMMARY

Polycyclic Aromatic Hydrocarbons	Courtice WPCP Station														
Location			Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice
Date	dd/mm/yyyy		11/07/2016		23/07/2016		4/08/2016		16/08/2016		28/08/2016		9/09/2016		21/09/2016
Start Time	**hh:mm**		0:00		0:00		0:00		0:00		0:00		0:00		0:00
Sample Duration	**hours**		23.27		24.11		23.41		24.54		24.18		24.02		22.84
Technician			TH		TH		TH		TH		TH		TH		TH
Filter Number			COL236-01		COL287-01		COL316-01		CRA192-01		CRA226-01		CRA241-01		CXB760-01
Maxaam ID			CRU674		CTV396		CVP220		CXH810		CZC993		DBG348		DCY867
Maxxam Job #			B6E5008		B6F6623		B6G6186		B6H5443		B6I5104		B6J5872		B6K5531
Total Volumetric Flow	**Am^3/sample**		349.44		351.24		377.44		373.66		351.25		370.09		346.24
Analytical Results	**Units**		**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**
Benzo(a)pyrene	µg		0.0025	0.0019	0.0031	0.0016	0.00388	0.00058	<0.0050	0.0050	0.0073	0.0016	0.0066	0.0062	0.0161	0.0055
1-Methylnaphthalene	µg		1.53	0.10	8.42	0.15	7.84	0.10	1.61	0.15	2.41	0.10	4.91	0.15	4.86	0.15
2-Methylnaphthalene	µg		2.78	0.10	17.7	0.15	15.6	0.10	2.76	0.15	4.51	0.10	9.14	0.15	8.27	0.15
Acenaphthene	µg		2.62	0.050	10.4	0.075	8.75	0.050	1.87	0.075	3.51	0.050	5.29	0.075	4.04	0.075
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	<0.075	0.075
Anthracene	µg		0.112	0.050	<0.075	0.075	0.054	0.050	<0.075	0.075	0.088	0.050	0.189	0.075	<0.075	0.075
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	<0.075	0.075
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	<0.15	0.15
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	<0.075	0.075
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	<0.15	0.15
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	<0.15	0.15
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	<0.075	0.075
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	<0.075	0.075
Biphenyl	µg		0.77	0.10	3.89	0.15	3.94	0.10	0.77	0.15	1.36	0.10	1.99	0.15	1.91	0.15
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	<0.075	0.075
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	<0.075	0.075
Dibenzo(a,c) anthracene + Picene [1]	µg		<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.10	0.10	<0.10	0.10	<0.15	0.15	<0.15	0.15
Fluoranthene	µg		0.460	0.050	1.11	0.075	0.810	0.050	0.444	0.075	0.612	0.050	0.831	0.075	0.414	0.075
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	<0.075	0.075
Naphthalene	µg		6.01	0.072	21.4	0.11	15.0	0.072	4.76	0.11	5.61	0.072	14.7	0.11	20.7	0.11
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	<0.15	0.15
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	<0.15	0.15
Phenanthrene	µg		2.78	0.050	8.12	0.075	6.84	0.050	2.19	0.075	3.59	0.050	5.27	0.075	3.05	0.075
Pyrene	µg		0.174	0.050	0.471	0.075	0.282	0.050	0.177	0.075	0.256	0.050	0.357	0.075	0.213	0.075
Tetralin	µg		0.36	0.10	1.01	0.15	0.70	0.10	0.36	0.15	0.30	0.10	0.95	0.15	1.15	0.15

