Quarterly Ambient Air Quality Monitoring Report for the Durham York Energy Centre – October to December 2016

Durham York Energy Centre

Prepared for:
The Regional Municipality of Durham
605 Rossland Rd
Whitby, ON L1N 6A3

Prepared by:
Stantec Consulting Ltd.
300W-675 Cochrane Dr.,
Markham, ON L3R 0B8

Project No.: 160950528

February 9, 2017

Sign-off Sheet

This document entitled Quarterly Ambient Air Quality Monitoring Report for the Durham York Energy Centre – October to December 2016 was prepared by Stantec Consulting Ltd. for the account of The Regional Municipality of Durham. The material in it reflects Stantec's best judgment considering the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Prepared by _____
(signature)

Timothy Hung, B.A.Sc.

Reviewed by _____
(signature)

Gregory Crooks M.Eng., P.Eng.

Reviewed by _____
(signature)

Kimberly Ireland, P.Eng.

v:\01609\active\160950528\planning\report\final\2016\2016q4\160950528_rpt_2016_q4_final_v1.1.docx

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

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 October to December (Calendar Quarter 4). Some operational issues at the sites were encountered this quarter including: an SO_2 monitor span calibration issue at the Rundle Road Station and power outages at the Courtice WPCP and Rundle Road Stations. 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.

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 on September 9, 2016 and ending on November 20, 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 Ministry of Environment and Climate Change (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 Courtice and Rundle Road Stations which exceeded the applicable Ontario Ambient Air Quality Criteria (AAQC) by 107% and 250%, respectively. The current Ontario 24-hour B(a)P AAQC was introduced in 2011 and levels above this AAQC are commonly measured throughout Ontario. The measurements were however, well below the MOECC Schedule 6 Upper Risk Threshold, the MOECC O. Reg. 419/05 24-hour average guideline, and the HHRA health based criterion.
5. The maximum measured toxic equivalent dioxin and furan concentration was below the applicable Standard presented in **Table 2-4**

In summary, the measured concentrations of the air contaminants monitored were below their applicable MOECC Standards during the monitoring period between October to December 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 Station). The plan developed for these stations was based on the Regional Council's mandate to provide ambient air quality monitoring in the area of the DYEC for a three-year period.

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

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

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

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

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

A third Fence Line Station, which measures non-continuous parameters (metals and total particulate matter), was installed prior to full operation of the DYEC. The Fence Line Station began operation after the Facility's commissioning period was completed, and will run for a one-year period.

At the request of the Regional Municipality of Durham, the dioxin/ furan sampling frequency at the Courtice WPCP and Rundle Road Stations was increased to once every 12 days from once every 24 days between September 9 and November 20, 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 October to December 2016 (Q4).

1.2 LOCATIONS OF AMBIENT AIR QUALITY MONITORING STATIONS

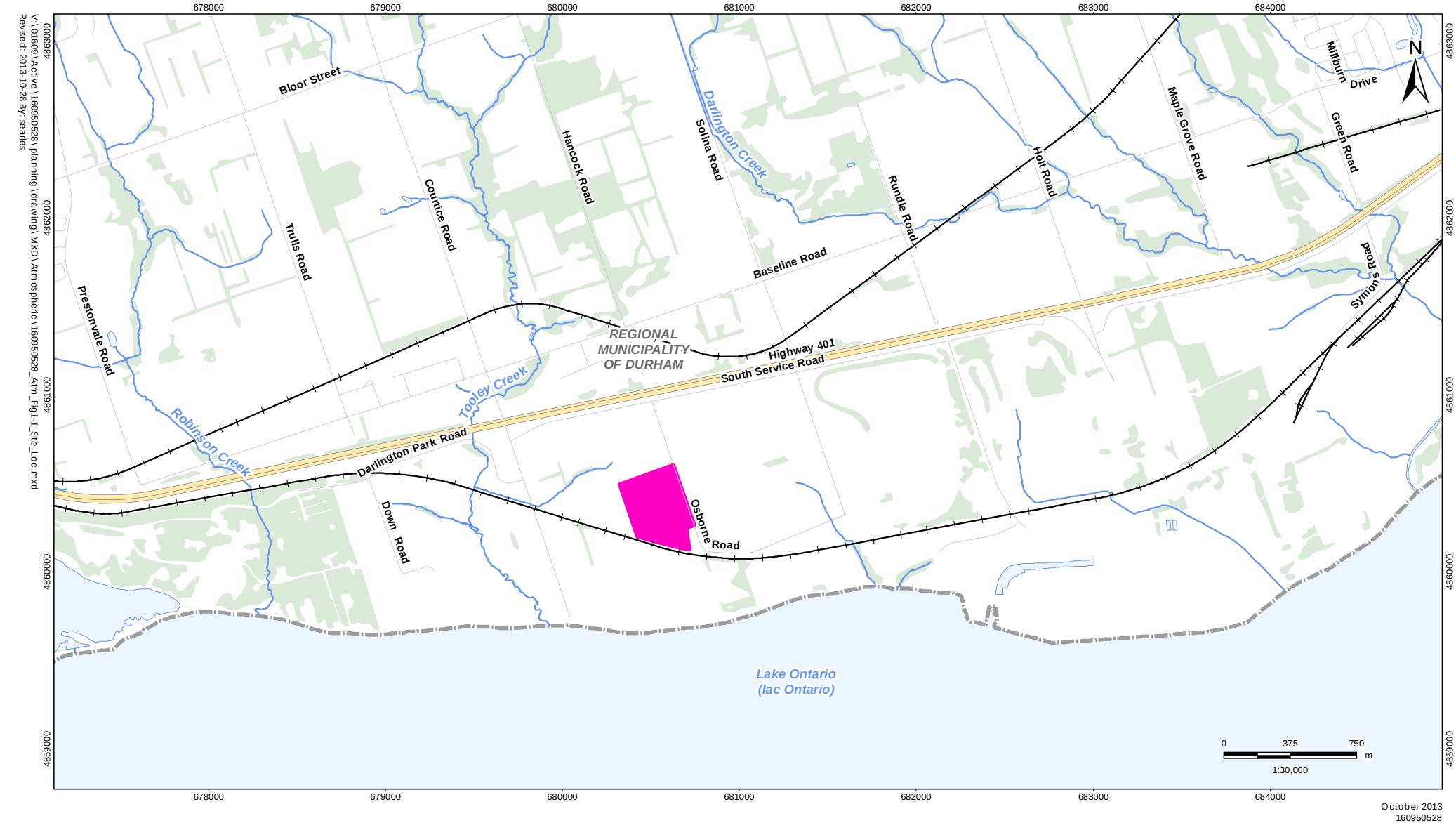
The selection of sites for the monitoring stations was accomplished in consultation with the Ontario Ministry of Environment and Climate Change (MOECC) and Regional Municipality of Durham and York representatives based on the results of air quality modelling done in support of the environmental assessment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

The Rundle Road Station is sited northeast of the DYEC in the vicinity of residential receptors predominantly downwind of the DYEC, and within the area where maximum annual concentrations are predicted to occur. This predominantly downwind station is located along Rundle Road, south of Baseline Road. Its location is shown in **Figure 1-2** and **Figure 1-3**. The monitoring station measures all the air contaminants listed in Section1.1 and meteorological data.

Introduction
February 9, 2017

The predominately upwind Courtice WPCP Station is located at the Courtice Water Pollution Control Plant (WPCP) to the southwest of the DYEC with the objective of measuring background air quality in a predominantly upwind location. The location is presented in **Figure 1-2** and **Figure1-4.** This monitoring station measures the air contaminants presented in Section 1.1, as well as meteorological data, with the exception of wind speed and wind direction, which are measured and provided by the Courtice Water Pollution Control Plant.

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



V:\01609\Active\160950528\planning\drawing\MXD\Atmospheric\160950528_Atm_Fig1-1_Site_Loc.mxd
Revised: 2013-10-28 By: searles

October 2013
160950528

Stantec

Legend

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

Notes

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

Client/Project

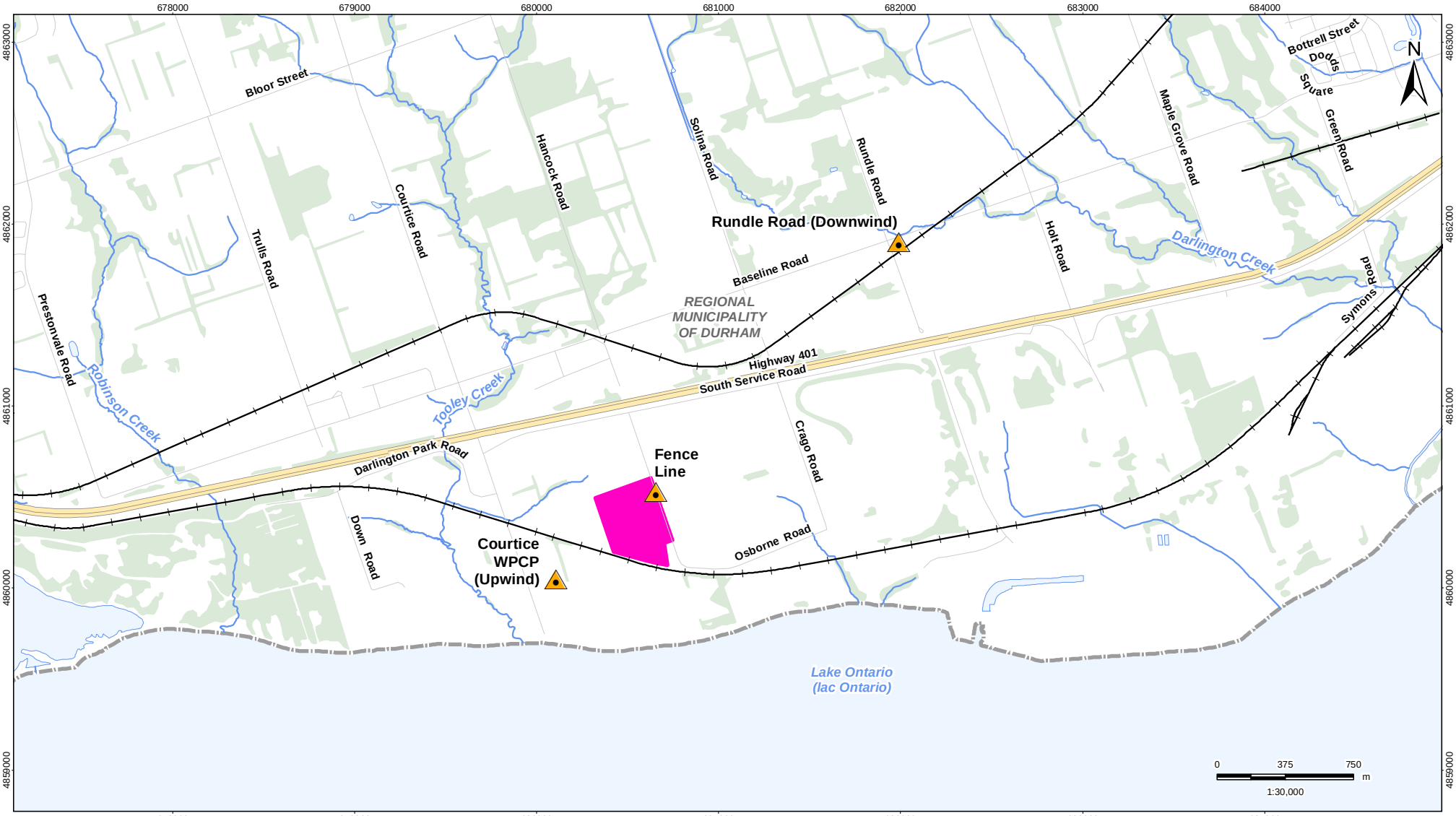
The Region of Durham
Durham York Energy Centre

Figure No.

1-1

Title

Site Location Plan



May 2016
160950528

\\cd1215-001\work_group\01609\Active\160950528\planning\drawing\MXD\Atmospheric\2016_Report\160950528_Atm_Fig1-2_Ambient_Monitor_Loc_2016.mxd
Revised: 2016-05-11 By: searles

Stantec

Legend

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

Notes

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

Client/Project

The Region of Durham
Durham York Energy Centre

Figure No.

1-2

Title

Locations of Ambient Monitoring Stations

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

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

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

2.0 KEY COMPONENTS ASSESSED

2.1 METEOROLOGY

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

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

Courtice WPCP (Predominately Upwind) Ambient Air Quality Monitoring Station	Rundle Road (Predominately Downwind) Ambient Air Quality Monitoring Station
Wind Speed and Direction @ 20 m	Wind Speed and Direction @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
February 9, 2017

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 (Stantec, 2012). The first set of criteria was 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/m³ (98th percentile averaged over 3 consecutive years) has been superseded by the new Canadian Ambient Air Quality Standard (CAAQS) of 28 µg/m³ (98th percentile averaged over 3 consecutive years) and the annual objective of 10 µg/m³ as noted in **Table 2-2**. The proposed CAAQS 24-hour objective for 2020 is 27 µg/m³.

Summaries of the relevant air quality criteria for the contaminants monitored in Q4 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/m³)	24-Hour (µg/m³)	Annual (µg/m³)	1-Hour (µg/m³)	24-Hour (µg/m³)	Annual (µg/m³)
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/m³)	**24-Hour (µg/m³)**	**Annual (µg/m³)**	**1-Hour (µg/m³)**	**24-Hour (µg/m³)**	**Other time Period (µg/m³)**
$PM_{2.5}$	N/A	-	28 [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/m³)⁻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 stations includes both continuous and non-continuous monitors to sample air contaminant concentrations.

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

Table 3-1 Summary of Continuous Ambient Air Quality Monitors

Contaminant	Monitor	Principle of Operation	Range	Time Interval
$PM_{2.5}$	Thermo Sharp 5030 Synchronized Hybrid Ambient Real-time Particulate Monitor	Light Scattering Photometry / Beta Attenuation - Consists of a carbon14 source, detector and light scattering Nephelometer in a rack-mountable enclosure. The Thermo Sharp utilizes a continuous (non-step wise) hybrid mass measurement and a combination of beta attenuation and light scattering technology. The unit's filter tape is automatically advanced based upon a user defined frequency or particulate loading.	0 -10 mg/m^3	1 minute
NO, NO_2, NO_X	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

Instrumentation Summary and Field Conditions
February 9, 2017

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

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

Contaminant	Sampler	Filter Media	Lab Analysis	Sampling Schedule
TSP and metals	Tisch Environmental TE-5170 mass-flow high volume sampler	Pre-weighed, conditioned Teflon coated glass fibre filters	Weighed for particulate loading and analysed using the Atomic Emission Spectroscopy / Inductively Coupled Plasma (AES/ICP) technique to determine metals content	24 hour sample taken every 6 days
PAHs	Tisch Environmental TE-1000 mass-flow high volume air sampler	Dual chambered sampling module with a Teflon-coated glass fibre filter and a Poly-Urethane Foam (PUF) cartridge	Gas Chromatography / Mass Spectrometry (GC/MS)	24 hour sample taken every 12 days
Dioxins and Furans				24 hour sample taken every 24 days. At the request of the Region this was increased to every 12 days from September 9 to November 20, 2016.

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 operational issues at the sites were encountered this quarter including an SO_2 monitor span calibration issue at the Rundle Road Station and power outages at the Courtice WPCP and Rundle Road Stations. 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.	25-Oct-16 and 9-Nov-16	Adjusted internal clock. All data intact.
NO_X	Internal clock not synchronized with actual time.	25-Oct-16, 9-Nov-16, 28-Nov-16, 16-Dec-16	Adjusted internal clock. All data intact.
$PM_{2.5}$	Pump was not running (likely due to power trip) during weekly site visit.	Noted 28-Nov-16	Restarted monitor/ pump. Reviewed and invalidated 49 hours of data.
TSP/Metals Hi-Vol	Filter was wet when collected, resulting in a low post-run flow check. Snow likely blew onto the filter during a precipitation event on 4-Dec-16.	2-Dec-16 sample. Issue noted on 5-Dec-16.	Review of the circular chart record indicates that the sampler was operating at 40 cfm throughout the sample run. Sample results were comparable to other stations, therefore, the results were considered valid.
PAH/ D/F Hi-Vol	None		
Other	None		

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

Parameter	Issues	Time Frame	Remedial Action
SO_2	Internal clock not synchronized with actual time.	25-Oct-16 and 9-Nov-16	Adjusted internal clock. All data intact.
	Span setting was found to be outside of MOECC allowable range during the MOECC Audit on December 13, 2016. Issue determined to be due to Valley Environmental Services' (VES) calibration gas cylinder going off-specification.	12-Dec-16 to 13-Dec-16	Monitor was recalibrated using the MOECC's calibration gas. Span adjustment applied to affected data. No data lost. VES has acquired another SO_2 calibration gas cylinder and will have the concentration confirmed by the MOECC's laboratory on a periodic basis. VES will review and update their SO_2 gas handling protocol.
NO_X	Internal clock not synchronized with actual time.	25-Oct-16 and 9-Nov-16	Adjusted internal clock. All data intact.
	Elevated auto zero.	14-Nov-16 to 25-Nov-16	A critical flow orifice in the unit's auto-calibration system became partially blocked. The orifice was replaced by Valley Environmental. The issue did not affect routine measurements - all data intact.
	Evidence of a brief power outage.	Outage on 1-Dec-16	Reviewed and invalidated 1 minute of data. UPS powered all other units.
$PM_{2.5}$	None.		
TSP/Metals Hi-Vol	Filter was wet when collected, resulting in a low post-run flow check. Snow likely blew onto the filter during a precipitation event on December 4, 2016.	2-Dec-16 sample. Issue noted on 5-Dec-16.	Review of the circular chart record indicates that the sampler was operating at 40 cfm throughout the sample run. Sample results were comparable to other stations, therefore, the results were considered valid.
PAH/ D/F Hi-Vol	Hi-vol stopped partway through sample run due to the ground fault interrupter (GFI) being tripped during the run.	Noted 28-Dec-16, Affected 26-Dec-16 sample (PAH sample only)	Checked wiring and resealed plugs. Reset GFI. PAH sample invalidated since the hi-vol did not run for a sufficient duration.
Other	Evidence of Power Outage	17-Dec-16	Reviewed and invalidated 3 hours of data for all continuous parameters.

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 4 (October to December 2016) are presented in **Table 3-7** to **Table 3-9**.

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

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
SO_2	2197	99.5% [A]
NO_X	2193	99.3% [A]
$PM_{2.5}$	2153	97.5% [A]
Temperature	2208	100.0% [A]
Rainfall	2208	100.0% [A]
Relative Humidity	2208	100.0% [A]
Pressure	2208	100.0% [A]
Wind Speed/Direction	2207	100.0% [A]
TSP/Metals	15 [B]	100%
PAHs	8 [B]	100%
Dioxins and Furans	6 [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) – October to December 2016

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
SO_2	2190	99.2% [A]
NO_X	2183	98.9% [A]
$PM_{2.5}$	2189	99.1% [A]
Temperature	2205	99.9% [A]
Rainfall	2204	99.8% [A]

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

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
Relative Humidity	2204	99.8% [A]
Wind Speed/Direction	2204	99.8% [A]
TSP/Metals	15 [B]	100%
PAHs	7 [B]	88% [A]
Dioxins and Furans	6 [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 – October to December 2016

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

Notes:

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

3.4 CONTINUOUS MONITOR INTERNAL CALIBRATIONS

Summaries of the Courtice WPCP and Rundle Road Station SO_2 and NO_x monitor daily internal zero checks for Q4 2016 are presented in **Appendix A**. Daily internal zero checks are informal checks of an analyzer's response intended as a quick, convenient way to check for possible analyzer malfunction or calibration drift. They are not recommended as a basis for analyzer zero or span adjustments, calibration updates, or adjustment of ambient data (Environment Canada, 1995).

All internal zero calibrations of the SO_2 and NO_x analyzers at the Courtice WPCP Station and the SO_2 analyzer at the Rundle Road Station were less than 5 ppb throughout Q4.

Automatic internal zero calibrations at the Rundle Road Station NOx monitor greater than 5 ppb were observed from November 12 to 24, 2016 due to a partially blocked orifice in the unit's auto-calibration system. Valley Environmental Services replaced the critical flow orifice on November 25, 2016. This issue only affected the unit's auto-calibration system and did not affect routine measurements, thus no corrections to the measurement data were required. The internal zero

calibrations for the same unit were greater than 5 ppb from December 9 to 11, 2016. This was determined to be due to residual NO_2 being trapped in the auto-calibration system from the previous orifice blockage. The auto-calibration system was purged on December 12, 2016 to rectify this issue. No correction of the measurement data was required.

3.5 FIELD CONDITION OBSERVATIONS

During Q4 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 ongoing during this quarter. Highway 418 will provide a north-south link between Highway 401 and the Phase 2 expansion of Highway 407. The Highway 401/418 interchange will be located almost directly north of the DYEC. During October and November the highway construction contractor worked in a large area immediately north of the DYEC between Energy Drive and Hwy 401 for 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. A photograph of the South Service Road realignment is shown in **Figure 3-1**.

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. Construction of Highway 418 from north of Baseline Road was also occurring, with clearing, grading and other activities causing dust suspension from haul truck 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 Baseline Road is presented in **Figure 3-2**.

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

- Hydro crews working on the perimeter of the new South Service Road construction area in December 2016.
- Trucks idling while loading and unloading supplies at the WPCP Chemical Building about 50 m north of the Courtice WPCP Station.
- A fire on the roof of the DYEC on December 11, 2016, lasting from approximately 10:00 – 12:00.

Figure 3-1 View of South Service Road Realignment Construction (Looking South from the Existing South Service Road)

Figure 3-2 View from Baseline Road (between Solina Road and Courtice Road) Looking Northwest 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 October to December 2016 period are presented in **Table 4-1**.

Table 4-1 Summary of Hourly Meteorological Measurements – October to December 2016

Parameter		Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)	Units
Temperature	Maximum	20.7	21.7	^{0}C
	Minimum	-14.4	-17.2	^{0}C
	Mean (October)	11.7	11.0	^{0}C
	Mean (November)	6.1	5.5	^{0}C
	Mean (December)	-0.8	-1.5	^{0}C
	Mean (Period)	5.6	5.0	^{0}C
	Standard Deviation	7.1	7.2	^{0}C
Rainfall	Maximum	4.6	4.9	mm
	Minimum	0.0	0.0	mm
	Mean (October)	0.05	0.06	mm
	Mean (November)	0.06	0.06	mm
	Mean (December)	0.07	0.09	mm
	Mean (Period)	0.06	0.07	mm
	Standard Deviation	0.31	0.35	mm
Relative Humidity	Maximum	96.1	100.0	%
	Minimum	39.5	40.9	%
	Mean (October)	72.8	78.1	%
	Mean (November)	75.3	80.0	%
	Mean (December)	71.4	76.5	%
	Mean (Period)	73.1	78.2	%
	Standard Deviation	12.3	13.6	%

Table 4-1 Summary of Hourly Meteorological Measurements – October to December 2016

Parameter		Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)	Units
Pressure [A]	Maximum	30.4	-	in Hg
	Minimum	29.1	-	in Hg
	Mean (October)	29.8	-	in Hg
	Mean (November)	29.7	-	in Hg
	Mean (December)	29.7	-	in Hg
	Mean (Period)	29.8	-	in Hg
	Standard Deviation	0.2	-	in Hg
Wind Speed [B]	Maximum	40.3	43.5	km/hr
	Minimum	0.8	0.0	km/hr
	Mean (October)	12.9	9.6	km/hr
	Mean (November)	11.7	10.5	km/hr
	Mean (December)	15.1	14.9	km/hr
	Mean (Period)	13.2	11.6	km/hr
	Standard Deviation	7.1	7.4	km/hr

Notes:

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

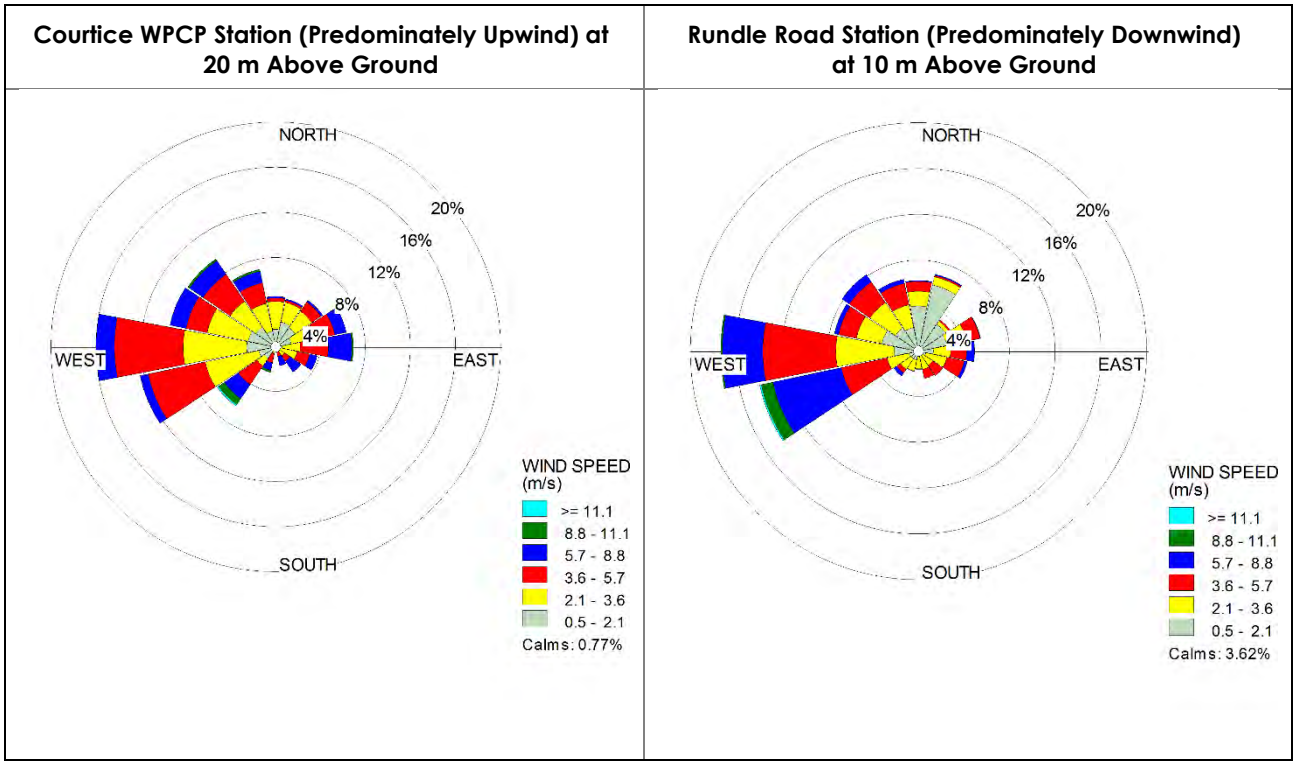
B. Wind speed at Courtice WPCP Station measured at 20 m and at Rundle Road Station at 10 m.

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 westerly directions. Wind contribution from the south was low. Higher wind speeds occurred from southwesterly, northwesterly, 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 westerly directions. Higher wind speeds are noted occurring from the west-southwest.

Figure 4-1 Wind Roses for October to December 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 October to December 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 – October to December 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	40.6	117.5	7.8	21.6
				Minimum	0.0	0.0	0.0	0.0
				Mean (October)	1.7	4.8	0.4	1.1
				Mean (November)	2.4	6.9	0.1	0.4
				Mean (December)	1.1	3.2	0.5	1.4
				Mean (Period)	1.8	5.0	0.3	1.0
				Standard Deviation	3.6	10.4	0.4	1.2
				# of Exceedances	0	0	0	0
	24	100	275	Maximum	8.8	26.0	1.2	3.5
				Minimum	0.0	0.0	0.0	0.0
				Mean (October)	1.7	4.7	0.4	1.1
				Mean (November)	2.5	7.0	0.1	0.4
				Mean (December)	1.1	3.2	0.5	1.4
				Mean (Period)	1.8	5.0	0.3	1.0
				Standard Deviation	1.8	5.2	0.3	0.9
				# of Exceedances	0	0	0	0

Table 4-2 Summary of Ambient CAC Monitoring Data – October to December 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	-	24.0	-	41.8
				Minimum	-	1.0	-	0.2
				Mean (October)	-	3.4	-	8.1
				Mean (November)	-	7.4	-	13.0
				Mean (December)	-	6.2	-	13.5
				Mean (Period)	-	5.6	-	11.5
				Standard Deviation	-	4.0	-	9.5
				# of Exceedances	-	N/A	-	N/A
NO_2	1	200 [B]	400 [B]	Maximum	35.5	77.0	31.0	64.1
				Minimum	0.0	0.0	0.0	0.0
				Mean (October)	4.0	7.9	2.9	5.6
				Mean (November)	8.1	16.3	6.3	12.6
				Mean (December)	6.9	14.2	7.6	15.5
				Mean (Period)	6.3	12.8	5.6	11.2
				Standard Deviation	5.7	11.6	5.4	10.9
				# of Exceedances	0	0	0	0
	24	100 [B]	200 [B]	Maximum	18.8	38.3	21.5	44.1
				Minimum	0.4	0.8	0.0	0.0
				Mean (October)	3.9	7.7	2.9	5.6
				Mean (November)	8.1	16.3	6.1	12.3

Table 4-2 Summary of Ambient CAC Monitoring Data – October to December 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 (December)	7.0	14.4	7.7	15.8
				Mean (Period)	6.3	12.8	5.6	11.2
				Standard Deviation	3.5	7.2	4.0	8.1
				# of Exceedances	0	0	0	0
NO[C]	1	NA	NA	Maximum	60.8	80.6	42.7	54.5
				Minimum	0.0	0.0	0.0	0.0
				Mean (October)	1.9	2.5	1.9	2.4
				Mean (November)	5.0	6.5	2.9	3.8
				Mean (December)	1.7	2.3	3.4	4.5
				Mean (Period)	2.8	3.7	2.7	3.6
				Standard Deviation	5.9	7.8	3.3	4.3
				# of Exceedances	N/A	N/A	N/A	N/A
	24	NA	NA	Maximum	21.5	28.2	9.2	11.9
				Minimum	0.4	0.5	0.2	0.2
				Mean (October)	1.8	2.3	1.9	2.4
				Mean (November)	5.1	6.6	2.9	3.8
				Mean (December)	1.7	2.3	3.4	4.6
				Mean (Period)	2.8	3.7	2.7	3.6
				Standard Deviation	3.2	4.2	1.8	2.4
				# of Exceedances	N/A	N/A	N/A	N/A

Table 4-2 Summary of Ambient CAC Monitoring Data – October to December 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	88.0	178.8	71.3	139.5
				Minimum	0.0	0.0	0.0	0.0
				Mean (October)	5.7	11.4	4.5	8.7
				Mean (November)	13.0	26.1	9.2	18.5
				Mean (December)	8.7	17.8	11.0	22.5
				Mean (Period)	9.1	18.3	8.2	16.6
				Standard Deviation	10.5	21.2	7.5	15.2
				# of Exceedances	0	0	0	0
	24	100 [B]	200 [B]	Maximum	37.6	74.7	28.3	57.8
				Minimum	0.6	1.1	0.0	0.0
				Mean (October)	5.6	11.0	4.5	8.8
				Mean (November)	13.1	26.2	9.0	18.1
				Mean (December)	8.7	18.0	11.2	22.9
				Mean (Period)	9.1	18.3	8.2	16.6
				Standard Deviation	6.3	12.8	5.2	10.5
				# of Exceedances	0	0	0	0

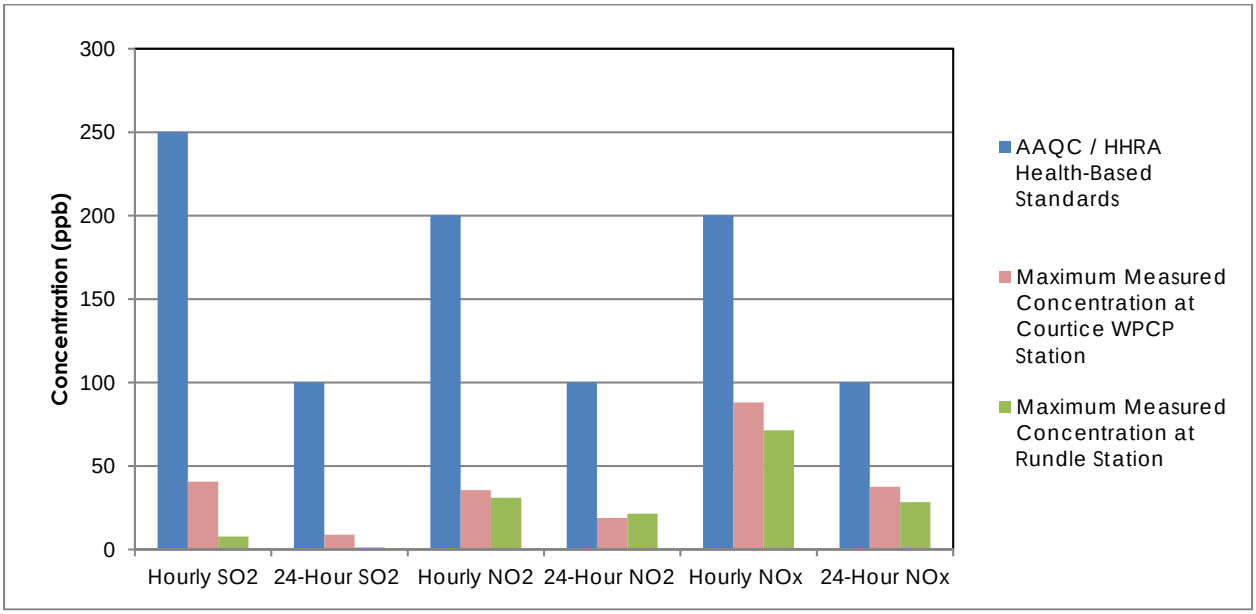
Notes:

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/m³ and 275 µg/m³) are shown with blue lines in the respective plot. As shown in these figures, measured ambient SO_2 concentrations at both stations were well below the Ontario AAQCs.

The maximum hourly and 24-hour average SO_2 concentrations measured at the Courtice WPCP Station during October to December 2016 were 40.6 and 8.8 ppb (117.5 and 26.0 µg/m³) respectively, which are 16.2% and 8.8% of the applicable 1-hour and 24-hour Ontario AAQCs.

The maximum hourly and 24-hour average SO_2 concentrations measured at the Rundle Road Station during this quarter were 7.8 and 1.2 ppb (21.6 and 3.5 µg/m³) respectively, which are 3.1% and 1.2% of the applicable 1-hour and 24-hour Ontario AAQCs.

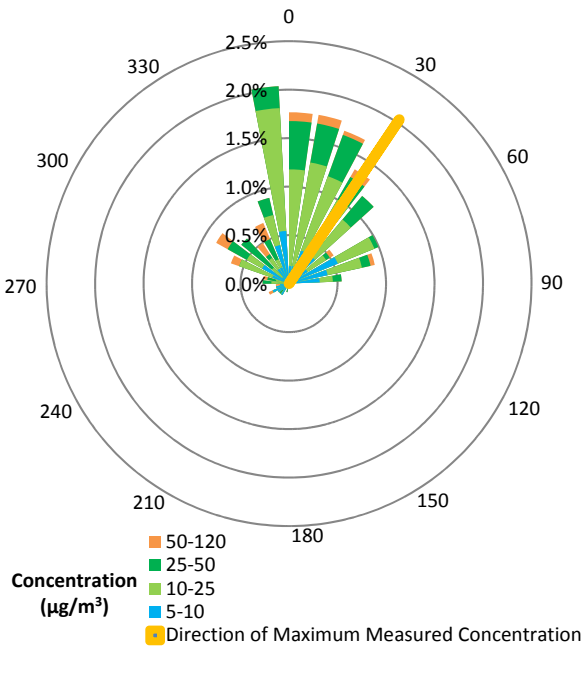
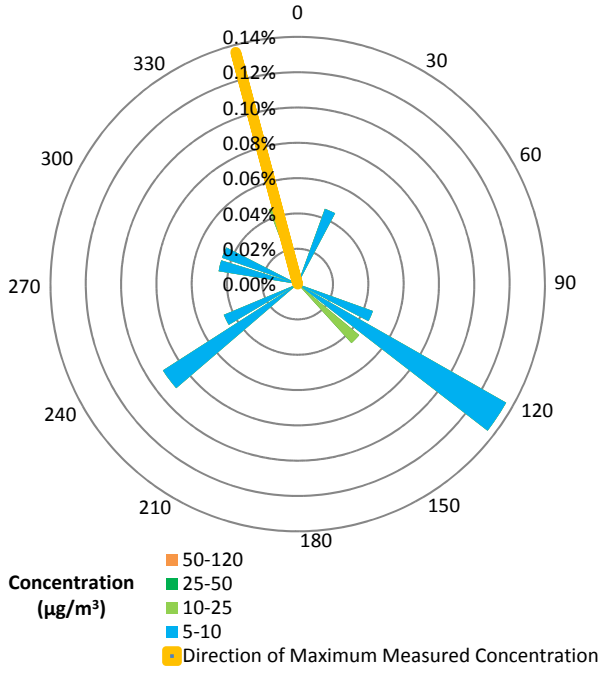
Pollution roses of hourly average SO_2 concentrations measured at the Courtice WPCP Station and Rundle Road Station are presented in **Figure 4-3**. The pollution rose plots present measured hourly average contaminant concentrations versus measured wind direction (over 10° wind sectors). Concentrations less than 5 µg/m³, which account for 81% of the measurements at the Courtice WPCP and 98% at the Rundle Road Station, have been removed from the plot to allow the distribution of maximum levels to be more clearly shown in the figure. For the Courtice WPCP

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

The maximum hourly SO_2 concentrations measured at the Courtice WPCP and Rundle Road Stations occurred on October 14, 2016 at 07:00 and November 11, 2016 at 9:00 measuring 40.6 and 7.8 ppb, respectively. The highest measured concentration at the Courtice WPCP Station occurred for winds blowing from the northeast, for which the DYEC, Highway 401, a CN railroad and the Highway 418 construction areas were upwind. The rolling 24-hour average SO_2 concentrations measured by the continuous emissions monitors on each boiler at the DYEC during this hour were both 0 mg/Rm^3. The maximum measured concentration at the Rundle Road Station occurred for north-northwesterly winds for which agricultural activities and local roads were upwind.

The maximum 24-hour average SO_2 concentrations at the Courtice WPCP and Rundle Road Stations were 8.8 and 1.2 ppb and occurred on December 11, 2016 and October 1, 2016 respectively. The wind directions during the measurements at the Courtice WPCP and Rundle Road Stations were from the northwest and east-southeast respectively. Highway 401 and a CN railroad were upwind of the Courtice WPCP Station during this period, while for the Rundle Road Station measurement, the St. Mary's Cement Facility, CP railroad and Highway 401 were generally upwind of the station for this wind direction.

Figure 4-3 Pollution Roses of Measured Hourly Average SO_2 Concentrations – October to December 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/m³ and 200 µg/m³) are shown with blue lines on the respective plot. As shown in these figures, measured ambient NO_2 concentrations at both stations were well below the Ontario AAQCs.

The maximum hourly and 24-hour average NO_2 concentrations measured at the Courtice WPCP Station during this quarter were 35.5 and 18.8 ppb (77 and 38.3 µg/m³) respectively, which are 17.8% and 18.8% 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 31 and 21.5 ppb (64.1 and 44.1 µg/m³), which are 15% and 21.5% of the applicable 1-hour and 24-hour Ontario AAQCs.

Pollution roses of measured hourly average NO_2 concentrations are presented in **Figure 4-4**. To more clearly show the distribution of maximum levels in the figures, concentrations less than 20 µg/m³, which account for 77% of the measurements at the Courtice WPCP Station and 81% 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 westerly to northwesterly and northeasterly directions. For the Rundle Road Station, higher measured hourly average concentrations occurred for winds blowing from the west.

The maximum measured hourly average NO_2 concentration at the Courtice WPCP was 35.5 ppb on December 15, 2016 at 23:00. During this hour, the wind at the Courtice WPCP Station was blowing from the north, for which Highway 401 and the CN Railroad were upwind. The measured hourly NO_2 concentration at the MOECC Oshawa Station on December 15, 2016 at 23:00 was 8 ppb which is lower than that at the Courtice WPCP Station, suggesting the elevated hourly concentration was due to local emissions sources.

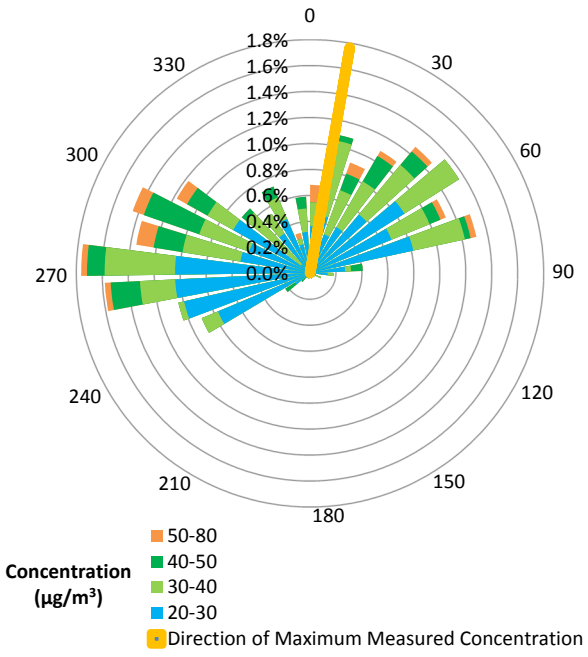
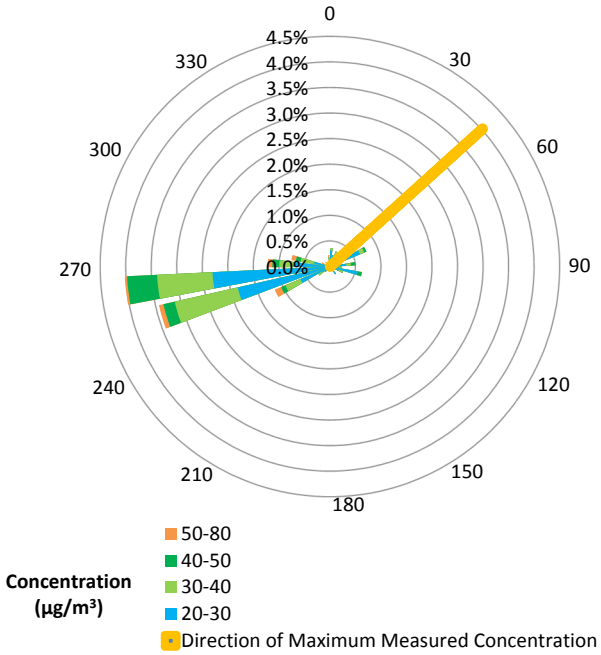
Summary of Ambient Measurements
February 9, 2017

The maximum measured hourly average NO_2 concentration at the Rundle Road Station was 31 ppb on December 22, 2016 at 1:00, during which winds were blowing from the northeast for which local roads and a CP Railroad were upwind of the Rundle Road Station. At the same time, the measured NO_2 concentration at the MOECC Oshawa Station was 29 ppb, which is comparable to that at the Rundle Station, suggesting that the elevated Rundle Road Station measurement was due to elevated regional NO_2 levels.

The maximum measured hourly average NO_2 concentration at the MOECC Oshawa Station during Q4 was 43 ppb which is comparable to the maximum Courtice WPCP Station measurement during the quarter.

The maximum measured 24-hour average NO_2 concentrations at the Courtice WPCP and Rundle Road Stations both occurred on December 22, 2016 and were 18.8 and 21.5 ppb respectively. The wind direction at the Courtice WPCP Station during this measurement was from the west for which agricultural lands were upwind. At the Rundle Road Station, winds were also from the west for which local roads and local commercial facilities along Baseline Road were upwind. The maximum measured 24-hour average NO_2 concentration (30 ppb) at the MOECC Oshawa Station during this quarter was also measured on December 22, 2016 and was higher than the Courtice WPCP and Rundle Road Station measurements.

Figure 4-4 Pollution Roses of Measured Hourly Average NO_2 Concentrations – October to December 2016

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

4.2.3 Nitrogen Oxides (NO_X)

Data summaries are presented in **Appendix D** for nitrogen oxides for each station and month as well as time history plots of the hourly and 24-hour average NO_X concentrations. For the hourly and 24-hour averages, the O. Reg. 419/05 Schedule 3 Standards of 200 ppb and 100 ppb (400 µg/m³ and 200 µg/m³) are shown with blue lines on the respective plot. As shown in these figures, 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 88 ppb (178.8 µg/m³), which is 44% of the 1-hour Ontario AAQCs. The 24-hour average NO_X concentration measured at this station was 37.6 ppb (74.7 µg/m³), which is 37.6% 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 71.3 and 28.3 ppb (139.5 and 57.8 µg/m³), which are 36% and 28.3% of the Ontario AAQCs.

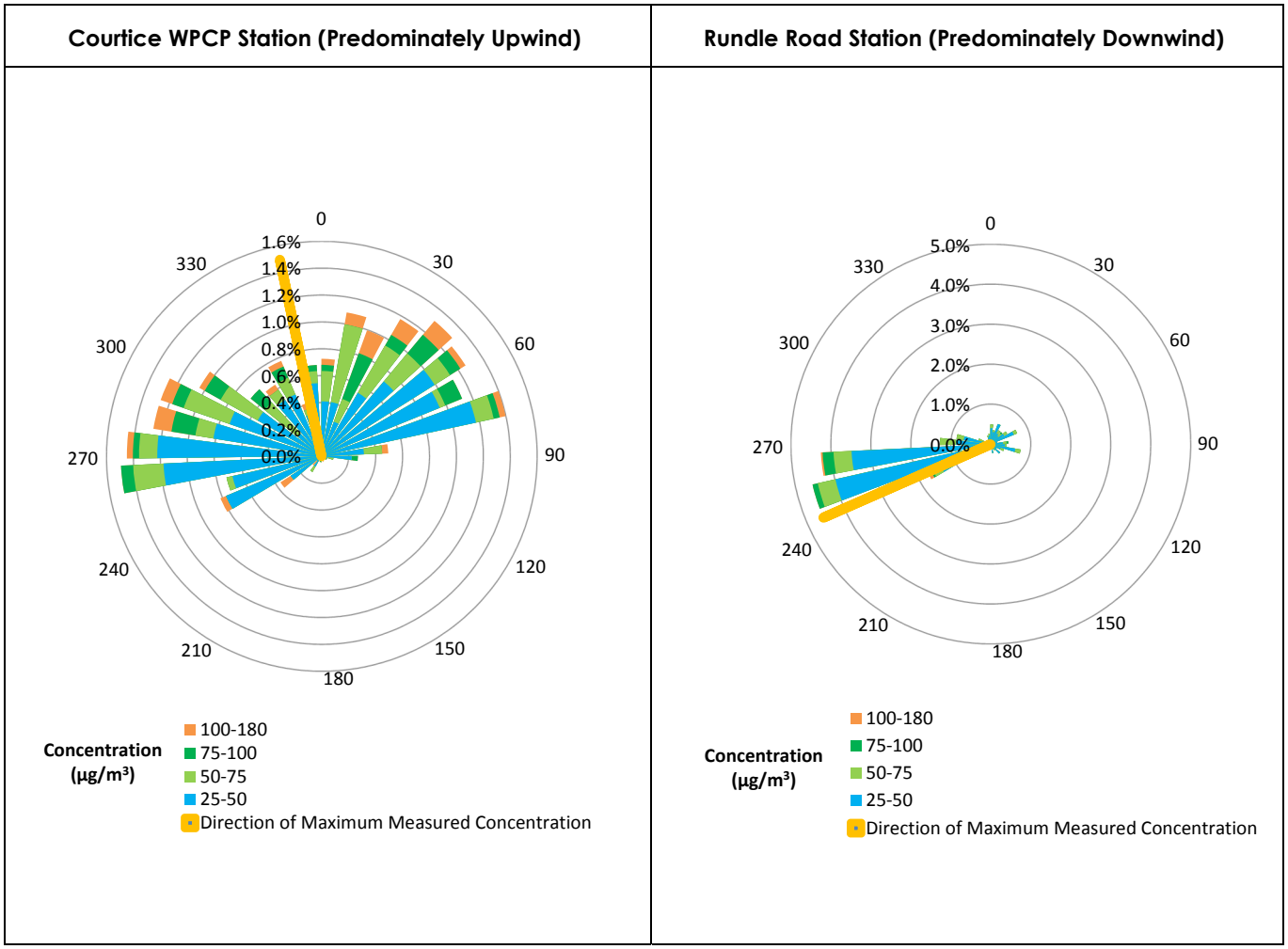
Pollution roses of measured hourly average NO_X concentrations for the Courtice WPCP Station and the Rundle Road Station are presented in **Figure 4-5**. Concentrations less than 25 µg/m³, which account for 77% of the measurements at both the Courtice WPCP and Rundle Road Stations, have been removed 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 and northeasterly directions. At the Rundle Road Station, higher measured hourly average concentrations occurred for west-southwesterly wind directions.