Calculated Concentrations	Quarter 3			Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice
				14	15	16	17	18	19	20
	Units	Maximum	Minimum	11/07/2016	23/07/2016	4/08/2016	16/08/2016	28/08/2016	9/09/2016	21/09/2016
Benzo(a)pyrene	ng/m^3	4.65E-02	6.69E-03	7.15E-03	8.83E-03	1.03E-02	6.69E-03	2.08E-02	1.78E-02	4.65E-02
1-Methylnaphthalene	ng/m^3	2.40E+01	4.31E+00	4.38E+00	2.40E+01	2.08E+01	4.31E+00	6.86E+00	1.33E+01	1.40E+01
2-Methylnaphthalene	ng/m^3	5.04E+01	7.39E+00	7.96E+00	5.04E+01	4.13E+01	7.39E+00	1.28E+01	2.47E+01	2.39E+01
Acenaphthene	ng/m^3	2.96E+01	5.00E+00	7.50E+00	2.96E+01	2.32E+01	5.00E+00	9.99E+00	1.43E+01	1.17E+01
Acenaphthylene	ng/m^3	1.08E-01	6.62E-02	7.15E-02	1.07E-01	6.62E-02	1.00E-01	7.12E-02	1.01E-01	1.08E-01
Anthracene	ng/m^3	5.11E-01	1.00E-01	3.21E-01	1.07E-01	1.43E-01	1.00E-01	2.51E-01	5.11E-01	1.08E-01
Benzo(a)anthracene	ng/m^3	1.08E-01	6.62E-02	7.15E-02	1.07E-01	6.62E-02	1.00E-01	7.12E-02	1.01E-01	1.08E-01
Benzo(a)fluorene	ng/m^3	2.17E-01	1.32E-01	1.43E-01	2.14E-01	1.32E-01	2.01E-01	1.42E-01	2.03E-01	2.17E-01
Benzo(b)fluoranthene	ng/m^3	1.08E-01	6.62E-02	7.15E-02	1.07E-01	6.62E-02	1.00E-01	7.12E-02	1.01E-01	1.08E-01
Benzo(b)fluorene	ng/m^3	2.17E-01	1.32E-01	1.43E-01	2.14E-01	1.32E-01	2.01E-01	1.42E-01	2.03E-01	2.17E-01
Benzo(e)pyrene	ng/m^3	2.17E-01	1.32E-01	1.43E-01	2.14E-01	1.32E-01	2.01E-01	1.42E-01	2.03E-01	2.17E-01
Benzo(g,h,i)perylene	ng/m^3	1.08E-01	6.62E-02	7.15E-02	1.07E-01	6.62E-02	1.00E-01	7.12E-02	1.01E-01	1.08E-01
Benzo(k)fluoranthene	ng/m^3	1.08E-01	6.62E-02	7.15E-02	1.07E-01	6.62E-02	1.00E-01	7.12E-02	1.01E-01	1.08E-01
Biphenyl	ng/m^3	1.11E+01	2.06E+00	2.20E+00	1.11E+01	1.04E+01	2.06E+00	3.87E+00	5.38E+00	5.52E+00
Chrysene	ng/m^3	1.08E-01	6.62E-02	7.15E-02	1.07E-01	6.62E-02	1.00E-01	7.12E-02	1.01E-01	1.08E-01
Dibenz(a,h)anthracene	ng/m^3	1.08E-01	6.62E-02	7.15E-02	1.07E-01	6.62E-02	1.00E-01	7.12E-02	1.01E-01	1.08E-01
Dibenzo(a,c) anthracene + Picene	ng/m^3	2.17E-01	1.32E-01	1.43E-01	2.14E-01	1.32E-01	1.34E-01	1.42E-01	2.03E-01	2.17E-01
Fluoranthene	ng/m^3	3.16E+00	1.19E+00	1.32E+00	3.16E+00	2.15E+00	1.19E+00	1.74E+00	2.25E+00	1.20E+00
Indeno(1,2,3-cd)pyrene	ng/m^3	1.08E-01	6.62E-02	7.15E-02	1.07E-01	6.62E-02	1.00E-01	7.12E-02	1.01E-01	1.08E-01
Naphthalene	ng/m^3	6.09E+01	1.27E+01	1.72E+01	6.09E+01	3.97E+01	1.27E+01	1.60E+01	3.97E+01	5.98E+01
o-Terphenyl	ng/m^3	2.17E-01	1.32E-01	1.43E-01	2.14E-01	1.32E-01	2.01E-01	1.42E-01	2.03E-01	2.17E-01
Perylene	ng/m^3	2.17E-01	1.32E-01	1.43E-01	2.14E-01	1.32E-01	2.01E-01	1.42E-01	2.03E-01	2.17E-01
Phenanthrene	ng/m^3	2.31E+01	5.86E+00	7.96E+00	2.31E+01	1.81E+01	5.86E+00	1.02E+01	1.42E+01	8.81E+00
Pyrene	ng/m^3	1.34E+00	4.74E-01	4.98E-01	1.34E+00	7.47E-01	4.74E-01	7.29E-01	9.65E-01	6.15E-01
Tetralin	ng/m^3	3.32E+00	8.54E-01	1.03E+00	2.88E+00	1.85E+00	9.63E-01	8.54E-01	2.57E+00	3.32E+00
Total PAH	ng/m^3	2.09E+02	4.20E+01	5.18E+01	2.09E+02	1.60E+02	4.20E+01	6.48E+01	1.20E+02	1.31E+02

Note:
1. These parameters have not been subjected to Maxxam's standard validation process nor has it been accredited for the submitted matrix.
2. Minor bird damage to pre-filter. The sample results were comparable to other stations, therefore the results were considered valid.