The maximum measured hourly average NOx concentrations at the Courtice WPCP and Rundle Road Stations were 88 and 71.3 ppb measured on October 31, 2016 at 18:00 and November 16, 2016 at 12:00 respectively. Winds at the Courtice WPCP Station during this measurement were blowing from the north for which Highway 401, a CN Railroad and the Highway 418 construction area were upwind. Winds at the Rundle Road Station during this measurement were from the west-southwest for which a CP railroad and the Highway 418 construction activities were upwind.

The maximum measured 24-hour average NOx concentrations at the Courtice WPCP and Rundle Road Stations of 37.6 and 28.3 ppb were observed on November 16, 2016 and December 22, 2016. Wind directions during the period at the Courtice WPCP Station were from the north while the Rundle Road Station experienced winds blowing from the west. Highway 401, the CN railroad and Highway 418 construction activities were upwind of the Courtice WPCP Station, while Highway 418 construction activities and local roads were upwind of the Rundle Road Station.

Figure 4-5 Pollution Roses of Measured Hourly Average NO_X Concentrations – October to December 2016



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 24 µg/m³ and 41.8 µg/m³ during this quarter. It should be noted that since an exceedance of the criteria for $PM_{2.5}$ requires the average of the 98th percentile levels in each of three consecutive calendar years to be greater than 28 µg/m³ (CAAQS) or 30 µg/m³ (HHRA criteria) whereas the $PM_{2.5}$ measurement period at both stations in the report was three months, there is insufficient data in a quarter to determine with any certainty if exceedances of the CAAQS/HHRA criteria would occur. Discussion of $PM_{2.5}$ measurements with respect to the CAAQS/HHRA criteria will be provided in the 2016 annual report, at which time sufficient data will have been collected to make comparisons.

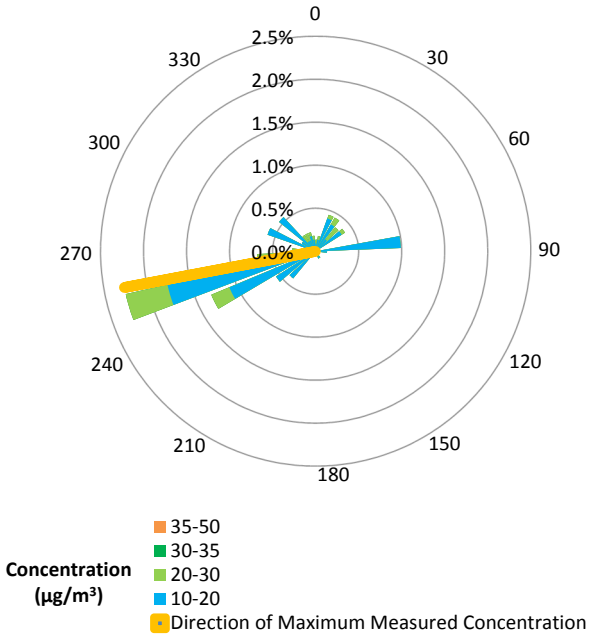
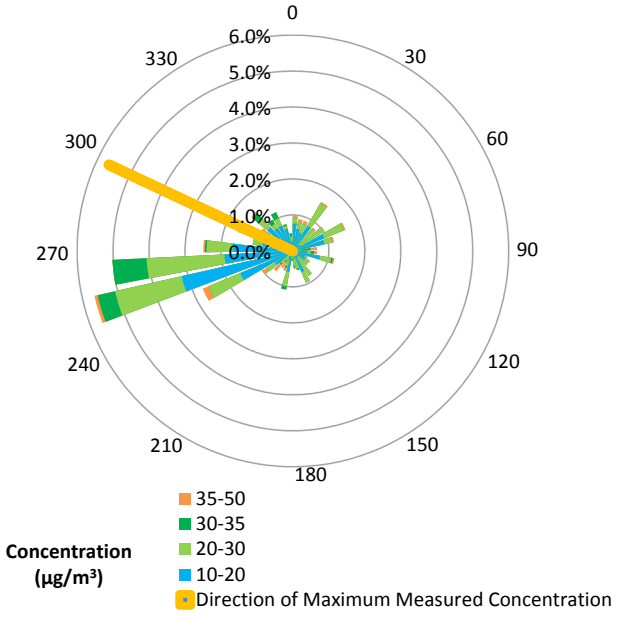
Pollution roses showing the measured 24-hour average ambient $PM_{2.5}$ concentrations versus direction are shown in **Figure 4-6** for both monitoring stations. Concentrations less than 10 µg/m³, which account for 86% of the measurements at the Courtice WPCP and 55% at the Rundle Road Station, have 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 west-southwest winds for the Courtice WPCP Station. For the Rundle Road Station, higher measured 24-hour average concentrations occurred for westerly to west-southwesterly winds.

The maximum measured 24-hour average $PM_{2.5}$ concentrations at the Courtice WPCP and Rundle Road Stations occurred on December 22, 2016 and November 9, 2016 and were 24 and 41.8 µg/m³ respectively. The maximum measured concentration at the Courtice WPCP Station occurred when winds were blowing from the west-southwest for which the agricultural lands were upwind. On the same day, the MOECC Oshawa Station measured 20.2 µg/m³, which is similar to the Courtice WPCP measurement and suggests both stations were largely influenced by regional sources. The maximum measured concentration at the Rundle Road Station occurred when winds were from the west-northwest for which local roads and Highway 418 construction activities were upwind. The maximum measured 24-hour $PM_{2.5}$ concentration at the MOECC Oshawa station during this day was 13.8 µg/m³, which was well below the 41.8 µg/m³ level measured at the Rundle Road Station. This suggests that the Rundle Road measurement was influenced by local emission sources.

The maximum measured 24-hour average $PM_{2.5}$ concentration at the MOECC Oshawa Station during Q4 was 21.8 µg/m³, which is comparable to the Courtice WPCP Station measurement during this quarter.

Figure 4-6 Pollution Roses of Measured 24-Hour Average $PM_{2.5}$ Concentrations – October to December 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	34	8	0	97	9	0	47	11	0
Total Mercury (Hg)	µg/m³	2	2	1.36E-05	6.33E-06 A	0	1.99E-05	6.36E-06 A	0	2.00E-05	6.22E-06 A	0
Aluminum (Al)	µg/m³	4.8	-	1.71E-01	1.58E-02 A	0	7.86E-01	1.63E-02 A	0	2.28E-01	4.17E-02	0
Antimony (Sb)	µg/m³	25	25	3.54E-03 A	3.17E-03 A	0	3.57E-03 A	3.18E-03 A	0	3.53E-03 A	3.11E-03 A	0
Arsenic (As)	µg/m³	0.3	0.3	2.12E-03 A	1.90E-03 A	0	2.14E-03 A	1.91E-03 A	0	2.12E-03 A	1.87E-03 A	0
Barium (Ba)	µg/m³	10	10	3.39E-02	3.25E-03	0	2.30E-02	3.04E-03	0	2.29E-02	4.27E-03	0
Beryllium (Be)	µg/m³	0.01	0.01	3.54E-04 A	3.17E-04 A	0	3.57E-04 A	3.18E-04 A	0	3.53E-04 A	3.11E-04 A	0
Bismuth (Bi)	µg/m³	-	-	2.12E-03 A	1.90E-03 A	-	2.14E-03 A	1.91E-03 A	-	2.12E-03 A	1.87E-03 A	-
Boron (B)	µg/m³	120	-	2.12E-03 A	1.90E-03 A	0	2.14E-03 A	1.91E-03 A	0	2.12E-03 A	1.87E-03 A	0
Cadmium (Cd)	µg/m³	0.025	0.025	7.08E-04 A	6.33E-04 A	0	7.13E-04 A	6.36E-04 A	0	7.07E-04 A	6.22E-04 A	0
Chromium (Cr)	µg/m³	0.5	-	7.74E-03	1.58E-03 A	0	5.40E-03	1.59E-03 A	0	3.34E-03	1.56E-03 A	0
Cobalt (Co)	µg/m³	0.1	0.1	7.08E-04 A	6.33E-04 A	0	7.13E-04 A	6.36E-04 A	0	7.07E-04 A	6.22E-04 A	0
Copper (Cu)	µg/m³	50	-	5.31E-02	6.87E-03	0	1.16E-01	2.09E-02	0	6.55E-02	2.18E-02	0
Iron (Fe)	µg/m³	4	-	6.06E-01	1.05E-01	0	1.83E+00	9.00E-02	0	7.26E-01	1.13E-01	0
Lead (Pb)	µg/m³	0.5	0.5	6.13E-03	9.50E-04 A	0	7.25E-03	9.80E-04 A	0	7.12E-03	9.33E-04 A	0
Magnesium (Mg)	µg/m³	-	-	3.85E-01	5.07E-02	-	1.02E+00	5.29E-02	-	4.50E-01	6.97E-02	-
Manganese (Mn)	µg/m³	0.4	-	1.73E-02	3.55E-03	0	4.91E-02	3.24E-03	0	2.28E-02	3.81E-03	0
Molybdenum (Mo)	µg/m³	120	-	1.06E-03 A	9.50E-04 A	0	4.44E-03	9.90E-04 A	0	1.06E-03 A	9.33E-04 A	0
Nickel (Ni)	µg/m³	0.2	-	2.23E-03	9.50E-04 A	0	2.73E-03	9.54E-04 A	0	3.39E-03	9.33E-04 A	0
Phosphorus (P)	µg/m³	-	-	5.54E-02	8.42E-03 A	-	7.11E-02	8.51E-03 A	-	6.35E-02	7.87E-03 A	-
Selenium (Se)	µg/m³	10	10	3.54E-03 A	3.17E-03 A	0	3.57E-03 A	3.18E-03 A	0	3.53E-03 A	3.11E-03 A	0
Silver (Ag)	µg/m³	1	1	1.77E-03 A	1.58E-03 A	0	1.78E-03 A	1.59E-03 A	0	1.77E-03 A	1.56E-03 A	0
Strontium (Sr)	µg/m³	120	-	6.09E-03	1.20E-03	0	2.11E-02	9.26E-04	0	8.17E-03	1.38E-03	0
Thallium (Tl)	µg/m³	-	-	3.54E-03 A	3.17E-03 A	-	3.57E-03 A	3.18E-03 A	-	3.53E-03 A	3.11E-03 A	-
Tin (Sn)	µg/m³	10	10	3.54E-03 A	3.17E-03 A	0	3.57E-03 A	3.18E-03 A	0	3.53E-03 A	3.11E-03 A	0
Titanium (Ti)	µg/m³	120	-	9.34E-03	3.17E-03 A	0	3.08E-02	3.27E-03 A	0	1.49E-02	3.11E-03 A	0
Vanadium (V)	µg/m³	2	1	1.77E-03 A	1.58E-03 A	0	1.78E-03 A	1.59E-03 A	0	1.77E-03 A	1.56E-03 A	0
Zinc (Zn)	µg/m³	120	-	9.54E-02	7.85E-03	0	6.66E-02	6.02E-03	0	7.73E-02	1.18E-02	0
Zirconium (Zr)	µg/m³	20	-	1.77E-03 A	1.58E-03 A	0	1.78E-03 A	1.59E-03 A	0	1.77E-03 A	1.56E-03 A	0
Total Uranium (U)	µg/m³	1.5	-	1.59E-04 A	1.43E-04 A	0	1.60E-04 A	1.43E-04 A	0	1.59E-04 A	1.40E-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 below their applicable 24-hour criteria, with the exception of the benzo(a)pyrene (B(a)P) measurements collected at the Courtice WPCP Station and the Rundle Road Station on November 8, 2016.

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

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 Courtice WPCP and Rundle Road Stations on November 8, 2016 exceeded the Ontario AAQC by 107% and 250%, 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	0.104	0.006	1 0 0	0.175	0.006	1 0 0
1-Methylnaphthalene	ng/m³	12,000	-	8.08E+00	1.22E+00	0	1.43E+01	8.95E-01	0
2-Methylnaphthalene	ng/m³	10,000	-	1.24E+01	1.91E+00	0	2.73E+01	1.34E+00	0
Acenaphthene	ng/m³	-	-	3.52E+00	1.05E-01 [F]	-	1.52E+01	1.03E-01 [F]	-
Acenaphthylene	ng/m³	3,500	-	2.42E-01	6.84E-02 [F]	0	2.13E-01	6.77E-02 [F]	0
Anthracene	ng/m³	200	-	1.10E-01 [F]	6.84E-02 [F]	0	4.21E-01	6.77E-02 [F]	0
Benzo(a)anthracene	ng/m³	-	-	1.10E-01 [F]	6.84E-02 [F]	-	1.10E-01 [F]	6.77E-02 [F]	-
Benzo(a)fluorene	ng/m³	-	-	2.20E-01 [F]	1.37E-01 [F]	-	2.19E-01 [F]	1.35E-01 [F]	-
Benzo(b)fluoranthene	ng/m³	-	-	1.10E-01 [F]	6.84E-02 [F]	-	1.10E-01 [F]	6.77E-02 [F]	-
Benzo(b)fluorene	ng/m³	-	-	2.20E-01 [F]	1.37E-01 [F]	-	2.19E-01 [F]	1.35E-01 [F]	-
Benzo(e)pyrene	ng/m³	-	-	2.20E-01 [F]	1.37E-01 [F]	-	2.19E-01 [F]	1.35E-01 [F]	-
Benzo(g,h,i)perylene	ng/m³	-	-	1.10E-01 [F]	6.84E-02 [F]	-	1.10E-01 [F]	6.77E-02 [F]	-
Benzo(k)fluoranthene	ng/m³	-	-	1.10E-01 [F]	6.84E-02 [F]	-	1.10E-01 [F]	6.77E-02 [F]	-
Biphenyl	ng/m³	-	-	3.58E+00	5.58E-01	-	6.22E+00	5.03E-01	-
Chrysene	ng/m³	-	-	1.10E-01 [F]	6.84E-02 [F]	-	1.10E-01 [F]	6.77E-02 [F]	-
Dibenz(a,h)anthracene [D]	ng/m³	-	-	1.10E-01 [F]	6.84E-02 [F]	-	1.10E-01 [F]	6.77E-02 [F]	-
Dibenzo(a,c) anthracene + Picene [D]	ng/m³	-	-	2.13E-01 [F]	1.37E-01 [F]	-	2.10E-01 [F]	1.35E-01 [F]	-
Fluoranthene	ng/m³	-	-	8.16E-01	9.96E-02 [F]	-	2.55E+00	1.05E-01 [F]	-

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	-	-	1.10E-01 [F]	6.84E-02 [F]	-	1.10E-01 [F]	6.77E-02 [F]	-
Naphthalene	ng/m³	22,500	22,500	4.34E+01	6.83E+00	0	6.35E+01	5.48E+00	0
o-Terphenyl	ng/m³	-	-	2.20E-01 [F]	1.37E-01 [F]	-	2.19E-01 [F]	1.35E-01 [F]	-
Perylene	ng/m³	-	-	2.20E-01 [F]	1.37E-01 [F]	-	2.19E-01 [F]	1.35E-01 [F]	-
Phenanthrene	ng/m³	-	-	3.75E+00	7.17E-01	-	1.73E+01	6.71E-01	-
Pyrene	ng/m³	-	-	4.53E-01	9.86E-02 [F]	-	1.09E+00	1.05E-01 [F]	-
Tetralin	ng/m³	-	-	3.83E+00	6.31E-01	-	4.37E+00	6.99E-01	-
Total PAH [E]	ng/m³	-	-	8.09E+01	1.51E+01	-	1.29E+02	1.24E+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 analyzed PAH species.
F. Measured concentration was less than the laboratory method detection limit.

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

Date	Station	% above the MOECC B(a)P Criterion	Wind Direction (blowing from)	Potential Source Contributions
8-Nov-16	Courtice WPCP	107%	Northwest	Highway 401, local roads and the CN railroad are located northwest of the Courtice WPCP Station. Potential sources could be vehicle or locomotive exhaust emissions.
	Rundle Road	250%	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/soil movement 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			5.31E-03 A	4.25E-03 A		5.85E-03 A	3.97E-03 A	
1,2,3,7,8-Penta CDD	pg/m³			6.47E-03 A	3.29E-03 A		1.29E-02	4.10E-03 A	
1,2,3,4,7,8-Hexa CDD	pg/m³			5.39E-03 A	3.77E-03 A		5.06E-03 A	4.38E-03 A	
1,2,3,6,7,8-Hexa CDD	pg/m³			1.05E-02	4.25E-03 A		1.08E-02	4.52E-03 A	
1,2,3,7,8,9-Hexa CDD	pg/m³			1.89E-02	3.81E-03 A		1.87E-02	4.61E-03 A	
1,2,3,4,6,7,8-Hepta CDD	pg/m³			1.59E-01	1.38E-02		1.31E-01	2.08E-02	
Octa CDD	pg/m³			5.33E-01	3.80E-02		5.19E-01	1.38E-01	
Total Tetra CDD	pg/m³			1.65E-02 A	5.31E-03 A		1.51E-02 A	3.97E-03 A	
Total Penta CDD	pg/m³			1.30E-02 A	5.03E-03 A		1.29E-02	4.75E-03 A	
Total Hexa CDD	pg/m³			1.32E-01	9.67E-03		5.72E-02	1.39E-02 A	
Total Hepta CDD	pg/m³			3.58E-01	2.71E-02		2.98E-01	4.44E-02	
2,3,7,8-Tetra CDF **	pg/m³			1.94E-02	3.91E-03 A		6.72E-03 A	4.25E-03 A	
1,2,3,7,8-Penta CDF	pg/m³	-	-	5.39E-03 A	4.19E-03 A	N/A	6.70E-03 A	3.83E-03 A	N/A
2,3,4,7,8-Penta CDF	pg/m³			5.39E-03 A	4.33E-03 A		6.70E-03 A	3.97E-03 A	
1,2,3,4,7,8-Hexa CDF	pg/m³			1.97E-02	2.89E-03 A		1.34E-02	3.28E-03 A	
1,2,3,6,7,8-Hexa CDF	pg/m³			1.37E-02	2.76E-03 A		4.87E-03 A	3.28E-03 A	
2,3,4,6,7,8-Hexa CDF	pg/m³			5.79E-03 A	3.02E-03 A		5.40E-03 A	3.56E-03 A	
1,2,3,7,8,9-Hexa CDF	pg/m³			5.12E-03 A	3.16E-03 A		5.67E-03 A	3.83E-03 A	
1,2,3,4,6,7,8-Hepta CDF	pg/m³			4.09E-02	4.25E-03 A		3.97E-02	4.05E-03 A	
1,2,3,4,7,8,9-Hepta CDF	pg/m³			6.42E-03 A	4.54E-03 A		5.89E-03 A	3.95E-03 A	
Octa CDF	pg/m³			2.75E-02	4.25E-03 A		3.12E-02	8.33E-03 A	
Total Tetra CDF	pg/m³			7.70E-02	3.91E-03 A		2.87E-02	4.33E-03 A	
Total Penta CDF	pg/m³			5.50E-02	4.65E-03 A		2.11E-02	4.89E-03 A	
Total Hexa CDF	pg/m³			5.68E-02	2.89E-03 A		2.52E-02	3.42E-03 A	
Total Hepta CDF	pg/m³			4.09E-02	4.65E-03 A		5.45E-02	4.33E-03 A	
TOTAL TOXIC EQUIVALENCY B	pg TEQ/m³	0.1 1 C	-	0.02	0.01	0	0.03	0.01	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 October to December 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 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 Courtice and Rundle Road Stations which exceeded the applicable Ontario Ambient Air Quality Criteria (AAQC) by 107% and 250%, respectively. The current Ontario 24-hour B(a)P AAQC was introduced in 2011 and levels above this AAQC are commonly measured throughout Ontario. The measurements were however, well below the MOECC Schedule 6 Upper Risk Threshold, the MOECC O. Reg. 419/05 24-hour average guideline, and the HHRA health based criterion.
5. The maximum measured toxic equivalent dioxin and furan concentration was below the applicable Standard presented in **Table 2-4**

In summary, the measured concentrations of the air contaminants monitored were below their applicable MOECC Standards during the monitoring period between October to December 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

Canadian Council of Ministers of the Environment (CCME), (2007). Guidance Document on Achievement Determination. Canada-Wide Standards for Particulate Matter and Ozone. Revised (PN1391)(978-1-896997-74-2 PDF).

Canadian Council of Ministers of the Environment (CCME), (2012). Guidance Document on Achievement Determination. Canadian Ambient Air Quality Standards for Fine Particulate Matter and Ozone (PN 1483)(978-1-896997-91-9 PDF).

Environment Canada, Environment Protection Service, Environmental Technology Advancement Directorate, Pollution Measurement Division, Environmental Technology Centre. (Originally published in 1995). National Air Pollution Surveillance Network Quality Assurance and Quality Control Guidelines (AAQD 2004-1), (Originally published in December 1995 as PMD 95-8

Jacques Whitford, (2009). Final Environmental Assessment, December 4, 2009.

Ontario Minister of the Environment and Climate Change(MOECC), (2010). Environmental Assessment Act, Section 9. Notice of Approval to Proceed with the Undertaking. Re: The Amended Environmental Assessment for Durham and York Residual Waste Study (EA File No: 04-EA-02-08).

Ontario Ministry of the Environment and Climate Change (MOECC), (2012a). Standards Development Branch, Ontario's Ambient Air Quality Criteria, April 2012. (PIBs 6570e01).

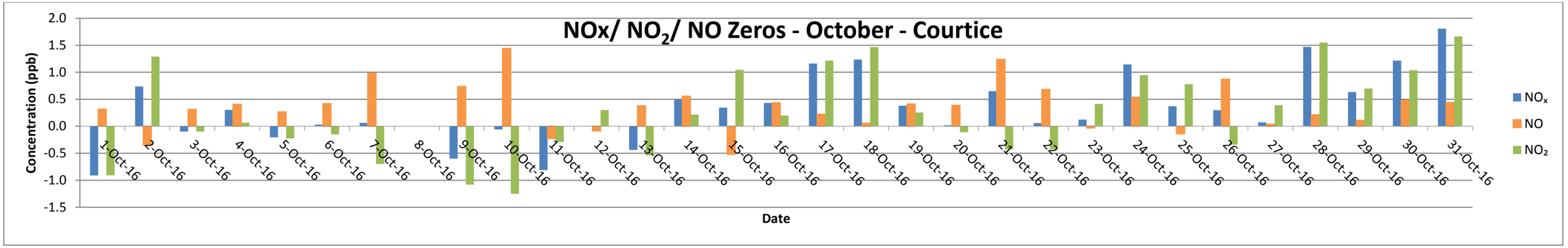
Ontario Ministry of the Environment and Climate Change (MOECC), (2012b). Standards Development Branch, Summary of Standards and Guidelines to support Ontario Regulation 419/05 – Air Pollution – Local Air Quality (including Schedule 6 of O. Reg 419/05 on Upper Risk Thresholds), April 2012 (PIBs 6569e01).

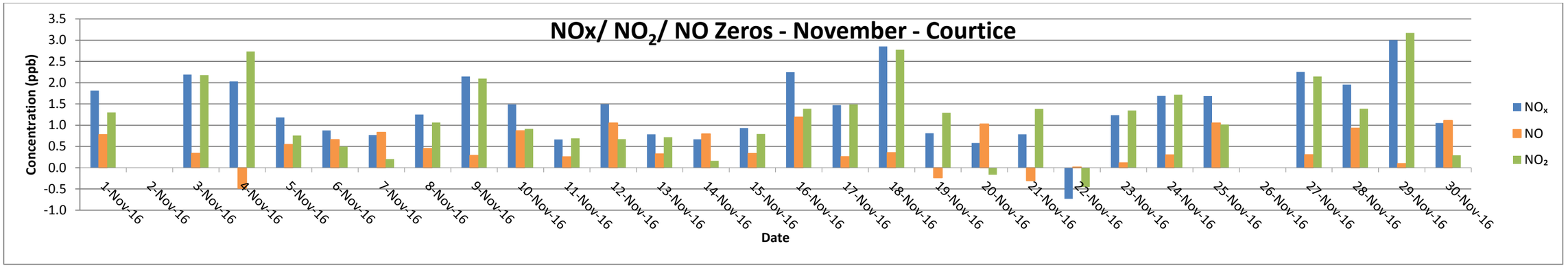
Stantec Consulting Limited, (2009). Final Environmental Assessment, Appendix C12: Site Specific Human Health and Ecological Risk Assessment Technical Study Report, December 4, 2009.

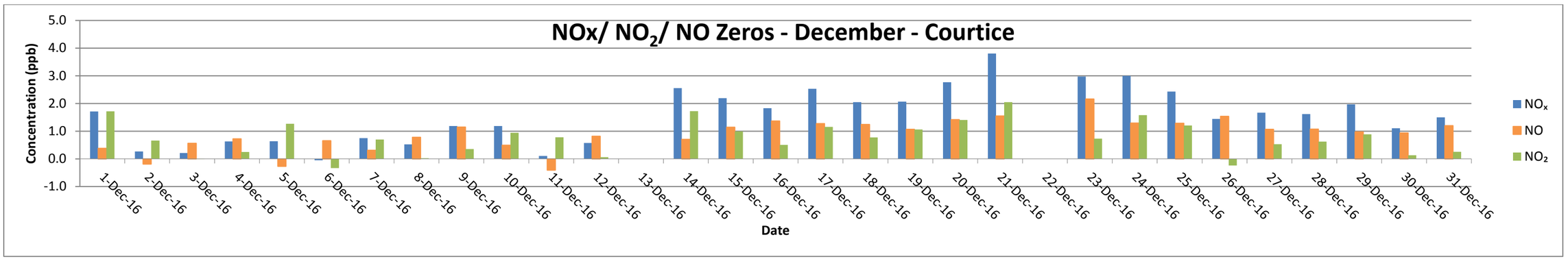
Stantec Consulting Limited, (2012). Ambient Air Quality Monitoring Plan – Durham York Residual Waste Study, May 8, 2012.

Appendix A SO_2 AND NO_X INSTRUMENT DAILY INTERNAL ZERO CALIBRATION SUMMARIES

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

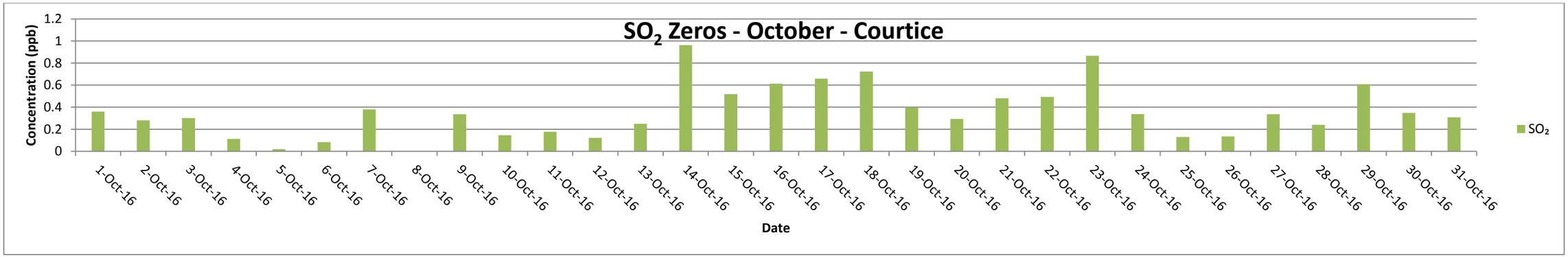


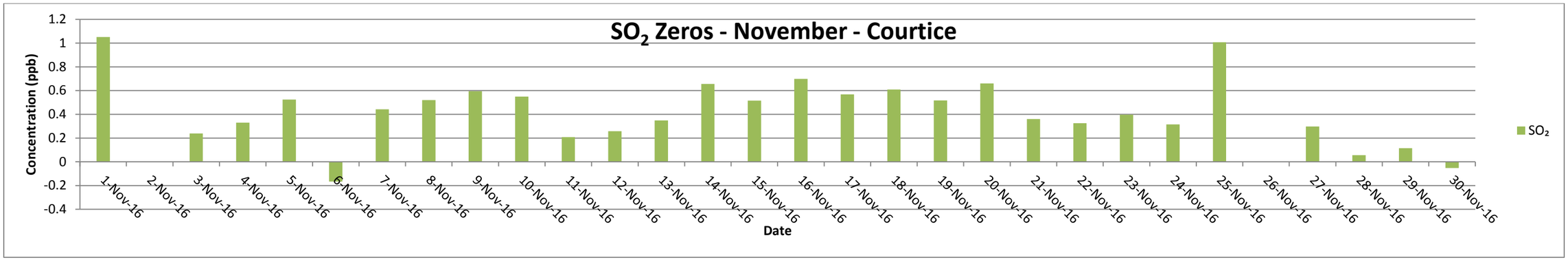


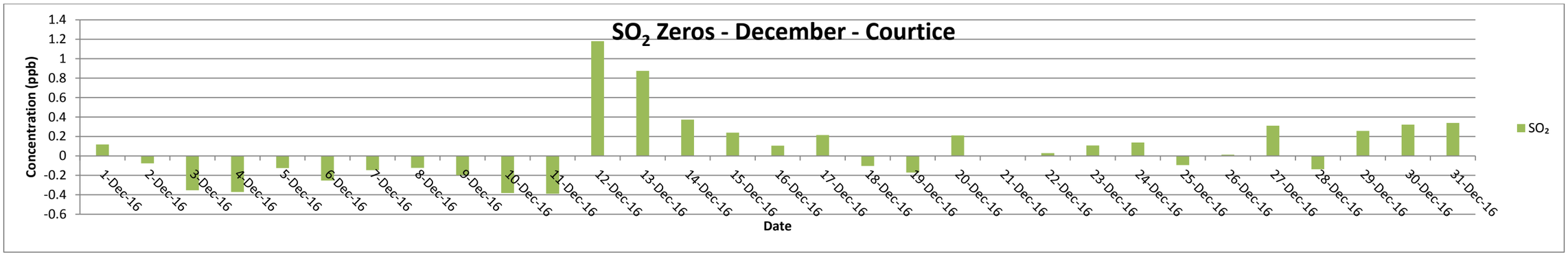


Notes:
-Auto-calibrations occur every 25 hours
-13-Dec-16 automatic zero check was skipped since the NOx monitor was removed for annual maintenance on 13-Dec-16 before the automatic internal zero calibration occurred. A spare monitor was installed on the same day – this monitor's first automatic internal zero calibration was on 14-Dec-16.

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

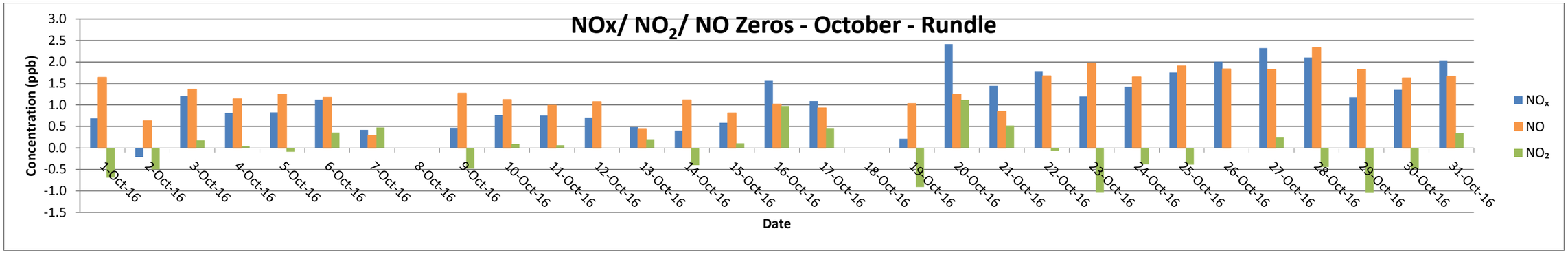


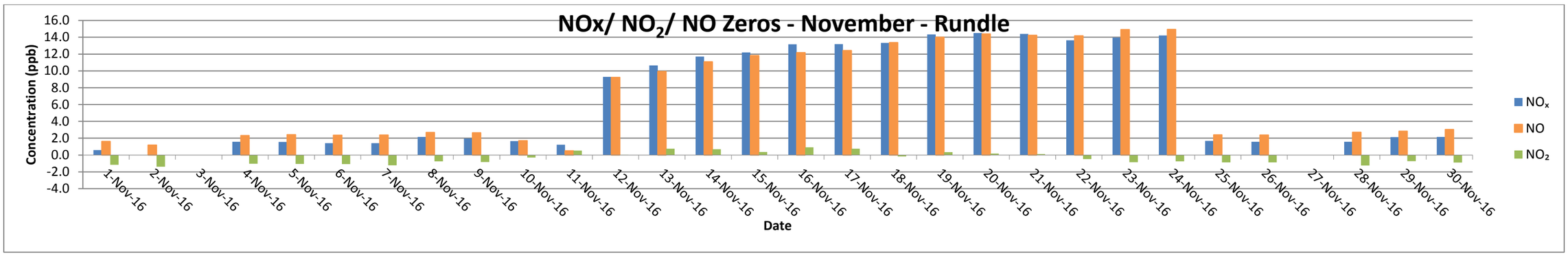


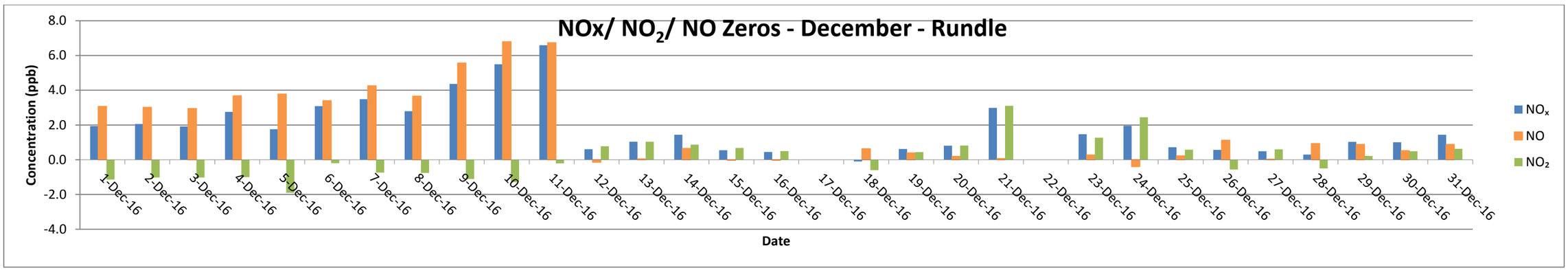


Note: Auto-calibrations occur every 25 hours.

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



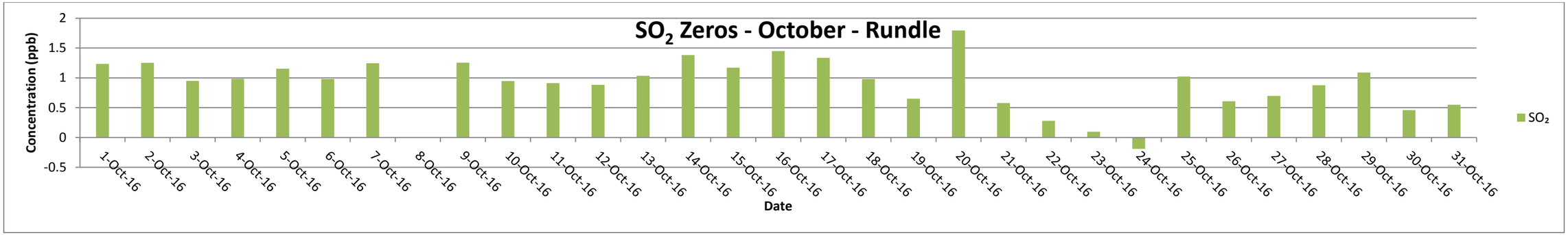


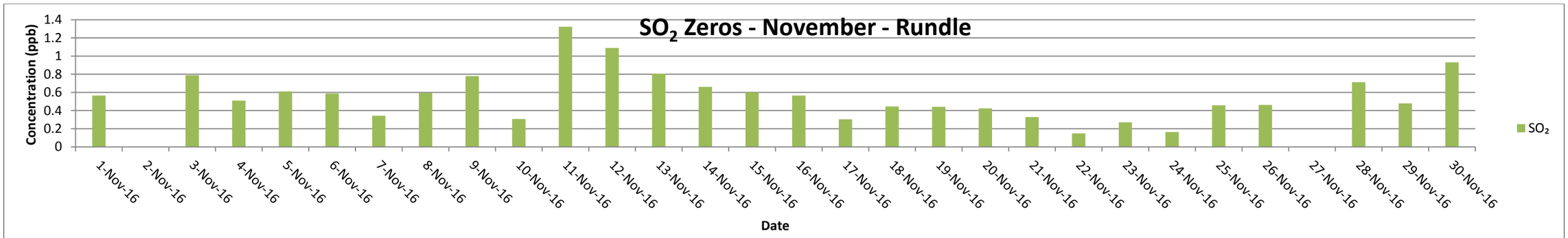


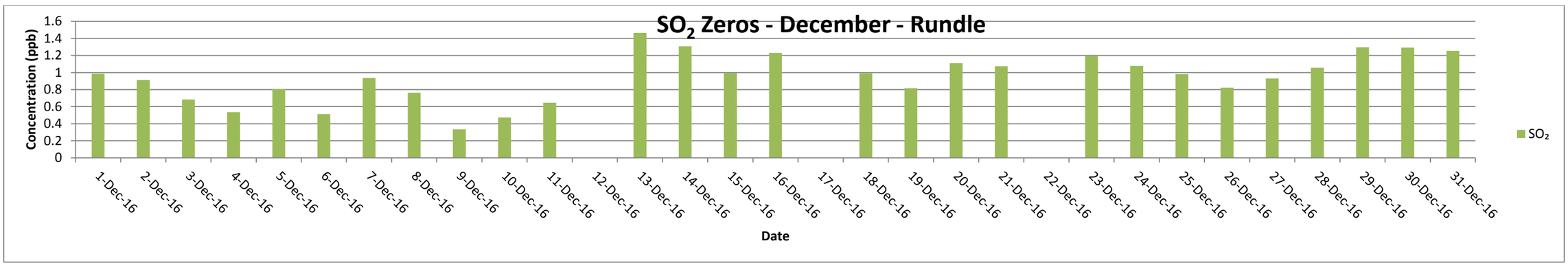
Notes:

- Auto-calibrations occur every 25 hours
- Automatic internal zero calibrations from 12-Nov-16 to 24-Nov-16 were greater than 5 ppb due to a blocked orifice in the unit's auto-cal system. Valley Environmental Services replaced the critical flow orifice on 25-Nov-16
- Automatic internal zero calibrations from 9-Dec-16 to 11-Dec-16 were greater than 5 ppb due to residual NO_2 in the unit's auto-cal system from the previous orifice blockage. The unit's auto-cal system was purged on 12-Dec-16.

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







Notes:

- Auto-calibrations occur every 25 hours
- Automatic internal zero calibration on 12-Dec-16 missed due to monthly calibration
- Automatic internal zero calibration on 17-Dec-16 missed due to a power outage

Appendix B SO_2 DATA SUMMARIES AND TIME HISTORY PLOTS

SO_2 - COURTICE

October 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>250	Days>100
1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.3	0.1	0.0	0.2	0.6	0.1	24	0.6	0.0	0.1	0	0
2	0.6	1.0	0.6	0.6	2.5	2.3	3.6	3.1	1.0	0.8	0.7	0.5	0.2	0.3	0.3	0.3	0.3	0.3	0.3	1.1	1.7	0.7	1.2	0.6	24	3.6	0.2	1.0	0	0
3	0.4	1.7	2.0	1.7	0.8	1.1	4.0	2.9	2.9	2.8	0.8	0.5	0.3	0.3	0.3	0.1	0.1	0.1	0.1	1.8	1.9	0.6	0.3	0.1	24	4.0	0.1	1.1	0	0
4	0.1	0.1	1.1	7.0	4.4	5.4	5.3	1.7	0.9	0.5	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.1	0.1	24	7.0	0.0	1.2	0	0
5	0.1	0.0	0.1	0.0	0.0	0.0	0.6	2.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.4	0.3	0.1	24	2.6	0.0	0.2	0	0
6	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.1	0.0	0.1	0.1	0.1	0.4	0.2	0.5	24	0.5	0.0	0.1	0	0
7	0.3	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.2	0.9	2.1	1.1	1.5	24	2.1	0.0	0.3	0	0
8	2.5	0.6	0.3	0.3	0.3	0.3	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	2.5	0.0	0.2	0	0
9	0.0	0.0	10.4	1.8	1.0	0.1	0.5	0.8	1.0	0.5	0.5	0.4	0.1	0.0	0.2	0.1	0.2	0.1	1.8	8.9	0.5	1.0	0.1	0.1	24	10.4	0.0	1.3	0	0
10	7.9	13.7	7.4	12.1	6.1	5.6	4.7	5.3	6.8	2.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.9	13.0	9.1	8.1	6.9	6.9	24	13.7	0.0	5.2	0	0
11	7.6	10.2	16.3	13.8	15.5	18.9	9.6	8.4	4.9	0.6	0.3	0.2	0.0	0.1	0.0	0.0	0.0	0.1	2.7	2.5	4.9	2.3	1.6	7.1	24	18.9	0.0	5.3	0	0
12	4.9	0.6	0.5	0.3	0.5	0.5	0.4	0.5	0.6	0.6	0.5	0.6	0.5	0.5	0.3	0.4	0.2	0.4	0.3	0.3	0.3	0.3	0.2	0.3	24	4.9	0.2	0.6	0	0
13	0.5	0.4	0.3	0.2	0.1	0.2	0.1	C	C	C	2.1	1.9	1.7	1.5	1.7	1.5	1.2	1.0	0.8	1.4	1.8	6.0	15.4	6.6	21	15.4	0.1	2.2	0	0
14	5.1	2.1	6.9	5.4	2.7	5.5	8.0	40.6	13.7	1.5	1.2	1.0	0.8	0.8	0.7	0.6	0.6	0.5	0.7	1.0	0.8	0.7	1.1	0.6	24	40.6	0.5	4.3	0	0
15	0.6	0.6	0.5	0.6	0.5	0.6	0.4	0.0	0.5	0.5	0.6	0.6	0.7	1.0	1.1	0.9	0.6	0.6	0.8	0.6	1.9	5.3	4.5	1.3	24	5.3	0.0	1.0	0	0
16	1.0	0.8	0.7	0.7	0.6	0.8	0.7	0.6	0.9	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.6	0.6	4.5	22.7	13.9	24	22.7	0.5	2.3	0	0
17	10.6	6.7	3.8	3.3	1.5	1.2	1.2	1.7	2.2	1.3	0.9	0.8	0.8	0.7	0.6	0.6	1.3	1.1	0.9	2.6	1.1	0.8	0.7	0.7	24	10.6	0.6	2.0	0	0
18	0.8	0.8	0.9	0.8	0.8	0.7	0.6	0.7	0.6	0.6	0.9	0.8	0.8	0.8	0.7	0.7	0.8	0.7	0.6	0.6	0.6	0.5	0.4	0.3	24	0.9	0.3	0.7	0	0
19	0.4	0.4	1.1	0.4	0.4	0.9	0.9	1.5	0.6	0.5	0.5	0.6	0.6	0.6	0.7	0.8	0.6	0.3	4.4	4.5	16.6	17.3	21.1	12.2	24	21.1	0.3	3.7	0	0
20	15.2	13.0	6.4	4.5	3.3	2.2	1.8	1.1	0.8	0.6	1.3	4.2	1.7	1.0	0.8	2.2	5.6	7.1	6.7	4.3	6.0	6.4	5.1	4.5	24	15.2	0.6	4.4	0	0
21	5.0	1.8	1.8	4.5	5.9	5.5	4.5	2.5	1.4	1.1	1.3	2.1	1.2	1.0	0.7	0.6	0.5	0.5	0.5	0.3	0.3	0.3	0.7	0.7	24	5.9	0.3	1.9	0	0
22	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.5	0.8	1.2	0.5	0.3	0.4	0.5	24	1.2	0.3	0.4	0	0
23	0.6	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	24	0.6	0.3	0.4	0	0
24	0.4	2.2	2.1	1.2	1.6	0.6	0.6	0.6	0.7	0.9	0.6	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	24	2.2	0.1	0.6	0	0
25	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.8	0.5	0.3	0.3	0.3	0.4	0.4	0.4	0.2	0.7	1.6	1.0	2.2	9.5	5.5	10.1	8.9	24	10.1	0.1	1.8	0	0
26	9.4	16.3	17.9	4.7	13.0	5.6	5.0	11.5	5.4	2.1	1.7	0.8	0.1	0.7	0.8	0.9	0.1	0.1	0.4	0.9	0.2	0.3	0.3	0.3	24	17.9	0.1	4.1	0	0
27	0.2	0.1	1.1	4.7	0.4	4.3	0.6	1.9	1.8	0.5	0.3	0.3	0.5	0.4	1.0	3.3	3.3	2.8	3.1	1.2	0.5	0.3	0.3	0.3	24	4.7	0.1	1.4	0	0
28	0.3	0.3	0.3	0.1	0.1	0.2	0.1	0.1	0.7	0.8	1.2	1.8	2.1	2.6	1.7	1.6	1.6	1.3	1.2	1.2	0.9	0.6	0.5	0.6	24	2.6	0.1	0.9	0	0
29	0.6	0.5	0.4	0.5	0.5	0.7	1.1	1.2	1.3	1.0	0.8	0.8	0.8	0.8	0.6	0.6	0.6	0.4	0.4	0.3	0.3	0.6	0.3	0.3	24	1.3	0.3	0.6	0	0
30	1.5	0.5	0.4	0.4	5.9	3.3	1.5	0.6	0.4	0.3	0.3	0.4	0.7	0.4	0.4	0.4	0.5	0.5	1.0	1.0	0.7	0.3	0.4	3.9	24	5.9	0.3	1.1	0	0
31	8.9	8.8	10.8	3.1	1.4	1.2	0.6	0.6	0.4	0.4	1.0	1.0	0.6	0.6	0.8	0.1	0.2	22.6	15.7	8.7	1.2	1.0	1.1	0.7	24	22.6	0.1	3.8	0	0
Count	31	31	31	31	31	31	31	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	741					
Maximum	15.2	16.3	17.9	13.8	15.5	18.9	9.6	40.6	13.7	2.8	2.1	4.2	2.1	2.6	1.7	3.3	5.6	22.6	15.7	13.0	16.6	17.3	22.7	13.9	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	2.8	2.7	3.1	2.4	2.3	2.2	1.9	3.1	1.7	0.8	0.7	0.7	0.5	0.5	0.5	0.6	0.7	1.4	1.8	2.0	2.0	2.2	3.2	2.4						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.1	0.1	0.3	0.4	0.6	0.7	1.0	1.8	5.1	8.8	16.5	40.6