Polycyclic Aromatic Hydrocarbons	Rundle Road Station													
Location		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle
Date	dd/mm/yyyy	11/07/2016		23/07/2016		04/08/2016		16/08/2016		28/08/2016		09/09/2016		21/09/2016
Start Time	**hh:mm**	0:00		0:00		0:00		0:00		0:00		0:00		0:00
Sample Duration	**hours**	23.42		24.11		24.21		23.85		23.24		23.93		23.25
Technician		TH		TH		TH		TH		TH		TH		TH
Filter Number		COL237-01		COL289-01		COL315-01		CRA193-01		CRA227-01		CRA242-01		CXB759-01
Maxaam ID		CRU675		CTV397		CVP221		CXH811		CZC994		DBG349		DCY868
Maxxam Job #		B6E5008		B6F6623		B6G6186		B6H5443		B6I5104		B6J5872		B6K5531
Total Volumetric Flow	**Am^3/sample**	323.28		343.70		346.29		347.35		334.41		376.07		347.43
Analytical Results	**Units**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**	**Value**	**RDL**
Benzo(a)pyrene	µg	0.00329	0.00086	0.0032	0.0016	0.00587	0.00095	<0.0036	0.0036	0.0099	0.0040	0.0241	0.0026	0.0247	0.0025
1-Methylnaphthalene	µg	2.36	0.10	0.80	0.15	82.5	1.0	12.5	0.15	22.2	2.0	11.5	0.15	13.1	0.15
2-Methylnaphthalene	µg	4.06	0.10	1.29	0.15	174	1.0	25.7	0.15	46.5	2.0	23.3	0.15	25.5	0.15
Acenaphthene	µg	3.32	0.050	0.489	0.075	105	0.50	17.6	0.075	37.5	0.10	15.3	0.075	14.7	0.075
Acenaphthylene	µg	<0.050	0.050	<0.075	0.075	1.15	0.050	<0.075	0.075	<0.050	0.050	0.180	0.075	0.189	0.075
Anthracene	µg	0.254	0.050	<0.075	0.075	2.61	0.050	0.825	0.075	1.76	0.050	0.717	0.075	0.501	0.075
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	<0.075	0.075
Benzo(a)fluorene	µg	<0.10	0.10	<0.15	0.15	0.13	0.10	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.15	0.15
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	<0.075	0.075
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	<0.15	0.15
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	<0.15	0.15
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	<0.075	0.075
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	<0.075	0.075
Biphenyl	µg	1.05	0.10	0.26	0.15	43.6	1.0	6.36	0.15	12.6	0.10	4.74	0.15	5.32	0.15
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	<0.075	0.075
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	<0.075	0.075
Dibenzo(a,c) anthracene + Picene [1]	µg	<0.10	0.10	<0.15	0.15	<0.10	0.10	<0.10	0.10	<0.10	0.10	<0.15	0.15	<0.15	0.15
Fluoranthene	µg	1.14	0.050	0.300	0.075	5.10	0.050	2.09	0.075	3.26	0.050	1.72	0.075	1.82	0.075
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	<0.075	0.075
Naphthalene	µg	7.63	0.072	2.70	0.11	102	0.72	16.7	0.11	24.2	1.4	21.1	0.11	28.9	2.2
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	<0.15	0.15
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	<0.15	0.15
Phenanthrene	µg	4.49	0.050	0.987	0.075	72.6	0.50	17.0	0.075	34.0	0.050	12.8	0.075	15.2	0.075
Pyrene	µg	0.480	0.050	0.129	0.075	2.28	0.050	0.912	0.075	1.40	0.050	0.834	0.075	0.828	0.075
Tetralin	µg	0.57	0.10	0.52	0.15	0.81	0.10	0.41	0.15	0.44	0.10	0.85	0.15	0.89	0.15

Calculated Concentrations	Quarter 3			Rundle 14	Rundle 15	Rundle 16	Rundle 17	Rundle 18	Rundle 19	Rundle 20
	Units	Maximum	Minimum	11/07/2016	23/07/2016	04/08/2016	16/08/2016	28/08/2016	09/09/2016	21/09/2016
Benzo(a)pyrene	ng/m^3	7.11E-02	5.18E-03	1.02E-02	9.31E-03	1.70E-02	5.18E-03	2.96E-02	6.41E-02	7.11E-02
1-Methylnaphthalene	ng/m^3	2.38E+02	2.33E+00	7.30E+00	2.33E+00	2.38E+02	3.60E+01	6.64E+01	3.06E+01	3.77E+01
2-Methylnaphthalene	ng/m^3	5.02E+02	3.75E+00	1.26E+01	3.75E+00	5.02E+02	7.40E+01	1.39E+02	6.20E+01	7.34E+01
Acenaphthene	ng/m^3	3.03E+02	1.42E+00	1.03E+01	1.42E+00	3.03E+02	5.07E+01	1.12E+02	4.07E+01	4.23E+01
Acenaphthylene	ng/m^3	3.32E+00	7.48E-02	7.73E-02	1.09E-01	3.32E+00	1.08E-01	7.48E-02	4.79E-01	5.44E-01
Anthracene	ng/m^3	7.54E+00	1.09E-01	7.86E-01	1.09E-01	7.54E+00	2.38E+00	5.26E+00	1.91E+00	1.44E+00
Benzo(a)anthracene	ng/m^3	1.09E-01	7.22E-02	7.73E-02	1.09E-01	7.22E-02	1.08E-01	7.48E-02	9.97E-02	1.08E-01
Benzo(a)fluorene	ng/m^3	3.75E-01	1.50E-01	1.55E-01	2.18E-01	3.75E-01	2.16E-01	1.50E-01	1.99E-01	2.16E-01
Benzo(b)fluoranthene	ng/m^3	1.09E-01	7.22E-02	7.73E-02	1.09E-01	7.22E-02	1.08E-01	7.48E-02	9.97E-02	1.08E-01
Benzo(b)fluorene	ng/m^3	2.18E-01	1.44E-01	1.55E-01	2.18E-01	1.44E-01	2.16E-01	1.50E-01	1.99E-01	2.16E-01
Benzo(e)pyrene	ng/m^3	2.18E-01	1.44E-01	1.55E-01	2.18E-01	1.44E-01	2.16E-01	1.50E-01	1.99E-01	2.16E-01
Benzo(g,h,i)perylene	ng/m^3	1.09E-01	7.22E-02	7.73E-02	1.09E-01	7.22E-02	1.08E-01	7.48E-02	9.97E-02	1.08E-01
Benzo(k)fluoranthene	ng/m^3	1.09E-01	7.22E-02	7.73E-02	1.09E-01	7.22E-02	1.08E-01	7.48E-02	9.97E-02	1.08E-01
Biphenyl	ng/m^3	1.26E+02	7.56E-01	3.25E+00	7.56E-01	1.26E+02	1.83E+01	3.77E+01	1.26E+01	1.53E+01
Chrysene	ng/m^3	1.09E-01	7.22E-02	7.73E-02	1.09E-01	7.22E-02	1.08E-01	7.48E-02	9.97E-02	1.08E-01
Dibenz(a,h)anthracene	ng/m^3	1.09E-01	7.22E-02	7.73E-02	1.09E-01	7.22E-02	1.08E-01	7.48E-02	9.97E-02	1.08E-01
Dibenzo(a,c) anthracene + Picene	ng/m^3	2.18E-01	1.44E-01	1.55E-01	2.18E-01	1.44E-01	1.44E-01	1.50E-01	1.99E-01	2.16E-01
Fluoranthene	ng/m^3	1.47E+01	8.73E-01	3.53E+00	8.73E-01	1.47E+01	6.02E+00	9.75E+00	4.57E+00	5.24E+00
Indeno(1,2,3-cd)pyrene	ng/m^3	1.09E-01	7.22E-02	7.73E-02	1.09E-01	7.22E-02	1.08E-01	7.48E-02	9.97E-02	1.08E-01
Naphthalene	ng/m^3	2.95E+02	7.86E+00	2.36E+01	7.86E+00	2.95E+02	4.81E+01	7.24E+01	5.61E+01	8.32E+01
o-Terphenyl	ng/m^3	2.18E-01	1.44E-01	1.55E-01	2.18E-01	1.44E-01	2.16E-01	1.50E-01	1.99E-01	2.16E-01
Perylene	ng/m^3	2.18E-01	1.44E-01	1.55E-01	2.18E-01	1.44E-01	2.16E-01	1.50E-01	1.99E-01	2.16E-01
Phenanthrene	ng/m^3	2.10E+02	2.87E+00	1.39E+01	2.87E+00	2.10E+02	4.89E+01	1.02E+02	3.40E+01	4.37E+01
Pyrene	ng/m^3	6.58E+00	3.75E-01	1.48E+00	3.75E-01	6.58E+00	2.63E+00	4.19E+00	2.22E+00	2.38E+00
Tetralin	ng/m^3	2.56E+00	1.18E+00	1.76E+00	1.51E+00	2.34E+00	1.18E+00	1.32E+00	2.26E+00	2.56E+00
Total PAH	ng/m^3	1.71E+03	2.40E+01	8.00E+01	2.40E+01	1.71E+03	2.90E+02	5.51E+02	2.49E+02	3.10E+02

Note:

1. These parameters have not been subjected to Maxxam's standard validation process nor has it been accredited for the submitted matrix.