Maximum Hourly	40.6
Maximum Daily	5.3
Monthly Average	1.7

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

SO_2 - COURTICE

November 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>250	Days>100
1	0.4	1.0	2.4	1.0	0.5	0.5	0.5	0.3	0.4	0.5	0.4	0.4	0.5	0.4	0.6	1.0	0.6	1.1	5.3	8.0	8.6	9.4	10.4	5.9	24	10.4	0.3	2.5	0	0
2	20.8	6.9	13.9	8.9	12.7	10.9	5.7	2.7	2.0	2.4	2.1	1.4	0.9	0.8	0.6	0.8	0.8	0.9	0.7	0.7	1.3	1.6	1.1	6.7	24	20.8	0.6	4.5	0	0
3	4.4	5.6	4.2	3.8	3.8	2.5	2.6	2.4	1.1	0.9	0.8	1.6	1.5	0.8	0.7	1.0	0.9	1.5	1.3	1.8	1.8	0.7	0.5	0.5	24	5.6	0.5	1.9	0	0
4	2.0	0.7	0.9	0.7	0.5	0.7	3.4	1.2	0.9	0.6	0.4	0.7	0.7	0.8	0.6	0.4	0.6	0.5	3.7	0.6	0.4	0.5	0.9	0.4	24	3.7	0.4	0.9	0	0
5	0.3	0.9	0.8	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.6	0.5	0.3	0.5	0.5	0.3	0.4	0.3	0.5	0.3	0.3	0.3	0.3	0.3	24	0.9	0.3	0.4	0	0
6	0.3	0.4	0.3	1.1	5.6	11.3	5.8	5.8	3.2	3.1	1.1	1.4	1.3	0.8	0.9	0.7	0.4	1.0	20.5	6.7	6.7	4.3	8.1	7.3	24	20.5	0.3	4.1	0	0
7	7.3	6.0	10.2	6.5	6.4	13.3	3.3	3.7	4.5	1.7	1.0	0.9	0.8	0.7	0.5	0.5	0.5	1.8	3.2	14.4	13.1	7.1	6.1	7.7	24	14.4	0.5	5.1	0	0
8	5.0	5.2	9.4	6.6	4.3	11.3	6.3	6.4	7.6	5.5	1.9	1.4	1.4	1.5	1.7	2.0	1.3	0.9	0.8	0.8	0.8	0.8	0.7	0.8	24	11.3	0.7	3.5	0	0
9	0.6	0.6	0.6	0.5	1.0	0.7	0.8	0.9	0.8	0.7	0.8	0.5	0.5	0.6	0.4	0.3	0.3	0.3	0.2	1.6	1.1	5.2	19.3	14.4	24	19.3	0.2	2.2	0	0
10	3.7	11.5	15.7	4.4	1.3	1.2	1.2	1.5	1.6	1.2	1.2	1.2	1.4	1.3	1.2	0.8	0.8	0.8	0.9	0.8	0.9	0.8	0.8	0.8	24	15.7	0.8	2.4	0	0
11	0.7	0.7	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.6	0.9	1.2	1.0	0.6	1.4	0.4	0.3	0.2	1.9	2.0	4.7	0.3	6.3	25.7	24	25.7	0.2	2.2	0	0
12	11.6	12.0	26.8	4.5	6.9	3.3	1.4	11.9	1.2	1.0	0.5	0.3	0.6	0.8	0.6	0.5	0.6	0.4	0.5	0.8	0.6	0.8	0.7	0.7	24	26.8	0.3	3.7	0	0
13	0.8	0.8	0.8	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1.1	0.8	0.8	0.8	0.8	0.6	0.7	1.1	0.8	0.6	0.7	1.1	24	1.1	0.6	0.8	0	0
14	0.9	0.8	0.6	0.6	0.6	0.6	0.7	1.1	0.8	1.1	1.1	1.9	1.9	2.2	1.7	1.9	1.1	10.7	2.8	1.1	1.0	2.4	28.1	16.6	24	28.1	0.6	3.4	0	0
15	14.8	23.9	7.3	10.8	5.8	9.6	9.6	6.9	4.2	2.7	4.0	1.4	1.2	1.1	1.1	1.1	2.0	11.2	7.0	12.2	6.3	4.7	5.4	7.8	24	23.9	1.1	6.8	0	0
16	9.5	8.7	4.6	9.2	7.0	4.7	15.4	13.1	3.4	3.3	2.6	2.5	2.4	1.7	1.1	1.2	0.9	0.9	0.8	0.6	0.6	0.6	0.6	1.7	24	15.4	0.6	4.0	0	0
17	2.3	0.7	5.2	11.1	13.2	3.1	6.7	3.4	1.9	1.4	1.1	1.1	1.1	1.1	1.1	1.0	0.9	0.8	0.8	0.8	0.6	0.6	0.6	0.6	24	13.2	0.6	2.5	0	0
18	0.6	0.6	5.9	1.6	2.0	0.8	0.9	2.7	2.3	1.1	0.9	1.0	0.9	0.8	0.9	0.9	0.9	1.2	1.0	1.0	1.7	3.3	4.4	3.7	24	5.9	0.6	1.7	0	0
19	1.8	1.5	1.0	1.0	1.5	2.8	2.5	1.1	1.1	1.0	0.9	0.6	0.7	0.7	0.6	0.6	0.6	0.9	0.9	0.6	0.6	0.5	0.5	0.5	24	2.8	0.5	1.0	0	0
20	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.6	0.6	1.0	1.3	1.1	1.2	1.2	1.1	1.2	0.9	1.0	0.6	0.8	24	1.3	0.4	0.8	0	0
21	1.2	1.4	0.9	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.0	0.4	0.3	0.4	24	1.4	0.0	0.5	0	0
22	0.3	0.5	0.5	0.3	0.5	0.7	1.0	0.8	0.9	0.9	1.7	1.2	1.4	0.9	0.4	0.3	0.2	0.3	0.2	0.3	0.2	8.6	7.5	5.3	24	8.6	0.2	1.5	0	0
23	15.6	18.9	17.4	4.6	6.5	9.5	7.8	8.5	1.2	1.3	4.6	3.5	0.6	0.6	0.6	1.5	0.7	0.7	1.8	1.3	1.2	0.7	0.5	0.5	24	18.9	0.5	4.6	0	0
24	1.7	3.7	2.8	1.3	3.0	11.3	6.8	1.0	2.0	1.7	2.1	0.9	0.9	0.6	0.6	0.6	1.5	3.9	5.4	4.3	7.3	4.9	4.6	4.5	24	11.3	0.6	3.2	0	0
25	10.7	8.8	1.1	1.0	0.7	1.2	1.1	2.9	C	C	C	C	3.0	1.7	1.5	1.6	1.9	1.3	1.3	1.1	1.0	1.0	0.9	0.9	20	10.7	0.7	2.2	0	0
26	1.0	0.9	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	24	1.0	0.1	0.5	0	0
27	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.6	0.7	0.1	0.1	0.1	0.1	0.0	0.5	4.5	1.8	4.7	8.4	5.0	8.7	3.3	0.6	24	8.7	0.0	1.7	0	0
28	0.3	0.2	0.3	0.1	1.3	1.1	0.6	1.2	0.9	0.5	0.6	0.5	0.2	0.3	0.2	0.2	0.3	0.1	1.5	9.6	1.0	2.7	7.9	1.9	24	9.6	0.1	1.4	0	0
29	0.9	1.6	0.9	0.0	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.6	0.1	0.2	0.1	0.5	11.4	9.3	15.7	24	15.7	0.0	1.9	0	0
30	13.9	9.2	2.7	0.9	0.7	0.9	1.1	1.1	0.6	0.4	0.6	0.9	0.5	0.9	1.3	0.5	0.4	0.3	0.4	0.4	0.6	0.4	0.3	0.1	24	13.9	0.1	1.6	0	0
31																													0	0
Count	30	30	30	30	30	30	30	30	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	716					
Maximum	20.8	23.9	26.8	11.1	13.2	13.3	15.4	13.1	7.6	5.5	4.6	3.5	3.0	2.2	1.7	2.0	4.5	11.2	20.5	14.4	13.1	11.4	28.1	25.7	24					
Minimum	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.3	0.3	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.0	0.1	0.1	0.1	20					
Average	4.5	4.5	4.6	2.8	3.0	3.5	3.0	2.8	1.6	1.3	1.2	1.0	1.0	0.8	0.8	0.8	0.9	1.6	2.4	2.8	2.3	2.8	4.4	4.5						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.3	0.5	0.6	0.7	0.9	1.1	1.6	3.4	7.1	10.8	18.7	28.1

Maximum Hourly	28.1
Maximum Daily	6.8
Monthly Average	2.4

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

SO_2 - COURTICE

December 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>250	Days>100
1	0.2	0.1	0.1	0.2	0.1	0.3	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	0.2	0.1	0.2	0.2	24	0.3	0.0	0.1	0	0
2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.1	0.0	0.0	0	0
3	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.3	0.5	0.2	0.4	0.4	0.5	0.1	0.1	0.0	0.0	2.2	3.6	8.9	24	8.9	0.0	0.7	0	0
4	3.6	10.8	5.7	9.3	7.8	14.7	11.0	9.7	5.6	0.7	5.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	1.6	24	14.7	0.0	3.6	0	0
5	2.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	24	2.3	0.0	0.1	0	0
6	0.3	11.9	8.9	24.4	4.5	1.8	2.3	0.4	0.1	0.7	0.8	2.0	0.3	0.7	1.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	24	24.4	0.0	2.5	0	0
7	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	24	0.2	0.0	0.0	0	0
8	0.0	0.0	0.1	0.0	0.1	0.2	0.3	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	0.0	0.2	24	0.3	0.0	0.0	0	0
9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.6	1.0	0.6	0.0	1.0	0.6	0.0	1.1	0.5	1.2	24	1.2	0.0	0.3	0	0
10	0.6	0.0	6.6	13.1	17.4	15.2	19.5	2.4	21.3	2.8	0.1	0.0	0.0	0.0	0.0	0.0	24.5	27.9	0.5	0.0	0.0	0.0	0.0	0.0	24	27.9	0.0	6.3	0	0
11	0.0	5.4	4.0	0.7	4.4	20.8	39.3	39.7	21.0	8.5	9.8	4.8	0.4	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	24	39.7	0.0	6.6	0	0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.2	C	C	C	1.4	1.6	1.5	1.4	1.2	1.1	0.9	1.1	1.0	1.1	0.9	0.8	0.8	0.8	21	1.6	0.0	0.8	0	0
13	0.8	0.8	0.7	0.8	0.8	0.9	0.9	0.7	0.8	1.1	A	1.0	1.1	0.7	0.6	0.8	0.9	1.1	1.0	1.0	0.7	0.7	0.6	0.6	23	1.1	0.6	0.8	0	0
14	0.8	1.0	0.9	0.5	0.5	0.5	0.4	0.6	0.5	0.5	0.6	0.9	0.6	0.6	0.6	0.6	0.6	0.5	0.8	0.8	0.6	0.6	0.7	0.3	24	1.0	0.3	0.6	0	0
15	0.5	0.7	0.4	0.5	0.4	0.3	0.3	0.2	0.2	0.5	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.7	0.1	0.1	0.1	0.2	3.1	5.7	24	5.7	0.1	0.7	0	0
16	6.6	3.2	3.4	4.0	3.2	3.1	2.5	2.6	1.3	1.6	6.8	0.9	0.6	0.3	0.3	0.4	0.5	0.3	0.3	0.7	0.5	0.3	0.3	0.2	24	6.8	0.2	1.8	0	0
17	0.3	0.8	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.5	0.7	0.7	3.4	5.1	6.7	5.3	3.5	5.9	24	6.7	0.3	1.6	0	0
18	1.0	0.7	0.6	0.6	0.6	0.6	0.5	0.4	0.3	0.2	0.4	0.8	1.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	3.9	3.2	3.9	3.1	24	3.9	0.0	0.9	0	0
19	0.8	0.0	0.2	0.4	0.7	1.2	2.9	3.3	1.7	1.0	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.5	0.5	0.4	0.3	0.5	0.5	0.6	24	3.3	0.0	0.7	0	0
20	0.2	0.5	0.6	0.7	0.4	0.7	0.8	0.4	0.8	0.9	0.6	0.3	0.3	0.3	0.3	0.4	0.4	0.8	0.8	0.8	1.1	0.9	0.9	1.0	24	1.1	0.2	0.6	0	0
21	1.1	1.1	1.2	1.3	1.2	1.1	0.9	0.9	0.8	0.7	0.7	0.8	0.9	0.8	0.6	0.6	0.6	0.9	0.6	0.9	0.7	0.9	1.3	4.2	24	4.2	0.6	1.0	0	0
22	2.7	1.4	0.9	0.5	1.2	1.2	1.8	2.1	1.9	1.6	1.4	1.1	0.9	0.8	0.6	0.6	0.4	0.3	0.4	0.6	0.6	0.7	0.3	0.1	24	2.7	0.1	1.0	0	0
23	0.3	0.3	0.5	0.4	0.4	0.5	0.5	0.8	0.9	1.2	1.1	1.4	0.5	0.5	0.5	0.3	0.7	0.8	0.9	0.6	0.5	0.6	1.3	0.4	24	1.4	0.3	0.7	0	0
24	0.3	0.3	0.4	0.4	0.6	0.6	0.5	0.6	0.5	0.4	0.5	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	24	0.6	0.1	0.3	0	0
25	0.1	0.0	0.0	0.1	0.1	0.4	1.3	2.0	1.9	1.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	24	2.0	0.0	0.3	0	0
26	0.0	0.0	0.0	0.0	0.2	1.4	3.6	2.8	5.9	0.5	0.3	0.3	0.3	0.3	0.3	0.4	1.1	0.4	0.4	0.4	0.3	0.4	0.3	0.4	24	5.9	0.0	0.8	0	0
27	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	24	0.4	0.1	0.1	0	0
28	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.6	0.3	0.3	0.1	0.1	24	0.6	0.0	0.1	0	0
29	0.1	0.2	0.3	0.3	0.3	0.3	0.5	0.4	0.4	0.4	0.7	0.7	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	24	0.7	0.1	0.4	0	0
30	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.7	0.6	0.9	0.8	0.7	0.5	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1	24	0.9	0.1	0.3	0	0
31	0.1	0.2	0.2	0.3	0.5	0.5	0.3	0.3	0.3	0.3	0.6	0.6	0.5	0.6	0.6	0.6	0.7	0.6	0.4	0.3	0.3	0.5	0.3	0.2	24	0.7	0.1	0.4	0	0
Count	31	31	31	31	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	740					
Maximum	6.6	11.9	8.9	24.4	17.4	20.8	39.3	39.7	21.3	8.5	9.8	4.8	1.5	1.4	1.2	1.1	24.5	27.9	3.4	5.1	6.7	5.3	3.9	8.9	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	0.8	1.3	1.2	1.9	1.5	2.2	2.9	2.4	2.2	0.9	1.1	0.7	0.4	0.3	0.3	0.3	1.1	1.2	0.4	0.5	0.6	0.7	0.7	1.2						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.0	0.0	0.1	0.2	0.3	0.4	0.6	0.9	1.7	4.5	20.3	39.7

Maximum Hourly	39.7
Maximum Daily	6.6
Monthly Average	1.1

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

SO_2 - Rundle Road
October 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>250	Days>100
1	0.9	0.7	1.1	1.8	2.6	3.1	1.7	0.8	0.7	0.5	0.6	0.4	0.5	0.4	0.3	0.4	0.4	0.4	0.5	0.4	0.3	0.4	0.3	0.2	24	3.1	0.2	0.8	0	0
2	0.1	0.2	0.3	0.3	0.3	0.4	0.2	0.4	0.4	0.2	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.5	24	0.5	0.1	0.4	0	0
3	0.2	0.4	0.5	0.3	0.4	0.4	0.4	0.3	0.4	0.2	0.2	0.4	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.3	24	0.5	0.2	0.3	0	0
4	0.2	0.4	0.3	0.3	0.1	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.5	0.4	0.3	24	0.5	0.1	0.3	0	0
5	0.4	0.4	0.3	0.2	0.4	0.3	0.2	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	24	0.5	0.2	0.4	0	0
6	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.9	1.5	1.5	1.0	0.7	0.5	0.4	0.2	0.3	0.4	0.5	0.6	24	1.5	0.2	0.6	0	0
7	0.4	0.4	0.4	0.4	0.4	0.2	0.1	0.4	0.5	0.5	0.5	0.4	0.5	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	24	0.6	0.1	0.5	0	0
8	0.8	0.8	0.7	0.7	0.7	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.5	0.4	24	0.8	0.3	0.5	0	0
9	0.4	0.4	0.3	0.3	0.2	0.3	0.5	0.6	0.9	0.8	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	24	0.9	0.1	0.3	0	0
10	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	24	0.3	0.0	0.2	0	0
11	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	7.1	1.7	1.1	0.5	0.4	0.2	0.3	0.2	0.3	0.3	0.2	24	7.1	0.2	0.6	0	0
12	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.8	1.0	0.9	0.9	1.1	2.0	1.2	0.8	0.7	0.6	0.7	0.7	0.7	0.7	24	2.0	0.3	0.7	0	0
13	0.8	0.8	0.7	0.5	0.5	0.6	0.5	0.5	0.5	C	C	C	1.6	1.6	1.7	1.6	1.4	1.3	1.1	1.0	1.0	1.0	0.9	0.8	21	1.7	0.5	1.0	0	0
14	0.8	0.7	0.8	0.8	0.7	0.7	0.2	0.7	0.9	0.8	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.9	0.8	0.8	1.1	0.8	24	1.1	0.2	0.7	0	0
15	0.7	0.6	0.6	0.5	0.6	0.5	0.5	0.7	0.7	0.6	0.7	0.7	0.8	1.1	1.2	1.3	1.4	0.9	0.9	0.8	0.7	0.7	0.8	0.7	24	1.4	0.5	0.8	0	0
16	0.8	0.8	0.8	0.7	0.7	0.9	0.8	0.9	0.9	0.8	0.9	0.8	0.9	0.8	0.8	0.8	0.9	0.7	0.7	0.8	0.8	0.8	0.7	0.7	24	0.9	0.7	0.8	0	0
17	0.8	0.7	0.8	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.8	0.7	0.7	0.7	0.9	1.4	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8	24	1.4	0.7	0.8	0	0
18	0.7	0.9	0.8	0.8	0.9	0.7	0.5	0.5	0.6	0.6	0.6	0.4	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.2	0.2	0.3	0.2	0.2	24	0.9	0.2	0.5	0	0
19	0.2	0.1	0.1	0.2	0.2	0.3	0.4	0.7	0.5	0.1	0.1	0.3	0.3	0.3	0.3	0.4	0.3	0.1	0.0	0.1	0.1	0.1	0.1	0.2	24	0.7	0.0	0.2	0	0
20	0.2	0.3	0.1	0.0	0.1	0.1	0.1	C	C	C	C	C	1.0	0.7	0.6	0.5	0.5	0.4	0.4	0.2	0.3	0.2	0.1	0.1	19	1.0	0.0	0.3	0	0
21	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
22	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
23	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
24	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
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.4	0.4	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	24	0.4	0.0	0.1	0	0
26	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	0.9	0.8	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	24	0.9	0.0	0.1	0	0
27	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.3	0.0	0.0	0	0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.3	1.8	2.0	2.3	2.0	1.4	1.3	0.8	0.5	0.8	0.7	0.5	0.3	0.3	24	2.3	0.0	0.7	0	0
29	0.4	0.3	0.4	0.3	0.4	0.3	0.8	1.0	1.1	0.9	0.7	0.7	0.7	0.7	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.2	24	1.1	0.2	0.5	0	0
30	0.2	0.2	0.2	0.2	0.3	0.3	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	0.0	24	0.3	0.0	0.1	0	0
31	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
Count	31	31	31	31	31	31	31	30	30	29	29	29	31	31	31	31	31	31	31	31	31	31	31	31	736					
Maximum	0.9	0.9	1.1	1.8	2.6	3.1	1.7	1.0	1.1	0.9	1.3	1.8	2.0	7.1	2.0	2.0	1.4	1.3	1.1	1.0	1.0	1.0	1.1	0.8	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	19					
Average	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.8	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	7.1
													Maximum Daily	1.0
Data	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.7	0.8	1.0	1.8	7.1	Monthly Average	0.4

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
November 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>250	Days>100
1	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.4	0.5	0.9	0.3	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	24	0.9	0.0	0.2	0	0
2	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	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	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.9	1.1	0.3	0.3	0.5	0.3	0.9	1.1	1.2	1.4	0.2	0.0	0.0	24	1.4	0.0	0.4	0	0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.4	0.0	0.1	0	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	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
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.3	0.2	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
7	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.1	0.0	0.0	0	0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.6	0.6	1.1	0.9	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	24	1.1	0.0	0.2	0	0
9	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	0.0	0.0	0.0	0.0	0.0	0.0	24	0.1	0.0	0.0	0	0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.2	0.4	0.5	0.7	0.9	0.8	0.3	0.2	0.1	0.2	0.1	0.3	0.2	0.3	0.6	24	0.9	0.0	0.3	0	0
11	0.4	0.2	0.1	0.1	0.0	0.0	0.0	C	C	7.8	0.5	0.7	0.9	0.9	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.5	0.5	22	7.8	0.0	0.8	0	0
12	0.7	0.3	0.2	0.3	0.3	0.3	0.1	0.2	0.3	0.6	0.3	0.4	0.4	0.5	0.0	0.2	0.3	0.1	0.2	0.4	0.3	0.4	0.5	0.5	24	0.7	0.0	0.3	0	0
13	0.4	0.3	0.4	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.5	0.6	0.4	0.5	0.3	0.2	0.5	0.4	0.3	0.3	0.4	24	0.6	0.1	0.3	0	0
14	0.2	0.3	0.2	0.1	0.1	0.2	0.3	0.4	0.6	0.7	1.1	1.2	1.7	1.8	1.6	1.9	0.5	0.1	0.1	0.1	0.1	0.1	0.0	0.0	24	1.9	0.0	0.6	0	0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.3	0.4	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	24	0.4	0.0	0.1	0	0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	1.3	1.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	1.3	0.0	0.2	0	0
17	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
18	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.1	0.0	0.0	0	0
19	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.1	0.0	0.0	0	0
20	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	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.0	0.0	24	0.3	0.0	0.1	0	0
21	0.2	0.4	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	0.0	0.0	0.0	0.0	0.0	24	0.4	0.0	0.0	0	0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	0.7	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	1.0	0.0	0.1	0	0
23	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
24	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
25	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	24	0.1	0.0	0.0	0	0
26	0.1	0.0	0.1	0.0	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	0.0	24	0.1	0.0	0.0	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	0.0	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
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.1	24	0.4	0.0	0.1	0	0
29	0.1	0.2	1.6	0.9	0.3	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.1	24	1.6	0.0	0.2	0	0
30	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.3	24	0.3	0.0	0.1	0	0
31																													0	0
Count	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	718					
Maximum	0.7	0.4	1.6	0.9	0.3	0.3	0.3	0.4	0.6	7.8	1.1	1.3	1.7	1.8	1.6	1.9	0.8	0.9	1.1	1.2	1.4	0.6	0.5	0.6	24					
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22					
Average	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.4	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.6	1.3	7.8

Maximum Hourly	7.8
Maximum Daily	0.8
Monthly Average	0.1

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

SO_2 - Rundle Road

December 2016

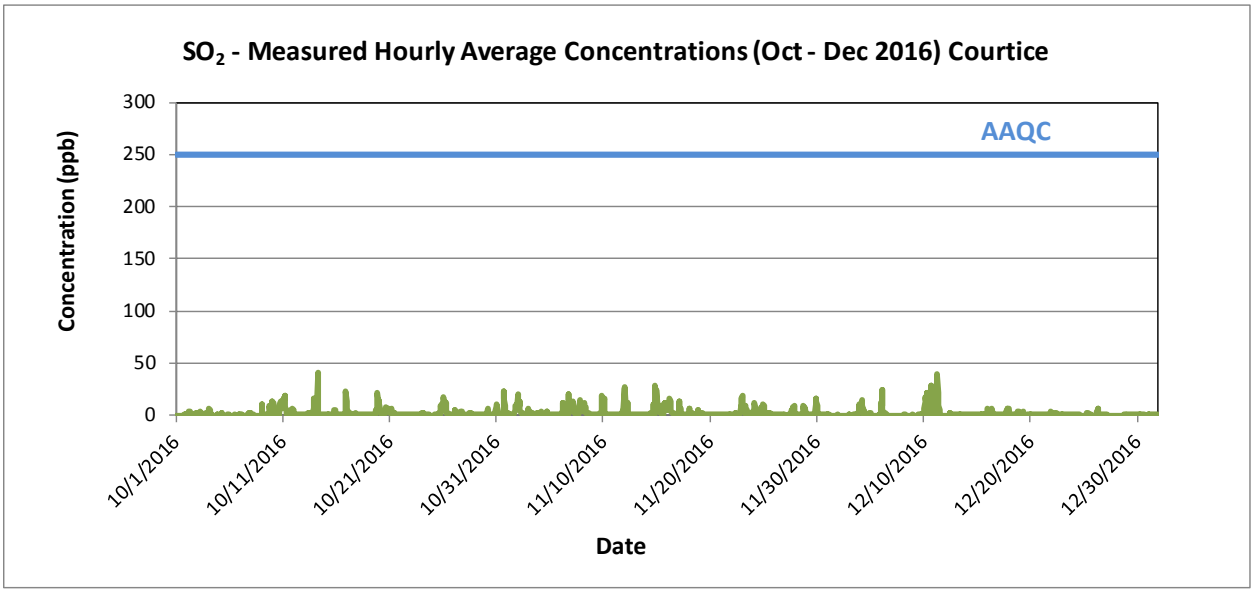
(ppb)

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>250	Days>100
1	0.3	1.1	0.3	0.3	0.0	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.2	0.4	0.2	0.3	0.3	0.3	0.3	0.4	0.3	24	1.1	0.0	0.3	0	0
2	0.4	0.3	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.4	0.0	0.1	0	0
3	0.1	0.3	0.4	0.3	0.1	0.1	0.2	0.3	0.5	0.4	0.4	0.9	0.6	0.6	0.8	0.9	0.8	0.4	0.4	0.2	0.1	0.0	0.0	0.0	24	0.9	0.0	0.4	0	0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.4	1.4	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	24	1.4	0.0	0.2	0	0
5	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.4	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.1	0.0	24	0.4	0.0	0.1	0	0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.8	2.0	0.4	0.2	24	2.0	0.0	0.2	0	0
7	0.1	0.2	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.0	0.1	0.1	0.2	0.3	24	0.3	0.0	0.1	0	0
8	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.3	24	0.4	0.0	0.1	0	0
9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.6	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.6	0.0	0.1	0	0
10	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
11	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	0.1	0.0	0.0	0.0	24	0.1	0.0	0.0	0	0
12	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.4	C	C	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	22	0.5	0.0	0.2	0	0
13	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	A	C	C	1.0	0.7	0.9	1.0	1.0	1.0	0.9	0.9	0.8	21	1.0	0.2	0.6	0	0
14	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.9	1.1	1.0	0.9	0.9	0.9	0.8	1.0	1.1	1.1	1.1	0.9	0.8	0.8	24	1.1	0.7	0.9	0	0
15	0.7	0.8	0.8	0.8	0.7	0.6	0.5	0.5	0.5	0.9	0.8	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.4	24	0.9	0.3	0.6	0	0
16	0.4	0.5	0.5	0.7	0.6	0.6	1.0	1.2	1.0	0.9	0.8	0.8	0.9	0.8	0.9	0.9	0.7	0.6	0.7	0.6	0.7	0.8	0.7	0.6	24	1.2	0.4	0.7	0	0
17	0.7	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	M	M	M	2.5	0.0	0.4	21	2.5	0.0	0.8	0	0
18	0.7	0.6	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	1.0	1.1	0.8	0.5	0.4	0.5	0.2	0.2	0.2	0.3	0.3	0.3	0.3	24	1.1	0.2	0.6	0	0
19	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.3	0.6	0.6	0.4	0.5	0.5	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.6	0.6	0.5	24	0.6	0.1	0.4	0	0
20	0.5	0.6	0.6	0.7	0.7	0.8	1.0	0.9	1.0	1.2	1.1	0.9	0.9	0.8	1.0	0.8	0.9	1.1	1.1	1.1	1.1	1.3	1.2	1.1	24	1.3	0.5	0.9	0	0
21	1.4	1.4	1.3	1.5	1.5	1.2	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.0	1.0	0.8	1.0	0.9	1.1	1.1	0.9	24	1.5	0.8	1.2	0	0
22	0.9	0.9	1.0	0.7	1.0	1.1	1.4	1.4	1.5	1.5	1.3	1.2	1.1	1.0	0.8	1.0	0.8	0.6	0.8	0.7	0.8	0.9	0.7	0.8	24	1.5	0.6	1.0	0	0
23	0.7	0.7	0.8	0.7	0.7	0.8	0.7	0.8	1.0	1.2	1.2	1.5	1.2	1.0	1.0	0.9	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.7	24	1.5	0.7	0.9	0	0
24	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.9	0.7	0.6	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.5	24	0.9	0.4	0.6	0	0
25	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.2	24	0.5	0.2	0.3	0	0
26	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	1.2	1.1	0.6	0.6	0.5	0.5	0.5	0.6	0.6	0.5	0.8	0.7	0.7	24	1.2	0.2	0.5	0	0
27	0.7	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	24	0.8	0.4	0.5	0	0
28	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	24	0.6	0.4	0.5	0	0
29	0.5	0.6	0.5	0.6	0.7	0.7	0.7	0.7	0.6	0.8	0.9	1.0	0.8	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.6	0.7	24	1.0	0.5	0.7	0	0
30	0.7	0.6	0.6	0.7	0.7	0.6	0.6	0.5	0.8	0.9	1.0	1.1	1.1	1.0	0.9	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	24	1.1	0.5	0.7	0	0
31	0.5	0.5	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.0	1.0	0.8	0.7	0.7	0.7	0.7	0.6	0.6	24	1.0	0.5	0.7	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	31	30	30	29	30	31	31	30	30	30	31	31	31	736					
Maximum	1.4	1.4	1.3	1.5	1.5	1.2	1.4	1.4	1.5	1.5	1.3	1.5	1.2	1.4	1.2	1.1	1.0	1.1	1.1	1.1	1.1	2.5	1.2	1.1	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	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.4	0.5	0.6	0.4	0.4						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	2.5
													Maximum Daily	1.2
Data	0.0	0.1	0.2	0.3	0.5	0.6	0.7	0.8	1.0	1.1	1.4	2.5	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



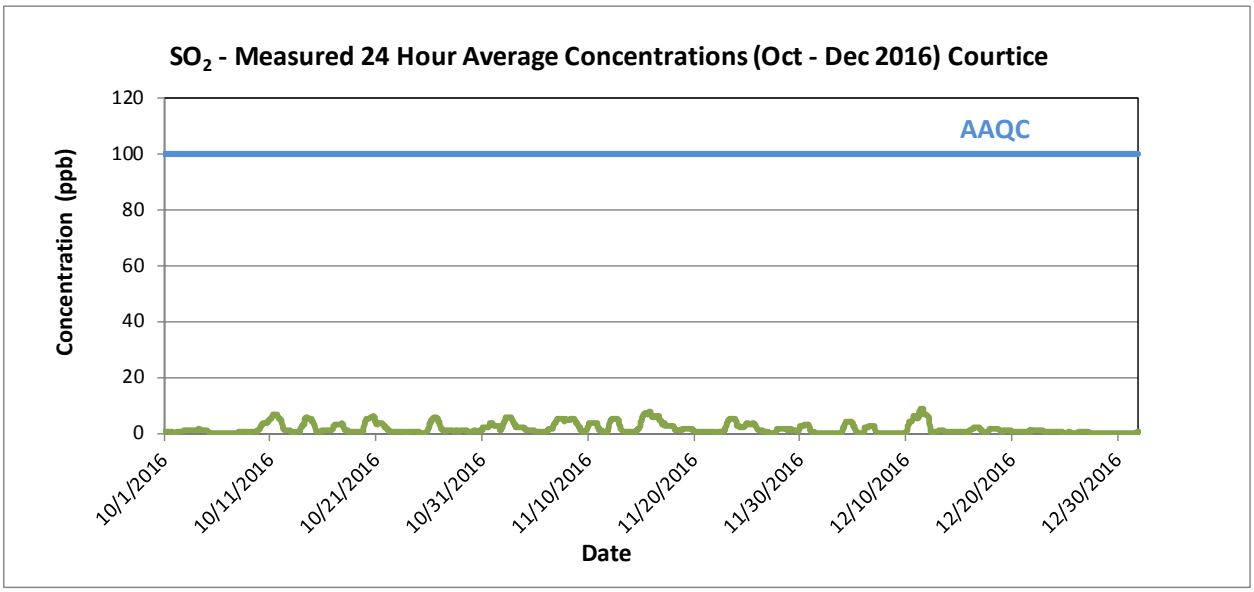
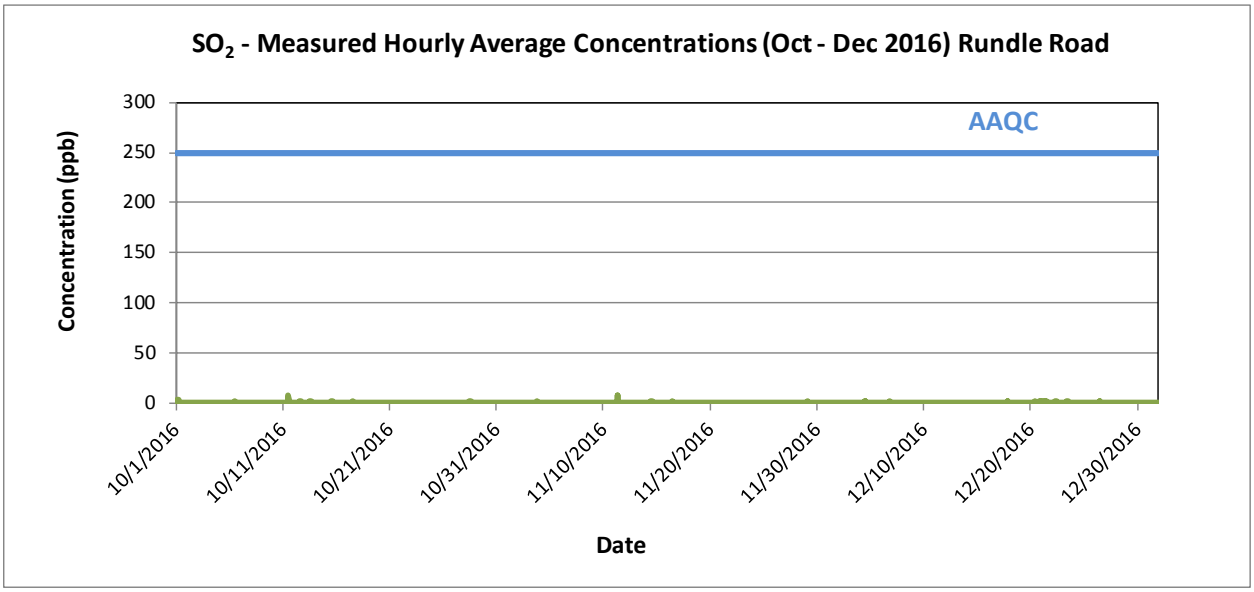
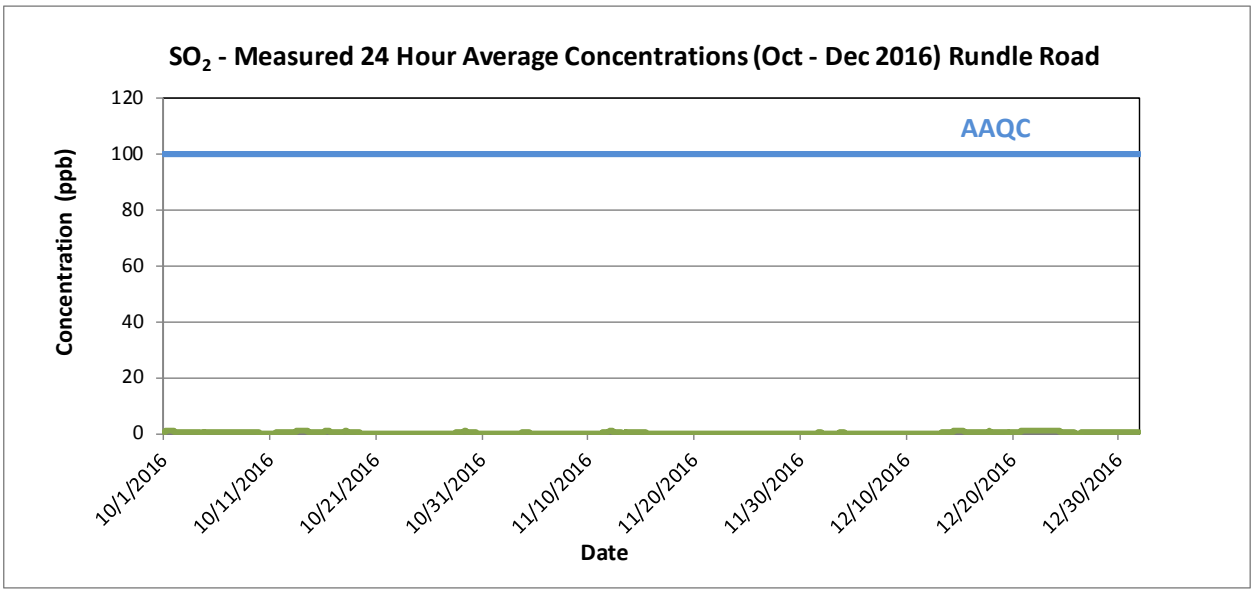


Figure B-2 Time History Plots of Measured Hourly Average and 24 Hour Average SO_2 Concentrations – Rundle Road Station





Appendix C NO_2 DATA SUMMARIES AND TIME HISTORY PLOTS

NO_2 - COURTICE
October 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	0.3	0.0	0.0	0.7	0.4	0.4	0.5	0.4	1.7	2.6	2.0	2.0	2.6	2.5	2.1	24	2.6	0.0	0.8	0	0
2	1.9	3.2	4.0	0.6	2.7	3.8	3.6	3.3	2.2	1.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.5	1.8	10.3	8.2	5.6	9.6	24	10.3	0.0	2.7	0	0
3	3.9	4.7	6.9	5.3	4.8	3.8	4.8	4.8	1.7	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	11.0	9.7	9.0	3.1	4.4	24	11.0	0.0	3.4	0	0
4	3.9	5.3	5.8	6.2	7.4	9.3	9.3	7.7	3.5	1.8	0.6	0.0	0.0	0.0	0.0	0.0	0.3	2.0	2.3	2.7	2.9	6.9	9.9	5.7	24	9.9	0.0	3.9	0	0
5	2.1	0.4	3.3	0.4	0.3	0.3	5.3	14.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	3.5	2.0	2.0	10.1	15.5	0.4	0.5	24	15.5	0.0	2.6	0	0
6	0.0	0.5	0.3	0.2	0.1	0.3	0.5	0.8	0.6	0.6	0.7	0.5	0.5	0.0	0.0	0.2	0.1	0.2	6.6	9.7	1.5	18.3	19.7	12.2	24	19.7	0.0	3.1	0	0
7	8.0	6.5	8.8	5.8	2.9	2.2	4.5	5.3	0.5	0.3	0.3	0.4	0.3	0.2	0.0	0.0	0.3	1.4	4.3	5.1	16.5	21.7	17.6	16.5	24	21.7	0.0	5.4	0	0
8	9.0	2.1	0.7	0.3	1.6	4.4	2.1	2.3	1.2	1.5	0.5	0.0	0.0	0.0	0.3	1.2	0.6	1.7	1.6	2.2	1.3	2.8	2.4	1.9	24	9.0	0.0	1.7	0	0
9	2.1	1.9	2.9	2.4	1.3	1.6	2.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.8	0.8	4.5	3.8	2.9	2.1	1.6	2.8	24	4.5	0.0	1.5	0	0
10	1.3	1.2	0.6	1.5	0.1	0.3	1.4	1.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	20.6	15.5	15.0	12.4	10.5	24	20.6	0.0	3.9	0	0
11	9.9	8.5	9.1	13.3	14.7	16.6	19.9	17.1	8.6	0.5	0.6	0.0	0.0	0.0	0.0	0.4	1.8	3.0	11.5	20.8	17.5	11.9	14.0	13.3	24	20.8	0.0	8.9	0	0
12	9.6	2.5	1.3	0.7	1.1	1.1	1.1	1.3	1.5	1.5	1.6	1.3	1.7	2.4	1.1	1.4	2.5	4.0	6.3	1.6	1.2	1.6	0.9	0.8	24	9.6	0.7	2.1	0	0
13	0.8	0.7	0.6	0.2	1.5	1.0	1.3	C	C	1.6	1.1	0.9	1.0	1.1	1.4	1.0	2.0	3.1	5.2	6.8	6.1	9.2	15.4	15.7	22	15.7	0.2	3.5	0	0
14	12.9	11.9	10.8	11.3	13.3	12.4	13.3	15.2	10.8	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.6	0.2	0.3	0.9	0.4	24	15.2	0.0	4.8	0	0
15	0.5	1.0	0.6	0.6	1.1	1.1	1.2	0.5	0.3	0.8	0.8	0.8	0.7	1.0	1.1	0.8	0.8	3.4	2.9	2.4	5.3	12.0	5.5	3.7	24	12.0	0.3	2.0	0	0
16	2.7	2.1	1.1	0.8	0.7	1.1	1.3	1.2	1.4	1.4	1.8	1.5	1.4	1.7	1.6	4.1	4.2	4.9	4.7	4.5	6.2	6.4	17.8	15.3	24	17.8	0.7	3.7	0	0
17	6.6	4.8	6.6	7.6	8.2	5.0	5.9	8.5	7.2	4.3	2.1	1.8	1.9	1.6	2.3	1.2	3.3	10.2	11.7	8.5	5.6	2.8	2.7	4.0	24	11.7	1.2	5.2	0	0
18	4.0	3.2	2.6	1.3	1.5	1.2	1.2	0.8	1.0	1.0	0.8	0.7	0.9	1.2	1.0	1.6	1.8	1.7	2.7	5.8	3.5	5.1	5.5	4.9	24	5.8	0.7	2.3	0	0
19	4.3	5.2	10.0	6.5	8.9	13.5	16.8	15.8	9.7	6.7	5.2	4.7	7.5	6.7	4.8	2.5	1.1	0.8	5.2	16.9	18.7	18.2	17.3	13.1	24	18.7	0.8	9.2	0	0
20	13.2	15.2	12.1	10.7	10.6	8.3	10.2	2.2	1.2	1.3	6.5	11.3	4.6	6.4	6.0	5.4	5.4	6.5	7.5	4.5	4.0	3.1	3.4	2.6	24	15.2	1.2	6.8	0	0
21	3.2	3.1	1.3	2.2	2.6	3.3	3.6	3.6	3.0	1.7	1.9	2.1	2.3	1.6	1.8	1.8	1.8	1.8	2.6	1.6	1.4	1.5	0.9	0.6	24	3.6	0.6	2.1	0	0
22	0.8	0.3	0.5	1.0	0.4	0.5	1.0	0.8	0.6	0.5	0.4	0.5	0.3	0.4	0.1	0.5	0.7	0.9	1.6	1.9	3.5	2.2	1.7	3.0	24	3.5	0.1	1.0	0	0
23	2.9	1.8	2.0	3.1	5.1	3.1	4.2	4.9	4.9	1.5	1.3	1.3	0.9	1.1	1.4	1.5	2.6	6.5	5.7	7.7	11.3	11.1	10.9	13.3	24	13.3	0.9	4.6	0	0
24	13.8	9.3	11.7	4.4	5.1	3.3	5.0	3.3	3.4	3.2	2.6	2.0	2.3	1.9	2.5	3.5	2.9	4.9	5.3	3.9	5.7	7.4	8.1	6.5	24	13.8	1.9	5.1	0	0
25	7.8	6.2	7.5	11.0	9.5	8.0	10.7	7.7	2.3	1.4	1.5	1.2	1.2	1.6	2.1	2.4	2.8	5.4	8.9	4.9	5.7	8.9	8.4	3.9	24	11.0	1.2	5.5	0	0
26	3.8	7.0	19.5	13.6	14.6	12.3	14.4	11.4	7.9	2.6	1.6	1.1	0.5	1.1	1.3	1.7	0.4	1.1	10.4	14.9	10.6	7.7	4.6	5.6	24	19.5	0.4	7.1	0	0
27	4.3	3.1	2.6	5.4	2.6	7.7	6.0	7.7	6.4	5.5	1.0	1.5	2.5	4.6	4.9	4.1	4.2	3.1	3.3	2.6	5.4	4.9	5.4	4.7	24	7.7	1.0	4.3	0	0
28	2.9	5.8	3.8	2.0	3.0	3.8	8.9	9.6	2.6	2.2	2.1	1.7	1.5	1.4	3.2	6.8	7.0	6.0	3.3	1.6	0.5	0.5	0.5	0.8	24	9.6	0.5	3.4	0	0
29	1.1	1.2	1.5	1.4	1.7	1.4	2.1	3.6	3.3	2.8	2.4	2.5	2.7	2.7	4.5	3.7	3.0	2.6	2.1	2.1	1.9	3.4	5.3	5.7	24	5.7	1.1	2.7	0	0
30	3.7	4.7	3.5	4.0	3.6	2.1	3.3	2.9	2.3	2.0	1.3	1.1	0.8	1.0	1.2	2.2	1.7	3.0	2.2	1.4	2.0	4.3	6.9	10.1	24	10.1	0.8	3.0	0	0
31	7.3	5.8	8.1	9.6	6.8	7.6	10.7	11.1	7.6	2.7	1.3	1.4	1.8	1.6	2.0	1.5	2.1	10.6	27.2	19.4	14.4	13.0	11.8	2.5	24	27.2	1.3	7.8	0	0
Count	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	742					
Maximum	13.8	15.2	19.5	13.6	14.7	16.6	19.9	17.1	10.8	6.7	6.5	11.3	7.5	6.7	6.0	6.8	7.0	10.6	27.2	20.8	18.7	21.7	19.7	16.5	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	0.6	0.2	0.3	0.4	0.4	22					
Average	4.8	4.2	4.8	4.3	4.5	4.5	5.7	5.7	3.2	1.7	1.3	1.3	1.2	1.3	1.5	1.6	1.9	3.1	5.4	6.3	6.6	7.7	7.2	6.3						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.1	0.6	1.2	1.6	2.2	3.2	4.7	6.7	10.7	13.7	19.1	27.2

	Maximum Hourly	27.2
	Maximum Daily	9.2
	Monthly Average	4.0

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

NO_2 - COURTICE
November 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	0.4	0.8	1.8	1.3	1.0	1.0	1.1	1.1	0.8	1.1	1.2	1.4	3.3	3.0	4.1	5.8	4.7	9.7	18.5	20.7	22.4	20.8	21.5	17.8	24	22.4	0.4	6.9	0	0
2	17.7	14.0	15.0	16.0	15.2	14.9	13.3	13.0	11.6	7.4	7.7	3.3	3.5	4.6	5.5	6.6	13.3	8.1	15.2	9.7	20.1	20.1	17.8	15.2	24	20.1	3.3	12.0	0	0
3	8.6	12.5	9.7	6.0	5.0	4.8	4.9	5.6	5.4	4.1	2.6	2.1	2.3	2.1	2.5	2.7	4.3	5.0	5.0	4.4	3.2	4.2	4.7	4.2	24	12.5	2.1	4.8	0	0
4	4.8	3.2	2.9	4.9	4.2	7.0	12.9	10.3	4.3	2.1	2.0	1.4	1.6	1.8	2.1	4.5	6.5	4.2	22.4	17.9	10.7	8.4	7.0	3.3	24	22.4	1.4	6.3	0	0
5	6.8	13.7	14.0	13.0	10.5	12.9	14.9	12.5	6.8	6.6	6.0	2.0	3.1	3.7	2.1	2.0	3.7	6.2	15.6	12.2	15.5	9.2	2.8	7.2	24	15.6	2.0	8.5	0	0
6	8.8	3.8	1.4	2.6	1.4	1.5	4.0	2.7	1.8	1.4	0.9	1.0	0.7	0.3	0.4	0.5	0.5	0.7	16.4	17.6	14.8	12.9	11.9	11.9	24	17.6	0.3	5.0	0	0
7	10.6	11.4	9.0	9.6	12.0	14.5	14.7	16.3	17.7	8.4	3.6	3.4	3.5	3.0	3.1	3.1	6.8	9.3	16.5	27.2	23.7	21.2	17.8	17.8	24	27.2	3.0	11.8	0	0
8	15.4	14.9	14.0	14.4	15.1	14.5	14.2	15.4	15.9	10.9	7.0	7.4	10.1	11.0	10.6	9.9	6.6	3.4	4.2	10.7	21.3	21.1	17.3	18.0	24	21.3	3.4	12.6	0	0
9	9.1	4.6	4.3	1.8	1.7	2.1	2.4	2.8	1.8	1.9	2.1	1.9	1.8	2.0	2.0	3.1	3.8	6.2	9.8	16.9	18.7	21.0	19.9	19.2	24	21.0	1.7	6.7	0	0
10	17.1	17.3	15.8	16.3	19.4	21.4	22.1	21.1	14.3	5.3	5.5	4.7	4.3	2.8	2.3	2.0	3.7	3.7	3.8	3.2	3.3	3.0	4.3	5.9	24	22.1	2.0	9.3	0	0
11	4.8	6.4	1.9	1.4	1.6	2.6	1.8	2.2	2.0	1.6	1.0	1.5	1.4	1.7	1.8	2.2	2.3	5.7	9.9	15.8	15.6	14.1	9.9	19.4	24	19.4	1.0	5.4	0	0
12	23.2	18.9	20.1	18.7	16.9	19.5	20.3	20.8	16.1	11.4	7.0	6.7	3.7	3.2	1.7	1.2	1.4	1.4	1.7	2.2	3.6	4.4	5.2	3.7	24	23.2	1.2	9.7	0	0
13	5.5	8.3	5.5	4.5	4.5	4.9	4.3	5.0	3.8	3.2	3.5	3.3	2.1	2.3	2.3	2.3	2.4	1.8	2.4	2.7	2.5	2.1	2.4	3.2	24	8.3	1.8	3.5	0	0
14	3.1	4.7	3.0	3.0	3.6	3.0	2.8	4.1	4.3	4.8	5.7	7.7	7.3	7.0	10.2	7.5	6.4	8.4	6.0	4.4	10.7	10.2	21.2	18.5	24	21.2	2.8	7.0	0	0
15	19.6	14.6	11.7	11.3	12.9	15.7	14.1	16.5	16.6	15.6	12.1	7.4	6.3	5.4	6.0	7.1	13.8	26.6	24.9	24.6	23.2	19.4	15.8	15.5	24	26.6	5.4	14.9	0	0
16	16.0	15.9	14.6	14.3	15.8	16.4	18.9	17.6	18.5	21.0	23.7	22.1	22.4	11.3	5.3	10.0	6.4	5.8	6.7	10.3	9.3	9.6	8.5	9.3	24	23.7	5.3	13.7	0	0
17	8.9	9.4	14.1	11.1	11.0	6.7	8.4	10.9	13.0	11.1	9.4	10.7	7.0	4.1	3.9	3.7	7.1	12.1	8.6	8.8	5.8	10.8	14.5	10.9	24	14.5	3.7	9.3	0	0
18	9.3	9.3	11.1	13.1	13.7	13.4	12.2	16.7	16.1	8.8	5.1	3.7	3.8	4.3	4.6	8.0	10.1	9.5	11.8	12.4	13.5	19.1	21.2	16.6	24	21.2	3.7	11.1	0	0
19	12.9	13.0	7.3	7.3	8.6	12.3	10.0	5.2	2.1	2.7	4.2	2.5	2.9	3.7	3.9	5.2	5.0	4.3	2.9	3.8	2.3	2.1	2.0	3.0	24	13.0	2.0	5.4	0	0
20	2.5	3.4	5.1	8.4	6.4	4.2	0.8	1.1	1.1	0.6	1.0	0.9	0.7	0.8	0.8	1.1	1.8	1.5	0.8	1.0	0.8	0.8	0.7	0.9	24	8.4	0.6	2.0	0	0
21	1.3	0.7	0.8	0.7	1.5	1.6	1.9	2.1	2.0	2.1	1.7	1.6	1.5	1.7	3.1	4.4	5.2	3.4	3.6	4.4	3.6	2.1	1.6	2.9	24	5.2	0.7	2.3	0	0
22	1.6	1.8	1.9	3.0	2.4	2.3	2.5	3.6	3.2	2.7	2.8	2.7	2.5	3.0	3.6	5.4	4.9	10.2	10.3	6.1	2.8	14.6	14.5	18.0	24	18.0	1.6	5.3	0	0
23	21.1	23.8	21.2	13.6	9.5	15.4	18.3	18.7	17.6	11.1	6.6	5.8	1.0	0.9	1.3	6.7	9.1	9.4	14.6	17.9	14.2	11.5	7.4	8.4	24	23.8	0.9	11.9	0	0
24	10.5	17.3	13.0	7.6	16.4	25.2	15.2	7.8	8.4	9.6	11.4	8.8	10.6	6.9	6.6	7.0	7.3	8.2	9.7	9.6	8.3	7.2	6.3	9.6	24	25.2	6.3	10.4	0	0
25	7.8	10.2	11.1	8.0	10.1	9.7	12.4	10.4	C	C	C	C	9.0	7.3	8.2	9.1	10.1	9.3	10.2	8.2	10.3	6.8	9.7	18.7	20	18.7	6.8	9.8	0	0
26	11.5	11.6	12.2	8.3	8.3	7.3	12.8	9.4	11.1	7.4	5.4	2.6	2.3	1.8	2.4	2.5	7.0	9.0	11.2	8.0	10.6	11.6	7.9	6.7	24	12.8	1.8	7.9	0	0
27	8.4	7.9	7.3	6.6	6.5	5.5	4.4	6.0	6.6	4.5	3.9	3.2	2.4	2.3	3.1	3.1	5.7	6.7	11.2	19.9	19.1	16.9	16.9	15.8	24	19.9	2.3	8.1	0	0
28	10.9	6.9	7.6	6.5	10.9	6.2	5.4	9.3	6.3	4.0	2.9	2.4	2.4	3.7	2.9	5.8	5.8	5.5	8.4	17.9	4.0	11.3	19.8	6.8	24	19.8	2.4	7.2	0	0
29	5.6	8.2	5.9	3.9	4.2	5.2	3.6	5.8	7.9	4.8	1.9	3.0	3.1	3.1	2.6	2.0	2.3	2.2	2.4	2.6	2.7	9.1	20.3	17.7	24	20.3	1.9	5.4	0	0
30	19.7	19.0	15.9	10.9	7.0	11.5	12.8	10.7	5.9	5.9	5.9	7.8	5.2	6.8	10.1	7.8	8.4	7.0	10.9	6.0	5.3	7.2	14.8	9.0	24	19.7	5.2	9.6	0	0
31																													0	0
Count	30	30	30	30	30	30	30	30	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	716					
Maximum	23.2	23.8	21.2	18.7	19.4	25.2	22.1	21.1	18.5	21.0	23.7	22.1	22.4	11.3	10.6	10.0	13.8	26.6	24.9	27.2	23.7	21.2	21.5	19.4	24					
Minimum	0.4	0.7	0.8	0.7	1.0	1.0	0.8	1.1	0.8	0.6	0.9	0.9	0.7	0.3	0.4	0.5	0.5	0.7	0.8	1.0	0.8	0.8	0.7	0.9	20					
Average	10.1	10.3	9.3	8.3	8.6	9.4	9.6	9.5	8.4	6.3	5.3	4.6	4.4	3.8	4.0	4.7	5.9	6.8	9.9	10.9	10.7	11.1	11.5	11.2						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.8	2.5	3.6	4.9	6.7	8.4	10.6	13.8	17.6	19.9	23.6	27.2

Maximum Hourly	27.2
Maximum Daily	14.9
Monthly Average	8.1

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

NO_2 - COURTICE
December 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	6.5	6.0	5.0	4.8	4.0	5.3	6.1	5.2	5.7	4.1	3.9	3.5	4.1	4.2	4.4	5.1	6.8	7.0	7.6	6.6	5.6	5.8	6.2	6.2	24	7.6	3.5	5.4	0	0
2	7.2	4.8	4.0	2.6	3.5	2.7	4.3	6.2	6.1	6.3	4.3	2.4	2.5	3.3	3.8	4.2	5.9	7.3	8.9	7.1	4.2	5.8	4.6	6.0	24	8.9	2.4	4.9	0	0
3	5.9	4.1	2.3	2.2	4.6	8.9	7.9	13.9	10.0	4.0	1.5	1.1	1.2	1.7	1.2	1.8	3.4	3.8	5.0	4.9	2.9	5.8	6.6	9.1	24	13.9	1.1	4.7	0	0
4	13.2	12.3	8.0	4.2	3.0	4.4	3.1	4.8	2.3	2.6	8.4	2.3	0.2	0.1	0.3	0.1	3.2	5.5	1.2	4.2	10.2	5.1	5.2	9.9	24	13.2	0.1	4.8	0	0
5	11.1	2.8	1.1	0.7	1.0	0.9	0.7	7.9	16.7	14.6	10.8	4.7	5.1	3.0	3.2	4.2	7.3	9.5	7.1	9.1	14.8	26.6	25.7	23.8	24	26.6	0.7	8.9	0	0
6	21.1	19.1	14.4	17.0	17.2	14.5	15.5	15.9	12.7	12.7	7.3	6.7	3.8	5.1	4.0	3.0	5.0	2.6	4.5	1.7	1.6	1.4	1.4	2.0	24	21.1	1.4	8.8	0	0
7	2.7	2.4	2.2	2.2	4.9	8.6	6.4	11.4	12.0	5.0	5.8	4.6	4.2	5.5	4.4	4.3	4.4	4.3	5.3	5.0	5.5	4.9	8.7	10.6	24	12.0	2.2	5.6	0	0
8	10.0	7.9	6.7	5.6	4.4	4.6	4.7	4.4	5.2	7.6	3.9	4.6	3.7	3.0	2.2	3.3	4.2	4.3	5.0	5.6	6.1	6.7	4.0	7.7	24	10.0	2.2	5.2	0	0
9	13.5	15.3	10.6	11.4	8.9	12.7	8.5	11.1	10.6	6.6	4.1	2.4	1.7	0.6	2.8	3.1	6.2	5.7	6.1	5.3	5.0	6.7	4.0	5.1	24	15.3	0.6	7.0	0	0
10	4.8	5.1	4.7	3.7	7.8	7.6	8.9	12.2	14.4	10.1	7.9	7.6	5.3	3.4	0.7	4.7	12.8	15.5	15.4	11.9	15.2	7.5	6.1	8.1	24	15.5	0.7	8.4	0	0
11	22.8	20.6	19.1	13.6	12.0	16.4	16.6	16.5	14.8	12.1	11.8	15.3	2.3	1.3	1.4	0.8	1.5	2.1	2.2	2.1	2.0	2.0	1.7	1.6	24	22.8	0.8	8.9	0	0
12	3.2	1.7	2.4	2.0	2.2	1.9	2.6	C	C	C	C	4.2	5.3	4.7	3.9	5.6	6.5	6.1	6.8	10.0	12.1	7.5	5.2	5.0	20	12.1	1.7	4.9	0	0
13	5.6	5.4	5.8	4.8	5.7	9.1	3.8	6.4	1.7	2.2	A	A	2.8	4.0	C	C	C	14.8	12.0	15.2	7.0	6.7	5.9	3.4	19	15.2	1.7	6.4	0	0
14	4.6	4.5	4.8	5.7	5.6	3.7	3.4	3.7	2.5	2.1	1.6	2.4	2.7	2.7	2.4	3.3	3.8	5.0	6.0	7.6	6.2	8.6	9.5	5.5	24	9.5	1.6	4.5	0	0
15	5.2	4.1	3.9	5.0	6.3	1.8	4.3	7.0	10.7	7.2	6.1	4.4	5.5	7.5	4.8	9.0	8.0	11.7	7.1	7.3	5.7	5.6	10.9	35.5	24	35.5	1.8	7.7	0	0
16	24.2	6.6	3.8	5.1	8.7	22.5	14.1	13.2	16.7	19.7	20.8	16.8	8.5	8.5	11.5	15.9	23.8	20.2	27.9	8.8	10.6	2.1	2.3	2.2	24	27.9	2.1	13.1	0	0
17	1.5	1.9	1.7	1.8	1.4	1.3	1.7	1.4	1.4	1.5	1.7	1.9	2.3	2.9	5.0	9.6	14.1	10.5	9.4	9.1	8.9	13.2	16.1	15.8	24	16.1	1.3	5.7	0	0
18	16.8	22.7	16.1	11.2	7.0	6.2	5.4	3.9	2.8	2.6	2.0	1.3	1.5	1.5	1.5	1.2	2.6	6.4	10.3	13.0	11.0	4.9	8.6	7.0	24	22.7	1.2	7.0	0	0
19	7.2	5.8	5.0	10.3	11.9	10.9	15.9	28.6	27.2	27.7	15.0	13.7	5.9	7.7	9.6	7.4	4.3	3.2	3.3	16.9	20.6	2.9	17.1	5.6	24	28.6	2.9	11.8	0	0
20	2.2	2.3	3.1	2.9	2.3	3.1	2.8	1.9	2.9	3.7	3.5	2.8	2.2	2.4	2.1	2.5	2.9	3.7	5.7	7.4	12.8	11.3	10.4	10.8	24	12.8	1.9	4.5	0	0
21	9.1	8.8	8.9	10.3	11.0	11.8	12.8	14.2	13.7	10.0	9.8	8.8	10.1	14.8	13.4	10.9	11.8	12.4	16.4	10.4	15.1	18.3	27.6	32.4	24	32.4	8.8	13.4	0	0
22	32.8	32.3	22.3	5.2	6.5	6.5	8.5	23.4	25.1	22.1	24.4	23.2	23.2	17.5	13.6	16.6	14.2	14.3	14.6	12.7	13.8	11.6	12.3	3.9	24	32.8	3.9	16.7	0	0
23	3.0	4.4	3.9	4.2	5.4	6.9	10.1	10.6	9.8	14.2	11.3	7.4	5.7	4.9	4.9	5.9	8.3	5.8	4.2	3.9	4.4	4.9	5.4	4.9	24	14.2	3.0	6.4	0	0
24	6.6	10.1	11.3	4.5	3.9	4.2	6.2	10.4	16.1	10.0	11.5	11.4	8.0	6.2	8.8	9.1	9.0	8.8	7.0	6.5	4.8	4.2	4.3	5.6	24	16.1	3.9	7.9	0	0
25	7.3	8.3	9.1	18.9	9.6	2.8	1.9	1.7	1.7	1.5	2.1	1.3	1.2	0.9	0.8	1.0	1.7	5.6	4.3	1.9	2.0	2.5	1.7	1.5	24	18.9	0.8	3.8	0	0
26	2.2	1.2	1.1	1.1	4.9	5.1	11.0	12.4	7.8	6.1	3.2	3.5	4.0	4.5	6.0	7.4	15.0	9.7	9.2	4.2	6.5	4.0	1.5	1.0	24	15.0	1.0	5.5	0	0
27	1.6	2.0	1.9	2.0	2.0	4.6	2.0	2.1	2.2	2.5	3.3	2.9	2.1	2.3	3.4	3.0	4.4	4.6	4.3	3.1	4.2	3.8	3.3	2.1	24	4.6	1.6	2.9	0	0
28	3.1	5.2	4.2	3.7	5.0	7.4	10.2	12.0	9.3	9.6	6.8	1.8	2.0	5.4	6.8	8.9	7.3	1.5	1.4	1.9	1.3	1.8	2.7	1.4	24	12.0	1.3	5.0	0	0
29	1.2	1.5	1.8	1.9	2.1	2.1	2.3	2.5	2.5	2.9	5.0	12.1	12.4	9.5	11.0	8.7	10.0	10.2	13.0	8.4	9.5	7.6	7.8	10.8	24	13.0	1.2	6.5	0	0
30	12.1	13.0	6.7	10.1	4.1	2.6	3.4	4.7	4.5	2.2	2.2	1.4	1.6	1.8	2.3	3.2	6.5	5.6	4.2	4.1	3.0	6.5	7.4	3.2	24	13.0	1.4	4.8	0	0
31	3.0	3.8	3.0	3.2	1.8	1.3	0.9	1.5	1.2	2.0	2.1	2.2	1.8	1.6	1.8	1.8	2.3	2.4	2.3	2.0	1.9	3.0	3.3	3.0	24	3.8	0.9	2.2	0	0
Count	31	31	31	31	31	31	31	30	30	30	29	30	31	31	30	30	30	31	31	31	31	31	31	31	735					
Maximum	32.8	32.3	22.3	18.9	17.2	22.5	16.6	28.6	27.2	27.7	24.4	23.2	23.2	17.5	13.6	16.6	23.8	20.2	27.9	16.9	20.6	26.6	27.6	35.5	24					
Minimum	1.2	1.2	1.1	0.7	1.0	0.9	0.7	1.4	1.2	1.5	1.5	1.1	0.2	0.1	0.3	0.1	1.5	1.5	1.2	1.7	1.3	1.4	1.4	1.0	19					
Average	8.7	7.9	6.4	5.9	5.8	6.5	6.6	9.0	9.0	7.8	7.0	6.0	4.6	4.6	4.7	5.5	7.2	7.4	7.7	7.0	7.6	6.8	7.7	8.1						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100		
													Maximum Hourly	35.5
													Maximum Daily	16.7
Data	1.7	2.3	3.3	4.3	5.1	6.3	8.1	10.6	14.3	17.0	27.4	35.5	Monthly Average	6.9

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

NO_2 - Rundle Road
October 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	1.6	1.6	4.5	6.0	5.3	6.4	2.1	1.6	1.4	1.3	1.5	1.4	1.5	0.4	0.8	0.7	0.8	3.3	1.4	4.5	2.9	3.3	1.3	0.8	24	6.4	0.4	2.3	0	0
2	1.2	3.3	2.8	1.7	1.9	2.9	1.7	1.9	2.1	1.7	1.9	1.7	1.9	2.3	1.9	2.7	2.5	3.1	5.5	3.9	2.6	1.6	2.8	2.4	24	5.5	1.2	2.4	0	0
3	1.7	1.2	1.0	0.4	0.5	0.7	1.6	2.3	2.7	1.4	2.6	2.4	2.4	1.4	1.5	1.6	3.2	9.6	9.0	4.1	3.3	4.7	2.5	0.7	24	9.6	0.4	2.6	0	0
4	0.5	2.7	0.9	0.9	1.4	1.8	3.5	4.4	3.6	2.1	1.6	1.0	1.1	1.3	1.6	1.4	5.8	2.1	3.7	4.4	3.5	3.4	5.0	6.9	24	6.9	0.5	2.7	0	0
5	9.5	4.6	2.6	2.5	9.9	17.2	12.5	9.5	9.1	3.9	1.7	1.1	5.7	1.3	2.2	3.5	2.0	4.7	5.4	6.8	8.7	8.9	6.8	6.0	24	17.2	1.1	6.1	0	0
6	5.2	3.3	3.9	4.3	5.5	7.4	9.8	7.6	4.2	3.3	2.7	3.8	2.4	2.5	3.1	2.7	2.9	8.6	8.5	9.9	11.5	6.6	4.4	12.7	24	12.7	2.4	5.7	0	0
7	4.3	4.4	7.3	5.7	4.5	6.0	7.8	10.2	5.9	3.3	2.3	2.1	3.1	3.0	2.5	2.6	3.4	6.7	9.0	6.0	8.0	5.6	5.1	7.0	24	10.2	2.1	5.2	0	0
8	3.0	7.3	3.5	3.0	3.1	4.7	0.5	0.2	0.3	0.4	0.3	0.4	0.9	1.4	1.2	0.6	0.7	0.6	0.8	0.9	0.9	1.0	1.1	1.2	24	7.3	0.2	1.6	0	0
9	1.4	0.9	0.9	0.4	0.4	0.4	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.4	1.0	0.6	0.3	0.0	0.3	24	1.4	0.0	0.3	0	0
10	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.6	1.1	1.6	1.3	1.5	4.4	8.4	5.0	5.4	3.0	1.7	1.8	24	8.4	0.0	1.5	0	0
11	1.8	1.9	1.7	1.5	2.7	5.3	9.0	7.4	8.6	3.2	6.0	1.7	3.8	8.1	7.1	4.2	3.6	6.9	9.6	11.4	4.7	4.3	7.2	5.2	24	11.4	1.5	5.3	0	0
12	2.8	6.9	5.3	5.0	7.0	9.2	6.7	6.1	6.5	4.3	4.1	5.6	4.0	4.0	4.8	10.5	10.9	14.3	19.1	23.5	7.0	6.5	5.3	4.4	24	23.5	2.8	7.7	0	0
13	3.7	3.3	3.5	4.0	1.0	0.5	1.1	1.9	1.0	C	C	C	0.3	0.4	0.3	0.4	0.3	0.7	1.0	0.8	0.4	0.6	1.3	0.3	21	4.0	0.3	1.3	0	0
14	0.4	0.4	0.6	0.7	1.2	1.1	2.4	4.5	10.7	4.1	5.5	4.2	2.0	1.2	0.9	1.1	2.5	12.1	14.0	6.8	4.9	4.5	8.9	3.0	24	14.0	0.4	4.1	0	0
15	4.3	6.0	3.0	3.3	3.4	3.6	3.4	3.1	2.4	2.3	1.5	1.5	1.4	2.4	1.9	2.4	3.9	2.9	2.9	5.8	5.9	6.0	10.8	8.9	24	10.8	1.4	3.9	0	0
16	7.6	6.9	4.8	1.9	1.8	2.1	4.4	3.1	3.5	3.1	2.9	3.5	6.2	4.5	6.6	7.5	3.6	5.2	10.2	13.9	14.2	8.0	4.4	4.1	24	14.2	1.8	5.6	0	0
17	2.4	1.2	5.4	2.9	2.0	2.1	1.9	4.8	6.0	4.4	3.1	3.2	2.6	2.2	4.6	7.5	3.8	11.7	3.3	2.8	6.7	4.7	5.1	7.2	24	11.7	1.2	4.2	0	0
18	6.6	12.0	11.0	4.4	4.1	2.5	7.5	3.6	3.0	4.3	2.5	2.9	2.8	4.7	4.5	5.1	4.5	4.9	2.8	0.6	0.2	0.2	4.1	0.0	24	12.0	0.0	4.1	0	0
19	0.0	0.5	3.0	11.4	15.3	17.8	17.9	19.2	16.0	7.4	3.2	2.3	8.5	8.3	7.0	4.8	5.7	8.1	4.8	5.3	5.3	3.6	4.7	3.6	24	19.2	0.0	7.7	0	0
20	3.1	4.8	4.6	4.6	5.5	3.8	C	C	C	C	C	C	5.5	2.2	1.2	0.6	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	18	5.5	0.0	2.0	0	0
21	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
22	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
23	0.0	0.0	0.0	0.0	1.2	0.0	1.3	5.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.9	0.5	0.5	0.6	24	5.2	0.0	0.5	0	0
24	5.2	1.5	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	4.5	6.3	24	6.3	0.0	0.8	0	0
25	0.0	0.0	0.0	0.0	0.0	0.1	2.8	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	0.0	0.0	0.0	24	2.8	0.0	0.1	0	0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.6	3.0	0.0	0.0	0.0	0.0	1.8	1.6	0.5	1.5	3.1	6.0	5.3	3.2	0.0	5.5	0.0	24	6.0	0.0	1.4	0	0
27	0.1	1.3	0.0	0.6	0.4	1.7	1.7	3.4	1.5	1.1	3.2	1.6	0.7	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.4	0.4	24	3.4	0.0	0.8	0	0
28	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.1	0.0	0.0	0.0	0.0	0.0	0.0	3.3	6.3	9.5	14.7	10.1	5.5	2.8	2.0	2.0	1.9	24	14.7	0.0	2.6	0	0
29	1.9	1.5	4.4	0.9	1.7	2.2	6.5	7.0	7.5	6.3	5.8	3.6	3.7	4.9	7.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	7.5	0.0	3.0	0	0
30	2.2	4.3	2.8	4.2	1.6	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	4.3	0.0	0.6	0	0
31	0.0	0.0	0.0	0.0	0.0	0.0	1.0	2.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.7	5.2	5.9	4.1	5.3	4.8	4.0	3.3	5.0	24	5.9	0.0	1.8	0	0
Count	31	31	31	31	31	31	30	30	30	29	29	29	31	31	31	31	31	31	31	31	31	31	31	31	735					
Maximum	9.5	12.0	11.0	11.4	15.3	17.8	17.9	19.2	16.0	7.4	6.0	5.6	8.5	8.3	7.1	10.5	10.9	14.7	19.1	23.5	14.2	8.9	10.8	12.7	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	18					
Average	2.3	2.6	2.5	2.3	2.6	3.2	3.7	3.8	3.3	2.0	1.8	1.5	2.0	1.9	2.2	2.4	2.5	4.3	4.5	4.3	3.5	2.7	3.2	2.9						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.0	0.0	0.4	1.1	1.8	2.8	3.8	5.1	7.0	9.3	15.1	23.5

		Maximum Hourly	23.5
		Maximum Daily	7.7
		Monthly Average	2.8

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

November **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	1.5	1.9	1.7	3.6	6.4	7.4	6.2	6.3	3.9	3.0	3.2	1.9	3.1	5.6	6.2	3.9	6.0	16.2	5.6	4.4	7.5	4.2	3.3	2.5	24	16.2	1.5	4.8	0	0
2	2.0	1.1	0.5	1.5	1.6	4.8	3.7	5.0	3.6	3.6	3.3	0.2	0.0	4.4	10.1	18.9	13.6	16.5	12.2	11.1	7.6	6.4	4.0	1.5	24	18.9	0.0	5.7	0	0
3	2.5	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	2.5	0.0	0.1	0	0
4	0.0	0.0	0.0	0.0	0.0	0.0	2.2	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.3	9.0	7.7	5.0	6.3	3.2	7.2	10.7	6.0	24	10.7	0.0	2.6	0	0
5	7.3	15.8	16.5	7.4	5.7	8.7	9.4	6.9	3.7	3.4	6.2	0.0	2.0	3.4	2.2	4.2	0.2	4.3	3.6	1.0	0.4	0.0	0.0	0.0	24	16.5	0.0	4.7	0	0
6	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	0.2	1.3	2.7	9.2	2.1	1.9	2.7	1.7	0.8	0.2	24	9.2	0.0	1.0	0	0
7	0.2	0.0	0.0	0.0	0.3	0.8	2.4	3.7	3.9	8.8	7.2	4.2	3.3	3.4	4.6	4.7	6.7	12.4	11.5	7.8	7.9	6.2	3.2	3.8	24	12.4	0.0	4.5	0	0
8	1.4	0.4	0.7	0.3	0.0	1.2	3.0	4.4	4.1	10.3	7.3	7.7	11.9	12.5	14.1	16.3	16.4	7.5	7.9	19.5	9.3	6.9	6.2	3.3	24	19.5	0.0	7.2	0	0
9	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	0.3	0.3	1.3	2.3	5.8	7.3	5.4	24	7.3	0.0	1.0	0	0
10	4.0	5.2	4.4	7.7	13.6	13.1	14.0	16.3	15.6	7.9	7.1	5.7	4.9	4.5	3.9	4.1	5.0	5.4	4.9	5.0	6.5	10.0	12.3	16.0	24	16.3	3.9	8.2	0	0
11	9.3	5.1	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	7.4	11.5	18	11.5	0.0	1.9	0	0
12	21.1	5.5	0.0	0.0	6.1	7.6	2.3	6.4	13.4	16.6	9.6	9.5	4.6	4.1	1.8	1.0	1.0	1.8	2.1	2.0	4.2	6.6	7.0	6.1	24	21.1	0.0	5.9	0	0
13	11.3	15.2	7.5	6.6	5.0	5.5	5.6	8.4	6.5	4.4	4.4	4.5	4.1	3.6	4.3	4.2	5.0	4.8	5.0	5.6	6.6	4.5	5.1	5.5	24	15.2	3.6	6.0	0	0
14	6.3	9.7	9.3	8.5	17.5	16.4	13.7	14.4	13.5	10.9	12.4	12.6	12.8	14.1	17.6	14.4	16.2	25.7	17.8	17.3	14.7	11.5	10.5	8.3	24	25.7	6.3	13.6	0	0
15	7.5	7.6	7.6	5.7	5.9	7.1	8.1	11.3	9.6	13.8	15.7	14.1	9.9	10.7	9.8	18.6	23.2	19.3	15.5	14.7	11.1	11.5	8.9	6.7	24	23.2	5.7	11.4	0	0
16	5.9	4.7	4.3	3.8	4.8	5.9	7.7	10.7	9.0	16.7	22.3	28.7	28.6	6.4	5.5	5.0	5.4	4.6	4.0	3.8	4.7	4.4	2.7	2.8	24	28.7	2.7	8.4	0	0
17	2.6	5.2	7.7	6.1	2.7	2.7	3.9	6.3	6.6	5.7	7.2	12.3	8.3	6.2	7.0	13.1	18.8	24.6	19.4	21.0	16.9	15.0	11.5	10.7	24	24.6	2.6	10.1	0	0
18	11.2	11.8	9.6	7.9	6.2	8.7	11.1	12.7	13.9	14.1	8.2	10.3	11.1	15.3	12.2	14.5	12.8	21.0	17.9	17.5	22.2	15.8	10.0	8.4	24	22.2	6.2	12.7	0	0
19	13.8	16.2	11.7	9.4	8.2	6.9	6.7	13.7	7.2	7.0	12.9	8.7	6.8	6.8	8.2	9.1	11.0	8.9	7.4	6.1	3.8	3.5	3.4	4.2	24	16.2	3.4	8.4	0	0
20	4.5	6.8	10.6	11.5	7.8	5.1	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.4	2.5	2.6	2.5	2.5	2.5	2.5	2.5	24	11.5	2.3	3.7	0	0
21	2.4	2.5	2.6	2.8	3.1	3.2	3.6	4.2	4.4	4.8	4.4	4.3	4.3	3.9	3.9	4.6	4.7	6.1	4.5	3.3	3.1	2.9	2.9	3.0	24	6.1	2.4	3.7	0	0
22	3.0	3.0	3.1	3.1	3.0	3.3	4.0	4.4	4.7	4.0	4.6	4.7	3.9	3.8	4.5	5.2	5.6	4.8	4.7	3.5	3.5	6.2	4.5	6.7	24	6.7	3.0	4.2	0	0
23	11.7	6.8	5.6	6.4	4.2	5.2	10.3	9.7	14.3	15.8	7.9	8.8	7.3	8.7	8.8	10.2	10.1	7.5	8.1	10.2	9.9	7.8	5.8	8.4	24	15.8	4.2	8.7	0	0
24	8.0	10.6	10.1	7.0	6.3	8.1	7.9	7.6	7.7	11.5	9.0	9.8	11.8	10.1	8.2	9.0	8.9	7.6	6.8	7.5	7.1	6.1	8.2	12.1	24	12.1	6.1	8.6	0	0
25	6.2	6.7	10.5	8.2	6.7	8.6	10.0	11.2	11.1	11.8	11.5	16.6	17.0	18.0	M	M	M	17.5	10.0	6.0	12.4	9.1	7.4	7.8	21	18.0	6.0	10.7	0	0
26	9.0	10.1	8.0	6.7	5.1	4.0	3.1	3.7	8.5	5.0	2.6	0.8	0.0	0.1	0.0	1.2	2.1	2.8	3.9	2.3	2.3	3.4	2.5	1.4	24	10.1	0.0	3.7	0	0
27	3.0	4.8	2.7	2.4	2.5	3.6	2.6	1.8	1.8	1.4	2.5	0.6	2.1	0.1	0.0	0.0	0.1	0.5	1.8	3.3	4.1	3.0	4.0	5.4	24	5.4	0.0	2.3	0	0
28	4.3	10.5	5.9	3.3	4.3	4.1	4.6	7.3	7.8	5.5	3.1	1.5	2.2	3.6	3.2	4.0	4.6	4.1	3.5	5.2	3.0	3.9	7.5	4.5	24	10.5	1.5	4.6	0	0
29	4.1	5.2	13.7	12.4	9.5	4.9	5.1	7.2	12.0	18.5	4.4	5.5	7.8	9.3	8.5	6.9	8.0	10.1	12.6	12.5	20.5	9.9	9.0	8.4	24	20.5	4.1	9.4	0	0
30	12.6	11.2	9.9	7.0	6.7	6.3	8.5	6.3	6.8	10.7	5.0	4.5	5.0	7.2	8.4	11.7	7.9	12.8	13.3	13.2	16.7	17.0	14.2	24.6	24	24.6	4.5	10.3	0	0
31																													0	0
Count	30	30	30	30	30	30	30	29	29	29	29	29	29	30	29	29	29	30	30	30	30	30	30	30	711					
Maximum	21.1	16.2	16.5	12.4	17.5	16.4	14.0	16.3	15.6	18.5	22.3	28.7	28.6	18.0	17.6	18.9	23.2	25.7	19.4	21.0	22.2	17.0	14.2	24.6	24					
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18					
Average	5.9	6.1	5.5	4.6	4.8	5.1	5.4	6.7	6.8	7.5	6.4	6.2	6.0	5.6	5.4	6.6	7.2	8.9	7.1	7.2	7.2	6.4	6.1	6.3						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.0	1.9	3.1	4.2	5.1	6.7	7.9	10.1	13.6	16.5	22.1	28.7

	Maximum Hourly		28.7
	Maximum Daily		13.6
	Monthly Average		6.3

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

NO_2 - Rundle Road
December 2016
(ppb)

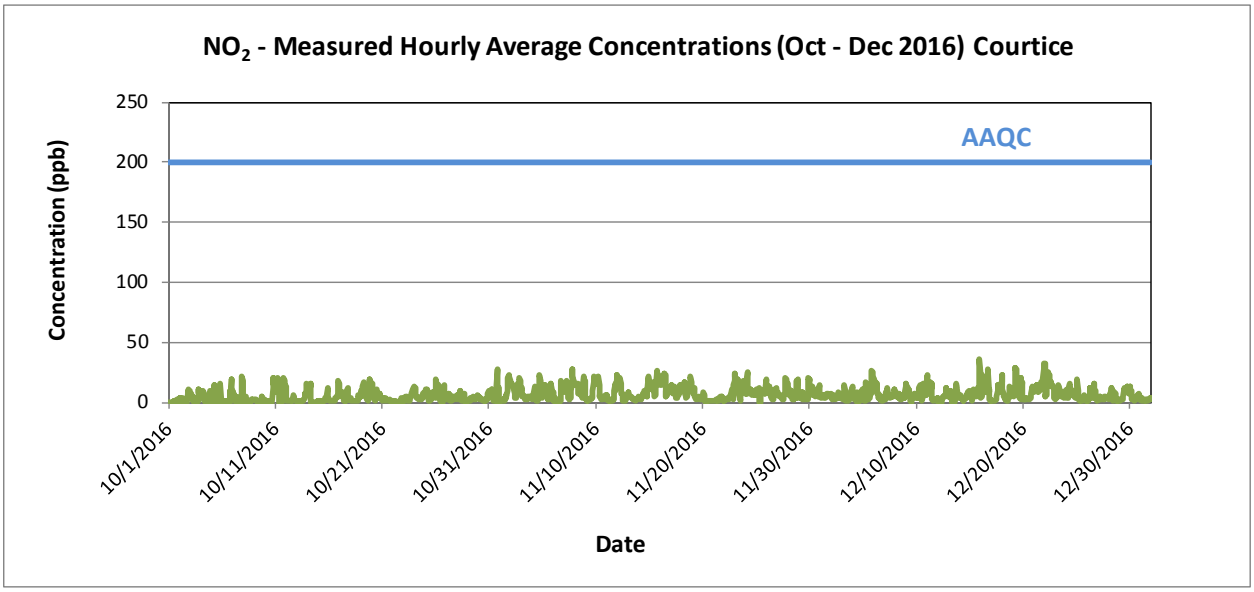
Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>200	Days>100
1	14.0	11.0	9.6	5.7	6.6	10.0	12.1	11.1	8.8	6.5	5.9	4.9	5.3	6.3	6.7	7.2	8.7	8.5	9.2	9.1	7.7	7.0	7.5	8.0	24	14.0	4.9	8.2	0	0
2	9.6	7.1	3.9	1.4	2.4	1.1	5.5	10.3	11.5	7.8	4.1	1.9	2.9	1.3	1.2	3.2	1.5	1.1	1.3	1.1	0.7	1.7	1.9	2.7	24	11.5	0.7	3.6	0	0
3	1.0	0.0	0.0	1.1	1.6	6.4	2.8	4.1	1.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.8	1.9	1.4	0.1	0.2	0.2	0.5	24	6.4	0.0	1.1	0	0
4	1.1	1.9	2.1	0.1	0.0	0.0	0.0	0.6	0.9	0.1	0.0	3.0	0.8	1.7	4.4	1.2	0.2	3.6	3.8	1.9	5.7	1.8	2.3	4.7	24	5.7	0.0	1.7	0	0
5	3.5	1.1	1.2	1.1	2.5	9.0	7.9	11.8	23.2	19.1	12.5	7.8	6.0	3.6	3.2	6.2	9.2	13.4	15.4	19.2	23.7	26.1	17.0	11.5	24	26.1	1.1	10.6	0	0
6	9.3	5.6	9.9	6.1	6.6	7.4	6.6	12.7	11.8	7.1	9.8	7.0	3.4	3.0	2.7	2.3	5.9	3.6	3.9	4.3	7.5	7.9	3.8	4.0	24	12.7	2.3	6.3	0	0
7	4.6	4.7	5.3	5.9	6.8	12.2	12.5	17.4	21.1	10.0	8.5	6.7	5.1	7.7	9.5	9.6	9.3	9.5	9.8	8.2	10.9	9.5	12.0	16.5	24	21.1	4.6	9.7	0	0
8	15.0	12.2	10.7	9.3	7.9	7.7	8.1	11.6	10.7	12.7	3.4	6.4	4.1	3.9	3.0	5.5	7.5	7.6	7.6	8.4	8.3	6.7	0.4	0.1	24	15.0	0.1	7.5	0	0
9	2.1	3.4	2.4	2.4	2.5	0.5	0.5	2.2	6.1	3.3	0.7	0.9	0.3	0.9	1.7	0.4	0.4	0.0	0.4	0.2	0.0	0.0	0.0	0.0	24	6.1	0.0	1.3	0	0
10	0.0	0.0	0.0	0.0	1.5	0.8	0.7	1.5	2.0	2.9	7.3	7.3	8.3	4.8	3.7	3.6	4.1	4.5	8.4	14.4	15.4	17.6	10.1	11.6	24	17.6	0.0	5.4	0	0
11	19.4	16.7	10.1	8.7	7.9	5.2	5.6	10.2	7.4	6.6	7.8	11.8	7.3	4.5	3.8	8.7	5.9	8.1	5.7	4.6	9.2	4.1	3.0	3.0	24	19.4	3.0	7.7	0	0
12	3.4	4.2	2.3	3.0	3.9	5.3	7.0	17.4	22.1	12.2	8.3	8.4	8.9	5.8	C	C	C	12.4	14.7	15.4	23.5	14.8	11.8	9.3	21	23.5	2.3	10.2	0	0
13	10.9	11.9	9.9	12.0	13.0	13.8	9.8	20.5	8.3	7.3	6.5	6.8	A	9.7	11.6	10.8	19.9	16.7	18.2	14.3	10.7	9.7	8.1	3.6	23	20.5	3.6	11.5	0	0
14	8.4	8.8	8.8	4.4	6.2	7.9	7.2	9.7	8.6	7.2	5.8	7.2	7.6	7.7	7.0	8.0	8.0	8.3	9.2	11.3	9.3	12.9	13.3	5.5	24	13.3	4.4	8.3	0	0
15	5.5	6.3	7.1	6.6	5.2	0.8	0.7	2.4	6.8	11.6	10.4	8.7	8.0	3.9	2.3	2.7	3.8	3.3	1.6	1.0	0.6	0.7	1.2	1.4	24	11.6	0.6	4.3	0	0
16	2.5	1.1	0.8	0.5	2.4	8.9	5.2	4.3	11.4	9.7	8.9	15.7	9.7	12.0	15.5	21.5	26.4	26.6	24.7	30.3	25.7	5.6	6.2	5.0	24	30.3	0.5	11.7	0	0
17	5.0	4.7	13.9	3.4	3.0	3.3	3.5	3.9	3.1	4.8	6.6	5.2	5.1	5.5	7.1	9.6	8.0	7.5	M	M	M	4.3	7.8	10.1	21	13.9	3.0	6.0	0	0
18	18.0	20.4	13.5	8.0	6.6	5.2	5.3	3.5	2.3	1.9	1.4	1.1	1.2	1.3	0.7	0.8	1.1	1.8	3.3	4.3	2.3	0.6	1.4	2.6	24	20.4	0.6	4.5	0	0
19	3.1	3.4	5.1	5.5	5.3	3.9	2.7	7.8	12.1	18.3	18.0	12.2	8.1	10.1	12.4	16.4	9.9	8.0	8.0	17.4	22.4	10.1	13.3	12.4	24	22.4	2.7	10.3	0	0
20	6.6	5.6	9.1	13.5	12.6	15.0	12.8	13.8	10.9	12.1	9.0	6.5	7.5	5.8	5.2	6.5	6.4	6.8	9.3	11.3	16.4	17.4	14.2	14.4	24	17.4	5.2	10.4	0	0
21	13.0	12.6	13.3	14.5	15.0	16.9	20.5	29.4	24.6	17.8	15.7	14.6	15.5	21.4	24.6	21.2	21.3	18.9	23.1	15.7	21.0	30.3	25.8	24.3	24	30.3	12.6	19.6	0	0
22	28.2	31.0	24.1	9.8	9.8	10.6	12.9	24.3	26.1	24.5	22.1	21.2	21.2	13.7	10.8	12.0	9.7	7.7	9.0	11.5	13.4	22.0	19.4	11.3	24	31.0	7.7	16.9	0	0
23	6.6	7.4	8.3	7.0	8.5	11.0	15.0	19.4	15.6	17.4	15.9	11.6	9.1	9.4	8.5	10.5	14.0	12.8	7.8	8.6	9.4	9.6	16.2	14.8	24	19.4	6.6	11.4	0	0
24	18.6	17.8	10.7	9.9	8.5	10.8	8.8	10.2	15.2	12.0	13.7	10.3	6.1	5.2	6.8	10.9	14.8	9.4	6.9	6.3	4.4	8.7	7.2	9.0	24	18.6	4.4	10.1	0	0
25	11.6	15.2	13.7	14.9	7.0	1.5	1.2	1.1	1.0	1.0	1.0	0.7	0.6	0.6	0.8	0.8	1.4	7.0	3.6	1.3	1.0	2.8	6.3	1.1	24	15.2	0.6	4.1	0	0
26	1.0	1.0	1.1	1.1	1.7	2.5	2.6	3.2	2.5	4.7	4.1	13.2	8.0	5.7	6.4	9.7	9.4	11.5	14.6	7.7	8.3	6.7	4.0	4.7	24	14.6	1.0	5.6	0	0
27	4.1	3.5	3.5	2.8	4.1	3.0	1.7	2.1	4.0	3.9	5.8	3.5	2.6	4.0	3.3	2.5	2.5	3.0	2.6	2.2	2.1	1.9	2.6	5.7	24	5.8	1.7	3.2	0	0
28	5.8	4.6	3.1	3.2	3.4	4.8	7.0	5.4	5.3	8.2	5.3	2.4	2.1	3.8	5.5	7.6	9.3	5.9	4.7	7.7	7.5	5.8	6.7	5.6	24	9.3	2.1	5.4	0	0
29	4.9	5.6	3.8	6.2	5.4	5.6	4.4	4.6	5.7	7.2	8.3	14.5	16.3	12.5	14.2	11.5	14.9	13.5	10.2	16.3	12.8	6.6	11.3	17.0	24	17.0	3.8	9.7	0	0
30	9.0	10.5	5.5	6.0	2.6	1.2	1.3	1.2	1.5	1.1	1.0	0.7	0.5	0.6	0.8	1.8	3.2	2.0	3.5	3.0	5.3	8.5	13.1	6.0	24	13.1	0.5	3.7	0	0
31	5.8	7.5	7.4	6.8	4.1	3.4	2.4	6.1	2.7	2.5	3.3	3.4	6.0	4.1	4.4	4.3	4.0	4.1	3.3	3.3	2.8	3.8	3.2	2.8	24	7.5	2.4	4.2	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	31	30	31	30	30	30	31	30	30	30	31	31	31	737					
Maximum	28.2	31.0	24.1	14.9	15.0	16.9	20.5	29.4	26.1	24.5	22.1	21.2	21.2	21.4	24.6	21.5	26.4	26.6	24.7	30.3	25.7	30.3	25.8	24.3	24					
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.4	0.2	0.0	0.0	0.0	0.0	21					
Average	8.1	8.0	7.1	5.8	5.6	6.3	6.3	9.2	9.5	8.5	7.5	7.3	6.3	5.8	6.3	7.2	8.0	8.0	8.2	8.7	9.6	8.6	8.1	7.4						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.0	2.3	3.5	5.1	6.5	7.9	9.4	11.8	15.5	20.0	26.1	31.0

Maximum Hourly	31.0
Maximum Daily	19.6
Monthly Average	7.6

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

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



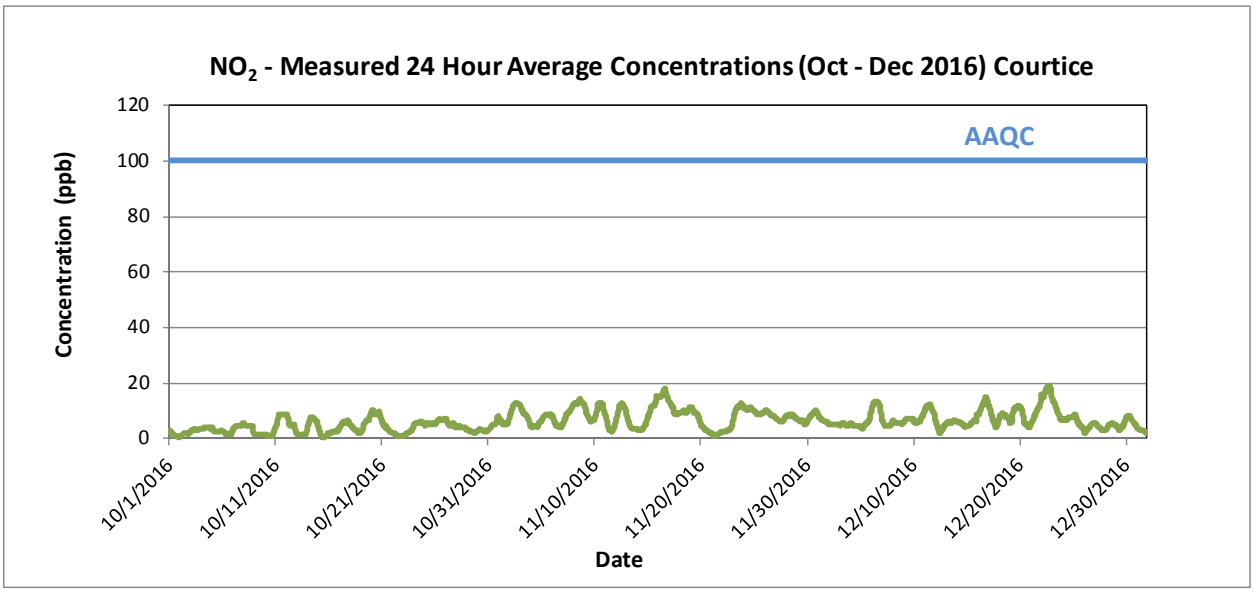
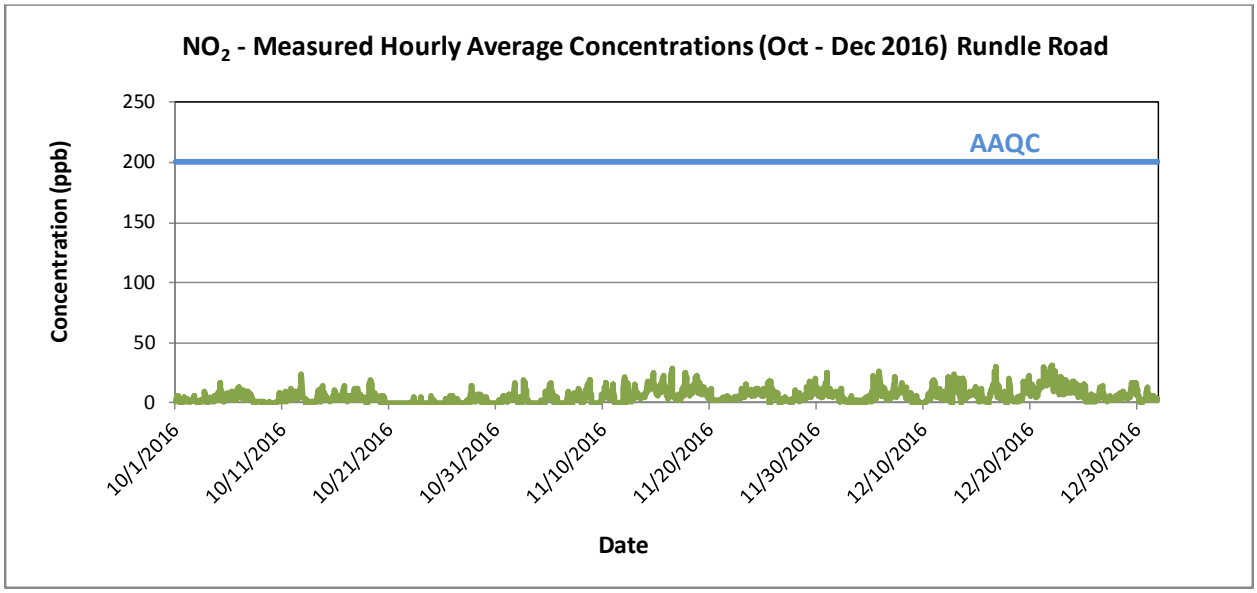
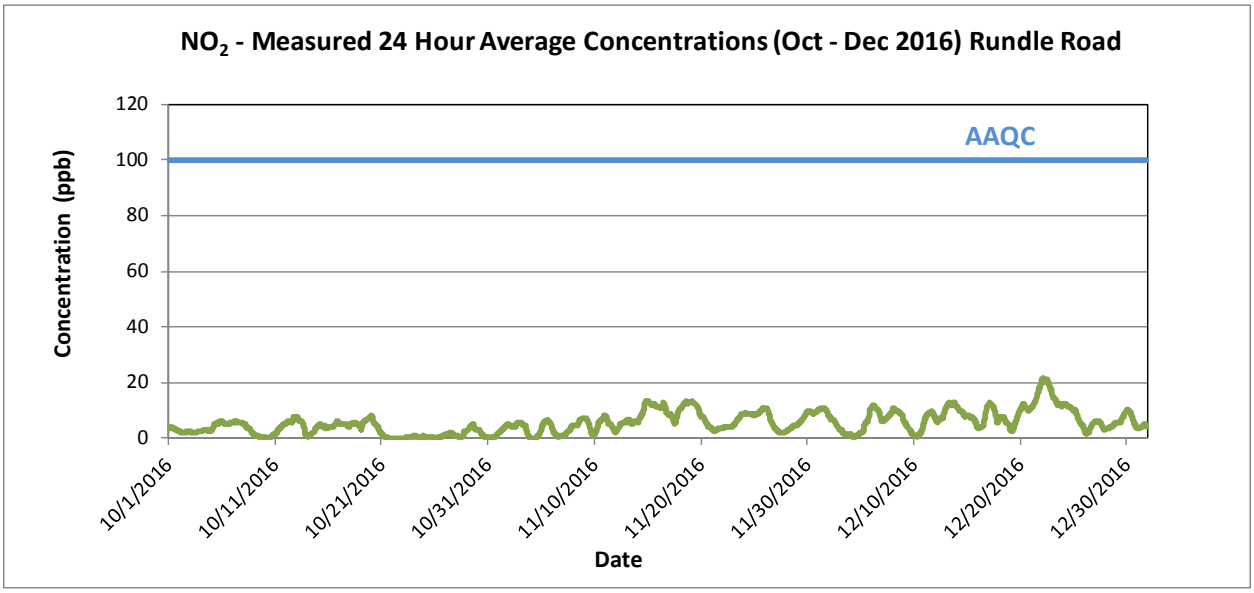


Figure C-2 Time History Plots of Measured Hourly Average and 24 Hour Average NO_2 Concentrations – Rundle Road Station





Appendix D NO_X DATA SUMMARIES AND TIME HISTORY PLOTS

NOx COURTICE
October 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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	1.8	0.8	1.0	0.9	1.1	2.0	3.8	2.5	2.4	3.4	3.0	3.8	24	3.8	0.0	1.1	0	0
2	2.0	3.6	4.8	1.0	3.6	6.4	6.8	7.4	3.9	3.0	0.9	0.4	0.0	0.2	0.0	0.0	0.0	0.2	0.6	2.8	11.4	9.5	6.4	12.3	24	12.3	0.0	3.6	0	0
3	4.8	5.4	8.2	8.1	7.2	6.2	11.2	12.9	2.6	3.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	13.6	13.6	10.8	4.7	6.9	24	13.6	0.0	5.1	0	0
4	4.8	6.9	8.9	8.5	12.3	15.6	16.7	14.7	6.8	3.4	1.2	0.0	0.0	0.0	0.0	0.0	0.6	2.3	2.9	3.4	3.7	8.9	12.5	6.5	24	16.7	0.0	5.9	0	0
5	2.4	0.8	3.7	0.8	0.1	0.4	10.6	33.6	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.1	2.4	4.2	2.3	2.5	11.7	16.9	0.9	0.5	24	33.6	0.0	3.9	0	0
6	0.0	0.5	0.5	0.0	0.3	0.5	0.7	1.1	1.0	1.1	1.4	1.1	1.1	0.3	0.4	0.4	0.0	0.4	7.3	15.0	1.6	20.4	23.6	14.9	24	23.6	0.0	3.9	0	0
7	8.7	7.3	10.5	7.0	3.4	2.5	6.1	6.7	1.0	0.8	0.7	0.6	0.3	0.1	0.0	0.2	0.4	1.3	4.7	5.2	17.2	27.3	22.1	26.8	24	27.3	0.0	6.7	0	0
8	12.4	2.3	0.8	0.2	1.7	5.0	3.5	3.1	1.7	2.1	0.8	0.0	0.0	0.0	0.4	1.6	0.7	1.8	2.3	2.6	1.2	3.0	2.6	2.3	24	12.4	0.0	2.2	0	0
9	2.4	2.6	3.7	3.9	1.7	2.2	4.1	2.6	0.2	0.2	0.0	0.2	0.2	0.0	0.0	0.9	4.1	1.1	6.6	4.5	3.2	2.5	2.1	4.5	24	6.6	0.0	2.2	0	0
10	1.8	1.4	2.3	3.4	0.4	0.7	2.8	3.0	0.9	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.7	32.6	21.1	23.1	22.6	15.3	24	32.6	0.0	6.4	0	0
11	13.2	10.9	11.4	18.5	21.3	26.8	54.1	43.8	20.6	1.3	1.2	0.2	0.0	0.0	0.0	0.4	1.8	3.5	13.1	23.2	18.9	12.8	18.1	15.0	24	54.1	0.0	13.8	0	0
12	10.4	2.8	1.5	0.8	1.7	1.3	1.2	1.5	2.1	2.4	2.4	2.1	2.3	2.9	1.4	1.7	2.8	4.2	6.8	1.8	1.3	1.7	0.8	1.1	24	10.4	0.8	2.5	0	0
13	0.8	0.8	0.8	0.1	1.8	1.6	1.5	C	C	2.8	2.0	1.9	1.6	1.7	2.4	1.7	2.6	3.6	6.1	8.7	6.6	10.3	20.2	27.0	22	27.0	0.1	4.8	0	0
14	21.6	23.9	16.6	25.1	24.1	17.4	22.1	29.8	19.3	0.8	0.1	0.0	0.0	0.0	0.1	0.3	0.0	0.3	0.0	0.5	0.4	0.6	0.9	0.6	24	29.8	0.0	8.5	0	0
15	0.6	0.8	0.5	0.6	1.2	1.2	1.4	1.3	1.0	1.2	1.2	1.2	1.1	1.5	1.3	0.7	0.9	3.9	3.3	2.3	5.6	15.5	6.1	3.9	24	15.5	0.5	2.4	0	0
16	2.8	2.3	1.2	1.1	0.8	1.1	1.6	1.4	2.0	1.8	2.0	1.9	1.9	1.9	2.0	4.7	4.6	5.3	5.0	4.9	6.5	6.9	26.0	20.1	24	26.0	0.8	4.6	0	0
17	7.8	6.0	8.1	9.3	10.4	6.0	10.9	13.9	11.5	8.3	3.3	2.9	3.0	2.9	3.2	1.6	4.0	14.7	14.4	10.8	7.8	3.8	3.6	9.8	24	14.7	1.6	7.4	0	0
18	5.1	3.7	2.6	1.6	1.9	1.3	1.2	1.0	1.2	1.0	1.3	1.0	1.0	1.4	1.0	1.7	2.1	1.7	3.0	6.3	4.2	5.9	6.0	5.5	24	6.3	1.0	2.6	0	0
19	4.7	5.5	10.7	7.0	9.8	21.4	47.1	51.9	17.9	13.3	9.9	8.8	14.0	11.7	7.7	3.5	1.4	1.0	6.1	25.6	29.4	44.5	54.6	29.6	24	54.6	1.0	18.2	0	0
20	20.1	22.0	15.2	13.6	13.3	9.4	15.4	2.5	1.4	1.5	8.3	14.1	6.5	7.6	7.5	7.0	7.1	8.5	11.0	5.0	4.7	3.6	4.3	3.1	24	22.0	1.4	8.9	0	0
21	4.9	4.1	1.7	2.8	3.2	3.6	6.6	5.6	5.2	3.0	3.4	3.2	4.1	3.7	3.7	3.2	4.1	3.5	6.0	2.6	2.2	4.0	1.9	1.8	24	6.6	1.7	3.7	0	0
22	1.9	0.7	1.3	2.9	0.6	0.9	2.0	2.2	1.2	1.4	0.9	1.1	0.9	0.7	1.8	1.4	1.2	1.5	2.3	2.4	4.0	2.4	2.2	3.6	24	4.0	0.6	1.7	0	0
23	3.4	2.1	2.3	3.4	5.8	3.5	4.3	6.0	7.3	2.1	1.9	1.7	1.2	1.4	1.7	3.0	3.1	7.4	6.9	8.6	12.5	12.2	12.0	15.8	24	15.8	1.2	5.4	0	0
24	15.8	10.2	13.3	6.1	6.2	3.9	7.4	4.0	4.3	4.3	3.6	2.6	3.1	2.8	3.8	5.0	4.7	5.6	5.8	4.3	6.3	8.1	8.5	7.2	24	15.8	2.6	6.1	0	0
25	8.7	6.7	8.5	12.1	10.8	8.9	12.6	12.5	4.2	2.7	2.7	1.9	1.7	2.3	2.8	3.3	3.7	7.2	11.3	5.6	6.3	10.0	9.4	4.6	24	12.6	1.7	6.7	0	0
26	4.4	7.6	23.4	15.4	17.3	14.5	22.2	14.9	11.9	4.2	2.4	1.6	0.7	1.6	1.7	2.0	0.6	1.3	12.8	17.5	12.2	8.3	4.9	6.3	24	23.4	0.6	8.7	0	0
27	5.2	3.7	3.2	7.2	3.1	10.3	7.0	9.6	8.2	7.1	1.2	2.0	3.3	6.2	7.4	5.5	6.1	4.2	4.6	4.2	7.1	5.9	6.5	5.4	24	10.3	1.2	5.6	0	0
28	3.4	6.6	4.1	2.2	3.3	4.4	10.4	12.4	4.3	3.9	3.3	2.4	2.1	2.1	4.8	9.0	8.1	6.4	3.5	1.8	1.0	0.9	0.7	0.9	24	12.4	0.7	4.2	0	0
29	0.9	1.4	1.7	1.5	1.7	1.6	2.4	3.7	3.4	3.0	2.7	2.6	2.9	3.6	5.2	4.0	3.3	3.1	2.5	2.3	2.2	4.3	5.6	5.9	24	5.9	0.9	3.0	0	0
30	4.1	5.1	3.9	4.5	4.0	2.5	4.2	3.7	3.3	4.3	1.6	1.6	1.8	1.8	1.8	3.6	2.3	5.4	3.5	1.7	2.3	6.6	10.4	15.7	24	15.7	1.6	4.2	0	0
31	9.0	7.5	12.8	18.4	10.6	11.3	19.6	23.3	12.9	4.0	1.7	1.9	2.7	1.9	2.6	1.7	2.5	12.9	88.0	37.2	17.1	14.7	13.1	3.5	24	88.0	1.7	13.8	0	0
Count	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	742					
Maximum	21.6	23.9	23.4	25.1	24.1	26.8	54.1	51.9	20.6	13.3	9.9	14.1	14.0	11.7	7.7	9.0	8.1	14.7	88.0	37.2	29.4	44.5	54.6	29.6	24					
Minimum	0.0	0.1	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	0.5	0.4	0.6	0.7	0.5	22					
Average	6.1	5.3	6.1	6.0	5.9	6.2	10.2	11.0	5.4	2.9	2.0	1.9	1.9	2.0	2.1	2.2	2.5	3.8	8.7	8.5	7.9	10.0	10.2	9.0						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.3	1.0	1.6	2.3	3.1	4.1	6.0	8.6	14.4	20.6	35.8	88.0

Maximum Hourly	88.0
Maximum Daily	18.2
Monthly Average	5.7

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

NOx COURTICE

November 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	0.9	1.0	1.9	1.5	1.1	1.3	1.1	1.5	1.0	1.1	1.6	1.6	4.2	3.8	5.4	7.6	6.5	12.0	26.2	29.0	43.0	30.0	30.2	29.8	24	43.0	0.9	10.1	0	0
2	49.0	31.3	26.1	28.3	37.1	43.7	69.9	38.1	20.5	10.3	10.7	4.5	4.9	6.0	6.3	7.2	15.3	10.2	17.6	12.0	24.0	25.6	25.8	28.6	24	69.9	4.5	23.0	0	0
3	10.0	16.8	13.9	7.8	6.6	5.7	5.8	7.4	7.5	6.6	4.4	3.4	4.0	2.7	3.8	3.3	6.0	6.5	6.6	5.1	3.9	5.0	6.6	5.5	24	16.8	2.7	6.5	0	0
4	7.5	3.4	3.9	6.5	5.5	8.2	18.9	14.5	7.6	3.9	3.3	2.3	2.1	2.6	2.7	5.5	7.3	4.3	50.4	23.0	11.8	9.2	7.5	3.7	24	50.4	2.1	9.0	0	0
5	7.3	14.6	14.8	17.2	11.6	13.8	16.3	15.0	9.7	12.4	9.9	2.4	4.3	5.7	3.1	2.6	4.1	6.4	18.8	13.1	17.3	10.5	3.1	7.9	24	18.8	2.4	10.1	0	0
6	9.5	4.1	1.7	4.0	1.6	2.2	4.5	3.3	2.6	2.6	1.2	1.9	1.3	0.4	0.7	0.7	0.6	0.9	30.9	50.3	27.9	26.4	23.1	21.4	24	50.3	0.4	9.3	0	0
7	15.5	19.0	12.4	12.2	16.2	26.8	30.2	69.8	70.8	15.5	5.7	5.6	5.3	4.4	4.3	3.7	7.7	11.0	23.1	46.3	41.6	40.5	36.4	32.9	24	70.8	3.7	23.2	0	0
8	28.6	34.1	21.9	23.0	31.4	32.0	34.3	64.8	53.6	20.8	11.1	12.1	15.2	16.8	13.6	11.0	7.1	3.7	4.6	11.5	23.2	27.4	21.6	24.9	24	64.8	3.7	22.8	0	0
9	10.7	4.8	5.3	2.3	2.4	2.9	3.1	3.4	3.5	3.1	4.1	3.2	2.9	3.2	3.0	4.3	5.0	7.1	11.0	19.6	23.2	58.4	46.0	48.9	24	58.4	2.3	11.7	0	0
10	32.4	26.6	25.1	22.2	26.3	37.2	39.2	49.0	29.3	10.6	9.1	8.0	6.9	3.9	3.3	2.4	4.1	3.9	3.8	3.4	3.6	3.4	5.0	6.2	24	49.0	2.4	15.2	0	0
11	5.2	7.1	2.5	1.9	1.8	4.0	2.4	3.4	2.8	2.3	2.6	3.0	2.3	2.6	3.0	2.7	2.8	7.2	11.1	20.4	17.4	16.2	11.0	40.8	24	40.8	1.8	7.4	0	0
12	58.2	35.1	29.6	26.8	23.6	24.9	26.2	36.3	25.5	18.7	11.1	12.9	6.3	5.4	2.9	1.5	1.6	1.5	1.6	2.3	3.7	4.7	5.8	3.9	24	58.2	1.5	15.4	0	0
13	5.9	8.5	5.9	5.3	5.0	4.9	4.8	5.8	5.1	5.1	5.9	5.6	4.2	3.3	3.3	2.8	2.6	2.0	2.4	3.0	2.4	2.1	2.7	3.4	24	8.5	2.0	4.2	0	0
14	3.3	5.1	3.1	3.1	3.9	3.3	3.0	4.3	5.6	7.3	9.4	12.7	11.7	11.2	14.8	9.8	7.1	9.1	6.1	4.7	12.0	11.4	58.3	55.4	24	58.3	3.0	11.5	0	0
15	49.0	52.5	34.0	32.0	32.9	43.4	45.1	53.5	44.1	31.3	23.1	12.5	9.8	8.0	9.5	8.6	16.2	44.9	31.7	53.1	70.5	63.0	30.8	29.6	24	70.5	8.0	34.5	0	0
16	29.9	28.8	23.2	21.3	24.1	30.8	37.8	43.7	51.9	56.4	69.3	54.2	53.1	18.8	6.3	12.2	7.2	7.0	7.6	12.0	10.4	11.9	10.1	11.6	24	69.3	6.3	26.7	0	0
17	10.1	10.2	20.7	14.6	19.2	8.7	11.6	19.7	31.0	24.7	25.3	26.8	14.7	7.0	6.1	4.7	8.6	15.1	10.9	11.5	7.6	12.5	17.9	14.1	24	31.0	4.7	14.7	0	0
18	10.8	10.9	14.3	18.1	16.9	16.5	19.4	34.6	38.7	15.6	7.6	5.2	5.1	6.1	5.8	9.7	12.0	14.7	14.2	13.7	15.6	22.1	27.7	22.8	24	38.7	5.1	15.8	0	0
19	15.6	14.9	7.8	7.8	9.4	16.2	11.2	5.8	2.4	3.2	4.7	2.9	3.6	4.6	4.5	5.7	5.5	4.7	3.8	4.4	2.4	2.4	2.2	3.4	24	16.2	2.2	6.2	0	0
20	2.9	3.6	5.6	8.9	6.8	4.6	1.1	1.4	1.4	1.0	1.8	1.1	1.1	1.3	1.2	1.7	2.4	1.8	0.9	2.3	1.5	1.4	1.0	1.7	24	8.9	0.9	2.4	0	0
21	2.2	0.9	1.2	0.9	1.9	1.7	2.3	2.6	2.6	2.4	2.0	2.2	2.3	2.5	4.6	6.6	6.9	4.0	4.1	4.9	5.3	2.7	1.9	4.2	24	6.9	0.9	3.0	0	0
22	1.9	2.1	2.3	3.3	3.0	2.7	2.8	4.8	4.8	3.9	4.7	4.7	3.9	5.0	5.6	8.2	6.9	14.2	11.8	7.5	3.4	18.4	18.7	19.7	24	19.7	1.9	6.9	0	0
23	51.9	65.2	43.3	17.3	11.7	20.1	28.6	33.7	29.3	16.9	10.6	8.6	1.3	1.3	1.8	8.2	10.4	12.5	18.2	21.6	15.7	12.7	9.9	10.6	24	65.2	1.3	19.2	0	0
24	13.4	22.2	16.6	9.0	22.1	43.0	22.1	8.8	9.9	11.8	15.7	10.9	14.4	8.8	9.1	8.7	8.4	9.7	12.9	13.6	10.1	8.7	7.5	12.1	24	43.0	7.5	13.7	0	0
25	8.9	12.4	13.6	8.8	11.9	12.5	17.5	14.6	C	C	C	C	16.5	12.0	11.3	11.6	11.3	10.0	11.2	9.0	11.1	7.5	10.5	23.4	20	23.4	7.5	12.3	0	0
26	13.8	12.8	13.4	9.3	9.1	8.4	16.1	10.7	14.8	10.2	7.8	3.4	3.3	2.2	2.8	2.9	7.8	10.0	12.8	8.5	11.5	12.8	8.7	7.1	24	16.1	2.2	9.2	0	0
27	9.1	9.1	8.2	7.6	7.3	5.9	4.8	6.8	8.5	6.1	5.3	5.1	3.3	2.9	4.1	3.7	7.0	8.2	14.3	32.2	40.5	23.0	22.4	18.9	24	40.5	2.9	11.0	0	0
28	13.2	8.0	9.6	7.4	13.6	7.2	6.7	12.2	8.4	6.7	4.4	3.9	3.7	5.3	3.7	8.7	7.1	6.6	14.5	33.9	4.7	15.5	30.2	8.7	24	33.9	3.7	10.2	0	0
29	7.1	10.9	6.8	5.3	4.9	7.0	4.4	8.2	10.3	6.0	2.1	3.6	5.1	4.1	3.1	2.1	2.6	2.2	2.6	2.8	3.1	16.8	47.4	48.8	24	48.8	2.1	9.0	0	0
30	70.7	45.2	23.6	12.3	9.5	14.0	15.9	14.7	7.2	7.8	9.4	11.2	6.7	9.3	12.6	9.5	10.1	8.1	14.1	7.0	5.9	8.0	15.6	9.4	24	70.7	5.9	14.9	0	0
31																													0	0
Count	30	30	30	30	30	30	30	30	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	716					
Maximum	70.7	65.2	43.3	32.0	37.1	43.7	69.9	69.8	70.8	56.4	69.3	54.2	53.1	18.8	14.8	12.2	16.2	44.9	50.4	53.1	70.5	63.0	58.3	55.4	24					
Minimum	0.9	0.9	1.2	0.9	1.1	1.3	1.1	1.4	1.0	1.0	1.2	1.1	1.1	0.4	0.7	0.7	0.6	0.9	0.9	2.3	1.5	1.4	1.0	1.7	20					
Average	18.5	17.4	13.8	11.5	12.6	15.1	16.9	19.7	17.6	11.2	9.8	8.1	7.4	5.7	5.4	5.9	6.9	8.6	13.3	16.1	15.8	17.0	18.2	18.6						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100				
															Maximum Hourly	70.8
															Maximum Daily	34.5
Data	2.3	3.3	4.7	6.3	8.2	10.7	13.7	19.7	31.0	43.8	64.5	70.8			Monthly Average	13.0

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

NOx COURTICE

December 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	7.0	6.6	5.3	5.1	4.5	6.7	6.6	5.7	6.5	5.2	5.4	6.6	7.4	7.1	6.9	7.2	7.8	7.6	8.3	7.2	5.8	6.2	6.7	7.3	24	8.3	4.5	6.5	0	0
2	7.9	5.3	4.3	3.0	4.1	3.0	5.5	7.1	7.9	9.3	6.0	3.2	3.1	3.8	4.5	4.6	6.8	8.4	10.1	7.8	4.6	6.2	5.0	6.7	24	10.1	3.0	5.8	0	0
3	6.5	4.5	3.1	2.7	5.3	9.9	8.5	19.9	13.4	5.7	2.1	1.6	1.8	2.3	1.8	2.4	4.3	4.1	5.5	5.5	3.3	6.3	7.3	10.8	24	19.9	1.6	5.8	0	0
4	17.2	17.4	9.0	5.8	3.4	5.2	4.1	6.3	3.7	4.4	16.4	4.3	0.5	0.2	0.7	0.9	4.0	7.9	1.7	5.2	11.1	5.9	6.4	11.7	24	17.4	0.2	6.4	0	0
5	15.1	5.2	1.6	0.9	1.2	1.2	0.9	9.3	20.7	25.1	20.8	7.4	7.2	4.4	4.0	4.7	8.0	10.2	8.1	9.8	15.8	47.0	33.9	32.7	24	47.0	0.9	12.3	0	0
6	28.1	22.6	15.9	49.1	40.1	26.4	21.3	25.7	17.3	21.2	11.7	11.8	5.6	7.7	5.6	3.9	7.2	3.0	6.5	2.0	1.9	1.5	1.7	2.1	24	49.1	1.5	14.2	0	0
7	3.1	2.7	2.6	2.5	5.4	9.3	7.3	12.7	14.5	6.2	7.4	7.5	6.1	7.3	6.2	5.3	5.3	4.7	5.9	5.6	6.2	5.5	9.4	11.4	24	14.5	2.5	6.7	0	0
8	10.9	8.7	7.6	6.2	5.1	5.3	5.3	5.0	5.9	8.7	4.7	5.7	6.5	4.8	3.7	4.4	5.1	4.7	5.6	6.4	6.9	7.6	5.0	9.3	24	10.9	3.7	6.2	0	0
9	15.8	17.7	12.0	12.9	9.9	14.5	9.4	13.5	13.2	9.2	5.7	3.7	2.8	2.2	4.0	4.4	7.6	8.3	8.0	7.2	5.6	7.8	4.6	5.8	24	17.7	2.2	8.6	0	0
10	5.8	5.9	5.4	4.1	11.1	8.4	9.9	17.8	17.2	13.0	10.1	9.7	6.4	4.2	1.7	6.0	14.8	17.1	16.8	14.0	16.7	8.2	7.0	9.1	24	17.8	1.7	10.0	0	0
11	26.9	24.4	22.2	15.2	14.5	19.6	26.3	29.9	23.3	18.9	17.7	22.1	3.2	1.9	1.7	1.7	1.9	2.5	2.5	2.3	2.3	2.2	2.0	1.8	24	29.9	1.7	12.0	0	0
12	5.6	1.9	4.2	1.9	2.4	2.2	3.0	C	C	C	C	6.9	10.1	8.7	5.0	7.2	8.2	6.8	7.3	10.8	12.8	8.4	5.5	5.4	20	12.8	1.9	6.2	0	0
13	6.1	5.9	6.1	5.3	6.1	9.8	3.9	6.9	1.8	2.6	A	A	3.5	5.1	C	C	C	15.4	12.6	16.1	7.4	7.2	6.4	3.7	19	16.1	1.8	6.9	0	0
14	5.1	5.0	5.2	6.2	6.2	4.2	3.8	4.2	3.1	3.0	2.5	3.8	4.2	4.0	3.3	4.2	4.4	5.6	6.5	8.1	6.8	9.2	10.1	6.2	24	10.1	2.5	5.2	0	0
15	5.8	4.5	4.4	5.5	7.0	2.3	6.4	7.9	12.4	9.3	8.5	5.9	7.2	9.1	6.4	11.0	9.2	15.8	8.1	8.4	7.2	6.2	12.0	54.7	24	54.7	2.3	9.8	0	0
16	30.0	8.1	4.5	5.8	9.7	26.6	16.3	16.6	21.4	32.1	36.0	29.4	13.7	12.6	15.0	18.9	25.8	21.1	34.5	10.5	12.1	2.6	2.9	2.8	24	36.0	2.6	17.1	0	0
17	2.0	2.4	2.1	2.4	1.8	1.8	2.1	1.8	1.7	2.1	2.3	2.7	3.1	3.8	6.1	12.0	16.4	12.0	11.0	12.2	9.8	14.0	18.1	17.3	24	18.1	1.7	6.7	0	0
18	17.8	24.2	17.4	12.1	7.7	6.9	5.9	4.5	3.7	3.7	3.3	2.4	2.7	2.5	2.4	1.9	3.4	7.1	11.0	13.7	14.9	5.7	9.6	8.7	24	24.2	1.9	8.0	0	0
19	8.0	7.0	5.6	11.2	12.9	11.9	18.1	39.6	41.6	55.7	23.7	23.5	9.9	12.8	14.8	9.9	5.1	3.8	3.9	18.1	22.1	3.5	18.0	6.2	24	55.7	3.5	16.1	0	0
20	2.6	2.9	3.5	3.4	2.9	3.5	3.4	2.4	3.5	4.8	4.9	3.9	3.3	3.5	3.2	3.3	3.6	4.4	6.2	8.1	13.6	12.0	11.2	11.5	24	13.6	2.4	5.2	0	0
21	9.7	9.4	9.5	10.9	11.6	12.4	13.5	15.1	15.9	13.6	15.2	13.2	15.5	22.8	17.9	12.7	12.8	13.2	17.1	11.0	15.9	19.1	31.9	41.3	24	41.3	9.4	15.9	0	0
22	36.8	41.0	26.7	5.8	7.1	7.1	9.1	26.6	32.1	33.2	42.7	41.0	38.1	29.9	19.5	20.5	15.8	15.2	15.5	13.4	14.5	12.3	12.9	4.6	24	42.7	4.6	21.7	0	0
23	3.6	5.0	4.5	4.6	6.0	7.7	10.8	11.3	11.5	19.6	16.6	10.6	7.8	6.6	6.3	7.2	9.1	6.4	4.9	4.5	5.0	5.6	6.0	5.4	24	19.6	3.6	7.8	0	0
24	7.4	10.7	13.1	5.1	4.4	4.7	6.8	11.1	17.5	12.7	16.0	14.9	10.5	7.8	10.3	10.2	9.7	9.4	7.7	7.1	5.4	4.8	4.8	6.2	24	17.5	4.4	9.1	0	0
25	7.9	9.0	9.8	19.8	10.3	3.3	2.5	2.2	2.4	2.0	3.4	2.0	2.0	1.5	1.5	1.7	2.5	6.9	7.1	2.6	2.6	3.5	2.3	2.0	24	19.8	1.5	4.6	0	0
26	3.4	1.6	1.7	1.5	6.6	6.6	13.7	15.7	9.9	9.1	4.4	4.4	5.1	6.0	8.0	9.0	17.7	10.8	11.1	4.7	7.2	4.7	1.9	1.5	24	17.7	1.5	6.9	0	0
27	2.0	2.4	2.4	2.6	2.4	5.2	2.5	2.7	2.7	3.1	4.1	3.7	2.9	3.1	4.2	3.7	5.0	5.2	4.9	3.6	5.0	4.4	4.0	2.6	24	5.2	2.0	3.5	0	0
28	3.7	5.8	4.7	4.3	5.6	8.0	10.8	12.8	11.0	13.5	10.5	3.3	3.0	6.8	8.2	10.1	8.0	2.0	1.8	2.4	1.6	2.3	3.2	1.9	24	13.5	1.6	6.1	0	0
29	1.7	2.0	2.3	2.4	2.5	2.7	2.8	3.4	3.0	3.6	6.2	15.3	15.9	11.6	12.8	9.9	10.9	10.8	13.7	9.1	10.2	8.1	8.5	11.4	24	15.9	1.7	7.5	0	0
30	12.8	13.5	7.3	10.9	4.7	3.3	4.1	6.3	5.6	3.2	3.2	2.2	2.8	3.1	3.5	4.4	7.9	6.3	4.8	4.7	3.6	7.1	8.0	3.8	24	13.5	2.2	5.7	0	0
31	3.6	4.4	3.6	3.8	2.2	1.7	1.4	2.0	1.6	4.5	3.1	3.4	2.6	2.4	2.4	2.3	2.9	3.0	2.8	2.6	2.2	3.4	3.9	3.5	24	4.5	1.4	2.9	0	0
Count	31	31	31	31	31	31	31	30	30	30	29	30	31	31	30	30	30	31	31	31	31	31	31	31	735					
Maximum	36.8	41.0	26.7	49.1	40.1	26.6	26.3	39.6	41.6	55.7	42.7	41.0	38.1	29.9	19.5	20.5	25.8	21.1	34.5	18.1	22.1	47.0	33.9	54.7	24					
Minimum	1.7	1.6	1.6	0.9	1.2	1.2	0.9	1.8	1.6	2.0	2.1	1.6	0.5	0.2	0.7	0.9	1.9	2.0	1.7	2.0	1.6	1.5	1.7	1.5	19					
Average	10.3	9.3	7.3	7.5	7.2	7.8	7.9	11.5	11.5	11.9	10.9	9.2	6.9	6.8	6.4	6.8	8.4	8.4	8.7	7.9	8.4	8.0	8.7	10.0						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	55.7
													Maximum Daily	21.7
Data	2.3	3.2	4.2	5.2	6.2	7.4	9.7	12.6	17.3	23.8	41.0	55.7	Monthly Average	8.6

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

October 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	5.2	2.6	6.4	9.2	8.6	9.5	3.4	2.5	2.2	2.2	4.3	2.2	3.4	1.4	1.7	1.3	1.5	6.9	2.2	10.5	5.6	5.7	2.0	1.4	24	10.5	1.3	4.2	0	0
2	1.8	4.4	3.4	2.3	2.4	4.0	2.6	3.7	3.6	3.0	3.4	2.5	2.8	3.5	3.2	3.8	3.5	4.0	8.0	4.8	3.6	2.3	4.0	3.1	24	8.0	1.8	3.5	0	0
3	2.2	2.1	1.7	1.3	1.4	2.0	3.5	5.4	6.1	3.1	6.0	5.1	4.0	2.4	2.4	2.6	4.2	12.5	10.3	5.5	4.5	7.4	7.0	1.6	24	12.5	1.3	4.3	0	0
4	1.1	9.0	1.7	1.9	2.0	2.7	6.1	7.7	9.3	4.6	2.9	2.0	2.4	2.4	2.8	2.2	11.2	2.7	4.4	5.0	4.3	4.5	8.0	8.0	24	11.2	1.1	4.5	0	0
5	13.6	5.3	3.5	3.2	12.5	20.2	14.9	15.5	16.8	8.8	2.6	2.0	13.6	2.3	3.4	5.5	2.8	5.3	6.1	8.0	9.6	13.1	8.0	7.1	24	20.2	2.0	8.5	0	0
6	6.4	4.2	5.0	5.2	6.7	8.5	10.7	12.2	6.1	5.4	4.2	6.5	3.7	3.5	4.4	3.8	3.8	11.4	9.4	10.9	12.8	7.3	5.2	22.8	24	22.8	3.5	7.5	0	0
7	5.3	5.1	11.0	6.4	5.4	7.7	10.2	16.2	9.8	5.4	3.8	3.4	7.3	6.3	3.5	3.5	4.4	8.5	9.7	7.0	10.7	6.9	7.5	8.6	24	16.2	3.4	7.2	0	0
8	3.8	12.0	4.2	3.8	3.7	5.5	1.1	1.1	1.0	1.3	1.4	1.0	1.7	2.3	2.1	1.5	1.4	1.3	1.4	1.7	1.6	1.8	1.7	1.8	24	12.0	1.0	2.5	0	0
9	2.0	1.7	1.6	1.2	1.1	1.2	1.4	0.8	0.8	0.8	0.6	0.7	0.5	0.6	0.6	0.9	0.6	0.7	1.5	2.2	1.5	1.1	0.8	1.0	24	2.2	0.5	1.1	0	0
10	0.9	0.8	0.9	1.2	0.6	0.5	0.8	0.8	1.0	0.7	1.2	1.4	1.8	2.3	3.0	2.2	2.4	5.4	13.2	7.3	8.5	4.1	2.6	2.9	24	13.2	0.5	2.8	0	0
11	2.5	2.9	2.3	2.5	4.0	8.0	14.5	13.0	15.2	5.0	11.0	2.7	8.7	14.4	9.8	5.5	4.6	8.0	10.3	15.5	5.5	5.2	7.9	6.2	24	15.5	2.3	7.7	0	0
12	3.9	7.9	6.1	6.2	8.1	11.9	8.0	8.0	10.4	6.9	6.6	15.1	5.9	5.7	6.5	13.9	12.7	15.3	19.9	25.0	7.8	9.3	6.3	5.1	24	25.0	3.9	9.7	0	0
13	4.7	3.8	4.5	5.0	1.7	1.2	2.5	3.3	2.0	C	C	C	1.5	1.6	1.4	1.7	1.3	1.3	1.9	1.7	1.1	1.7	2.9	1.0	21	5.0	1.0	2.3	0	0
14	1.1	1.1	1.5	1.6	2.1	1.9	5.0	7.6	21.6	7.6	8.1	6.0	3.8	2.4	2.1	2.1	3.5	13.3	15.7	7.9	7.9	5.5	16.3	4.1	24	21.6	1.1	6.2	0	0
15	8.4	7.8	3.9	4.2	4.5	4.9	4.4	5.4	4.0	4.6	2.9	2.4	2.5	4.7	3.2	3.4	5.0	3.6	3.5	6.9	7.4	7.1	15.2	10.6	24	15.2	2.4	5.4	0	0
16	8.7	9.2	6.0	2.6	2.3	2.8	5.7	3.7	4.5	4.1	3.9	4.8	8.5	5.9	8.6	9.2	4.6	6.0	11.0	14.9	15.3	9.2	5.4	5.0	24	15.3	2.3	6.7	0	0
17	3.4	1.9	6.4	3.8	2.9	3.1	2.9	8.1	11.7	6.4	4.8	5.2	4.0	3.6	9.2	15.7	6.5	15.9	4.4	5.1	9.6	6.1	8.0	9.6	24	15.9	1.9	6.6	0	0
18	10.7	18.5	15.3	5.3	4.9	3.1	10.2	4.3	3.7	5.1	4.2	4.9	4.3	6.5	6.0	7.0	6.0	6.1	3.8	1.6	1.1	1.3	6.7	1.0	24	18.5	1.0	5.9	0	0
19	0.9	1.7	4.2	16.1	21.5	26.5	34.7	53.7	42.8	17.1	7.0	5.5	16.5	15.2	12.0	7.9	8.6	9.2	6.3	7.0	6.8	8.6	8.1	6.9	24	53.7	0.9	14.4	0	0
20	4.7	13.8	5.8	6.2	7.6	5.3	C	C	C	C	C	C	8.7	2.4	1.8	1.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	18	13.8	0.0	3.2	0	0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.3	0.0	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
22	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	0.4	0.5	0.2	24	0.5	0.0	0.1	0	0
23	0.1	0.0	0.3	0.1	2.2	0.7	2.3	7.6	2.2	0.4	0.0	0.0	0.0	0.2	0.1	0.0	0.5	0.7	0.7	2.1	1.8	1.4	1.5	1.6	24	7.6	0.0	1.1	0	0
24	6.2	2.4	1.2	0.0	0.0	0.0	0.8	2.4	1.2	1.1	1.1	0.6	1.7	1.8	3.8	2.0	1.0	1.0	0.8	0.5	0.5	0.5	6.2	7.8	24	7.8	0.0	1.9	0	0
25	1.3	0.6	0.8	0.6	0.3	1.8	5.1	2.4	0.5	0.0	0.6	0.2	0.0	0.0	0.1	0.1	1.1	1.5	0.7	0.0	0.0	0.0	0.2	0.0	24	5.1	0.0	0.7	0	0
26	0.0	0.0	1.7	0.0	2.0	1.9	3.4	4.3	6.9	1.2	0.6	0.4	1.4	4.5	3.9	2.0	3.0	4.5	7.9	7.2	7.3	1.4	13.8	1.4	24	13.8	0.0	3.4	0	0
27	2.0	6.0	1.4	2.0	1.7	3.1	3.7	8.5	3.2	2.8	6.7	3.9	2.0	2.8	2.3	1.6	1.2	0.8	1.2	1.0	1.6	1.8	1.8	1.9	24	8.5	0.8	2.7	0	0
28	0.4	0.7	0.4	0.0	0.4	0.2	3.3	4.8	1.2	1.1	0.5	0.7	1.4	2.0	7.8	10.6	12.5	21.8	12.7	11.4	4.6	3.5	3.4	3.3	24	21.8	0.0	4.5	0	0
29	4.4	3.7	7.6	2.3	3.0	3.4	9.2	9.3	10.7	9.4	8.7	5.7	5.7	7.8	10.0	8.1	1.1	0.6	0.3	0.3	0.5	0.6	0.7	1.2	24	10.7	0.3	4.8	0	0
30	3.6	5.9	4.0	5.4	2.7	0.0	0.5	0.5	0.3	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.5	24	5.9	0.0	1.0	0	0
31	0.0	0.0	0.0	0.3	0.6	1.1	3.2	6.4	3.3	1.1	0.8	0.7	1.2	0.5	1.3	4.3	7.4	9.2	6.7	7.3	6.6	6.0	5.0	7.1	24	9.2	0.0	3.3	0	0
Count	31	31	31	31	31	31	30	30	30	29	29	29	31	31	31	31	31	31	31	31	31	31	31	31	735					
Maximum	13.6	18.5	15.3	16.1	21.5	26.5	34.7	53.7	42.8	17.1	11.0	15.1	16.5	15.2	12.0	15.7	12.7	21.8	19.9	25.0	15.3	13.1	16.3	22.8	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	18					
Average	3.5	4.4	3.6	3.2	3.8	4.6	5.8	7.3	6.7	3.8	3.4	3.0	3.9	3.5	3.8	4.0	3.8	5.7	5.6	5.8	4.8	4.0	5.1	4.3						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.0	0.7	1.4	2.1	3.2	4.2	5.5	7.4	9.9	13.7	21.5	53.7

Maximum Hourly	53.7
Maximum Daily	14.4
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

NOx Rundle Road

November 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	3.2	6.0	3.2	5.5	9.2	10.4	9.5	12.2	8.5	6.6	7.0	7.3	6.3	11.3	10.1	6.3	8.2	19.1	7.3	7.4	9.9	5.7	4.8	3.8	24	19.1	3.2	7.9	0	0
2	3.0	1.9	1.7	2.5	3.6	16.0	13.0	10.0	6.2	6.5	6.3	2.5	1.5	8.2	14.8	25.5	16.9	19.7	14.7	13.0	9.3	8.1	5.6	2.6	24	25.5	1.5	8.9	0	0
3	4.8	0.9	1.2	0.3	0.2	0.6	1.0	1.5	1.9	2.3	1.4	0.9	0.5	0.8	0.8	0.6	0.5	0.7	0.3	0.3	0.2	0.0	0.0	0.0	24	4.8	0.0	0.9	0	0
4	0.0	0.1	0.2	0.0	0.5	0.6	5.0	4.4	2.1	2.2	1.5	1.1	2.2	2.5	2.9	6.3	11.9	10.5	8.1	8.5	5.2	9.2	12.5	7.8	24	12.5	0.0	4.4	0	0
5	9.2	17.7	19.0	9.2	8.7	12.1	12.0	10.0	7.6	8.8	12.7	2.1	4.8	7.6	5.2	8.2	1.9	6.1	5.3	2.6	2.0	1.2	0.7	1.2	24	19.0	0.7	7.3	0	0
6	1.3	0.2	0.0	0.0	0.1	0.0	0.2	0.4	1.2	0.3	0.0	4.0	1.9	1.3	3.3	4.9	4.7	15.4	5.2	5.3	5.1	4.7	3.1	2.0	24	15.4	0.0	2.7	0	0
7	2.3	2.1	1.5	1.6	2.1	3.6	7.6	12.2	13.4	20.9	16.2	9.3	7.8	7.5	8.8	8.0	9.2	15.9	15.4	18.5	11.1	10.4	6.0	7.0	24	20.9	1.5	9.1	0	0
8	3.4	2.1	2.8	2.3	2.1	5.0	8.0	12.8	10.9	23.8	13.9	14.6	20.7	21.4	20.6	21.2	19.7	9.8	10.1	22.5	11.3	9.4	8.3	5.4	24	23.8	2.1	11.8	0	0
9	1.7	1.5	1.5	1.0	0.5	0.6	0.5	1.5	1.3	1.3	1.3	1.1	1.4	1.2	1.0	2.4	2.1	2.6	2.3	3.3	5.1	9.8	13.2	9.4	24	13.2	0.5	2.8	0	0
10	7.2	7.5	6.6	10.2	16.5	16.6	20.9	31.5	32.7	16.4	15.5	12.4	10.6	10.4	8.1	7.9	8.3	8.2	7.6	7.6	9.6	12.9	15.5	19.3	24	32.7	6.6	13.3	0	0
11	11.9	7.4	1.0	0.1	0.1	0.1	0.2	C	C	C	C	C	C	3.5	3.9	6.1	5.8	5.8	0.0	0.0	0.8	0.0	12.1	14.6	18	14.6	0.0	4.1	0	0
12	35.8	5.5	0.0	0.0	6.5	8.5	2.3	6.7	18.2	28.2	13.1	15.1	5.9	5.0	1.8	1.0	1.0	1.8	2.1	2.0	4.2	6.6	7.0	6.1	24	35.8	0.0	7.7	0	0
13	11.6	15.2	7.5	6.6	5.0	5.5	5.6	8.6	7.9	5.9	6.8	6.5	6.0	4.5	5.5	4.5	5.1	4.8	5.0	5.6	7.6	4.9	5.1	5.5	24	15.2	4.5	6.5	0	0
14	6.7	10.2	9.8	8.6	18.5	17.7	16.9	19.0	20.8	16.6	21.6	21.0	19.7	22.3	26.1	17.8	16.8	33.8	18.5	19.0	15.0	12.0	11.9	8.8	24	33.8	6.7	17.0	0	0
15	9.1	9.7	8.0	6.8	7.1	11.6	11.8	25.5	19.0	24.6	31.5	24.0	15.7	14.8	12.9	27.6	30.8	25.4	19.8	19.7	17.6	18.1	11.3	9.3	24	31.5	6.8	17.2	0	0
16	7.3	5.5	4.8	5.1	5.6	7.6	10.7	20.0	19.2	47.2	47.4	66.0	71.3	7.2	6.6	5.2	6.1	5.2	4.5	4.3	4.9	4.9	3.3	3.3	24	71.3	3.3	15.6	0	0
17	3.0	7.2	9.9	8.0	3.9	3.9	6.0	11.0	11.5	9.5	13.6	27.8	14.8	9.6	9.8	16.7	22.1	40.4	25.4	30.6	19.4	16.6	12.5	11.2	24	40.4	3.0	14.4	0	0
18	14.9	17.8	10.4	9.1	7.4	9.6	15.5	17.2	26.3	28.3	11.5	16.3	15.8	23.0	15.8	18.1	13.3	22.1	19.2	22.5	32.4	16.2	10.2	9.1	24	32.4	7.4	16.7	0	0
19	14.9	19.8	12.0	10.2	8.7	7.4	7.2	21.7	8.0	8.0	16.0	10.5	7.8	8.3	11.0	10.1	12.6	10.1	8.1	6.6	4.5	4.1	4.2	5.0	24	21.7	4.1	9.9	0	0
20	5.3	7.6	10.9	12.4	8.5	5.9	2.9	3.2	3.0	3.0	3.3	3.4	2.9	3.0	3.0	2.6	3.1	2.9	2.8	3.3	3.1	3.2	3.3	3.0	24	12.4	2.6	4.4	0	0
21	2.8	2.7	3.0	3.0	3.5	3.7	4.3	5.4	5.4	6.5	5.4	5.2	5.7	4.9	4.7	5.5	5.3	6.8	4.8	3.3	3.3	3.3	3.1	3.3	24	6.8	2.7	4.4	0	0
22	3.3	3.3	3.1	3.3	3.4	3.3	4.7	5.1	6.0	4.8	6.1	5.8	4.7	4.6	5.3	5.6	6.3	4.8	5.1	3.5	3.5	6.4	4.5	12.8	24	12.8	3.1	5.0	0	0
23	17.4	6.8	5.6	6.5	4.2	5.6	16.4	14.2	19.5	21.6	9.6	11.5	8.0	9.5	10.0	10.7	10.1	7.5	8.1	10.2	9.9	7.8	5.8	9.7	24	21.6	4.2	10.2	0	0
24	9.4	10.6	11.0	7.0	6.3	8.1	7.9	7.6	7.7	15.4	9.0	13.1	17.7	14.2	8.4	9.0	8.9	7.6	6.8	7.5	7.1	6.1	8.2	12.4	24	17.7	6.1	9.5	0	0
25	6.2	6.7	11.6	8.2	6.7	8.6	10.0	11.2	11.1	13.0	12.9	27.6	25.5	25.8	M	M	M	25.6	12.2	8.1	15.7	11.8	10.0	10.5	21	27.6	6.2	13.3	0	0
26	11.5	12.7	11.0	9.6	7.9	6.8	5.6	6.2	14.9	9.5	6.2	3.5	2.5	3.1	3.0	4.3	5.1	5.8	7.0	5.2	4.9	6.1	5.2	3.8	24	14.9	2.5	6.7	0	0
27	5.5	7.6	5.4	5.3	5.1	6.7	5.6	4.5	5.1	5.0	6.5	3.8	6.0	3.0	3.1	3.0	3.0	3.2	5.4	6.6	7.2	6.3	7.3	8.7	24	8.7	3.0	5.4	0	0
28	7.4	22.3	9.1	6.1	7.1	7.1	7.6	10.5	13.8	14.7	8.1	5.5	7.0	8.3	7.1	7.4	8.6	6.9	6.3	8.1	5.9	6.8	30.6	7.5	24	30.6	5.5	9.6	0	0
29	7.2	12.3	28.2	17.4	13.7	7.9	8.1	12.2	15.8	31.3	7.8	9.6	12.3	13.6	13.0	10.4	11.2	13.3	15.8	15.9	26.4	16.0	15.5	15.7	24	31.3	7.2	14.6	0	0
30	25.7	19.7	14.2	9.9	9.5	9.1	11.6	9.3	12.4	17.7	8.7	8.5	8.7	18.9	14.4	15.2	10.5	15.3	16.6	16.3	21.6	22.4	17.3	32.8	24	32.8	8.5	15.3	0	0
31																													0	0
Count	30	30	30	30	30	30	30	29	29	29	29	29	29	30	29	29	29	30	30	30	30	30	30	30	711					
Maximum	35.8	22.3	28.2	17.4	18.5	17.7	20.9	31.5	32.7	47.2	47.4	66.0	71.3	25.8	26.1	27.6	30.8	40.4	25.4	30.6	32.4	22.4	30.6	32.8	24					
Minimum	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.4	1.2	0.3	0.0	0.9	0.5	0.8	0.8	0.6	0.5	0.7	0.0	0.0	0.2	0.0	0.0	0.0	18					
Average	8.4	8.4	7.1	5.9	6.1	7.0	8.0	10.9	11.4	13.8	11.1	11.7	10.9	9.3	8.3	9.4	9.3	11.9	9.0	9.6	9.5	8.4	8.6	8.4						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.5	3.3	5.0	6.1	7.5	8.8	10.7	14.2	19.0	23.4	32.8	71.3

Maximum Hourly	71.3
Maximum Daily	17.2
Monthly Average	9.2

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

NOx Rundle Road

December 2016

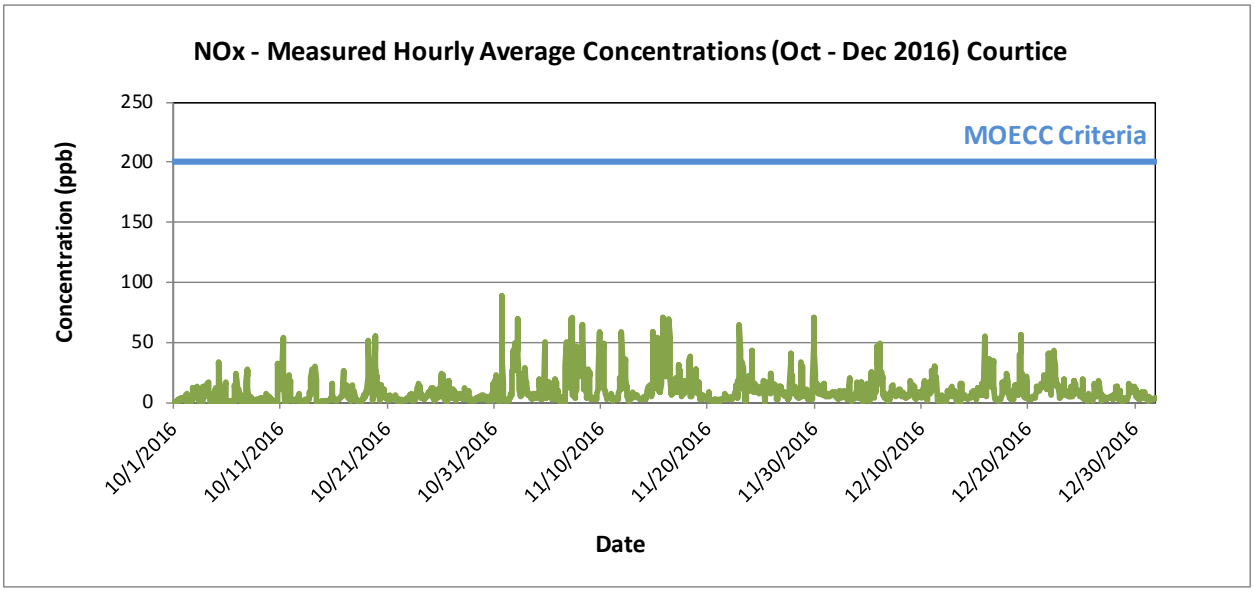
(ppb)

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	17.5	14.3	12.7	9.2	11.0	14.7	19.2	17.5	15.1	13.4	13.2	14.3	14.1	15.6	16.9	15.7	15.6	13.5	15.1	15.3	15.0	14.0	15.9	15.5	24	19.2	9.2	14.8	0	0
2	16.7	11.9	7.7	5.0	6.3	4.6	11.0	15.6	19.9	15.0	9.6	6.5	8.0	5.1	5.3	7.6	5.3	4.7	4.9	4.4	4.1	5.2	5.9	6.1	24	19.9	4.1	8.2	0	0
3	4.7	3.3	2.8	6.5	5.2	10.5	6.5	8.3	5.8	5.0	3.3	3.3	2.7	2.8	2.7	3.2	4.0	6.0	5.9	5.0	3.5	3.7	3.8	4.2	24	10.5	2.7	4.7	0	0
4	4.9	5.8	5.8	3.9	3.4	3.2	3.3	4.5	4.8	4.0	3.6	9.6	5.3	8.0	11.6	5.2	4.0	7.5	8.1	5.5	13.9	5.7	8.9	10.0	24	13.9	3.2	6.3	0	0
5	8.0	4.6	4.9	4.7	6.3	13.1	12.1	16.9	42.0	38.5	29.9	17.2	12.5	8.9	8.1	10.8	14.0	17.8	19.4	23.7	29.0	35.2	21.1	15.2	24	42.0	4.6	17.2	0	0
6	12.8	9.2	16.2	11.7	12.0	11.8	11.1	23.1	24.8	13.4	18.5	16.2	8.0	7.3	6.3	5.9	16.7	7.2	7.6	8.6	13.4	15.4	16.0	8.4	24	24.8	5.9	12.6	0	0
7	8.7	8.7	10.2	9.9	10.7	16.2	17.0	24.1	34.1	17.1	15.6	14.0	11.8	14.8	18.6	19.0	16.5	15.5	15.1	12.9	16.9	15.8	17.0	21.8	24	34.1	8.7	15.9	0	0
8	20.3	17.0	15.7	13.7	12.8	13.1	13.1	18.9	16.9	19.4	8.3	12.3	9.8	9.5	9.1	11.9	13.1	12.8	12.3	12.9	12.8	11.2	4.7	4.6	24	20.3	4.6	12.8	0	0
9	7.0	8.4	7.4	7.6	8.1	5.8	6.1	8.3	13.3	10.8	6.9	7.6	7.1	7.6	9.3	7.2	6.2	5.5	6.1	5.9	5.6	5.3	5.7	5.7	24	13.3	5.3	7.3	0	0
10	5.3	5.2	5.4	5.4	7.2	6.5	6.5	7.4	7.9	10.1	15.5	15.7	16.0	12.0	10.2	9.8	10.0	10.8	15.1	21.1	22.1	24.8	16.2	17.7	24	24.8	5.2	11.8	0	0
11	25.6	22.6	16.3	14.6	14.7	11.2	11.9	17.0	15.1	14.9	18.4	23.8	15.1	11.9	11.1	17.5	13.1	15.9	12.8	11.2	16.6	10.6	9.2	9.6	24	25.6	9.2	15.0	0	0
12	10.6	10.9	8.4	9.2	10.1	11.6	13.3	25.5	37.0	23.1	19.6	21.3	23.5	16.8	C	C	C	12.7	15.5	15.7	27.8	15.4	11.9	9.4	21	37.0	8.4	16.6	0	0
13	11.0	11.8	10.3	12.2	13.2	13.8	10.6	23.0	11.6	9.9	9.3	10.6	A	12.6	14.7	13.4	22.2	17.1	18.7	14.2	11.1	10.0	8.0	3.4	23	23.0	3.4	12.7	0	0
14	8.5	8.8	9.5	4.5	6.3	7.9	7.3	11.1	10.7	9.9	8.9	10.9	11.1	11.2	9.5	10.1	9.4	8.6	9.6	11.5	9.6	13.4	13.4	5.6	24	13.4	4.5	9.5	0	0
15	5.5	6.5	7.7	6.8	5.2	0.9	0.8	3.4	8.5	16.9	15.7	12.2	10.7	4.7	2.8	3.3	4.3	3.8	2.0	1.1	0.7	0.6	1.3	1.4	24	16.9	0.6	5.3	0	0
16	2.5	1.4	0.7	0.5	2.5	9.1	5.6	5.0	14.8	13.4	13.4	28.5	16.3	18.9	21.8	28.1	29.4	27.5	26.5	31.1	26.4	7.2	7.0	5.4	24	31.1	0.5	14.3	0	0
17	5.3	5.4	24.2	3.4	3.0	3.6	3.8	4.3	3.3	5.3	10.4	7.2	6.2	6.5	8.3	14.7	8.2	7.6	M	M	M	4.6	7.8	12.1	21	24.2	3.0	7.4	0	0
18	18.2	20.4	13.6	8.1	6.6	5.1	5.3	3.5	2.4	2.0	1.8	1.5	1.7	1.4	0.7	1.0	1.2	1.6	3.8	4.4	2.1	0.7	1.6	2.8	24	20.4	0.7	4.7	0	0
19	3.1	3.6	6.5	5.6	5.5	4.0	3.1	9.2	17.7	33.5	33.7	21.5	13.8	17.0	19.1	22.7	11.2	8.9	9.0	17.6	22.9	11.4	13.7	13.3	24	33.7	3.1	13.6	0	0
20	8.1	6.3	9.7	14.2	13.2	15.4	14.6	22.2	16.6	20.5	18.1	10.1	11.0	7.7	7.3	8.6	7.3	7.4	9.9	11.7	16.9	17.9	14.9	15.7	24	22.2	6.3	12.7	0	0
21	14.1	13.8	14.7	15.4	15.9	17.9	22.2	41.9	36.4	29.1	27.3	25.2	28.1	39.1	44.4	32.3	27.8	20.1	23.8	16.4	21.4	32.0	26.4	25.3	24	44.4	13.8	25.5	0	0
22	34.9	37.8	29.7	10.2	12.0	11.5	14.3	28.0	38.6	44.9	37.5	36.4	35.2	22.7	15.3	15.3	10.6	8.0	9.2	11.9	14.0	22.5	19.9	12.3	24	44.9	8.0	22.2	0	0
23	7.3	8.3	9.9	7.9	9.1	11.7	15.7	22.2	19.8	25.3	25.2	17.5	12.7	12.9	10.8	12.0	15.1	13.5	8.4	9.2	10.1	10.2	16.9	21.2	24	25.3	7.3	13.9	0	0
24	25.5	18.0	11.0	11.3	9.2	11.4	9.3	10.6	16.7	15.4	20.5	14.0	8.1	6.5	7.8	12.1	15.4	9.8	7.3	6.5	4.7	9.2	7.7	9.5	24	25.5	4.7	11.6	0	0
25	12.1	15.8	14.1	15.5	7.4	1.7	1.5	1.3	1.1	1.2	1.3	0.8	0.9	0.9	1.2	1.0	2.4	10.3	6.1	1.7	1.3	11.2	11.6	1.4	24	15.8	0.8	5.2	0	0
26	1.3	1.1	1.3	1.3	2.0	5.2	3.0	3.9	2.7	7.2	5.1	21.5	9.3	6.6	6.9	10.3	9.8	11.9	15.3	8.2	8.9	7.4	5.6	6.7	24	21.5	1.1	6.8	0	0
27	4.2	3.6	3.9	3.0	4.4	3.6	1.9	2.4	4.8	4.5	7.1	4.2	3.3	5.0	4.1	3.0	3.0	3.5	2.9	2.6	2.3	2.2	3.0	6.3	24	7.1	1.9	3.7	0	0
28	6.2	4.9	3.4	3.5	3.8	5.4	7.5	6.1	6.3	12.1	8.3	4.1	3.2	5.0	6.9	8.8	10.2	6.5	5.4	8.2	9.4	6.8	7.6	6.5	24	12.1	3.2	6.5	0	0
29	5.7	14.0	4.4	8.2	6.2	6.7	5.1	5.3	8.7	9.7	11.8	22.5	24.7	17.0	17.5	13.6	16.7	14.0	10.8	16.9	13.3	7.0	11.8	17.6	24	24.7	4.4	12.1	0	0
30	9.6	10.9	6.0	6.4	3.1	1.4	1.8	1.5	2.3	1.6	1.8	1.4	1.1	1.3	1.2	2.6	4.1	2.6	3.9	3.4	6.0	9.2	13.6	6.6	24	13.6	1.1	4.3	0	0
31	6.1	8.0	7.7	7.3	4.5	3.7	2.9	10.0	3.2	3.3	4.4	4.9	11.6	5.8	6.2	5.7	4.6	4.7	3.8	3.5	3.3	4.3	3.6	3.0	24	11.6	2.9	5.3	0	0
Count	31	31	31	31	31	31	31	31	31	31	31	31	30	31	30	30	30	31	30	30	30	31	31	31	737					
Maximum	34.9	37.8	29.7	15.5	15.9	17.9	22.2	41.9	42.0	44.9	37.5	36.4	35.2	39.1	44.4	32.3	29.4	27.5	26.5	31.1	29.0	35.2	26.4	25.3	24					
Minimum	1.3	1.1	0.7	0.5	2.0	0.9	0.8	1.3	1.1	1.2	1.3	0.8	0.9	0.9	0.7	1.0	1.2	1.6	2.0	1.1	0.7	0.6	1.3	1.4	21					
Average	10.7	10.4	9.7	8.0	7.8	8.5	8.6	13.0	14.9	14.5	13.7	13.4	11.4	10.4	10.5	11.1	11.0	10.2	10.5	10.7	12.2	11.3	10.7	9.8						

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	44.9
													Maximum Daily	25.5
Data	3.0	4.6	6.0	7.6	9.4	11.3	13.5	15.9	21.1	25.8	37.7	44.9	Monthly Average	11.0

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



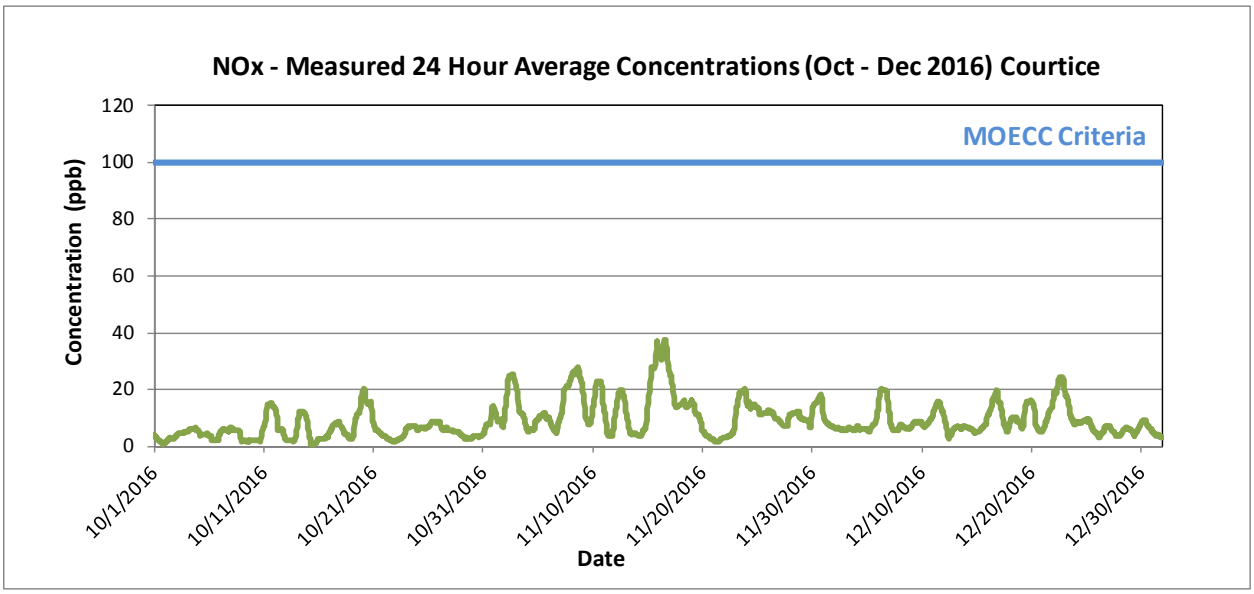
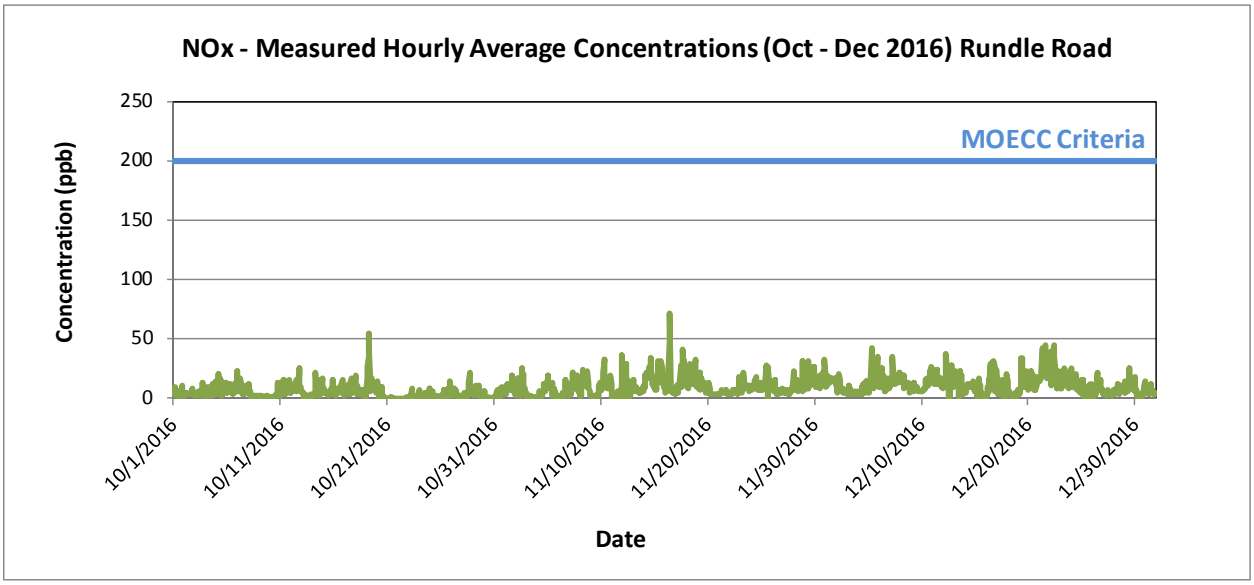
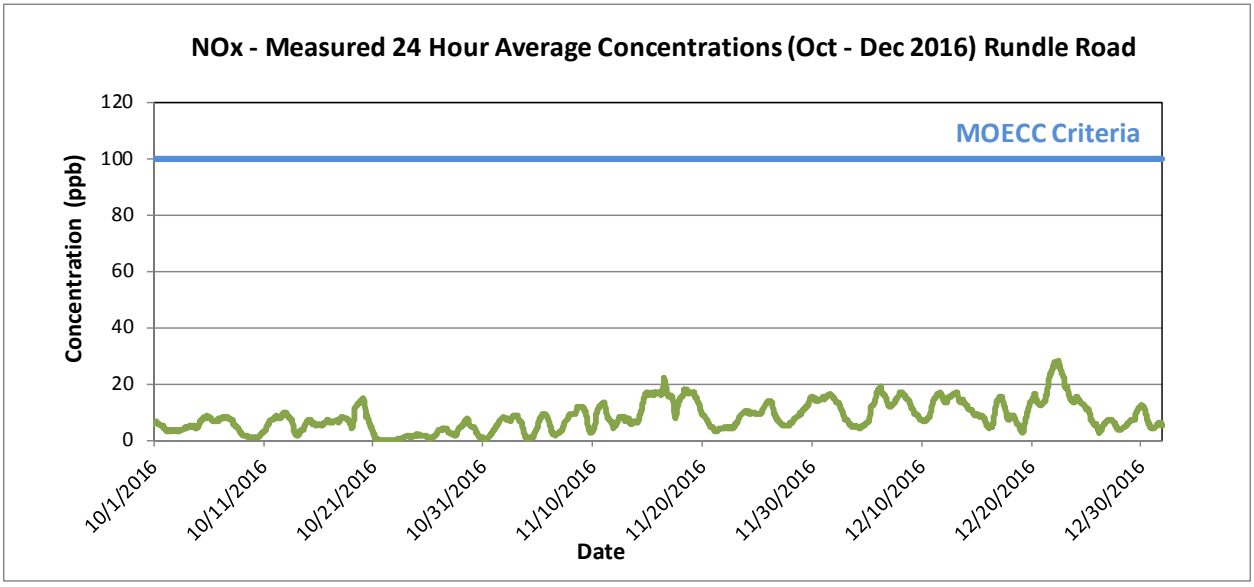


Figure D-2 Time History Plots of Measured Hourly Average and 24 Hour Average NO_x Concentrations – Rundle Road Station





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

$PM_{2.5}$ - COURTICE
October 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	1.7	1.4	1.0	0.9	0.8	0.7	0.7	0.7	0.8	0.9	1.0	0.8	0.7	0.6	0.9	1.1	1.0	1.1	1.4	1.6	1.7	1.5	1.4	1.1	24	1.7	0.6	1.1
2	1.6	1.6	2.1	2.3	2.2	2.7	2.9	3.2	4.0	3.3	2.4	3.1	5.4	2.5	1.9	2.6	2.2	2.1	2.4	2.6	3.8	4.1	3.8	4.5	24	5.4	1.6	2.9
3	5.8	6.3	5.8	5.3	3.4	2.2	2.8	2.4	1.3	0.9	0.8	0.9	0.9	1.1	1.1	1.4	2.0	1.7	1.8	2.5	3.7	2.4	1.7	1.7	24	6.3	0.8	2.5
4	2.0	2.1	2.1	2.1	2.4	3.1	3.2	4.7	2.7	2.5	2.5	2.3	2.5	3.3	5.2	4.9	4.5	4.7	4.7	6.1	6.0	6.0	6.4	5.2	24	6.4	2.0	3.8
5	4.5	4.2	4.9	4.7	5.7	6.3	7.0	7.5	3.9	3.9	3.7	3.5	3.4	3.2	3.3	3.3	3.9	4.4	5.1	4.8	5.3	4.6	3.0	3.1	24	7.5	3.0	4.5
6	2.6	2.5	2.7	3.0	3.0	3.1	2.9	2.8	3.5	3.6	4.1	4.6	4.6	4.3	4.8	5.1	3.9	4.0	5.6	5.3	4.6	9.1	8.5	8.1	24	9.1	2.5	4.4
7	8.6	7.1	6.8	6.5	5.4	5.3	5.7	5.3	3.8	3.1	3.6	4.0	4.4	4.5	4.5	3.9	4.2	4.9	5.6	5.0	7.0	7.5	6.0	8.2	24	8.6	3.1	5.5
8	7.1	4.1	3.2	2.9	3.7	6.3	1.1	1.2	1.2	0.9	0.8	0.7	0.8	1.2	1.4	1.9	3.1	4.4	5.1	5.8	5.7	6.5	7.0	6.9	24	7.1	0.7	3.5
9	7.4	7.0	6.7	5.8	4.9	4.1	3.6	2.9	2.2	1.6	1.6	1.8	2.0	1.4	1.4	1.4	1.5	1.4	1.7	1.8	1.9	1.9	2.1	2.1	24	7.4	1.4	2.9
10	2.1	2.0	1.9	1.9	1.8	1.8	1.9	1.9	1.9	1.7	1.7	1.7	1.7	1.7	1.9	2.9	2.6	2.1	2.9	4.1	6.4	7.0	6.7	6.7	24	7.0	1.7	2.9
11	7.4	7.3	6.3	5.1	4.5	4.4	5.2	4.2	2.6	1.6	1.5	1.3	1.5	1.5	1.8	1.8	1.7	1.5	2.2	4.1	3.6	3.4	3.6	2.6	24	7.4	1.3	3.4
12	2.1	1.5	1.4	1.3	1.3	1.4	1.4	1.4	1.2	1.1	1.4	1.7	1.9	2.8	3.0	3.3	4.6	5.4	5.4	4.6	5.0	5.5	5.3	5.3	24	5.5	1.1	2.9
13	5.2	5.5	7.0	8.0	1.7	1.1	1.2	C	0.8	1.3	3.1	4.0	4.4	5.0	6.0	6.0	5.8	4.7	3.5	3.6	4.0	3.7	5.4	8.6	23	8.6	0.8	4.3
14	6.8	4.7	4.0	4.2	3.9	3.1	2.8	2.7	2.1	0.5	0.7	0.9	0.8	0.7	0.8	0.7	1.0	1.6	1.9	2.0	1.8	1.8	1.6	1.6	24	6.8	0.5	2.2
15	1.8	1.8	1.9	1.9	2.1	2.3	2.1	1.8	2.0	1.9	2.1	2.2	2.4	2.7	2.3	1.9	3.0	3.7	4.4	3.6	3.6	4.3	5.2	6.7	24	6.7	1.8	2.8
16	4.9	3.7	4.6	5.9	6.7	7.7	8.5	8.4	10.1	12.4	11.1	10.0	9.6	9.7	10.0	10.7	7.2	6.2	5.5	4.5	3.6	3.7	5.4	5.4	24	12.4	3.6	7.3
17	4.8	3.6	4.7	6.4	6.6	7.7	8.7	8.6	6.9	5.1	2.6	2.3	3.7	4.0	6.8	8.9	7.3	2.8	1.7	1.9	1.5	0.8	0.4	0.8	24	8.9	0.4	4.5
18	3.1	5.2	6.0	5.4	5.6	5.7	5.5	5.4	5.6	5.6	6.0	6.1	6.4	7.6	8.2	9.0	9.3	8.8	8.7	5.1	0.8	0.7	0.4	0.3	24	9.3	0.3	5.4
19	0.3	0.5	0.6	0.4	0.6	1.2	2.3	2.9	1.8	1.6	1.6	1.8	3.5	4.1	3.2	1.7	1.4	0.9	1.5	5.7	7.0	6.9	7.4	6.9	24	7.4	0.3	2.7
20	6.6	8.2	8.3	10.6	10.4	8.8	8.6	2.1	0.4	0.4	0.9	1.2	0.8	1.9	1.9	1.9	2.4	2.3	2.5	1.8	1.4	1.1	1.3	1.3	24	10.6	0.4	3.6
21	1.4	1.7	1.9	1.9	1.9	1.6	1.7	2.2	2.3	2.3	2.7	2.8	2.9	3.7	3.9	2.9	3.7	4.7	4.4	4.0	4.0	3.8	3.7	3.8	24	4.7	1.4	2.9
22	4.5	5.4	4.6	3.7	2.9	3.1	3.1	2.7	1.4	1.1	1.2	1.3	1.3	1.2	1.1	1.1	1.2	1.9	2.1	2.5	2.2	1.9	2.1	2.3	24	5.4	1.1	2.3
23	2.4	2.1	1.9	2.2	2.3	2.2	2.3	2.0	1.9	2.0	2.3	2.6	2.8	3.2	3.5	2.9	4.8	7.3	6.7	7.2	7.6	7.6	7.8	7.2	24	7.8	1.9	3.9
24	8.1	8.3	8.0	3.6	2.5	1.8	1.8	1.8	2.3	3.1	2.8	2.2	1.8	1.4	1.5	2.0	2.4	2.4	2.5	2.8	2.6	2.2	2.4	2.0	24	8.3	1.4	3.0
25	2.3	2.9	3.3	3.7	3.3	2.7	2.6	2.2	1.3	1.4	1.8	1.7	1.4	1.4	1.1	1.1	1.5	2.5	2.9	2.6	3.1	3.0	2.8	2.1	24	3.7	1.1	2.3
26	1.9	2.3	2.9	2.6	2.8	3.1	3.0	2.7	1.6	1.0	1.0	0.9	1.0	1.1	1.3	1.5	1.5	2.1	2.9	3.4	3.0	2.7	2.3	2.2	24	3.4	0.9	2.1
27	2.3	2.5	3.0	3.7	2.5	9.4	3.2	11.4	3.9	1.4	1.0	1.0	1.4	0.9	1.0	1.1	1.1	1.5	1.9	2.4	3.7	4.5	3.9	3.1	24	11.4	0.9	3.0
28	1.8	1.7	1.4	1.5	1.4	1.6	1.8	1.9	1.5	1.8	2.1	2.2	1.9	2.0	2.9	4.7	4.9	5.0	5.4	4.6	3.0	2.3	2.2	2.5	24	5.4	1.4	2.6
29	3.3	4.6	4.9	4.8	4.1	3.0	2.4	3.1	2.7	3.0	4.6	6.2	7.6	8.6	11.0	12.0	10.5	7.6	3.2	2.9	2.3	2.1	2.2	2.4	24	12.0	2.1	5.0
30	2.6	2.3	2.3	2.5	3.1	3.8	3.9	3.9	3.9	2.0	1.7	1.9	1.8	2.0	2.3	2.8	3.6	4.6	4.0	3.0	2.8	3.8	3.7	4.5	24	4.6	1.7	3.0
31	3.7	3.8	4.3	3.5	3.0	2.9	3.2	3.1	2.1	1.2	1.1	1.1	1.1	1.1	1.3	1.2	1.4	3.1	7.5	12.2	6.6	5.6	5.6	2.9	24	12.2	1.1	3.5
Count	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	743			
Maximum	8.6	8.3	8.3	10.6	10.4	9.4	8.7	11.4	10.1	12.4	11.1	10.0	9.6	9.7	11.0	12.0	10.5	8.8	8.7	12.2	7.6	9.1	8.5	8.6	24			
Minimum	0.3	0.5	0.6	0.4	0.6	0.7	0.7	0.7	0.4	0.4	0.7	0.7	0.7	0.6	0.8	0.7	1.0	0.9	1.4	1.6	0.8	0.7	0.4	0.3	23			
Average	3.9	3.8	3.9	3.8	3.5	3.7	3.4	3.6	2.7	2.4	2.4	2.5	2.8	2.9	3.3	3.5	3.5	3.6	3.8	4.0	3.8	3.9	3.9	3.9				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.1	1.6	1.9	2.3	2.8	3.4	4.1	5.2	6.8	8.1	10.6	12.4

Maximum Hourly	12.4
Maximum Daily	7.3
Monthly Average	3.4

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

$PM_{2.5}$ - COURTICE
November 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	1.8	2.2	2.4	2.6	2.7	2.7	2.6	2.1	2.6	3.6	3.9	4.1	4.5	5.2	5.2	4.5	4.8	6.6	6.8	8.7	10.1	9.6	8.7	8.7	24	10.1	1.8	4.9
2	9.8	11.4	13.1	16.1	18.7	20.1	20.0	17.8	13.7	9.3	8.2	4.6	5.1	7.1	9.2	6.4	8.4	8.7	7.0	8.1	8.4	8.6	8.7	6.3	24	20.1	4.6	10.6
3	3.8	3.9	4.0	3.5	3.3	3.1	2.3	2.1	2.2	2.4	2.2	3.4	4.1	3.6	3.3	4.3	5.6	8.2	8.3	7.5	5.8	3.5	3.5	4.3	24	8.3	2.1	4.1
4	5.1	4.8	6.1	6.5	5.0	4.2	4.9	4.4	2.5	2.8	3.1	2.5	2.1	2.5	2.8	4.5	4.6	3.0	6.1	5.3	3.4	3.8	3.9	4.1	24	6.5	2.1	4.1
5	4.8	7.0	7.2	6.3	5.4	4.9	5.2	5.8	6.0	8.5	8.1	4.5	6.9	9.1	7.1	6.2	2.2	2.4	4.1	5.4	6.3	5.4	3.7	4.2	24	9.1	2.2	5.7
6	5.6	4.9	3.5	3.9	4.7	5.3	6.0	6.0	4.9	4.4	3.7	3.8	3.6	3.6	3.5	3.3	3.8	5.2	8.3	11.6	20.6	19.1	14.1	12.4	24	20.6	3.3	6.9
7	9.5	7.7	7.3	6.7	7.0	6.5	6.3	7.0	6.0	4.7	3.5	3.3	3.4	3.4	3.6	3.5	3.7	5.1	6.4	9.1	13.1	15.0	14.1	11.2	24	15.0	3.3	7.0
8	9.9	9.4	7.2	6.6	7.0	10.1	14.9	21.5	15.3	6.9	3.1	3.1	4.0	5.6	8.2	9.7	10.3	12.9	13.1	18.2	19.3	19.4	18.7	16.2	24	21.5	3.1	11.3
9	12.6	7.7	4.3	1.0	0.8	0.8	0.9	1.1	1.4	1.7	1.6	1.4	1.2	1.3	1.4	1.5	1.3	1.7	2.2	3.3	4.0	5.3	5.4	5.6	24	12.6	0.8	2.9
10	5.0	5.5	5.9	6.7	7.8	7.9	7.3	7.4	6.4	5.7	5.7	4.5	3.2	2.4	2.3	2.4	3.4	4.1	5.0	4.6	4.1	3.6	3.5	3.8	24	7.9	2.3	4.9
11	4.4	4.8	3.7	1.8	1.6	1.7	1.8	1.8	1.7	1.7	1.8	1.6	1.5	1.6	1.7	1.7	2.3	4.4	5.9	5.5	7.9	7.1	6.1	7.9	24	7.9	1.5	3.4
12	6.5	5.0	5.7	4.7	3.8	2.9	2.7	2.5	2.3	1.6	1.2	1.1	1.1	1.6	1.5	1.2	1.3	1.7	2.0	2.4	3.0	3.6	4.8	4.4	24	6.5	1.1	2.9
13	4.8	5.4	5.5	6.5	7.0	8.7	10.6	11.8	12.2	13.5	14.3	14.4	14.4	14.0	13.3	10.8	8.4	6.1	5.8	6.7	6.0	6.2	6.4	6.2	24	14.4	4.8	9.1
14	6.8	8.3	8.0	8.3	8.6	8.9	8.9	8.7	7.9	8.5	9.6	9.8	10.1	10.8	12.0	11.4	12.5	13.9	15.2	14.8	15.4	14.8	17.9	27.7	24	27.7	6.8	11.6
15	26.0	24.6	25.3	24.9	23.3	28.4	29.2	30.6	20.2	15.9	16.4	9.4	7.6	7.7	8.2	8.6	12.2	17.2	21.3	23.0	23.3	25.2	25.9	25.3	24	30.6	7.6	20.0
16	25.2	25.2	26.6	27.0	25.4	23.9	23.4	25.2	24.9	25.8	29.0	28.0	30.6	17.6	6.2	4.5	3.0	3.4	3.2	3.7	3.3	3.4	3.3	3.7	24	30.6	3.0	16.5
17	4.0	4.8	5.1	4.6	4.5	4.9	5.7	5.0	4.5	3.8	4.9	5.6	4.8	3.6	3.5	3.6	4.5	7.1	9.6	8.7	8.8	9.2	9.3	7.9	24	9.6	3.5	5.8
18	6.9	7.7	9.2	10.4	9.7	8.7	8.3	9.6	9.7	7.4	6.8	7.3	7.1	8.0	9.6	12.2	11.0	11.6	14.2	12.1	11.9	12.0	12.9	11.5	24	14.2	6.8	9.8
19	11.7	14.4	10.0	9.5	9.8	10.3	9.2	7.3	6.2	7.8	6.1	2.8	4.5	6.6	3.6	6.8	10.8	8.7	6.1	2.7	1.6	1.8	1.9	1.9	24	14.4	1.6	6.8
20	1.8	1.8	1.9	2.2	2.0	1.6	1.3	1.3	1.8	2.4	2.4	2.2	2.1	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.6	1.7	24	2.4	1.3	1.8
21	2.6	3.6	3.2	3.3	2.8	2.8	2.3	2.3	2.2	2.3	2.1	1.7	1.7	1.7	1.7	1.8	1.9	1.7	1.9	1.7	1.7	1.7	1.7	1.7	24	3.6	1.7	2.2
22	1.7	1.6	1.7	1.5	1.4	1.6	1.7	1.7	2.4	3.3	3.5	2.8	2.6	3.7	2.9	2.6	2.8	3.4	3.4	3.2	2.8	3.1	3.3	3.5	24	3.7	1.4	2.6
23	5.9	7.1	7.8	6.7	4.7	5.4	5.8	5.6	5.3	3.3	7.0	5.8	1.8	1.8	2.1	4.9	2.8	3.4	6.5	5.5	4.7	3.6	3.6	3.8	24	7.8	1.8	4.8
24	7.0	10.3	7.6	5.5	9.6	19.8	8.6	2.5	5.5	6.8	6.3	3.4	4.8	3.7	3.7	3.8	3.8	4.0	4.9	5.9	6.9	7.4	8.9	9.9	24	19.8	2.5	6.7
25	12.0	16.9	18.1	16.9	15.8	18.1	19.4	19.0	C	25.2	28.8	26.4	22.9	20.2	16.1	16.9	15.8	9.6	1.4	1.1	1.4	1.1	1.2	1.8	23	28.8	1.1	14.2
26	2.0	2.4	2.5	2.7	3.7	4.4	4.9	6.0	7.3	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	9	7.3	2.0	
27	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	
28	M	M	M	M	M	M	M	M	M	M	14.0	13.9	14.9	14.7	15.3	17.8	17.9	13.3	10.3	9.3	7.5	7.9	7.8	7.1	14	17.9	7.1	
29	10.3	16.2	19.7	23.0	23.1	19.0	13.5	11.0	9.4	6.7	4.1	4.0	4.7	4.3	4.3	4.5	4.6	4.5	5.0	5.7	6.3	9.1	12.0	14.9	24	23.1	4.0	10.0
30	15.8	20.8	23.6	17.1	13.7	11.9	11.5	7.8	5.9	4.6	4.1	3.4	4.7	6.1	5.1	3.8	4.5	4.0	4.2	4.8	4.1	2.4	5.5	4.7	24	23.6	2.4	8.1
31																												
Count	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	670			
Maximum	26.0	25.2	26.6	27.0	25.4	28.4	29.2	30.6	24.9	25.8	29.0	28.0	30.6	20.2	16.1	17.8	17.9	17.2	21.3	23.0	23.3	25.2	25.9	27.7	24			
Minimum	1.7	1.6	1.7	1.0	0.8	0.8	0.9	1.1	1.4	1.6	1.2	1.1	1.1	1.3	1.4	1.2	1.3	1.7	1.4	1.1	1.4	1.1	1.2	1.7	0			
Average	8.0	8.8	8.8	8.4	8.3	8.9	8.5	8.4	7.0	7.1	7.3	6.4	6.4	6.2	5.7	5.9	6.1	6.3	6.8	7.2	7.6	7.7	7.8	7.9				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.8	2.6	3.6	4.5	5.4	6.7	8.3	10.6	16.2	22.3	27.8	30.6

Maximum Hourly	30.6
Maximum Daily	20.0
Monthly Average	7.4

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

$PM_{2.5}$ - COURTICE

December 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	5.5	3.9	3.7	8.2	8.8	9.9	10.1	5.6	3.5	5.6	6.2	4.6	3.1	4.5	6.5	5.1	5.1	5.8	5.3	4.6	6.5	6.9	5.5	5.1	24	10.1	3.1	5.8
2	3.3	2.0	0.9	0.4	0.3	0.3	0.4	0.7	0.7	0.9	0.9	0.6	0.8	0.6	0.5	0.5	0.6	0.9	1.6	1.6	1.6	2.1	2.0	2.0	24	3.3	0.3	1.1
3	2.2	2.3	2.2	1.8	1.9	2.5	2.5	2.6	2.5	1.1	0.9	1.2	0.9	1.0	1.5	1.5	1.7	2.6	2.5	2.9	2.8	3.3	3.9	5.2	24	5.2	0.9	2.2
4	7.4	7.7	6.7	5.7	6.3	6.2	5.3	4.0	2.6	1.9	17.1	2.4	0.7	0.7	0.8	1.4	2.2	2.7	2.7	4.3	7.3	3.8	3.5	19.8	24	19.8	0.7	5.1
5	14.2	1.5	1.9	1.7	1.7	2.0	1.7	2.7	6.7	7.2	6.2	4.8	4.6	3.4	2.4	2.7	3.1	3.7	4.5	5.8	7.0	9.6	9.4	8.7	24	14.2	1.5	4.9
6	8.0	7.7	8.3	8.9	9.7	9.3	8.2	7.3	7.7	10.7	13.4	7.6	3.2	6.9	4.6	4.0	3.7	3.2	4.5	3.7	3.1	1.9	1.1	1.1	24	13.4	1.1	6.2
7	1.7	2.1	2.4	3.3	4.5	10.4	12.8	9.1	7.8	4.2	3.8	3.8	3.7	4.3	4.0	5.1	8.0	6.9	6.4	7.2	9.6	10.3	11.2	10.4	24	12.8	1.7	6.4
8	10.0	11.2	11.0	9.9	12.2	12.0	11.0	9.5	7.1	4.9	3.4	4.2	3.0	2.8	2.4	2.4	2.9	3.5	4.1	4.7	4.6	4.4	2.3	2.3	24	12.2	2.3	6.1
9	4.0	3.2	2.7	2.6	2.1	2.1	1.9	1.9	2.6	3.3	2.6	2.3	2.0	1.9	2.2	1.9	3.1	2.7	3.1	3.3	3.4	3.0	2.8	3.4	24	4.0	1.9	2.7
10	3.8	3.0	2.8	2.0	4.1	6.5	2.0	2.1	1.8	1.8	1.5	1.1	0.8	0.7	0.5	1.2	3.0	5.4	6.3	5.9	7.3	7.9	7.7	8.6	24	8.6	0.5	3.7
11	9.2	10.3	10.9	11.6	11.4	11.9	11.5	10.8	10.5	10.4	8.9	10.5	6.6	6.6	7.1	5.8	6.0	5.8	5.8	4.8	4.2	3.9	4.3	5.2	24	11.9	3.9	8.1
12	5.6	6.1	6.4	5.4	4.5	2.3	2.3	C	C	6.3	6.7	7.5	7.1	5.1	4.5	5.6	6.1	6.6	7.1	7.9	8.7	8.9	8.6	8.6	22	8.9	2.3	6.3
13	9.7	10.3	10.5	10.6	10.9	9.3	9.8	12.2	13.4	15.4	A	A	17.2	18.6	19.5	21.0	21.4	18.3	18.4	20.3	16.7	16.3	9.3	4.4	22	21.4	4.4	14.2
14	5.0	4.5	3.5	3.2	3.6	3.9	4.1	4.1	3.5	3.3	3.1	3.6	3.5	3.8	4.1	4.4	5.2	6.0	6.5	7.5	8.0	9.1	6.2	3.8	24	9.1	3.1	4.7
15	4.1	4.1	4.1	3.9	3.3	2.0	2.0	2.0	2.1	1.8	1.8	2.1	2.7	2.4	1.7	1.9	1.8	1.7	1.5	1.7	1.5	1.6	1.9	2.5	24	4.1	1.5	2.3
16	2.2	2.0	1.7	1.8	2.4	2.6	2.3	1.8	2.3	2.6	2.7	2.3	1.9	2.2	2.2	3.4	5.3	5.9	8.3	6.8	7.5	5.9	5.3	4.2	24	8.3	1.7	3.6
17	3.6	3.0	3.9	3.9	3.7	3.9	3.9	2.9	3.0	2.9	3.3	3.2	3.3	3.8	4.7	6.2	8.0	7.3	6.8	6.5	6.9	7.6	8.7	9.0	24	9.0	2.9	5.0
18	11.5	16.6	14.9	14.0	13.7	10.7	9.4	4.3	2.5	3.0	2.8	2.4	2.4	2.0	1.8	1.7	1.6	1.8	2.6	3.1	2.7	2.3	2.9	2.9	24	16.6	1.6	5.6
19	2.8	2.7	4.5	3.5	3.0	2.8	3.5	4.2	4.6	4.5	2.8	3.3	2.7	3.3	4.0	3.9	4.6	4.5	5.0	6.7	7.2	5.2	6.8	5.4	24	7.2	2.7	4.2
20	5.1	5.5	6.2	6.7	7.1	9.2	8.9	8.6	9.5	9.4	9.7	8.6	6.6	5.4	3.8	3.7	3.9	5.0	6.6	7.8	9.1	9.4	10.1	11.2	24	11.2	3.7	7.4
21	12.8	14.1	14.6	15.5	16.2	18.2	19.6	20.3	20.1	19.1	19.8	20.0	21.9	23.3	22.6	21.0	21.3	22.5	24.1	21.8	26.0	27.9	30.7	35.7	24	35.7	12.8	21.2
22	34.3	33.8	24.5	5.2	6.7	7.5	10.2	16.0	22.0	27.1	32.6	33.9	35.1	30.6	24.3	20.0	11.3	8.3	9.3	7.1	3.6	3.7	3.1	1.5	24	35.1	1.5	17.2
23	1.9	2.8	4.1	5.4	7.9	11.2	14.4	16.9	19.2	22.3	21.6	18.0	15.6	11.7	10.8	10.9	9.7	11.1	13.7	14.9	16.8	17.5	17.7	12.5	24	22.3	1.9	12.8
24	7.6	7.6	6.7	4.4	3.4	4.4	5.4	8.0	11.1	11.1	12.7	13.8	12.6	9.7	7.9	10.3	10.6	6.0	4.4	3.8	3.7	2.8	3.6	4.3	24	13.8	2.8	7.3
25	5.3	7.2	8.4	9.2	4.4	1.4	1.3	1.2	1.6	1.9	1.7	1.1	0.7	0.8	1.4	2.1	3.3	4.7	4.4	3.8	4.1	4.3	4.2	4.0	24	9.2	0.7	3.4
26	2.8	2.1	2.0	2.3	2.7	4.0	8.1	8.9	6.3	2.3	3.8	3.8	5.1	5.3	5.8	6.5	10.1	10.1	7.4	6.0	4.4	2.3	1.5	1.8	24	10.1	1.5	4.8
27	2.4	2.5	1.7	1.9	2.4	2.8	3.9	4.2	4.1	3.9	4.5	4.5	4.6	4.4	4.2	4.0	3.7	4.0	4.5	4.4	4.5	3.5	2.7	2.5	24	4.6	1.7	3.6
28	2.7	3.8	3.8	3.5	2.9	2.6	2.7	2.1	2.0	2.0	1.9	0.8	1.0	2.9	3.1	3.3	3.9	3.9	6.3	10.7	10.6	9.9	10.4	6.8	24	10.7	0.8	4.3
29	7.9	9.9	9.3	9.4	9.3	7.6	5.6	6.2	5.4	2.7	2.9	7.0	13.8	16.9	13.2	9.3	9.8	9.3	9.2	5.7	5.1	3.1	3.7	3.2	24	16.9	2.7	7.7
30	2.2	2.4	1.8	1.5	0.8	1.2	1.7	1.9	1.7	1.8	1.8	1.8	1.8	1.7	1.9	2.4	1.8	1.7	1.8	1.5	1.6	2.4	2.2	1.4	24	2.4	0.8	1.8
31	1.3	1.2	1.1	1.4	2.6	4.4	3.4	4.0	4.5	3.8	3.2	2.5	2.2	2.0	1.8	1.9	2.0	2.7	3.8	4.1	4.0	4.3	7.1	5.6	24	7.1	1.1	3.1
Count	31	31	31	31	31	31	31	30	30	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	740			
Maximum	34.3	33.8	24.5	15.5	16.2	18.2	19.6	20.3	22.0	27.1	32.6	33.9	35.1	30.6	24.3	21.0	21.4	22.5	24.1	21.8	26.0	27.9	30.7	35.7	24			
Minimum	1.3	1.2	0.9	0.4	0.3	0.3	0.4	0.7	0.7	0.9	0.9	0.6	0.7	0.6	0.5	0.5	0.6	0.9	1.5	1.5	1.5	1.6	1.1	1.1	22			
Average	6.5	6.4	6.0	5.5	5.6	6.0	6.1	6.2	6.4	6.4	6.8	6.1	6.2	6.1	5.7	5.6	6.0	5.9	6.4	6.5	6.8	6.6	6.5	6.5				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	1.7	2.2	2.8	3.6	4.2	5.4	7.0	9.3	12.6	18.6	29.6	35.7

Maximum Hourly	35.7
Maximum Daily	21.2
Monthly Average	6.2

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 — October 2016 ($\mu g/m^3$)

Day	Hour 0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
1	2.1	2.1	3.4	8.3	11.3	12.5	11.2	10.5	11.0	10.6	10.8	11.4	12.4	11.1	12.0	12.6	11.1	11.3	11.2	10.7	10.1	8.6	7.2	6.9	24	12.6	2.1	9.6
2	5.9	4.8	5.2	5.1	5.2	5.6	5.6	6.7	6.4	7.4	7.6	8.5	14.3	8.4	5.0	5.8	4.5	2.9	2.5	2.4	2.1	2.0	1.9	2.0	24	14.3	1.9	5.3
3	2.1	2.0	1.9	1.9	1.8	1.5	1.5	1.8	1.7	2.4	2.9	3.5	4.7	3.8	6.2	7.6	8.3	8.3	5.9	5.5	9.3	4.7	2.9	1.2	24	9.3	1.2	3.9
4	1.5	2.2	2.1	1.2	1.4	1.5	2.0	2.7	2.9	7.2	8.4	8.8	8.7	9.0	10.4	8.9	11.0	11.7	11.6	10.3	8.8	7.2	5.8	5.4	24	11.7	1.2	6.3
5	4.6	5.2	6.3	4.9	2.8	2.4	2.3	2.8	2.4	2.7	4.0	5.1	4.6	4.2	4.0	3.1	1.7	1.9	2.0	2.1	4.2	5.0	5.0	4.6	24	6.3	1.7	3.7
6	6.6	8.1	8.3	7.7	7.7	8.0	7.6	7.1	5.7	5.4	6.2	6.8	6.7	6.9	7.2	6.5	6.4	6.1	5.6	4.3	4.3	4.6	4.1	4.0	24	8.3	4.0	6.3
7	4.3	5.1	7.1	8.1	9.7	8.2	4.0	4.1	2.9	4.2	5.7	6.0	6.7	5.8	5.2	5.1	5.8	6.1	9.3	8.0	6.9	5.5	2.4	1.9	24	9.7	1.9	5.8
8	2.0	2.1	4.7	8.6	11.5	15.3	4.9	4.4	3.7	1.5	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.6	0.6	0.6	24	15.3	0.5	2.8
9	0.7	0.6	0.6	0.8	0.9	0.9	0.9	1.4	10.7	21.6	27.6	32.8	26.1	13.9	11.6	12.8	14.2	15.9	14.0	4.4	2.0	1.6	2.0	2.4	24	32.8	0.6	9.2
10	2.0	1.7	1.6	1.5	1.5	1.5	1.5	1.8	1.9	19.4	22.7	23.3	24.8	28.3	31.2	45.4	58.6	44.4	49.3	28.1	4.5	4.6	5.8	6.0	24	58.6	1.5	17.1
11	5.3	4.4	3.7	3.3	2.8	2.8	2.9	5.0	33.5	34.8	40.4	41.2	39.0	40.9	34.7	35.7	35.2	28.6	34.7	41.2	19.4	12.3	7.5	5.3	24	41.2	2.8	21.4
12	3.6	3.2	10.6	15.9	18.6	20.1	19.2	19.6	23.3	25.9	29.2	31.2	27.9	26.2	24.5	24.9	29.0	28.4	26.2	24.5	18.0	17.7	16.7	15.6	24	31.2	3.2	20.8
13	12.8	9.9	12.5	13.2	4.7	3.6	3.4	1.9	0.9	C	C	1.2	1.1	1.0	1.1	1.0	0.7	0.6	0.3	0.6	0.5	0.6	0.5	0.7	22	13.2	0.3	3.3
14	0.7	0.6	0.6	0.6	0.6	0.7	0.7	13.5	39.7	39.4	37.4	36.7	34.8	32.5	31.5	31.4	33.5	36.7	29.2	21.3	18.9	18.0	14.9	11.9	24	39.7	0.6	20.2
15	14.5	17.3	16.8	14.5	6.2	2.2	2.3	3.1	2.7	7.6	18.9	24.1	24.8	22.6	19.1	18.7	23.3	20.0	18.8	14.8	14.1	12.3	14.7	22.9	24	24.8	2.2	14.9
16	27.1	28.3	27.7	25.7	23.9	23.2	23.8	21.4	22.6	20.8	19.9	18.3	18.9	20.0	18.4	17.1	9.8	6.2	7.2	6.9	7.1	6.6	7.2	5.8	24	28.3	5.8	17.2
17	5.0	4.5	5.1	5.2	4.7	5.2	6.4	5.4	7.1	7.6	5.3	4.3	4.3	5.0	6.8	7.5	5.2	2.8	2.6	3.1	2.9	2.3	1.6	1.9	24	7.6	1.6	4.7
18	1.8	2.2	3.0	3.4	4.9	C	C	C	C	C	C	3.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	18	4.9	0.2	1.2
19	0.4	0.3	0.7	1.3	1.8	2.3	2.8	5.5	6.4	3.6	3.1	2.7	6.4	7.7	7.3	5.6	4.7	4.7	5.8	3.4	2.7	2.3	2.5	2.3	24	7.7	0.3	3.6
20	2.7	3.1	4.2	16.4	28.7	25.2	10.2	15.5	2.4	0.5	2.0	1.7	3.3	2.6	2.7	2.1	2.2	2.4	3.5	2.5	1.6	1.0	1.5	1.3	24	28.7	0.5	5.8
21	1.2	2.0	2.4	2.4	1.7	0.9	1.0	1.0	0.9	0.7	0.8	1.0	0.9	1.0	1.2	0.8	0.6	0.6	0.4	0.3	0.2	0.2	0.2	0.2	24	2.4	0.2	0.9
22	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	24	0.3	0.2	0.2
23	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.5	0.4	0.4	0.3	0.5	0.7	2.9	3.9	5.8	10.2	13.1	8.8	4.8	3.2	2.8	2.9	3.3	24	13.1	0.2	2.8
24	3.8	3.2	2.8	1.5	0.7	0.4	0.3	0.5	0.5	0.9	0.8	0.5	0.5	0.4	0.6	0.8	0.7	1.0	1.1	1.1	1.2	1.2	1.4	1.2	24	3.8	0.3	1.1
25	0.9	1.0	1.2	1.1	0.4	0.6	0.8	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.2	24	1.2	0.2	0.4
26	0.2	0.2	0.2	0.2	0.3	0.4	0.7	0.5	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.8	0.6	0.3	0.4	0.2	24	0.8	0.2	0.3
27	0.2	0.3	0.3	0.3	0.4	0.6	0.9	1.3	1.3	1.3	4.2	10.6	14.8	8.1	8.1	3.5	9.1	7.8	5.4	8.0	10.6	10.2	9.5	4.7	24	14.8	0.2	5.1
28	2.6	1.7	2.1	1.6	1.6	1.1	1.2	2.1	1.0	2.2	5.2	18.7	27.2	27.6	34.2	55.9	55.4	48.5	22.2	10.5	9.3	11.9	16.2	14.7	24	55.9	1.0	15.6
29	12.0	12.8	12.6	14.2	23.1	32.9	42.0	46.4	44.5	47.2	58.0	66.3	73.7	77.6	77.1	67.4	56.5	37.0	15.7	14.3	9.9	5.8	3.5	2.0	24	77.6	2.0	35.5
30	1.9	2.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	0.7	0.6	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.3	24	2.1	0.2	0.8
31	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6	10.1	9.2	7.2	8.1	9.4	11.5	10.7	13.7	15.1	14.4	2.0	6.5	4.7	3.6	3.6	3.2	24	15.1	0.3	5.7
Count	31	31	31	31	31	30	30	30	30	29	29	31	31	31	31	31	31	31	31	31	31	31	31	31	736			
Maximum	27.1	28.3	27.7	25.7	28.7	32.9	42.0	46.4	44.5	47.2	58.0	66.3	73.7	77.6	77.1	67.4	58.6	48.5	49.3	41.2	19.4	18.0	16.7	22.9	24			
Minimum	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	18			
Average	4.2	4.2	4.8	5.5	5.8	6.1	5.4	6.3	8.3	9.9	11.4	12.2	12.9	12.3	12.1	13.0	13.4	11.7	9.6	7.8	5.8	5.0	4.6	4.3				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.3	0.6	1.2	2.2	3.6	5.4	7.9	12.5	23.6	33.5	56.3	77.6

Maximum Hourly	77.6
Maximum Daily	35.5
Monthly Average	8.1

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

$PM_{2.5}$ - Rundle Road
November 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	2.3	2.3	6.7	12.5	17.3	19.2	21.9	17.9	19.6	27.2	31.5	38.2	44.1	44.7	44.2	40.9	46.0	60.4	60.1	40.8	46.8	28.5	28.2	29.5	24	60.4	2.3	30.4
2	31.5	30.1	30.0	30.5	31.3	41.7	36.4	40.4	34.2	30.1	26.5	17.1	12.5	16.1	22.9	21.8	17.3	14.3	8.2	7.0	8.2	11.0	10.3	10.0	24	41.7	7.0	22.5
3	6.4	3.8	3.8	2.3	1.1	0.9	0.7	0.6	0.6	0.6	0.9	2.7	4.4	4.7	4.6	6.1	6.2	4.5	1.8	1.6	1.4	0.8	0.6	0.6	24	6.4	0.6	2.6
4	0.7	0.6	0.9	0.9	0.7	0.6	0.7	0.8	0.5	0.5	3.2	4.2	5.9	15.4	21.5	31.1	37.4	27.7	10.3	3.1	2.1	2.0	2.3	2.6	24	37.4	0.5	7.3
5	3.3	4.4	4.2	3.5	3.2	3.4	3.5	2.8	5.5	16.9	34.8	27.6	40.5	54.3	43.9	37.6	12.7	13.5	13.4	9.3	6.9	6.0	4.6	3.9	24	54.3	2.8	15.0
6	3.3	1.2	0.7	0.6	0.6	0.6	0.6	0.8	1.0	0.8	4.5	14.6	18.9	16.4	14.6	13.2	11.3	8.5	2.0	3.2	6.6	6.6	7.8	7.8	24	18.9	0.6	6.1
7	5.0	3.9	3.6	3.6	3.6	3.1	3.1	3.8	8.0	42.1	60.2	67.4	50.1	49.7	55.4	42.0	30.6	30.6	23.5	9.4	2.8	3.2	3.0	2.5	24	67.4	2.5	21.3
8	1.9	2.4	1.3	0.9	1.1	2.2	2.8	3.0	13.0	44.3	34.2	45.5	55.4	65.4	77.0	78.7	70.4	68.8	60.1	70.0	64.8	66.2	60.3	49.3	24	78.7	0.9	39.1
9	34.6	22.0	11.5	2.8	1.4	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	24	34.6	0.2	3.2
10	0.2	0.3	0.3	0.4	0.6	0.6	0.7	3.7	21.9	45.8	61.4	63.1	58.1	51.8	49.7	48.2	57.0	47.6	41.0	30.5	22.7	15.7	11.2	10.1	24	63.1	0.2	26.8
11	10.3	14.5	18.5	7.0	3.5	3.9	2.8	C	C	C	C	C	11.0	4.3	2.5	2.2	2.1	3.4	3.2	1.5	1.4	0.9	1.0	1.1	19	18.5	0.9	5.0
12	1.1	0.5	0.4	0.6	0.6	0.7	0.5	1.3	7.0	24.0	22.6	34.7	27.7	34.4	41.3	32.9	30.2	28.2	28.7	33.7	35.9	33.1	29.3	24.6	24	41.3	0.4	19.7
13	15.5	9.0	6.2	7.5	7.5	11.2	11.1	6.5	14.1	28.3	36.1	39.0	42.2	43.4	39.9	32.7	19.2	11.6	9.3	8.8	7.6	5.9	5.0	4.3	24	43.4	4.3	17.6
14	5.1	6.7	5.6	3.9	1.9	1.9	1.9	2.1	2.1	4.5	14.3	21.6	24.2	28.6	27.8	29.5	36.2	44.7	24.9	19.3	17.3	13.1	8.9	3.2	24	44.7	1.9	14.6
15	3.1	2.3	2.7	3.1	3.7	2.8	3.6	3.6	6.5	14.4	40.2	53.4	36.0	36.6	33.3	33.8	29.8	25.9	18.6	7.3	2.2	2.7	2.7	2.7	24	53.4	2.2	15.5
16	2.6	2.7	2.7	3.8	6.5	12.7	19.6	21.3	26.2	37.2	52.6	69.9	71.8	37.1	18.9	14.2	11.3	10.9	8.6	7.4	5.8	4.5	4.0	3.1	24	71.8	2.6	19.0
17	2.0	1.0	0.8	0.7	0.6	0.8	1.0	0.7	0.9	0.8	9.4	21.4	17.7	15.0	17.0	21.6	22.3	20.2	8.1	2.6	2.9	3.3	3.1	3.1	24	22.3	0.6	7.4
18	2.3	2.2	1.9	2.6	2.4	3.3	4.9	3.1	2.6	13.7	23.8	33.5	39.9	42.7	44.8	44.6	35.0	33.2	31.7	24.5	19.8	16.8	13.6	11.2	24	44.8	1.9	18.9
19	9.3	9.4	10.3	9.4	7.7	6.6	6.6	7.2	5.7	13.2	16.5	7.3	8.9	8.6	2.0	1.0	1.3	1.2	0.9	0.4	0.2	0.2	0.2	0.2	24	16.5	0.2	5.6
20	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	0.2	0.2	0.2
21	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	0.2	0.2	0.2
22	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	0.2	0.2	0.2
23	0.3	0.2	0.2	0.3	0.6	4.4	2.0	0.9	1.0	2.9	3.0	2.1	15.8	28.3	17.1	5.9	9.5	7.3	8.0	6.6	7.3	8.8	7.2	5.1	24	28.3	0.2	6.0
24	5.1	9.5	10.6	16.2	15.0	12.6	14.3	17.8	22.3	31.6	33.6	31.7	36.7	37.5	34.5	32.9	27.0	18.5	17.4	16.6	14.6	16.2	13.6	11.6	24	37.5	5.1	20.7
25	12.6	16.6	18.2	15.2	13.8	13.8	15.4	15.9	17.5	23.0	30.9	37.4	32.2	34.8	31.2	28.0	22.5	14.7	3.1	3.4	4.0	4.1	4.0	4.5	24	37.4	3.1	17.4
26	4.7	4.4	3.5	2.9	3.2	3.1	3.3	3.4	5.6	10.1	10.0	8.4	6.0	3.7	2.5	4.6	6.5	8.1	8.1	4.8	4.1	3.7	1.2	1.0	24	10.1	1.0	4.9
27	1.2	1.5	1.3	1.6	1.5	1.5	0.9	1.0	1.5	4.3	10.1	17.7	17.4	12.0	14.6	16.5	15.0	13.2	10.4	9.7	4.3	4.4	4.9	3.7	24	17.7	0.9	7.1
28	2.6	2.7	2.5	2.1	2.9	2.5	2.5	2.1	3.0	3.6	11.4	19.5	27.7	25.7	24.1	22.8	12.5	6.6	5.5	5.7	5.5	5.6	5.9	6.5	24	27.7	2.1	8.8
29	9.7	16.8	22.3	26.0	22.8	17.9	13.2	11.3	12.7	14.5	13.8	16.8	21.5	22.3	21.9	19.1	19.6	21.1	19.8	15.1	11.5	6.4	1.6	1.5	24	26.0	1.5	15.8
30	1.5	2.0	2.2	3.4	4.2	11.5	15.5	16.3	16.5	18.0	14.2	13.1	20.9	25.6	21.9	20.4	18.8	20.3	20.1	18.6	15.5	13.5	16.4	14.9	24	25.6	1.5	14.4
31																												
Count	30	30	30	30	30	30	30	29	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	715			
Maximum	34.6	30.1	30.0	30.5	31.3	41.7	36.4	40.4	34.2	45.8	61.4	69.9	71.8	65.4	77.0	78.7	70.4	68.8	60.1	70.0	64.8	66.2	60.3	49.3	24			
Minimum	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	19			
Average	6.0	5.8	5.8	5.5	5.3	6.1	6.3	6.5	8.6	15.6	20.7	24.4	24.9	25.3	24.3	22.8	20.3	18.9	14.9	12.1	10.8	9.5	8.4	7.3				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100
Data	0.2	0.9	2.4	3.6	6.5	11.1	16.5	23.6	36.0	45.0	67.2	78.7

Maximum Hourly	78.7
Maximum Daily	39.1
Monthly Average	13.1

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

$PM_{2.5}$ - Rundle Road

December 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	9.9	11.5	10.0	14.5	13.0	13.3	12.8	8.4	5.7	28.0	25.6	16.2	14.1	20.0	23.0	18.3	16.5	13.8	11.6	9.9	10.0	8.6	7.2	8.5	24	28.0	5.7	13.8
2	6.8	3.9	1.9	1.2	1.1	1.0	1.5	1.2	0.8	1.1	1.3	2.2	3.5	2.2	2.0	2.8	2.3	2.1	2.4	2.7	0.8	1.0	1.3	1.5	24	6.8	0.8	2.0
3	1.0	0.9	0.6	0.4	0.4	0.8	0.9	2.4	9.7	11.0	13.2	15.0	13.7	14.6	17.1	15.4	35.3	36.5	27.5	18.0	13.0	9.0	4.9	2.4	24	36.5	0.4	11.0
4	3.0	3.1	3.2	2.7	3.3	3.3	3.2	2.5	1.7	0.8	0.7	5.6	1.6	2.8	1.7	0.9	0.9	1.4	1.8	1.6	2.2	2.2	2.1	2.6	24	5.6	0.7	2.3
5	6.0	12.7	24.1	17.2	16.1	17.9	21.6	26.9	53.4	51.8	41.7	36.6	34.5	28.0	20.1	20.9	23.0	19.9	16.0	10.0	6.3	7.3	4.2	9.3	24	53.4	4.2	21.9
6	11.0	13.7	9.6	3.2	1.9	2.0	1.9	1.7	2.0	2.8	11.7	15.3	15.1	22.3	19.9	16.2	13.3	10.3	11.1	6.9	8.8	6.4	0.8	0.8	24	22.3	0.8	8.7
7	2.5	2.9	3.6	7.4	8.3	16.5	16.0	9.1	2.8	1.0	1.3	2.3	3.9	5.0	3.8	5.7	11.3	11.1	9.7	11.0	13.3	11.6	8.7	4.7	24	16.5	1.0	7.2
8	4.3	2.5	3.0	2.6	2.2	2.4	4.9	6.3	2.2	1.1	0.5	0.7	0.4	0.5	0.8	1.1	0.8	0.9	1.0	1.1	1.0	1.7	0.8	1.9	24	6.3	0.4	1.9
9	0.5	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	1.1	24	1.1	0.2	0.3
10	0.7	0.7	1.1	0.3	21.7	30.0	23.9	9.3	0.6	0.2	0.7	0.9	0.5	0.3	0.4	0.8	5.9	2.9	0.5	0.3	0.6	0.6	0.6	0.8	24	30.0	0.2	4.3
11	1.3	2.7	1.9	2.2	2.1	2.0	2.8	3.1	2.2	2.3	8.5	23.2	26.7	32.3	40.5	31.6	27.7	23.4	23.5	20.3	16.7	14.1	15.2	20.6	24	40.5	1.3	14.5
12	24.5	32.5	37.5	30.1	23.2	13.6	14.1	26.4	37.0	29.5	30.8	31.0	31.0	23.3	C	C	19.3	17.5	21.5	19.7	25.6	26.3	25.5	24.9	22	37.5	13.6	25.7
13	28.9	29.9	29.4	33.2	33.8	29.8	32.2	43.2	45.4	48.1	50.7	48.3	A	34.3	37.8	38.3	38.2	29.1	29.0	35.2	23.9	20.5	13.5	4.0	23	50.7	4.0	32.9
14	1.4	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.9	4.6	8.9	12.5	16.6	19.6	22.0	14.7	14.5	13.5	11.2	7.2	5.9	0.8	24	22.0	0.3	6.6
15	1.3	1.0	1.0	0.9	0.7	0.3	0.2	0.2	0.3	0.5	1.8	14.9	21.6	12.4	7.5	9.9	11.9	15.4	14.8	13.0	10.8	12.2	17.3	8.5	24	21.6	0.2	7.4
16	2.8	1.6	1.1	0.9	2.0	6.5	9.3	8.1	27.1	42.4	56.1	55.4	38.7	41.5	63.9	55.4	56.0	136.4	37.9	28.8	27.8	17.7	20.6	18.8	24	136.4	0.9	31.5
17	31.3	16.9	17.3	19.3	18.4	22.7	20.9	18.1	16.7	18.8	19.9	25.5	29.0	32.8	44.0	38.4	37.5	34.4	M	M	M	13.0	14.8	15.3	21	44.0	13.0	24.0
18	18.4	24.0	21.0	19.1	21.0	15.1	13.0	5.2	5.9	4.6	4.1	3.4	2.4	2.4	1.5	1.3	0.9	1.7	1.9	2.5	1.7	1.6	4.3	3.5	24	24.0	0.9	7.5
19	2.4	2.3	2.3	3.3	2.0	1.9	3.1	4.2	5.3	6.2	14.2	39.2	38.6	46.0	55.0	59.1	31.8	19.7	19.2	30.9	24.1	13.4	20.0	22.4	24	59.1	1.9	19.4
20	17.4	20.2	29.7	32.3	28.8	29.7	25.2	27.6	39.8	43.3	49.7	42.5	32.5	23.6	18.2	18.6	18.0	20.8	24.0	24.9	24.9	20.3	17.2	13.8	24	49.7	13.8	26.8
21	10.7	9.0	7.9	6.8	6.3	7.8	6.6	4.6	4.6	10.6	24.8	31.4	34.4	37.9	36.9	32.0	31.5	31.7	32.4	25.3	27.8	34.0	34.7	32.3	24	37.9	4.6	21.8
22	32.2	33.9	27.9	6.5	9.0	10.3	14.4	22.7	31.7	41.2	46.7	48.4	47.5	42.4	34.3	30.4	18.0	23.2	15.7	11.0	4.0	4.5	2.7	1.2	24	48.4	1.2	23.3
23	2.7	5.8	7.6	8.3	10.5	12.3	12.2	13.0	12.0	15.6	25.8	26.4	24.4	19.9	18.4	18.0	13.4	10.7	14.5	16.0	17.2	18.1	19.9	21.8	24	26.4	2.7	15.2
24	14.7	11.7	5.9	3.5	2.8	4.3	6.7	9.0	11.3	11.4	15.8	17.1	17.0	14.4	12.6	14.7	15.2	10.1	6.9	6.2	4.1	2.4	3.0	4.3	24	17.1	2.4	9.4
25	6.7	10.4	12.5	13.2	6.5	1.4	1.4	1.0	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.4	24	13.2	0.2	2.4
26	0.6	0.6	0.6	0.6	0.6	0.6	2.7	10.4	27.3	43.3	74.8	113.5	102.6	80.0	73.9	73.7	75.9	42.6	27.1	45.9	40.6	32.2	21.1	17.8	24	113.5	0.6	37.9
27	14.5	10.9	5.2	4.2	4.6	3.5	4.0	2.5	2.1	1.4	1.6	1.6	1.7	1.7	1.9	1.8	1.9	1.5	1.7	1.8	2.1	1.4	0.9	1.0	24	14.5	0.9	3.1
28	1.1	1.3	1.4	1.4	0.9	0.6	0.6	0.6	0.6	1.7	3.5	3.2	4.5	7.1	4.0	2.7	2.5	2.1	3.1	6.8	8.3	13.4	14.0	10.9	24	14.0	0.6	4.0
29	15.9	18.3	18.2	17.2	18.7	13.6	8.2	9.5	9.8	6.0	6.7	18.0	30.4	41.2	31.2	18.3	20.8	18.8	14.6	9.1	6.4	3.5	1.8	0.8	24	41.2	0.8	14.9
30	0.6	2.7	2.0	1.1	0.5	0.9	1.0	0.7	0.8	1.6	2.8	1.9	1.8	2.3	3.7	4.8	4.6	1.8	2.7	1.5	1.6	1.8	2.2	2.7	24	4.8	0.5	2.0
31	3.2	3.5	3.6	6.1	9.5	16.6	12.7	14.6	14.0	14.4	14.0	13.8	16.5	17.9	18.5	19.8	18.8	20.1	20.2	17.7	14.2	15.6	19.4	10.6	24	20.2	3.2	14.0
Count	31	31	31	31	31	31	31	31	31	31	31	31	30	31	30	30	31	31	30	30	30	31	31	31	738			
Maximum	32.2	33.9	37.5	33.2	33.8	30.0	32.2	43.2	53.4	51.8	74.8	113.5	102.6	80.0	73.9	73.7	75.9	136.4	37.9	45.9	40.6	34.0	34.7	32.3	24			
Minimum	0.5	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	21			
Average	9.0	9.4	9.4	8.4	8.7	9.1	9.0	9.4	12.1	14.2	17.8	21.2	19.9	20.1	20.3	19.0	18.6	18.6	13.6	13.1	11.6	10.4	9.9	8.7				

Percentiles	10	20	30	40	50	60	70	80	90	95	99	100	Maximum Hourly	136.4
													Maximum Daily	37.9
Data	0.6	1.4	2.3	4.2	8.8	13.4	17.5	23.2	32.3	41.2	70.1	136.4	Monthly Average	13.5

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

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

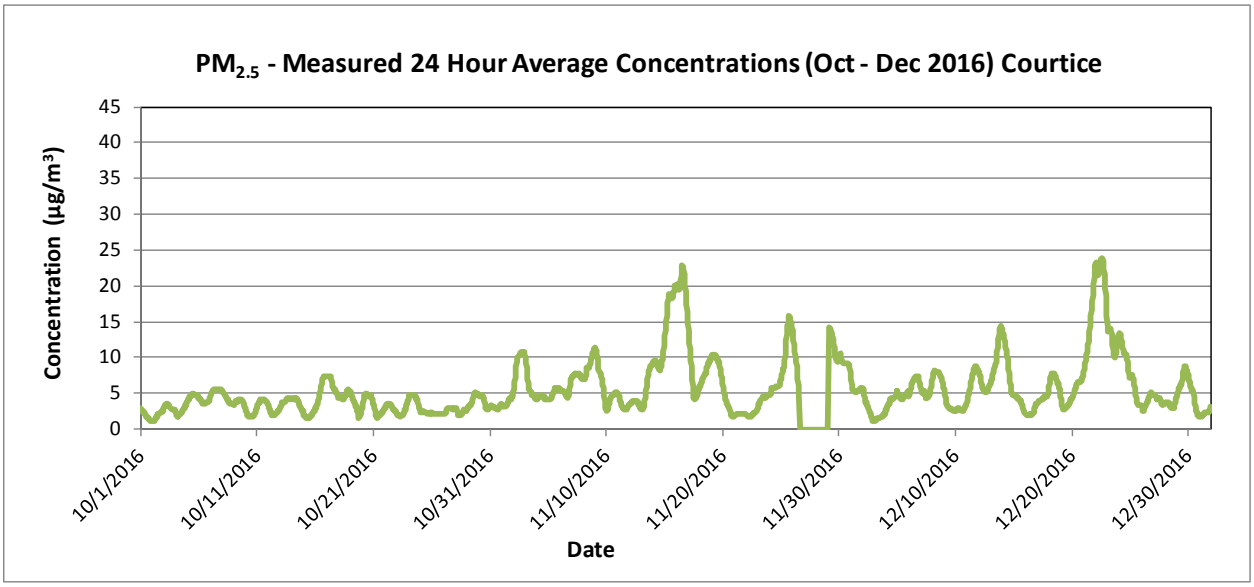
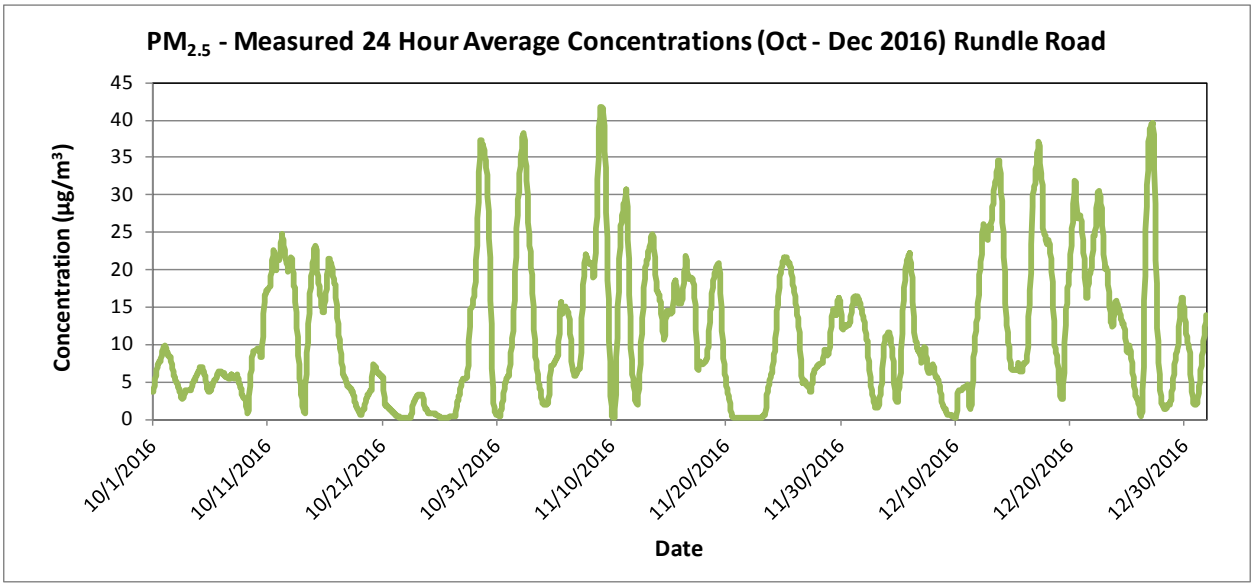


Figure E-2 Time History Plot of Measured 24 Hour Average $PM_{2.5}$ Concentrations – Rundle Road Station



Appendix F CONTINUOUS PARAMETER EDIT LOGS

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-Oct-16**	**End date:**	**31-Dec-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)**	
34	24-Oct-16	TH	Invalidate	13-Oct-16	07:00	13-Oct-16	09:00	Monthly calibration
35	25-Nov-16	TH	Data Review	10-Oct-16	01:00	10-Oct-16	03:00	An elevated SO_2 level of 13.7 ppb was measured at the Courtice WPCP station on October 10 at 1:00 without a corresponding trend at the Rundle Road Station. Winds were from the north-northeast for which Highway 401 and CN railroad were upwind. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
36	25-Nov-16	TH	Data Review	11-Oct-16	02:00	11-Oct-16	05:00	An elevated SO_2 level of 19 ppb was measured at the Courtice WPCP station on October 11 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 incldue Highway 401, local roads or the CN railroad. Therefore, the data was deemed valid.
37	25-Nov-16	TH	Data Review	14-Oct-16	07:00	14-Oct-16	07:00	An elevated SO_2 level of 41 ppb was measured at the Courtice WPCP station on October 14 at 7:00 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 northeast for which the DYEC, Highway 401, Highway 418 construction activities and CN railroad were upwind. Upon review of the DYEC continuous emissions monitoring system online, the concentration of SO_2 emitted from both boilers on October 14, 2016 at 7:00 were 0 mg/Rm^3. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
38	25-Nov-16	TH	Data Review	16-Oct-16	22:00	16-Oct-16	22:00	An elevated SO_2 level of 23 ppb was measured at the Courtice WPCP station on October 16 at 22:00 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 northwest - potential emission sources in this direction include Highway 401, local roads or the CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
39	25-Nov-16	TH	Data Review	19-Oct-16	20:00	20-Oct-16	00:00	An elevated SO_2 level of 21 ppb was measured at the Courtice WPCP station on October 19 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 incldue Highway 401, local roads or the CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
40	25-Nov-16	TH	Data Review	25-Oct-16	20:00	26-Oct-16	07:00	An elevated SO_2 level of 18 ppb was measured at the Courtice WPCP station on October 25 at 2:00 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. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
41	25-Nov-16	TH	Data Review	31-Oct-16	17:00	31-Oct-16	17:00	An elevated SO_2 level of 23 ppb was measured at the Courtice WPCP station on October 31 at 17:00 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. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
42	1-Dec-16	TH	Invalidate	25-Nov-16	08:00	25-Nov-16	11:00	Monthly calibration and annual maintenance/ 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-Oct-16	End date:	31-Dec-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)	
43	15-Dec-16	TH	Data Review	1-Nov-16	19:00	2-Nov-16	05:00	An elevated SO_2 level of 20.8 ppb was measured at the Courtice WPCP station on November 2 at 0:00 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. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
44	15-Dec-16	TH	Data Review	6-Nov-16	18:00	6-Nov-16	18:00	An elevated SO_2 level of 20.5 ppb was measured at the Courtice WPCP station on November 6 at 18:00 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 incldue Highway 401, local roads or the CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
45	15-Dec-16	TH	Data Review	9-Nov-16	22:00	10-Nov-16	02:00	An elevated SO_2 level of 19.3 ppb was measured at the Courtice WPCP station on November 9 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 northwest - potential emission sources in this direction include Highway 401, local roads or the CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
46	15-Dec-16	TH	Data Review	11-Nov-16	23:00	12-Nov-16	02:00	An elevated SO_2 level of 26.8 ppb was measured at the Courtice WPCP station on November 12 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 northwest - potential emission sources in this direction include Highway 401, local roads or the CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
47	15-Dec-16	TH	Data Review	14-Nov-16	22:00	15-Nov-16	01:00	An elevated SO_2 level of 28.1 ppb was measured at the Courtice WPCP station on November 14 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 incldue Highway 401, local roads or the CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
48	15-Dec-16	TH	Data Review	22-Nov-16	21:00	23-Nov-16	07:00	An elevated SO_2 level of 18.9 ppb was measured at the Courtice WPCP station on November 23 at 1:00 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 incldue Highway 401, local roads or the CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
49	19-Dec-16	TH	Invalidate	12-Dec-16	07:00	12-Dec-16	09:00	Monthly calibration
50	19-Dec-16	TH	Invalidate	13-Dec-16	10:00	13-Dec-16	10:00	MOECC audit.
51	4-Jan-17	TH	Data Review	2-Dec-16	02:00	9-Dec-16	11:00	Instances of repeating zero values in this timeframes were due to negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied.

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-Oct-16	End date:	31-Dec-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)	
52	4-Jan-17	TH	Data Review	3-Dec-16	23:00	4-Dec-16	08:00	An elevated SO_2 level of 14.7 ppb was measured at the Courtice WPCP station on December 4 at 5:00 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 and the west over this period. Winds were blowing from the north during WPCP operating hours - from the direction of the WPCP chemical building. Idling trucks have been observed next to the Chemical Building (off-loading supplies). Elevated measurements may have been due to an idling truck, Highway 401, local roads, agricultural activities or the CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
53	4-Jan-17	TH	Data Review	6-Dec-16	01:00	6-Dec-17	04:00	An elevated SO_2 level of 24.4 ppb was measured at the Courtice WPCP station on December 6 at 3:00 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. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
54	4-Jan-17	TH	Data Review	10-Dec-16	03:00	11-Dec-16	08:00	An elevated SO_2 level of 39.7 ppb was measured at the Courtice WPCP station on December 11 at 7:00 without a corresponding trend at the Rundle Road Station. Slighlty 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. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
55	17-Jan-17	TH	Data Review	1-Oct-16	02:00	1-Oct-16	10:00	Instances of repeating zero values in these timeframes were due to measurements less than 0.05 ppb which was rounded to 0ppb
				5-Oct-16	10:00	5-Oct-16	15:00	

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-Oct-16**	**End date:**	**31-Dec-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)**	
56	17-Jan-17	TH	Data Review	8-Oct-16	17:00	9-Oct-16	01:00	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.
				10-Oct-16	11:00	10-Oct-16	17:00	
				1-Dec-16	12:00	1-Dec-16	19:00	
				10-Dec-16	19:00	11-Dec-16	00:00	
				11-Dec-16	14:00	12-Dec-16	05:00	
				25-Dec-16	12:00	26-Dec-16	03:00	
	17-Jan-17	TH	Data Review	2-Oct-16	13:00	2-Oct-16	18:00	Instances of repeating 0.3ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.3ppb
	17-Jan-17	TH	Data Review	23-Oct-16	02:00	23-Oct-16	21:00	Instances of repeating 0.3ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.3ppb
	17-Jan-17	TH	Data Review	24-Oct-16	19:00	25-Oct-16	05:00	Instances of repeating 0.1ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.1ppb
	17-Jan-17	TH	Data Review	27-Oct-16	21:00	28-Oct-16	02:00	Instances of repeating 0.3ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.3ppb
	17-Jan-17	TH	Data Review	5-Nov-16	19:00	6-Nov-16	00:00	Instances of repeating 0.3ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.3ppb
	17-Jan-17	TH	Data Review	17-Nov-16	20:00	18-Nov-16	01:00	Instances of repeating 0.6ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.6ppb
	17-Jan-17	TH	Data Review	26-Nov-16	05:00	26-Nov-16	10:00	Instances of repeating 0.6ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.6ppb
	17-Jan-17	TH	Data Review	17-Dec-16	05:00	17-Dec-16	10:00	Instances of repeating 0.3ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.3ppb
	17-Jan-17	TH	Data Review	24-Dec-16	16:00	25-Dec-16	00:00	Instances of repeating 0.1ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.1ppb
	17-Jan-17	TH	Data Review	27-Dec-16	07:00	28-Dec-16	15:00	Instances of repeating 0.1ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.1ppb
	17-Jan-17	TH	Data Review	29-Dec-16	15:00	29-Dec-16	21:00	Instances of repeating 0.3ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.3ppb

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**	**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**NOx**	**Instrument make & model:**	**API Model 200E Chemiluminescence Analyzer**			**Serial Number:**	**675**
Data edit period	**Start date:**	**1-Oct-16**	**End date:**	**31-Dec-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)**	
56	24-Oct-16	TH	Invalidate	13-Oct-16	07:00	13-Oct-16	08:00	Monthly calibration
57	25-Nov-16	TH	Data Review	11-Oct-16	06:00	11-Oct-16	06:00	An elevated NOx level of 54 ppb was measured at the Courtice WPCP station on October 11 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. The data was deemed valid.
58	25-Nov-16	TH	Data Review	19-Oct-16	20:00	19-Oct-16	23:00	An elevated NOx level of 55 ppb was measured at the Courtice WPCP station on October 19 at 22:00 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, the elevated measurement may have been due to the CN railroad or Highway 401. The data was deemed valid.
59	25-Nov-16	TH	Data Review	31-Oct-16	18:00	31-Oct-16	18:00	An elevated NOx level of 88 ppb was measured at the Courtice WPCP station on October 31 at 18:00 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-northwest - the elevated measurement may have been due to the CN railroad or Highway 401. Therefore, the data was deemed valid.
60	1-Dec-16	TH	Invalidate	25-Nov-16	08:00	25-Nov-16	11:00	Monthly calibration
61	15-Dec-16	TH	Data Review	1-Nov-16	18:00	1-Nov-16	06:00	An elevated NOx level of 69.9 ppb was measured at the Courtice WPCP station on November 2 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 - the elevated measurement may have been due to the CN railroad or Highway 401. Therefore, the data was deemed valid.
62	15-Dec-16	TH	Data Review	4-Nov-16	18:00	4-Nov-16	18:00	An elevated NOx level of 50.4 ppb was measured at the Courtice WPCP station on November 4 at 18:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was 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
63	15-Dec-16	TH	Data Review	6-Nov-16	19:00	7-Nov-16	08:00	An elevated NOx level of 70.8 ppb was measured at the Courtice WPCP station on November 7 at 8:00 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, the elevated measurement may have been due to an the CN railroad or Highway 401. Therefore, the data was deemed valid.
64	15-Dec-16	TH	Data Review	8-Nov-16	07:00	8-Nov-16	07:00	An elevated NOx level of 64.8 ppb was measured at the Courtice WPCP station on November 8 at 7:00 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-northeast - the elevated measurement may have been due to the CN railroad or Highway 401. The data was deemed valid.
65	15-Dec-16	TH	Data Review	23-Nov-16	01:00	23-Nov-16	01:00	An elevated NOx level of 65.2 ppb was measured at the Courtice WPCP station on November 23 at 1:00 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 -the elevated measurement may have been due to the CN railroad or Highway 401. 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**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**NOx**	**Instrument make & model:**		**API Model 200E Chemiluminescence Analyzer**			**Serial Number:**	**675**
Data edit period	**Start date:**	**1-Oct-16**	**End date:**	**31-Dec-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)**	
66	15-Dec-16	TH	Data Review	27-Nov-16	17:00	27-Nov-16	23:00	An elevated NOx level of 40.5 ppb was measured at the Courtice WPCP station on November 27 at 20:00 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. Slightly elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north, the elevated measurement may have been due to the CN railroad or Highway 401. Therefore, the data was deemed valid.
67	15-Dec-16	TH	Data Review	29-Nov-16	22:00	30-Nov-16	02:00	An elevated NOx level of 70.7 ppb was measured at the Courtice WPCP station on November 30 at 0:00 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-northeast, the elevated measurement may have been due to the CN railroad or Highway 401. Therefore, the data was deemed valid.
68	19-Dec-16	TH	Invalidate	12-Dec-16	07:00	12-Dec-16	10:00	Monthly calibration
69	19-Dec-16	TH	Invalidate	13-Dec-16	10:00	13-Dec-16	11:00	MOECC audit
70	19-Dec-16	TH	Invalidate	13-Dec-16	14:00	13-Dec-16	16:00	Annual calibration. Replaced NOx monitor with spare and calibrated.
71	4-Jan-17	TH	Data Review	15-Dec-16	23:00	16-Dec-16	00:00	An elevated NOx level of 54.7 ppb was measured at the Courtice WPCP station on December 15 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 an emissions source located relatively far away. Slightly elevated SO_2 concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north, the elevated measurement may have been due to an the CN railroad or Highway 401. Therefore, the data was deemed valid.
73	17-Jan-17	TH	Data Review	1-Oct-16	00:00	1-Oct-16	08:00	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.
				3-Oct-16	11:00	3-Oct-16	17:00	
				5-Oct-16	09:00	5-Oct-16	15:00	
				9-Oct-16	08:00	9-Oct-16	14:00	
				10-Oct-16	10:00	10-Oct-16	17:00	
74	17-Jan-17	TH	Data Review	27-Dec-16	10:00	27-Dec-16	15:00	Instances of repeating 0.6ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.6ppb

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**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**$PM_{2.5}$**	**Instrument make & model:**		**Thermo Sharp 5030 Synchronized Hybrid Ambient Real-time Particulate Monitor**			**Serial Number:**	**E-1569**
Data edit period	**Start date:**	**1-Oct-16**	**End date:**	**31-Dec-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)**	
28	24-Oct-16	TH	Invalidate	13-Oct-16	07:00	13-Oct-16	07:00	Monthly calibration
29	1-Dec-16	TH	Invalidate	25-Nov-16	08:00	25-Nov-16	08:00	Monthly calibration
30	2-Dec-16	TH	Invalidate	26-Nov-16	09:00	28-Nov-16	09:00	Pump was shut off when field technician arrived on November 28. Upon review of the collected data, repeating measurements of approximately 0.16 µg/m^3 were identified. This data was invalidated.
31	19-Dec-16	TH	Invalidate	12-Dec-16	07:00	12-Dec-16	08:00	Monthly calibration
32	19-Dec-16	TH	Invalidate	13-Dec-16	10:00	13-Dec-16	11:00	MOECC audit
33	17-Jan-17	TH	Data Review	21-Nov-16	19:00	22-Nov-16	00:00	Instances of repeating 1.7µg/m^3 measurements. Data was reviewed and the measurements are changing but were rounded to 1.7µg/m^3

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**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Temperature**	**Instrument make & model:**		**Campbell Scientific Model HMP60**			**Serial Number:**	
Data edit period	**Start date:**	**1-Oct-16**	**End date:**	**31-Dec-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**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Rainfall**	**Instrument make & model:**		**Texas Electronic TE525M**			**Serial Number:**	
Data edit period	**Start date:**	**1-Oct-16**	**End date:**	**31-Dec-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	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.
5	26-Sep-16	TH	Invalidate	16-Sep-16	08:00	16-Sep-16	08:00	Annual calibration
6	26-Sep-16	TH	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
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**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Relative Humidity**	**Instrument make & model:**		**Campbell Scientific Model HMP60**		**Serial Number:**		
Data edit period	**Start date:**	**1-Oct-16**	**End date:**	**31-Dec-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**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Atmospheric Pressure**	**Instrument make & model:**		**Campbell Scientific Model CS106**		**Serial Number:**		
Data edit period	**Start date:**	**1-Oct-16**	**End date:**	**31-Dec-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.

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**		**Emitter Address:**	**The Region of Durham, 605 Rossland Rd, Whitby, ON**				
Pollutant or parameter:	**Wind Speed/Wind direction**	**Instrument make & model:**		**N/A**			**Serial Number:**	
Data edit period	**Start date:**	**1-Oct-16**	**End date:**	**31-Dec-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	8-Nov-16	TH	Invalidate	6-Nov-16	00:00	6-Nov-16	00:00	Data unavailable from Courtice during the transition back to standard time (the met tower run by the Region at Courtice uses local time)

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-Oct-16**	**End date:**	**31-Dec-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)**	
30	24-Oct-16	TH	Invalidate	13-Oct-16	09:00	13-Oct-16	11:00	October Monthly calibration
31	24-Oct-16	TH	Invalidate	20-Oct-16	07:00	20-Oct-16	11:00	Annual maintenance/ calibration
32	23-Nov-16	TH	Invalidate	11-Nov-16	07:00	11-Nov-16	08:00	November monthly calibration
33	25-Nov-16	TH	Data review	21-Oct-16	01:00	27-Oct-16	05:00	Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied.
				30-Oct-16	09:00	31-Oct-16	23:00	
34	15-Dec-16	TH	Data review	3-Nov-16	23:00	10-Nov-16	06:00	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.
				14-Nov-16	22:00	18-Nov-16	11:00	
35	19-Dec-16	TH	Invalidate	12-Dec-16	14:00	12-Dec-16	15:00	Monthly calibration.
36	19-Dec-16	TH	Slope correction	12-Dec-16	16:00	13-Dec-16	11:00	Calibration on 12-Dec used VES's calibration bottle that was found to be off-spec and the unit was re-calibrated with the MOECC cal gas. Slope correction of 0.636 applied using the difference in span between Valley's gas bottle calibration and the MOECC's gas bottle calibration to correct the data in this timeframe.
37	19-Dec-16	TH	Invalidate	13-Dec-16	12:00	13-Dec-16	12:00	MOECC audit.
38	19-Dec-16	TH	Invalidate	13-Dec-16	13:00	13-Dec-16	14:00	MOECC Audit/Calibration.
39	19-Dec-16	TH	Invalidate	17-Dec-16	18:00	17-Dec-16	20:00	Evidence of power outage.
40	3-Jan-17	TH	Data review	9-Dec-16	03:00	11-Dec-16	19:00	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.
41	17-Jan-17	TZ	Data review	6-Oct-16	05:00	6-Oct-16	10:00	Instance of repeating 0.4ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.4ppb
				8-Oct-16	07:00	8-Oct-16	17:00	Instance of repeating 0.5ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.5ppb
				9-Oct-16	14:00	9-Oct-16	20:00	Instance of repeating 0.2ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.2ppb
				10-Oct-16	09:00	10-Oct-16	14:00	Instance of repeating 0.1ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.1ppb
				10-Oct-16	21:00	11-Oct-16	05:00	Instance of repeating 0.2ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.2ppb
				14-Oct-16	13:00	14-Oct-16	18:00	Instance of repeating 0.7ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.7ppb
				17-Oct-16	18:00	17-Oct-16	23:00	Instance of repeating 0.8ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.8ppb
				29-Nov-16	09:00	29-Nov-16	14:00	Instance of repeating 0.2ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.2ppb
42	17-Jan-17	TZ	Data review	27-Oct-16	15:00	28-Oct-16	07:00	Instances of repeating zero values in these timeframes were due to values less than 0.05 and/or negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied.
				1-Nov-16	22:00	2-Nov-16	03:00	
				25-Nov-16	18:00	25-Nov-16	23:00	

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-Oct-16	End date:	31-Dec-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)	
43	17-Jan-17	TZ	Data review	29-Oct-16	07:00	1-Nov-16	01:00	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.
				2-Nov-16	16:00	3-Nov-16	00:00	
				18-Nov-16	15:00	20-Nov-16	13:00	
				21-Nov-16	03:00	25-Nov-16	14:00	
				26-Nov-16	12:00	28-Nov-16	07:00	
				3-Dec-16	21:00	4-Dec-16	10:00	
44	17-Jan-17	TZ	Data review	2-Dec-16	17:00	2-Dec-16	23:00	Instances of repeating zero values in these timeframes were due to values less than 0.05ppb. Data was reviewed and the measurements are changing but were rounded to 0.0ppb.
45	18-Jan-17	TZ	Data review	5-Dec-16	23:00	6-Dec-16	07:00	Instances of repeating zero values in these timeframes were due to values less than 0.05 and/or negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied.
				8-Dec-16	11:00	8-Dec-16	17:00	
46	18-Jan-17	TZ	Data review	15-Dec-16	15:00	15-Dec-16	20:00	Instance of repeating 0.5ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.5ppb
				17-Dec-16	10:00	17-Dec-16	15:00	Instance of repeating 0.8ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.8ppb
				18-Dec-16	05:00	18-Dec-16	10:00	Instance of repeating 0.7ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.7ppb
				21-Dec-16	07:00	21-Dec-16	14:00	Instance of repeating 1.2ppb measurements. Data was reviewed and the measurements are changing but were rounded to 1.2ppb
				24-Dec-16	03:00	24-Dec-16	09:00	Instance of repeating 0.7ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.7ppb
				27-Dec-16	06:00	27-Dec-16	22:00	Instance of repeating 0.5ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.5ppb
				28-Dec-16	03:00	28-Dec-16	08:00	Instance of repeating 0.4ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.4ppb
				30-Dec-16	18:00	31-Dec-16	01:00	Instance of repeating 0.5ppb measurements. Data was reviewed and the measurements are changing but were rounded to 0.5ppb

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-Oct-16**	**End date:**	**31-Dec-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)**	
29	24-Oct-16	TH	Invalidate	13-Oct-16	09:00	13-Oct-16	11:00	October monthly calibration
30	24-Oct-16	TH	Invalidate	20-Oct-16	06:00	20-Oct-16	11:00	Annual maintenance/ calibration. Installed a spare while analyzer maintenance was performed offsite.
31	23-Nov-16	TH	Invalidate	11-Nov-16	07:00	11-Nov-16	12:00	Calibrated and removed spare analyzer. Reinstalled original analyzer and calibrated.
32	25-Nov-16	TH	Data review	20-Oct-16	19:00	26-Oct-16	05:00	Instances of repeating NO_2 or NOx 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.
				29-Oct-16	16:00	31-Oct-16	14:00	
33	1-Dec-16	TH	Invalidate	25-Nov-16	14:00	25-Nov-16	16:00	Instrument off-line for servicing
34	6-Dec-16	TH	Invalidate	1-Dec-16	01:00	1-Dec-16	01:00	Evidence of power failure. Invalidated 1 minute of data. Data recovery in the hour was still acceptable.
35	15-Dec-16	TH	Data review	3-Nov-16	01:00	4-Nov-16	13:00	Instances of repeating NO2 or NOx 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.
				5-Nov-16	21:00	6-Nov-16	13:00	
				9-Nov-16	00:00	9-Nov-16	16:00	
				20-Nov-16	06:00	22-Nov-16	05:00	
36	19-Dec-16	TH	Invalidate	12-Dec-16	14:00	12-Dec-16	16:00	Monthly calibration
37	19-Dec-16	TH	Invalidate	13-Dec-16	12:00	13-Dec-16	12:00	MOECC audit
38	19-Dec-16	TH	Invalidate	17-Dec-16	18:00	17-Dec-16	20:00	Evidence of power outage
39	19-Dec-16	TH	Zero correction	11-Nov-16	18:00	25-Nov-16	13:00	Applied a linear zero drift correction of 10 ppb (start) to 16.1 ppb (end) to NO measurements and a step zero drift correction of 10.9ppb to NOx measurements during the instrument stabilization period after the NOx analyzer was re-installed after routine overhaul. Unit was re-zeroed on 25-Nov. NOx and NO measurements were adjusted based on the measurement readings during the zeros and review of the data in this time frame. NO_2 was calculated from the drift corrected NOx and NO measurements.
40	3-Jan-17	TH	Data review	12-Dec-16	06:00	12-Dec-16	12:00	An elevated NOx level of 37ppb was measured at the Rundle Road station on December 12 at 8:00 without a corresponding trend at the Courtice WPCP Station. For this hour, the measured NO concentration was approximately the same as NO_2 which suggests an intermediate distance emissions source. Winds were blowing from the west - the elevated readings occurred during the daytime and may have been due to local roads. The data was deemed valid.
41	19-Jan-17	TZ	Data review	28-Oct-16	00:00	28-Oct-16	13:00	Instances of repeating NO_2 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.
42	19-Jan-17	TZ	Data review	3-Dec-16	10:00	3-Dec-16	15:00	Instances of repeating NO_2 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.
43	19-Jan-17	TZ	Data review	9-Dec-16	20:00	10-Dec-16	03:00	Instances of repeating NO_2 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.

Examples of Acceptable Edit Actions:

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

Project Name	Durham York Energy Centre Ambient Air Monitoring Program							
Contact	Greg Crooks / Connie Lim / 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-Oct-16	End date:	31-Dec-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)	
46	24-Oct-16	TH	Invalidate	13-Oct-16	09:00	13-Oct-16	10:00	October monthly calibration
47	24-Oct-16	TH	Invalidate	18-Oct-16	05:00	18-Oct-16	10:00	Annual maintenance/ calibration
48	23-Nov-16	TH	Invalidate	11-Nov-16	07:00	11-Nov-16	11:00	November monthly calibration
49	25-Nov-16	TH	Data review	9-Oct-16	09:00	9-Oct-16	17:00	Elevated level of up to 33 µg/m³ measured on October 9 at 11:00 without a corresponding trend at the Oshawa or Courtice stations. The wind was blowing from the north - potential emission sources in this direction include agricultural activities or vehicles along Baseline Road. Minute data was reviewed and measurements were reasonably consistent throughout this time period. The data was deemed valid.
50	25-Nov-16	TH	Data review	10-Oct-16	09:00	10-Oct-16	18:00	Elevated levels of up to 59 µg/m³ were measured on October 10 at 16:00 without a corresponding trend at the Courtice or 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.
51	25-Nov-16	TH	Data review	11-Oct-16	08:00	11-Oct-16	19:00	Elevated levels of up to 41 µg/m³ were measured on October 11 at 19:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were generally blowing from the east-southeast - the elevated readings may have been due to the CP railroad or the St. Mary's Cement plant. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
52	25-Nov-16	TH	Data review	12-Oct-16	03:00	12-Oct-16	20:00	Elevated levels of up to 31 µg/m³ were measured on October 12 at 11:00 without a corresponding trend at the Oshawa or Courtice stations. The wind was blowing from the south-southeast - potential emission sources in this direction include Highway 401 or the CP railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
53	25-Nov-16	TH	Data review	14-Oct-16	08:00	14-Oct-16	17:00	Elevated levels of up to 40 µg/m³ were measured on October 14 at 8:00 without a corresponding trend at the Oshawa or Courtice stations. The wind was blowing from the south - potential emission sources in this direction include Highway 401 or the CP railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
54	25-Nov-16	TH	Data review	20-Oct-16	04:00	20-Oct-16	04:00	An elevated level of 29 µg/m³ was measured on October 20 at 4:00 without a corresponding trend at Courtice or Oshawa station. Winds were generally blowing from the northeast - the elevated reading may have been due to the CP railroad or local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
55	25-Nov-16	TH	Data review	28-Oct-16	12:00	28-Oct-16	18:00	Elevated levels of up to 56 µg/m³ were measured on October 28 at 15:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were generally blowing from the 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.
56	25-Nov-16	TH	Data review	29-Oct-16	06:00	29-Oct-16	16:00	Elevated levels of up to 78 µg/m³ were measured on October 29 at 13:00 without a corresponding trend at the Courtice or Oshawa stations. 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.
57	19-Dec-16	TH	Invalidate	12-Dec-16	14:00	12-Dec-16	15:00	Monthly calibration
58	19-Dec-16	TH	Invalidate	13-Dec-16	12:00	13-Dec-16	12:00	MOECC audit
59	19-Dec-16	TH	Invalidate	17-Dec-16	18:00	17-Dec-16	20:00	Evidence of power outage
60	22-Dec-16	TH	Data review	1-Nov-16	04:00	2-Nov-16	05:00	Elevated levels of up to 60.4 µg/m³ were measured on November 1 at 17:00 without a corresponding trend at the Oshawa or Courtice stations. Winds were generally blowing from the east - 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.
61	22-Dec-16	TH	Data review	4-Nov-16	13:00	4-Nov-16	18:00	Elevated levels of up to 37.4 µg/m³ were measured on November 4 without a corresponding trend at the Courtice or Oshawa stations. 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.
62	22-Dec-16	TH	Data review	5-Nov-16	09:00	5-Nov-16	16:00	Elevated levels of up to 54.3 µg/m³ were measured on November 5 at 13:00 without a corresponding trend at the Courtice or Oshawa stations. 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.
63	22-Dec-16	TH	Data review	7-Nov-16	09:00	7-Nov-16	18:00	Elevated levels of up to 67.4 µg/m³ were measured on November 7 at 11:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were generally blowing from the south-southwest - potential emission sources in this direction include 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.
64	22-Dec-16	TH	Data review	8-Nov-16	09:00	9-Nov-16	01:00	Elevated levels of up to 78.7 µg/m³ were measured on November 8 at 15:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were generally blowing from the west-southwest - some 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.

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-Oct-16	End date:	31-Dec-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)	
65	22-Dec-16	TH	Data review	10-Nov-16	09:00	10-Nov-16	19:00	Elevated levels of up to 63.1 µg/m³ were measured on November 10 at 11:00 without a corresponding trend at the Courtice or Oshawa stations. 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.
66	22-Dec-16	TH	Data review	12-Nov-16	09:00	12-Nov-16	23:00	Elevated levels of up to 41.3 µg/m³ were measured on November 12 at 14:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the west-southwest - some 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.
67	22-Dec-16	TH	Data review	13-Nov-16	10:00	13-Nov-16	16:00	Elevated levels of up to 43.4 µg/m³ were measured on November 13 at 13:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were 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.
68	22-Dec-16	TH	Data review	14-Nov-16	11:00	14-Nov-16	18:00	Elevated levels of up to 44.7 µg/m³ were measured on November 14 at 17:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the west - the elevated readings occurred during the daytime and may have been due to Highway 418 construction activities or local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
69	22-Dec-16	TH	Data review	15-Nov-16	11:00	15-Nov-16	11:00	Elevated levels of 53.4 µg/m³ were measured on November 15 at 11:00 without a corresponding trend at the Oshawa or Courtice stations. Winds were generally blowing from the east - 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.
70	22-Dec-16	TH	Data review	16-Nov-16	09:00	16-Nov-16	13:00	Elevated levels of 71.8 µg/m³ were measured on November 16 at 12:00 without a corresponding trend at the Oshawa or Courtice stations. Winds were generally 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.
71	22-Dec-16	TH	Data review	18-Nov-16	10:00	18-Nov-16	19:00	Elevated levels of 44.8 µg/m³ were measured on November 18 at 14:00 without a corresponding trend at the Oshawa or Courtice stations. The winds were generally blowing from the east-southeast - potential emission sources in this direction include the St. Mary's Cement plant, 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.
72	22-Dec-16	TH	Data review	19-Nov-16	20:00	23-Nov-16	04:00	Instances of repeating 0.17 µg/m³ measurements in this timeframe was noted. During these periods, low ambient PM2.5 levels were also measured at the Courtice and Oshawa Stations. Some variation in measurements were also recorded and no instrument warnings or error messages occurred. These periods are likely due to very low ambient PM2.5 concentrations being measured while the instrument nephalometer calibration had drifted slightly negative.
73	22-Dec-16	TH	Data review	24-Nov-16	08:00	24-Nov-16	17:00	Elevated levels of up to 37.5 µg/m³ were measured on November 24 at 13:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were generally blowing from the east-northeast - potential emission sources in this direction include the CP railroad or local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
74	3-Jan-17	TH	Data review	3-Dec-16	16:00	3-Dec-16	19:00	Elevated levels of up to 36.5 µg/m³ were measured on December 3 at 17:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the west - potential emission sources in this direction include local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
75	3-Jan-17	TH	Data review	5-Dec-16	02:00	5-Dec-16	15:00	Elevated levels of up to 53.4 µg/m³ were measured on December 5 at 8:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the west - potential emission sources in this direction include local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
76	3-Jan-17	TH	Data review	10-Dec-16	04:00	10-Dec-16	06:00	Elevated levels of up to 30 µg/m³ were measured on December 10 at 5:00 without a corresponding trend at the Oshawa or Courtice stations. The wind was blowing from the north - potential emission sources in this direction include agricultural activities or local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. The data was deemed valid.
77	3-Jan-17	TH	Data review	11-Dec-16	11:00	13-Dec-16	10:00	Elevated levels of up to 50.7 µg/m³ were measured on December 13 at 10:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the south and west - 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.
78	3-Jan-17	TH	Data review	16-Dec-16	08:00	16-Dec-16	18:00	Elevated levels of up to 136.4 µg/m³ were measured on December 16 at 17:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the west - potential emission sources in this direction include local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
79	3-Jan-17	TH	Data review	17-Dec-16	14:00	17-Dec-16	17:00	Elevated levels of 44 µg/m³ were measured on December 17 at 14:00 without a corresponding trend at the Oshawa or Courtice stations. Winds were generally blowing from the east - 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-Oct-16**	**End date:**	**31-Dec-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)**	
80	3-Jan-17	TH	Data review	19-Dec-16	11:00	20-Dec-16	12:00	Elevated levels of up to 59.1 µg/m³ were measured on December 19 at 15:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the west - potential emission sources in this direction include local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid.
81	3-Jan-17	TH	Data review	26-Dec-16	09:00	26-Dec-16	19:00	Elevated levels of 113.5 µg/m³ were measured on December 26 at 11:00 without a corresponding trend at the Oshawa or Courtice stations. Winds were generally blowing from the east - 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.
82	19-Jan-17	TZ	Data review	18-Oct-16	13:00	18-Oct-16	21:00	Instance of repeating 0.2µg/m^3 measurements. Data was reviewed and the measurements are changing but were rounded to 0.2µg/m^3
				9-Dec-16	03:00	9-Dec-16	18:00	Instance of repeating 0.2µg/m^3 measurements. Data was reviewed and the measurements are changing but were rounded to 0.2µg/m^3
				14-Dec-16	03:00	14-Dec-16	09:00	Instance of repeating 0.3µg/m^3 measurements. Data was reviewed and the measurements are changing but were rounded to 0.3µg/m^3
				26-Dec-16	00:00	26-Dec-16	05:00	Instance of repeating 0.6µg/m^3 measurements. Data was reviewed and the measurements are changing but were rounded to 0.6µg/m^3
83	19-Jan-17	TZ	Data review	9-Nov-16	06:00	9-Nov-16	20:00	Instances of repeating 0.17 µg/m³ measurements in this timeframe was noted. During these periods, low ambient PM2.5 levels were also measured at the Courtice and Oshawa Stations. This period is likely due to very low ambient PM2.5 concentrations being measured while the instrument nephalometer calibration had drifted slightly negative.

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-Oct-16**	**End date:**	**31-Dec-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	24-Oct	TH	Invalidate	18-Oct-16	08:00	18-Oct-16	08:00	Annual calibration.
5	19-Dec-16	TH	Invalidate	17-Dec-16	18:00	17-Dec-16	20:00	Evidence of power outage

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-Oct-16**	**End date:**	**31-Dec-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	24-Oct	TH	Invalidate	18-Oct-16	08:00	18-Oct-16	08:00	Annual calibration
5	19-Dec-16	TH	Invalidate	17-Dec-16	18:00	17-Dec-16	20:00	Evidence of power outage

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-Oct-16	End date:	31-Dec-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	24-Oct	TH	Invalidate	18-Oct-16	08:00	18-Oct-16	08:00	Annual calibration
5	19-Dec-16	TH	Invalidate	17-Dec-16	18:00	17-Dec-16	20:00	Evidence of power outage

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-Oct-16	End date:	31-Dec-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)	
5	22-Nov-16	TH	Invalidate	11-Nov-16	08:00	11-Nov-16	08:00	Wind sensor removed for maintenance. Spare installed and calibrated.
6	1-Dec-16	TH	Invalidate	25-Nov-16	14:00	25-Nov-16	14:00	Spare removed. Original resinstalled and calibrated
7	19-Dec-16	TH	Invalidate	17-Dec-16	18:00	17-Dec-16	20:00	Evidence of power outage

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

Appendix G METALS DATA SUMMARY

Metals and Total Particulates	Courtice WPCP Station			Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice[3]		Courtice		Courtice		Courtice		Courtice	
Location				03/10/2016		09/10/2016		15/10/2016		21/10/2016		27/10/2016		02/11/2016		08/11/2016		14/11/2016		20/11/2016		26/11/2016		02/12/2016		08/12/2016		14/12/2016		20/12/2016		26/12/2016	
Date	dd/mm/yyyy																														
Start Time	hh:mm			0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00	
Sample Duration	Hours			23.98		23.16		23.6		24.21		23.14		23.32		23.76		23.25		23.3		23.54		23.09		23.58		23.89		22.68		23.27	
Technician				TH		TH		TH		TH		TH		TH		KM		TH		TH		TH		TH		TH		TH		TH	
Filter Number				16090711		16090715		16090685		16090689		16091949		16091954		16092079		16092082		16092086		16092090		16111064		16111068		16112826		16112980		16120595	
Analytical Report #				B6L4662		B6M0580		B6M4167		B6N2112		B6N5688		B6O1407		B6O4939		B6P2339		B6P4187		B6P9738		B6Q5548		B6R1167		B6R5524		B6R8490		B6S0281	
Total Volumetric Flow	Am^3/sample			1569.21		1478.53		1535.19		1578.68		1447.74		1499.45		1516.33		1477.51		1477.57		1485.31		1464.01		1466.78		1458.34		1412.12		1452.10	
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			24.7	5	12.4	5	24.1	5	15.1	5	24.2	5	45.7	5	46.7	5	50.7	5	20	5	21.1	5	36	5	40.1	5	22.3	5	27.4	5	16.8	5
Total Mercury (Hg)	µg			<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02
Aluminum (Al)	µg			130	50	<50	50	89	50	<50	50	139	50	256	50	200	50	216	50	117	50	84	50	128	50	115	50	65	50	68	50	68	50
Antimony (Sb)	µg			<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Arsenic (As)	µg			<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0
Barium (Ba)	µg			10.6	1.0	11.7	1.0	7.5	1.0	6.8	1.0	4.7	1.0	32.7	1.0	51.4	1.0	17.9	1.0	6.9	1.0	13.9	1.0	8.7	1.0	11.1	1.0	8.2	1.0	6.6	1.0	6.5	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			<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	11.2	5.0	<5.0	5.0	6.5	5.0	5.9	5.0	<5.0	5.0	<5.0	5.0	5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	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			69.0	5.0	35.4	5.0	26.9	5.0	15.4	5.0	25.1	5.0	50.5	5.0	80.5	5.0	36.4	5.0	25.1	5.0	56.0	5.0	51.5	5.0	23.3	5.0	15.3	5.0	9.7	5.0	17.2	5.0
Iron (Fe)	µg			490	50	257	50	321	50	166	50	324	50	909	50	738	50	858	50	284	50	400	50	349	50	390	50	190	50	234	50	198	50
Lead (Pb)	µg			<3.0	3.0	<3.0	3.0	3.6	3.0	<3.0	3.0	<3.0	3.0	6.3	3.0	9.3	3.0	7.6	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	3.5	3.0	3.2	3.0	3.4	3.0	<3.0	3.0
Magnesium (Mg)	µg			171	50	75	50	143	50	80	50	154	50	287	50	336	50	569	50	111	50	139	50	198	50	317	50	118	50	126	50	100	50
Manganese (Mn)	µg			12.7	1.0	5.8	1.0	8.3	1.0	5.6	1.0	10.7	1.0	25.6	1.0	24.6	1.0	25.5	1.0	8.3	1.0	10.2	1.0	18.5	1.0	15.7	1.0	9.8	1.0	8.2	1.0	5.9	1.0
Molybdenum (Mo)	µg			<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0
Nickel (Ni)	µg			<3.0	3.0	<3.0	3.0	3.1	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	<3.0	3.0	<3.0	3.0
Phosphorus (P)	µg			87	25	25	25	25	25	48	25	28	25	55	25	42	25	39	25	<25	25	<25	25	<25	25	<25	25	<25	25	<25	25	<25	25
Selenium (Se)	µg			<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Silver (Ag)	µg			<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Strontium (Sr)	µg			5.7	1.0	2.2	1.0	5.0	1.0	1.9	1.0	6.3	1.0	6.3	1.0	8.0	1.0	9.0	1.0	2.3	1.0	5.3	1.0	5.2	1.0	5.4	1.0	2.4	1.0	2.5	1.0	3.1	1.0
Thallium (Tl)	µg			<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Tin (Sn)	µg			<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Titanium (Ti)	µg			<10	10	<10	10	<10	10	<10	10	<10	10	14	10	13	10	11	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Vanadium (V)	µg			<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Zinc (Zn)	µg			23.6	5.0	14.1	5.0	25.3	5.0	12.4	5.0	68.6	5.0	72.3	5.0	60.7	5.0	71.8	5.0	47.2	5.0	34.9	5.0	130	5.0	140	5.0	83.1	5.0	65.8	5.0	20.1	5.0
Zirconium (Zr)	µg			<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Total Uranium (U)	µg			<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45[1]	0.45	<0.45[2]	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45

Notes:

1. Total Uranium on a Hi-Vol Filter : CCV recovery for U range from 92.3% to 88.5%, data for U may be slightly biased low

2. Total Uranium on a Hi-Vol Filter : CCV recovery for U range from 91.3% to 89.8%, data for U may be slightly biased low

3. Filter was wet during retreival. The sample results were comparable to other stations, therefore the results were considered valid.

Calculated Concentrations	Quarter 4			Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice	Courtice3	Courtice	Courtice	Courtice	Courtice
				41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	
	Units	Maximum	Minimum	03/10/2016	09/10/2016	15/10/2016	21/10/2016	27/10/2016	02/11/2016	08/11/2016	14/11/2016	20/11/2016	26/11/2016	02/12/2016	08/12/2016	14/12/2016	20/12/2016	26/12/2016	
Particulate	$\mu g/m^3$	34.31	8.39	15.74	8.39	15.70	9.56	16.72	30.48	30.80	34.31	13.54	14.21	24.59	27.34	15.29	19.40	11.57	
Total Mercury (Hg)	$\mu g/m^3$	1.36E-05	6.33E-06	6.37E-06	6.76E-06	6.51E-06	6.33E-06	6.91E-06	6.67E-06	6.59E-06	1.35E-05	6.77E-06	6.73E-06	6.83E-06	1.36E-05	6.86E-06	7.08E-06	6.89E-06	
Aluminum (Al)	$\mu g/m^3$	1.71E-01	1.58E-02	8.28E-02	1.69E-02	5.80E-02	1.58E-02	9.60E-02	1.71E-01	1.32E-01	1.46E-01	7.92E-02	5.66E-02	8.74E-02	7.84E-02	4.46E-02	4.82E-02	4.68E-02	
Antimony (Sb)	$\mu g/m^3$	3.54E-03	3.17E-03	3.19E-03	3.38E-03	3.26E-03	3.17E-03	3.45E-03	3.33E-03	3.30E-03	3.38E-03	3.38E-03	3.37E-03	3.42E-03	3.41E-03	3.43E-03	3.54E-03	3.44E-03	
Arsenic (As)	$\mu g/m^3$	2.12E-03	1.90E-03	1.91E-03	2.03E-03	1.95E-03	1.90E-03	2.07E-03	2.00E-03	1.98E-03	2.03E-03	2.03E-03	2.02E-03	2.05E-03	2.05E-03	2.06E-03	2.12E-03	2.07E-03	
Barium (Ba)	$\mu g/m^3$	3.39E-02	3.25E-03	6.75E-03	7.91E-03	4.89E-03	4.31E-03	3.25E-03	2.18E-02	3.39E-02	1.21E-02	4.67E-03	9.36E-03	5.94E-03	7.57E-03	5.62E-03	4.67E-03	4.48E-03	
Beryllium (Be)	$\mu g/m^3$	3.54E-04	3.17E-04	3.19E-04	3.38E-04	3.26E-04	3.17E-04	3.45E-04	3.33E-04	3.30E-04	3.38E-04	3.38E-04	3.37E-04	3.42E-04	3.41E-04	3.43E-04	3.54E-04	3.44E-04	
Bismuth (Bi)	$\mu g/m^3$	2.12E-03	1.90E-03	1.91E-03	2.03E-03	1.95E-03	1.90E-03	2.07E-03	2.00E-03	1.98E-03	2.03E-03	2.03E-03	2.02E-03	2.05E-03	2.05E-03	2.06E-03	2.12E-03	2.07E-03	
Boron (B)	$\mu g/m^3$	2.12E-03	1.90E-03	1.91E-03	2.03E-03	1.95E-03	1.90E-03	2.07E-03	2.00E-03	1.98E-03	2.03E-03	2.03E-03	2.02E-03	2.05E-03	2.05E-03	2.06E-03	2.12E-03	2.07E-03	
Cadmium (Cd)	$\mu g/m^3$	7.08E-04	6.33E-04	6.37E-04	6.76E-04	6.51E-04	6.33E-04	6.91E-04	6.67E-04	6.59E-04	6.77E-04	6.77E-04	6.73E-04	6.83E-04	6.82E-04	6.86E-04	7.08E-04	6.89E-04	
Chromium (Cr)	$\mu g/m^3$	7.74E-03	1.58E-03	1.59E-03	1.69E-03	1.63E-03	1.58E-03	7.74E-03	1.67E-03	4.29E-03	3.99E-03	1.69E-03	1.68E-03	3.42E-03	1.70E-03	1.71E-03	1.77E-03	1.72E-03	
Cobalt (Co)	$\mu g/m^3$	7.08E-04	6.33E-04	6.37E-04	6.76E-04	6.51E-04	6.33E-04	6.91E-04	6.67E-04	6.59E-04	6.77E-04	6.77E-04	6.73E-04	6.83E-04	6.82E-04	6.86E-04	7.08E-04	6.89E-04	
Copper (Cu)	$\mu g/m^3$	5.31E-02	6.87E-03	4.40E-02	2.39E-02	1.75E-02	9.76E-03	1.73E-02	3.37E-02	5.31E-02	2.46E-02	1.70E-02	3.77E-02	3.52E-02	1.59E-02	1.05E-02	6.87E-03	1.18E-02	
Iron (Fe)	$\mu g/m^3$	6.06E-01	1.05E-01	3.12E-01	1.74E-01	2.09E-01	1.05E-01	2.24E-01	6.06E-01	4.87E-01	5.81E-01	1.92E-01	2.69E-01	2.38E-01	2.66E-01	1.30E-01	1.66E-01	1.36E-01	
Lead (Pb)	$\mu g/m^3$	6.13E-03	9.50E-04	9.56E-04	1.01E-03	2.34E-03	9.50E-04	1.04E-03	4.20E-03	6.13E-03	5.14E-03	1.02E-03	1.01E-03	1.02E-03	2.39E-03	2.19E-03	2.41E-03	1.03E-03	
Magnesium (Mg)	$\mu g/m^3$	3.85E-01	5.07E-02	1.09E-01	5.07E-02	9.31E-02	5.07E-02	1.06E-01	1.91E-01	2.22E-01	3.85E-01	7.51E-02	9.36E-02	1.35E-01	2.16E-01	8.09E-02	8.92E-02	6.89E-02	
Manganese (Mn)	$\mu g/m^3$	1.73E-02	3.55E-03	8.09E-03	3.92E-03	5.41E-03	3.55E-03	7.39E-03	1.71E-02	1.62E-02	1.73E-02	5.62E-03	6.87E-03	1.26E-02	1.07E-02	6.72E-03	5.81E-03	4.06E-03	
Molybdenum (Mo)	$\mu g/m^3$	1.06E-03	9.50E-04	9.56E-04	1.01E-03	9.77E-04	9.50E-04	1.04E-03	1.00E-03	9.89E-04	1.02E-03	1.02E-03	1.01E-03	1.02E-03	1.02E-03	1.03E-03	1.06E-03	1.03E-03	
Nickel (Ni)	$\mu g/m^3$	2.23E-03	9.50E-04	9.56E-04	1.01E-03	2.02E-03	9.50E-04	1.04E-03	1.00E-03	9.89E-04	1.02E-03	2.23E-03	1.01E-03	1.02E-03	1.02E-03	1.03E-03	1.06E-03	1.03E-03	
Phosphorus (P)	$\mu g/m^3$	5.54E-02	8.42E-03	5.54E-02	1.69E-02	1.63E-02	3.04E-02	1.93E-02	3.67E-02	2.77E-02	2.64E-02	8.46E-03	8.42E-03	8.54E-03	8.52E-03	8.57E-03	8.85E-03	8.61E-03	
Selenium (Se)	$\mu g/m^3$	3.54E-03	3.17E-03	3.19E-03	3.38E-03	3.26E-03	3.17E-03	3.45E-03	3.33E-03	3.30E-03	3.38E-03	3.38E-03	3.37E-03	3.42E-03	3.41E-03	3.43E-03	3.54E-03	3.44E-03	
Silver (Ag)	$\mu g/m^3$	1.77E-03	1.58E-03	1.59E-03	1.69E-03	1.63E-03	1.58E-03	1.73E-03	1.67E-03	1.65E-03	1.69E-03	1.69E-03	1.68E-03	1.71E-03	1.70E-03	1.71E-03	1.77E-03	1.72E-03	
Strontium (Sr)	$\mu g/m^3$	6.09E-03	1.20E-03	3.63E-03	1.49E-03	3.26E-03	1.20E-03	4.35E-03	4.20E-03	5.28E-03	6.09E-03	1.56E-03	3.57E-03	3.55E-03	3.68E-03	1.65E-03	1.77E-03	2.13E-03	
Thallium (Tl)	$\mu g/m^3$	3.54E-03	3.17E-03	3.19E-03	3.38E-03	3.26E-03	3.17E-03	3.45E-03	3.33E-03	3.30E-03	3.38E-03	3.38E-03	3.37E-03	3.42E-03	3.41E-03	3.43E-03	3.54E-03	3.44E-03	
Tin (Sn)	$\mu g/m^3$	3.54E-03	3.17E-03	3.19E-03	3.38E-03	3.26E-03	3.17E-03	3.45E-03	3.33E-03	3.30E-03	3.38E-03	3.38E-03	3.37E-03	3.42E-03	3.41E-03	3.43E-03	3.54E-03	3.44E-03	
Titanium (Ti)	$\mu g/m^3$	9.34E-03	3.17E-03	3.19E-03	3.38E-03	3.26E-03	3.17E-03	3.45E-03	9.34E-03	8.57E-03	7.44E-03	3.38E-03	3.37E-03	3.42E-03	3.41E-03	3.43E-03	3.54E-03	3.44E-03	
Vanadium (V)	$\mu g/m^3$	1.77E-03	1.58E-03	1.59E-03	1.69E-03	1.63E-03	1.58E-03	1.73E-03	1.67E-03	1.65E-03	1.69E-03	1.69E-03	1.68E-03	1.71E-03	1.70E-03	1.71E-03	1.77E-03	1.72E-03	
Zinc (Zn)	$\mu g/m^3$	9.54E-02	7.85E-03	1.50E-02	9.54E-03	1.65E-02	7.85E-03	4.74E-02	4.82E-02	4.00E-02	4.86E-02	3.19E-02	2.35E-02	8.88E-02	9.54E-02	5.70E-02	4.66E-02	1.38E-02	
Zirconium (Zr)	$\mu g/m^3$	1.77E-03	1.58E-03	1.59E-03	1.69E-03	1.63E-03	1.58E-03	1.73E-03	1.67E-03	1.65E-03	1.69E-03	1.69E-03	1.68E-03	1.71E-03	1.70E-03	1.71E-03	1.77E-03	1.72E-03	
Total Uranium (U)	$\mu g/m^3$	1.59E-04	1.43E-04	1.43E-04	1.52E-04	1.47E-04	1.43E-04	1.55E-04	1.50E-04	1.48E-04	1.52E-04	1.52E-04	1.51E-04	1.54E-04	1.53E-04	1.54E-04	1.59E-04	1.55E-04	

Metals and Total Particulates	Rundle Station	Rundle	Rundle	Rundle	Rundle	Rundle	Rundle	Rundle	Rundle	Rundle	Rundle	Rundle	Rundle[3]	Rundle	Rundle	Rundle[4]	Rundle
Location																	
Date	dd/mm/yyyy	03/10/2016	09/10/2016	15/10/2016	21/10/2016	27/10/2016	02/11/2016	08/11/2016	14/11/2016	20/11/2016	26/11/2016	02/12/2016	08/12/2016	14/12/2016	20/12/2016	26/12/2016
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	3:00	0:00
Sample Duration	hours	23.46	23.65	23.73	23.14	24.16	24.05	23.58	23.17	23.57	23.71	23.29	24.03	24.27	23.03	23.36
Technician		TH	TH	TH	TH	TH	TH	KM	TH	TH	TH	TH	TH	TH	TH	TH
Filter Number		16090712	16090716	16090686	16090690	16091951	16091955	16092081	16092083	16092087	16092091	16111065	16111069	16112827	16112981	16120596
Analytical Report #		B6L4662	B6M0580	B6M4167	B6N2112	B6N5688	B6O1407	B6O4939	B6P2339	B6P4187	B6P9738	B6Q5548	B6R1167	B6R5524	B6R8490	B6S0281
Total Volumetric Flow	Am^3/sample	1531.18	1530.77	1572.28	1511.55	1515.05	1554.75	1512.89	1462.95	1476.19	1468.06	1469.52	1493.72	1509.27	1402.17	1450.88
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	26.1 5	16.6 5	26.5 5	17.8 5	12.9 5	58.9 5	71.3 5	142 5	33.3 5	23.3 5	41.1 5	61.8 5	76.6 5	42.2 5	20.3 5
Total Mercury (Hg)	µg	<0.02 0.02	<0.02 0.02	<0.02 0.02	<0.02 0.02	<0.02 0.02	<0.02 0.02	0.02 0.02	0.02 0.02	<0.02 0.02	<0.02 0.02	<0.02 0.02	0.02 0.02	0.03 0.02	0.02 0.02	<0.02 0.02
Aluminum (Al)	µg	153 50	<50 50	145 50	61 50	85 50	291 50	502 50	1150 50	283 50	105 50	188 50	216 50	323 50	97 50	97 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	13.2 1.0	9.3 1.0	14.7 1.0	4.6 1.0	5.3 1.0	26.7 1.0	24.9 1.0	33.7 1.0	7.7 1.0	11.8 1.0	10.8 1.0	13.1 1.0	15.2 1.0	13.3 1.0	6.6 1.0
Beryllium (Be)	µg	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0	<1.0 1.0
Bismuth (Bi)	µg	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0
Boron (B)	µg	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0	<6.0 6.0
Cadmium (Cd)	µg	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0	<2.0 2.0
Chromium (Cr)	µg	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	6.4 5.0	7.9 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	7.1 5.0	5.3 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	178 5.0	124 5.0	105 5.0	46.4 5.0	39.4 5.0	88.0 5.0	128 5.0	60.7 5.0	47.4 5.0	48.3 5.0	61.1 5.0	32.0 5.0	74.2 5.0	33.7 5.0	30.3 5.0
Iron (Fe)	µg	435 50	173 50	879 50	136 50	216 50	992 50	1310 50	2680 50	526 50	308 50	448 50	691 50	945 50	373 50	215 50
Lead (Pb)	µg	<3.0 3.0	<3.0 3.0	3.3 3.0	<3.0 3.0	<3.0 3.0	7.1 3.0	9.5 3.0	10.6 3.0	<3.0 3.0	<3.0 3.0	<3.0 3.0	3.2 3.0	5.6 3.0	3.6 3.0	<3.0 3.0
Magnesium (Mg)	µg	166 50	87 50	168 50	80 50	99 50	413 50	596 50	1490 50	188 50	138 50	270 50	547 50	589 50	174 50	125 50
Manganese (Mn)	µg	9.5 1.0	5.4 1.0	12.6 1.0	4.9 1.0	7.0 1.0	28.8 1.0	35.2 1.0	71.9 1.0	14.9 1.0	8.9 1.0	15.3 1.0	28.0 1.0	46.5 1.0	12.7 1.0	5.5 1.0
Molybdenum (Mo)	µg	6.8 3.0	6.3 3.0	6.2 3.0	3.1 3.0	<3.0 3.0	6.2 3.0	6.1 3.0	4.5 3.0	<3.0 3.0	<3.0 3.0	<3.0 3.0	<3.0 3.0	<3.0 3.0	<3.0 3.0	<3.0 3.0
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	3.6 3.0	4.0 3.0	3.8 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	77 25	35 25	37 25	59 25	26 25	62 25	59 25	104 25	40 25	<25 25	44 25	32 25	37 25	<25 25	<25 25
Selenium (Se)	µg	<10 10	<10 10	<10 10	<10 10	<10 10	<10 10	<10 10	<10 10	<10 10	<10 10	<10 10	<10 10	<10 10	<10 10	<10 10
Silver (Ag)	µg	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0
Strontium (Sr)	µg	5.1 1.0	3.0 1.0	4.9 1.0	1.4 1.0	3.0 1.0	10.7 1.0	12.9 1.0	30.9 1.0	4.2 1.0	5.0 1.0	9.4 1.0	10.3 1.0	16.9 1.0	4.3 1.0	4.2 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	<10 10	<10 10	10 10	<10 10	<10 10	16 10	19 10	45 10	15 10	<10 10	11 10	15 10	14 10	<10 10	<10 10
Vanadium (V)	µg	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0
Zinc (Zn)	µg	22.2 5.0	11.3 5.0	22.6 5.0	9.1 5.0	17.8 5.0	67.8 5.0	59.6 5.0	97.5 5.0	29.2 5.0	33.2 5.0	54.5 5.0	62.6 5.0	81.2 5.0	51.7 5.0	19.8 5.0
Zirconium (Zr)	µg	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0	<5.0 5.0
Total Uranium (U)	µg	<0.45 0.45	<0.45 0.45	<0.45 0.45	<0.45 0.45	<0.45 0.45	<0.45 0.45	<0.45[1] 0.45	<0.45[2] 0.45	<0.45 0.45	<0.45 0.45	<0.45 0.45	<0.45 0.45	<0.45 0.45	<0.45 0.45	<0.45 0.45

Notes:

1. Total Uranium on a Hi-Vol Filter : CCV recovery for U range from 92.3% to 88.5%, data for U may be slightly biased low

2. Total Uranium on a Hi-Vol Filter : CCV recovery for U range from 91.3% to 89.8%, data for U may be slightly biased low

3. Filter was wet during retreival. The sample results were comparable to other stations, therefore the results were considered valid.

4. A power outage on 17-Dec-16 caused this sample to run ~3 hours later than scheduled.

Calculated Concentrations	Units	Quarter 4 Maximum	Quarter 4 Minimum	Rundle 41	Rundle 42	Rundle 43	Rundle 44	Rundle 45	Rundle 46	Rundle 47	Rundle 48	Rundle 49	Rundle 50	Rundle3 51	Rundle 52	Rundle 53	Rundle4 54	Rundle 55
				03/10/2016	09/10/2016	15/10/2016	21/10/2016	27/10/2016	02/11/2016	08/11/2016	14/11/2016	20/11/2016	26/11/2016	02/12/2016	08/12/2016	14/12/2016	20/12/2016	26/12/2016
Particulate	$\mu g/m^3$	97.06	8.51	17.05	10.84	16.85	11.78	8.51	37.88	47.13	97.06	22.56	15.87	27.97	41.37	50.75	30.10	13.99
Total Mercury (Hg)	$\mu g/m^3$	1.99E-05	6.36E-06	6.53E-06	6.53E-06	6.36E-06	6.62E-06	6.60E-06	6.43E-06	1.32E-05	1.37E-05	6.77E-06	6.81E-06	6.80E-06	1.34E-05	1.99E-05	1.43E-05	6.89E-06
Aluminum (Al)	$\mu g/m^3$	7.86E-01	1.63E-02	9.99E-02	1.63E-02	9.22E-02	4.04E-02	5.61E-02	1.87E-01	3.32E-01	7.86E-01	1.92E-01	7.15E-02	1.28E-01	1.45E-01	2.14E-01	6.92E-02	6.69E-02
Antimony (Sb)	$\mu g/m^3$	3.57E-03	3.18E-03	3.27E-03	3.27E-03	3.18E-03	3.31E-03	3.30E-03	3.22E-03	3.30E-03	3.42E-03	3.39E-03	3.41E-03	3.40E-03	3.35E-03	3.31E-03	3.57E-03	3.45E-03
Arsenic (As)	$\mu g/m^3$	2.14E-03	1.91E-03	1.96E-03	1.96E-03	1.91E-03	1.98E-03	1.98E-03	1.93E-03	1.98E-03	2.05E-03	2.03E-03	2.04E-03	2.04E-03	2.01E-03	1.99E-03	2.14E-03	2.07E-03
Barium (Ba)	$\mu g/m^3$	2.30E-02	3.04E-03	8.62E-03	6.08E-03	9.35E-03	3.04E-03	3.50E-03	1.72E-02	1.65E-02	2.30E-02	5.22E-03	8.04E-03	7.35E-03	8.77E-03	1.01E-02	9.49E-03	4.55E-03
Beryllium (Be)	$\mu g/m^3$	3.57E-04	3.18E-04	3.27E-04	3.27E-04	3.18E-04	3.31E-04	3.30E-04	3.22E-04	3.30E-04	3.42E-04	3.39E-04	3.41E-04	3.40E-04	3.35E-04	3.31E-04	3.57E-04	3.45E-04
Bismuth (Bi)	$\mu g/m^3$	2.14E-03	1.91E-03	1.96E-03	1.96E-03	1.91E-03	1.98E-03	1.98E-03	1.93E-03	1.98E-03	2.05E-03	2.03E-03	2.04E-03	2.04E-03	2.01E-03	1.99E-03	2.14E-03	2.07E-03
Boron (B)	$\mu g/m^3$	2.14E-03	1.91E-03	1.96E-03	1.96E-03	1.91E-03	1.98E-03	1.98E-03	1.93E-03	1.98E-03	2.05E-03	2.03E-03	2.04E-03	2.04E-03	2.01E-03	1.99E-03	2.14E-03	2.07E-03
Cadmium (Cd)	$\mu g/m^3$	7.13E-04	6.36E-04	6.53E-04	6.53E-04	6.36E-04	6.62E-04	6.60E-04	6.43E-04	6.61E-04	6.84E-04	6.77E-04	6.81E-04	6.80E-04	6.69E-04	6.63E-04	7.13E-04	6.89E-04
Chromium (Cr)	$\mu g/m^3$	5.40E-03	1.59E-03	1.63E-03	1.63E-03	1.59E-03	1.65E-03	1.65E-03	1.61E-03	4.23E-03	5.40E-03	1.69E-03	1.70E-03	1.70E-03	1.67E-03	4.70E-03	3.78E-03	1.72E-03
Cobalt (Co)	$\mu g/m^3$	7.13E-04	6.36E-04	6.53E-04	6.53E-04	6.36E-04	6.62E-04	6.60E-04	6.43E-04	6.61E-04	6.84E-04	6.77E-04	6.81E-04	6.80E-04	6.69E-04	6.63E-04	7.13E-04	6.89E-04
Copper (Cu)	$\mu g/m^3$	1.16E-01	2.09E-02	1.16E-01	8.10E-02	6.68E-02	3.07E-02	2.60E-02	5.66E-02	8.46E-02	4.15E-02	3.21E-02	3.29E-02	4.16E-02	2.14E-02	4.92E-02	2.40E-02	2.09E-02
Iron (Fe)	$\mu g/m^3$	1.83E+00	9.00E-02	2.84E-01	1.13E-01	5.59E-01	9.00E-02	1.43E-01	6.38E-01	8.66E-01	1.83E+00	3.56E-01	2.10E-01	3.05E-01	4.63E-01	6.26E-01	2.66E-01	1.48E-01
Lead (Pb)	$\mu g/m^3$	7.25E-03	9.80E-04	9.80E-04	9.80E-04	2.10E-03	9.92E-04	9.90E-04	4.57E-03	6.28E-03	7.25E-03	1.02E-03	1.02E-03	1.02E-03	2.14E-03	3.71E-03	2.57E-03	1.03E-03
Magnesium (Mg)	$\mu g/m^3$	1.02E+00	5.29E-02	1.08E-01	5.68E-02	1.07E-01	5.29E-02	6.53E-02	2.66E-01	3.94E-01	1.02E+00	1.27E-01	9.40E-02	1.84E-01	3.66E-01	3.90E-01	1.24E-01	8.62E-02
Manganese (Mn)	$\mu g/m^3$	4.91E-02	3.24E-03	6.20E-03	3.53E-03	8.01E-03	3.24E-03	4.62E-03	1.85E-02	2.33E-02	4.91E-02	1.01E-02	6.06E-03	1.04E-02	1.87E-02	3.08E-02	9.06E-03	3.79E-03
Molybdenum (Mo)	$\mu g/m^3$	4.44E-03	9.90E-04	4.44E-03	4.12E-03	3.94E-03	2.05E-03	9.90E-04	3.99E-03	4.03E-03	3.08E-03	1.02E-03	1.02E-03	1.02E-03	1.00E-03	9.94E-04	1.07E-03	1.03E-03
Nickel (Ni)	$\mu g/m^3$	2.73E-03	9.54E-04	9.80E-04	9.80E-04	9.54E-04	9.92E-04	9.90E-04	9.65E-04	2.38E-03	2.73E-03	2.57E-03	1.02E-03	1.02E-03	1.00E-03	9.94E-04	1.07E-03	1.03E-03
Phosphorus (P)	$\mu g/m^3$	7.11E-02	8.51E-03	5.03E-02	2.29E-02	2.35E-02	3.90E-02	1.72E-02	3.99E-02	3.90E-02	7.11E-02	2.71E-02	8.51E-03	2.99E-02	2.14E-02	2.45E-02	8.91E-03	8.62E-03
Selenium (Se)	$\mu g/m^3$	3.57E-03	3.18E-03	3.27E-03	3.27E-03	3.18E-03	3.31E-03	3.30E-03	3.22E-03	3.30E-03	3.42E-03	3.39E-03	3.41E-03	3.40E-03	3.35E-03	3.31E-03	3.57E-03	3.45E-03
Silver (Ag)	$\mu g/m^3$	1.78E-03	1.59E-03	1.63E-03	1.63E-03	1.59E-03	1.65E-03	1.65E-03	1.61E-03	1.65E-03	1.71E-03	1.69E-03	1.70E-03	1.70E-03	1.67E-03	1.66E-03	1.78E-03	1.72E-03
Strontium (Sr)	$\mu g/m^3$	2.11E-02	9.26E-04	3.33E-03	1.96E-03	3.12E-03	9.26E-04	1.98E-03	6.88E-03	8.53E-03	2.11E-02	2.85E-03	3.41E-03	6.40E-03	6.90E-03	1.12E-02	3.07E-03	2.89E-03
Thallium (Tl)	$\mu g/m^3$	3.57E-03	3.18E-03	3.27E-03	3.27E-03	3.18E-03	3.31E-03	3.30E-03	3.22E-03	3.30E-03	3.42E-03	3.39E-03	3.41E-03	3.40E-03	3.35E-03	3.31E-03	3.57E-03	3.45E-03
Tin (Sn)	$\mu g/m^3$	3.57E-03	3.18E-03	3.27E-03	3.27E-03	3.18E-03	3.31E-03	3.30E-03	3.22E-03	3.30E-03	3.42E-03	3.39E-03	3.41E-03	3.40E-03	3.35E-03	3.31E-03	3.57E-03	3.45E-03
Titanium (Ti)	$\mu g/m^3$	3.08E-02	3.27E-03	3.27E-03	3.27E-03	6.36E-03	3.31E-03	3.30E-03	1.03E-02	1.26E-02	3.08E-02	1.02E-02	3.41E-03	7.49E-03	1.00E-02	9.28E-03	3.57E-03	3.45E-03
Vanadium (V)	$\mu g/m^3$	1.78E-03	1.59E-03	1.63E-03	1.63E-03	1.59E-03	1.65E-03	1.65E-03	1.61E-03	1.65E-03	1.71E-03	1.69E-03	1.70E-03	1.70E-03	1.67E-03	1.66E-03	1.78E-03	1.72E-03
Zinc (Zn)	$\mu g/m^3$	6.66E-02	6.02E-03	1.45E-02	7.38E-03	1.44E-02	6.02E-03	1.17E-02	4.36E-02	3.94E-02	6.66E-02	1.98E-02	2.26E-02	3.71E-02	4.19E-02	5.38E-02	3.69E-02	1.36E-02
Zirconium (Zr)	$\mu g/m^3$	1.78E-03	1.59E-03	1.63E-03	1.63E-03	1.59E-03	1.65E-03	1.65E-03	1.61E-03	1.65E-03	1.71E-03	1.69E-03	1.70E-03	1.70E-03	1.67E-03	1.66E-03	1.78E-03	1.72E-03
Total Uranium (U)	$\mu g/m^3$	1.60E-04	1.43E-04	1.47E-04	1.47E-04	1.43E-04	1.49E-04	1.49E-04	1.45E-04	1.49E-04	1.54E-04	1.52E-04	1.53E-04	1.53E-04	1.51E-04	1.49E-04	1.60E-04	1.55E-04

Metals and Total Particulates	Fenceline Station	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline	Fenceline
Location		03/10/2016	09/10/2016	15/10/2016	21/10/2016	27/10/2016	02/11/2016	08/11/2016	14/11/2016	20/11/2016	26/11/2016	02/12/2016	08/12/2016	14/12/2016	20/12/2016	26/12/2016
Date	dd/mm/yyyy															
Start Time	hh:mm	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
Sample Duration	hours	23.34	24.28	23.45	24.16	23.59	23.56	24.33	23.49	25.05	23.24	25.23	23.7	22.97	24	23.17
Technician		TH	TH	TH	TH	TH	TH	KM	TH	TH	TH	TH	TH	TH	TH	TH
Filter Number		16090713	16090717	16090687	16090691	16091952	16091956	16092080	16092084	16092088	16092092	16111066	16111070	16112828	16112982	16120597
Analytical Report #		B6L4662	B6M0580	B6M4167	B6N2112	B6N5688	B6O1407	B6O4939	B6P2339	B6P4187	B6P9738	B6Q5548	B6R1167	B6R5524	B6R8490	B6S0281
Total Volumetric Flow	Am^3/sample	1560.40	1607.08	1561.60	1599.64	1505.83	1542.61	1588.09	1499.04	1590.61	1457.09	1587.52	1475.25	1414.67	1490.48	1450.67

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	30.3	5	17.7	5	22.3	5	19.4	5	19	5	73.2	5	52.9	5	59.3	5.0	29.4	5	22.1	5	22.1	5	43.4	5.0	38.8	5	33.6	5.0	20.7	5
Total Mercury (Hg)	µg	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	0.03	0.02	<0.02	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
Aluminum (Al)	µg	140	50	67	50	112	50	73	50	137	50	351	50	263	50	276	50	235	50	95	50	118	50	121	50	166	50	84	50	111	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	13.8	1.0	11.8	1.0	8.8	1.0	8.0	1.0	6.5	1.0	35.4	1.0	27.9	1.0	19.4	1.0	8.6	1.0	15.6	1.0	12.2	1.0	11.9	1.0	12.0	1.0	8.9	1.0	6.2	1.0
Beryllium (Be)	µg	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0
Bismuth (Bi)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0
Boron (B)	µg	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0	<6.0	6.0
Cadmium (Cd)	µg	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0
Chromium (Cr)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	5.3	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Cobalt (Co)	µg	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0
Copper (Cu)	µg	82.1	5.0	55.6	5.0	92.1	5.0	34.9	5.0	67.4	5.0	101	5.0	91.4	5.0	79.8	5.0	41.9	5.0	71.8	5.0	49.8	5.0	44.8	5.0	56.9	5.0	33.5	5.0	56.6	5.0
Iron (Fe)	µg	413	50	266	50	354	50	180	50	288	50	1120	50	841	50	958	50	476	50	348	50	439	50	445	50	443	50	323	50	212	50
Lead (Pb)	µg	<3.0	3.0	<3.0	3.0	3.0	3.0	<3.0	3.0	<3.0	3.0	8.1	3.0	11.3	3.0	9.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	3.6	3.0	6.3	3.0	4.3	3.0	<3.0	3.0
Magnesium (Mg)	µg	222	50	112	50	164	50	114	50	164	50	541	50	418	50	675	50	217	50	120	50	196	50	390	50	286	50	162	50	144	50
Manganese (Mn)	µg	10.9	1.0	8.8	1.0	12.4	1.0	6.1	1.0	10.4	1.0	35.2	1.0	26.3	1.0	30.7	1.0	16.7	1.0	8.7	1.0	13.3	1.0	19.0	1.0	18.1	1.0	10.9	1.0	5.6	1.0
Molybdenum (Mo)	µg	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0
Nickel (Ni)	µg	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	<3.0	3.0	5.4	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	82	25	31	25	<25	25	52	25	28	25	98	25	51	25	48	25	39	25	<25	25	<25	25	<25	25	<25	25	<25	25	<25	25
Selenium (Se)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Silver (Ag)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Strontium (Sr)	µg	6.4	1.0	3.3	1.0	3.5	1.0	2.2	1.0	5.4	1.0	12.6	1.0	8.7	1.0	9.8	1.0	4.4	1.0	4.0	1.0	5.6	1.0	6.3	1.0	5.6	1.0	3.7	1.0	4.8	1.0
Thallium (Tl)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Tin (Sn)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Titanium (Ti)	µg	<10	10	<10	10	<10	10