Appendix I DIOXINS AND FURANS DATA SUMMARY

Dioxins and Furans	Courtice WPCP Station												
Location		Courtice			Courtice			Courtice			Courtice		
Date	dd/mm/yyyy	23/07/2016			16/08/2016			9/09/2016			21/09/2016		
Start Time	hh:mm	0:00			0:00			0:00			0:00		
Sample Duration	hours	24.11			24.54			24.02			22.84		
Technician		TH			TH			TH			TH		
Filter Number		COL287-01			CRA192-01			CRA241-01			CXB760-01[2]		
Maxaam ID		CTV396			CXH810			DBG348			DCY867		
Maxxam Job #		B6F6623			B6H5443			B6J5872			B6K5531		
Total Volumetric Flow	Am^3/sample	351.24			373.66			370.09			346.24		
Analytical Results	**Units**	**Value**	**EDL**	**WHO_{2005} TEF**	**Value**	**EDL**	**WHO_{2005} TEF**	**Value**	**EDL**	**WHO_{2005} TEF**	**Value**	**EDL**	**WHO_{2005} TEF**
2,3,7,8-Tetra CDD *	pg	<2.9	2.9	1	<2.8	2.8	1	<4.1	4.1	1	<3.8	3.8	1
1,2,3,7,8-Penta CDD *	pg	<3.8	3.8	1	<3.4	3.4	1	<3.5	3.5	1	<3.3	3.3	1
1,2,3,4,7,8-Hexa CDD *	pg	<3.7	3.7	0.1	<3.7	3.7	0.1	<3.9	3.9	0.1	<3.1	3.1	0.1
1,2,3,6,7,8-Hexa CDD *	pg	<3.9	3.9	0.1	<3.7	3.7	0.1	<3.9	3.9	0.1	<3.2	3.2	0.1
1,2,3,7,8,9-Hexa CDD *	pg	<3.6	3.6	0.1	<3.4	3.4	0.1	<3.6	3.6	0.1	<2.9	2.9	0.1
1,2,3,4,6,7,8-Hepta CDD *	pg	<8.7 (1)	8.7	0.01	3.9	3.6	0.01	8.9	2.6	0.01	9.7	2.6	0.01
Octa CDD *	pg	25.8	3.1	0.0003	16.6	4.1	0.0003	44.2	3.9	0.0003	51.8	2.8	0.0003
Total Tetra CDD *	pg	<18 (1)	18		<10 (1)	10		<6.4 (1)	6.4		<4.1 (1)	4.1	
Total Penta CDD *	pg	<13 (1)	13		<9.0 (1)	9.0		<5.4 (1)	5.4		<3.4 (1)	3.4	
Total Hexa CDD *	pg	<26 (1)	26		<16 (1)	16		<9.8 (1)	9.8		<9.5 (1)	9.5	
Total Hepta CDD *	pg	<11 (1)	11		3.9	3.6		8.9	2.6		23.3	2.6	
2,3,7,8-Tetra CDF **	pg	<2.6	2.6	0.1	<3.7	3.7	0.1	<3.3	3.3	0.1	<3.6	3.6	0.1
1,2,3,7,8-Penta CDF **	pg	<2.8	2.8	0.03	<3.5	3.5	0.03	<3.7	3.7	0.03	<3.1	3.1	0.03
2,3,4,7,8-Penta CDF **	pg	<2.8	2.8	0.3	<3.5	3.5	0.3	<3.7	3.7	0.3	<3.1	3.1	0.3
1,2,3,4,7,8-Hexa CDF **	pg	<3.0	3.0	0.1	<3.1	3.1	0.1	<3.6	3.6	0.1	<2.9	2.9	0.1
1,2,3,6,7,8-Hexa CDF **	pg	<2.9	2.9	0.1	<2.9	2.9	0.1	<3.4	3.4	0.1	<2.8	2.8	0.1
2,3,4,6,7,8-Hexa CDF **	pg	<3.2	3.2	0.1	<3.2	3.2	0.1	<3.8	3.8	0.1	<3.0	3.0	0.1
1,2,3,7,8,9-Hexa CDF **	pg	<3.4	3.4	0.1	<3.4	3.4	0.1	<3.9	3.9	0.1	<3.2	3.2	0.1
1,2,3,4,6,7,8-Hepta CDF **	pg	<2.9	2.9	0.01	3.1	2.6	0.01	3.5	3.0	0.01	4.6	2.8	0.01
1,2,3,4,7,8,9-Hepta CDF **	pg	<3.7	3.7	0.01	<3.1	3.1	0.01	<3.5	3.5	0.01	<3.3	3.3	0.01
Octa CDF **	pg	<3.3 (1)	3.3	0.0003	2.9	2.1	0.0003	4.4	2.9	0.0003	4.6	2.5	0.0003
Total Tetra CDF **	pg	<4.5 (1)	4.5		<3.8 (1)	3.8		<3.3	3.3		<3.6	3.6	
Total Penta CDF **	pg	<2.8	2.8		<3.5	3.5		<3.7	3.7		3.4	3.1	
Total Hexa CDF **	pg	<3.1	3.1		<3.1	3.1		<3.7	3.7		<3.0	3.0	
Total Hepta CDF **	pg	<3.3	3.3		3.1	2.9		3.5	3.2		8.0	3.0	
Toxic Equivalency	pg												

Notes:
(1) EMPC / NDR - Peak detected did not meet ratio criteria and has resulted in an elevated detection limit.
(2) Additional dioxin/ furan ambient sampling requested by the Regional Municipality of Durham
* CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan

Calculated Concentrations	Quarter 3			Courtice	Courtice	Courtice	Courtice
				8	9	10	11
	Units	Maximum	Minimum	23/07/2016	16/08/2016	9/09/2016	21/09/2016
2,3,7,8-Tetra CDD *	pg/m^3	5.54E-03	3.75E-03	0.004	0.004	0.006	0.005
1,2,3,7,8-Penta CDD *	pg/m^3	5.41E-03	4.55E-03	0.005	0.005	0.005	0.005
1,2,3,4,7,8-Hexa CDD *	pg/m^3	5.27E-03	4.48E-03	0.005	0.005	0.005	0.004
1,2,3,6,7,8-Hexa CDD *	pg/m^3	5.55E-03	4.62E-03	0.006	0.005	0.005	0.005
1,2,3,7,8,9-Hexa CDD *	pg/m^3	5.12E-03	4.19E-03	0.005	0.005	0.005	0.004
1,2,3,4,6,7,8-Hepta CDD *	pg/m^3	2.80E-02	1.04E-02	0.012	0.010	0.024	0.028
Octa CDD *	pg/m^3	1.50E-01	4.44E-02	0.073	0.044	0.119	0.150
Total Tetra CDD *	pg/m^3	2.56E-02	5.92E-03	0.026	0.013	0.009	0.006
Total Penta CDD *	pg/m^3	1.85E-02	4.91E-03	0.019	0.012	0.007	0.005
Total Hexa CDD *	pg/m^3	3.70E-02	1.32E-02	0.037	0.021	0.013	0.014
Total Hepta CDD *	pg/m^3	6.73E-02	1.04E-02	0.016	0.010	0.024	0.067
2,3,7,8-Tetra CDF **	pg/m^3	5.20E-03	3.70E-03	0.004	0.005	0.004	0.005
1,2,3,7,8-Penta CDF **	pg/m^3	5.00E-03	3.99E-03	0.004	0.005	0.005	0.004
2,3,4,7,8-Penta CDF **	pg/m^3	5.00E-03	3.99E-03	0.004	0.005	0.005	0.004
1,2,3,4,7,8-Hexa CDF **	pg/m^3	4.86E-03	4.15E-03	0.004	0.004	0.005	0.004
1,2,3,6,7,8-Hexa CDF **	pg/m^3	4.59E-03	3.88E-03	0.004	0.004	0.005	0.004
2,3,4,6,7,8-Hexa CDF **	pg/m^3	5.13E-03	4.28E-03	0.005	0.004	0.005	0.004
1,2,3,7,8,9-Hexa CDF **	pg/m^3	5.27E-03	4.55E-03	0.005	0.005	0.005	0.005
1,2,3,4,6,7,8-Hepta CDF **	pg/m^3	1.33E-02	4.13E-03	0.004	0.008	0.009	0.013
1,2,3,4,7,8,9-Hepta CDF **	pg/m^3	5.27E-03	4.15E-03	0.005	0.004	0.005	0.005
Octa CDF **	pg/m^3	1.33E-02	4.70E-03	0.005	0.008	0.012	0.013
Total Tetra CDF **	pg/m^3	6.41E-03	4.46E-03	0.006	0.005	0.004	0.005
Total Penta CDF **	pg/m^3	9.82E-03	3.99E-03	0.004	0.005	0.005	0.010
Total Hexa CDF **	pg/m^3	5.00E-03	4.15E-03	0.004	0.004	0.005	0.004
Total Hepta CDF **	pg/m^3	2.31E-02	4.70E-03	0.005	0.008	0.009	0.023
Toxic Equivalency	pg/m^3						
TOTAL TOXIC EQUIVALENCY	pg TEQ/m^3	1.63E-02	1.37E-02	0.015	0.014	0.016	0.016

Calculated TEQ Concentrations	Units			Courtice	Courtice	Courtice	Courtice
				23/07/2016	16/08/2016	09/09/2016	21/09/2016
2,3,7,8-Tetra CDD *	pg TEQ/m^3			0.004	0.004	0.006	0.005
1,2,3,7,8-Penta CDD	pg TEQ/m^3			0.005	0.005	0.005	0.005
1,2,3,4,7,8-Hexa CDD	pg TEQ/m^3			0.0005	0.0005	0.0005	0.0004
1,2,3,6,7,8-Hexa CDD	pg TEQ/m^3			0.0006	0.0005	0.0005	0.0005
1,2,3,7,8,9-Hexa CDD	pg TEQ/m^3			0.0005	0.0005	0.0005	0.0004
1,2,3,4,6,7,8-Hepta CDD	pg TEQ/m^3			0.0001	0.0001	0.0002	0.0003
Octa CDD	pg TEQ/m^3			0.00002	0.00001	0.00004	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			0.0004	0.0005	0.0004	0.0005
1,2,3,7,8-Penta CDF	pg TEQ/m^3			0.0001	0.0001	0.0001	0.0001
2,3,4,7,8-Penta CDF	pg TEQ/m^3			0.001	0.001	0.001	0.001
1,2,3,4,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0004	0.0005	0.0004
1,2,3,6,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0004	0.0005	0.0004
2,3,4,6,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0004	0.0005	0.0004
1,2,3,7,8,9-Hexa CDF	pg TEQ/m^3			0.0005	0.0005	0.0005	0.0005
1,2,3,4,6,7,8-Hepta CDF	pg TEQ/m^3			0.00004	0.00008	0.00009	0.00013
1,2,3,4,7,8,9-Hepta CDF	pg TEQ/m^3			0.00005	0.00004	0.00005	0.00005
Octa CDF	pg TEQ/m^3			0.000001	0.000002	0.000004	0.000004
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			0.015	0.014	0.016	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			Rundle		
Date	dd/mm/yyyy	23/07/2016			16/08/2016			9/09/2016			21/09/2016		
Start Time	**hh:mm**	0:00			0:00			0:00			0:00		
Sample Duration	**hours**	24.11			23.85			23.93			23.25		
Technician		TH			TH			TH			TH		
Filter Number		COL289-01			CRA193-01			CRA242-01			CXB759-01[2]		
Maxxam ID		CTV397			CXH811			DBG349			DCY868		
Maxxam Job #		B6F6623			B6H5443			B6J5872			B6K5531		
Total Volumetric Flow	**Am^3/sample**	343.70			347.35			376.07			347.43		
Analytical Results	**Units**	**Value**	**EDL**	**WHO_{2005} TEF**	**Value**	**EDL**	**WHO_{2005} TEF**	**Value**	**EDL**	**WHO_{2005} TEF**	**Value**	**EDL**	**WHO_{2005} TEF**
2,3,7,8-Tetra CDD *	pg	<3.4	3.4	1	<3.5	3.5	1	<3.1	3.1	1	<2.8 (1)	2.8	1
1,2,3,7,8-Penta CDD *	pg	<3.8	3.8	1	<3.6	3.6	1	<3.4	3.4	1	<2.9	2.9	1
1,2,3,4,7,8-Hexa CDD *	pg	<3.9	3.9	0.1	<3.6	3.6	0.1	<3.1	3.1	0.1	<2.3	2.3	0.1
1,2,3,6,7,8-Hexa CDD *	pg	<4.1	4.1	0.1	<3.6	3.6	0.1	<3.1	3.1	0.1	2.8	2.4	0.1
1,2,3,7,8,9-Hexa CDD *	pg	<3.8	3.8	0.1	<3.3	3.3	0.1	<2.8	2.8	0.1	2.7	2.2	0.1
1,2,3,4,6,7,8-Hepta CDD *	pg	<5.7 (1)	5.7	0.01	3.6	2.7	0.01	46.1	3.1	0.01	28.0	2.3	0.01
Octa CDD *	pg	19.3	4.5	0.0003	15.1	3.3	0.0003	401	3.7	0.0003	276	3.0	0.0003
Total Tetra CDD *	pg	<21 (1)	21		<11 (1)	11		<7.5 (1)	7.5		4.3	2.8	
Total Penta CDD *	pg	<16 (1)	16		<7.9 (1)	7.9		<6.1 (1)	6.1		4.3	2.9	
Total Hexa CDD *	pg	<25 (1)	25		<16 (1)	16		9.0	3.0		14.9	2.3	
Total Hepta CDD *	pg	7.1	1.7		8.0	2.7		184	3.1		56.8	2.3	
2,3,7,8-Tetra CDF **	pg	<3.5	3.5	0.1	<3.6	3.6	0.1	<3.0	3.0	0.1	4.9	3.0	0.1
1,2,3,7,8-Penta CDF **	pg	<6.0	6.0	0.03	<3.4	3.4	0.03	<3.8	3.8	0.03	<3.2	3.2	0.03
2,3,4,7,8-Penta CDF **	pg	<6.0	6.0	0.3	<3.4	3.4	0.3	<3.8	3.8	0.3	<3.2	3.2	0.3
1,2,3,4,7,8-Hexa CDF **	pg	<3.1	3.1	0.1	<3.6	3.6	0.1	<2.9	2.9	0.1	3.5	3.1	0.1
1,2,3,6,7,8-Hexa CDF **	pg	<3.0	3.0	0.1	<3.4	3.4	0.1	<2.8	2.8	0.1	<2.9	2.9	0.1
2,3,4,6,7,8-Hexa CDF **	pg	<3.3	3.3	0.1	<3.8	3.8	0.1	<3.0	3.0	0.1	<3.2	3.2	0.1
1,2,3,7,8,9-Hexa CDF **	pg	<3.6	3.6	0.1	<3.9	3.9	0.1	<3.2	3.2	0.1	<3.4	3.4	0.1
1,2,3,4,6,7,8-Hepta CDF **	pg	<2.8	2.8	0.01	2.7	2.2	0.01	6.6	3.3	0.01	11.2	1.9	0.01
1,2,3,4,7,8,9-Hepta CDF **	pg	<3.5	3.5	0.01	<2.6	2.6	0.01	<3.9	3.9	0.01	<2.2	2.2	0.01
Octa CDF **	pg	<3.7	3.7	0.0003	<3.1	3.1	0.0003	16.0	3.9	0.0003	21.4	2.8	0.0003
Total Tetra CDF **	pg	<6.1 (1)	6.1		<3.7 (1)	3.7		<3.0	3.0		4.9	3.0	
Total Penta CDF **	pg	<6.0	6.0		<3.4	3.4		<3.8	3.8		4.0	3.2	
Total Hexa CDF **	pg	<3.3	3.3		<3.7	3.7		3.4	2.9		14.2	3.1	
Total Hepta CDF **	pg	<3.1	3.1		2.7	2.4		17.9	3.6		31.4	2.0	
Toxic Equivalency	pg												

Notes:
(1) EMPC / NDR - Peak detected did not meet ratio criteria and has resulted in an elevated detection limit.
(2) Additional dioxin/ furan ambient sampling requested by the Regional Municipality of Durham
* CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan

Calculated Concentrations	Quarter 3			Rundle	Rundle	Rundle	Rundle
				8	9	10	11
	Units	Maximum	Minimum	23/07/2016	16/08/2016	9/09/2016	21/09/2016
2,3,7,8-Tetra CDD *	pg/m^3	5.04E-03	4.03E-03	0.005	0.005	0.004	0.004
1,2,3,7,8-Penta CDD	pg/m^3	5.53E-03	4.17E-03	0.006	0.005	0.005	0.004
1,2,3,4,7,8-Hexa CDD	pg/m^3	5.67E-03	3.31E-03	0.006	0.005	0.004	0.003
1,2,3,6,7,8-Hexa CDD	pg/m^3	8.06E-03	4.12E-03	0.006	0.005	0.004	0.008
1,2,3,7,8,9-Hexa CDD	pg/m^3	7.77E-03	3.72E-03	0.006	0.005	0.004	0.008
1,2,3,4,6,7,8-Hepta CDD	pg/m^3	1.23E-01	8.29E-03	0.008	0.010	0.123	0.081
Octa CDD	pg/m^3	1.07E+00	4.35E-02	0.056	0.043	1.066	0.794
Total Tetra CDD	pg/m^3	3.06E-02	9.97E-03	0.031	0.016	0.010	0.012
Total Penta CDD	pg/m^3	2.33E-02	8.11E-03	0.023	0.011	0.008	0.012
Total Hexa CDD	pg/m^3	4.29E-02	2.30E-02	0.036	0.023	0.024	0.043
Total Hepta CDD	pg/m^3	4.89E-01	2.07E-02	0.021	0.023	0.489	0.163
2,3,7,8-Tetra CDF **	pg/m^3	1.41E-02	3.99E-03	0.005	0.005	0.004	0.014
1,2,3,7,8-Penta CDF	pg/m^3	8.73E-03	4.61E-03	0.009	0.005	0.005	0.005
2,3,4,7,8-Penta CDF	pg/m^3	8.73E-03	4.61E-03	0.009	0.005	0.005	0.005
1,2,3,4,7,8-Hexa CDF	pg/m^3	1.01E-02	3.86E-03	0.005	0.005	0.004	0.010
1,2,3,6,7,8-Hexa CDF	pg/m^3	4.89E-03	3.72E-03	0.004	0.005	0.004	0.004
2,3,4,6,7,8-Hexa CDF	pg/m^3	5.47E-03	3.99E-03	0.005	0.005	0.004	0.005
1,2,3,7,8,9-Hexa CDF	pg/m^3	5.61E-03	4.25E-03	0.005	0.006	0.004	0.005
1,2,3,4,6,7,8-Hepta CDF	pg/m^3	3.22E-02	4.07E-03	0.004	0.008	0.018	0.032
1,2,3,4,7,8,9-Hepta CDF	pg/m^3	5.19E-03	3.17E-03	0.005	0.004	0.005	0.003
Octa CDF	pg/m^3	6.16E-02	4.46E-03	0.005	0.004	0.043	0.062
Total Tetra CDF	pg/m^3	1.41E-02	3.99E-03	0.009	0.005	0.004	0.014
Total Penta CDF	pg/m^3	1.15E-02	4.89E-03	0.009	0.005	0.005	0.012
Total Hexa CDF	pg/m^3	4.09E-02	4.80E-03	0.005	0.005	0.009	0.041
Total Hepta CDF	pg/m^3	9.04E-02	4.51E-03	0.005	0.008	0.048	0.090
Toxic Equivalency	pg/m^3						
TOTAL TOXIC EQUIVALENCY	pg TEQ/m^3	1.77E-02	1.53E-02	0.018	0.016	0.015	0.017
Calculated TEQ Concentrations	**Units**			**Rundle**	**Rundle**	**Rundle**	**Rundle**
				23/07/2016	**16/08/2016**	**09/09/2016**	**21/09/2016**
2,3,7,8-Tetra CDD *	pg TEQ/m^3			0.005	0.005	0.004	0.004
1,2,3,7,8-Penta CDD	pg TEQ/m^3			0.006	0.005	0.005	0.004
1,2,3,4,7,8-Hexa CDD	pg TEQ/m^3			0.0006	0.0005	0.0004	0.0003
1,2,3,6,7,8-Hexa CDD	pg TEQ/m^3			0.0006	0.0005	0.0004	0.0008
1,2,3,7,8,9-Hexa CDD	pg TEQ/m^3			0.0006	0.0005	0.0004	0.0008
1,2,3,4,6,7,8-Hepta CDD	pg TEQ/m^3			0.0001	0.0001	0.0012	0.0008
Octa CDD	pg TEQ/m^3			0.00002	0.00001	0.00032	0.00024
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	0.0004	0.0014
1,2,3,7,8-Penta CDF	pg TEQ/m^3			0.0003	0.0001	0.0002	0.0001
2,3,4,7,8-Penta CDF	pg TEQ/m^3			0.003	0.001	0.002	0.001
1,2,3,4,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0005	0.0004	0.0010
1,2,3,6,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0005	0.0004	0.0004
2,3,4,6,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0005	0.0004	0.0005
1,2,3,7,8,9-Hexa CDF	pg TEQ/m^3			0.0005	0.0006	0.0004	0.0005
1,2,3,4,6,7,8-Hepta CDF	pg TEQ/m^3			0.00004	0.00008	0.00018	0.00032
1,2,3,4,7,8,9-Hepta CDF	pg TEQ/m^3			0.00005	0.00004	0.00005	0.00003
Octa CDF	pg TEQ/m^3			0.000002	0.000001	0.000013	0.000018
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	0.016	0.015	0.017

Notes:
RDL = Reportable Detection Limit
* CDD = Chloro Dibenzo-p-Dioxin, ** CDF = Chloro Dibenzo-p-Furan
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient
Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds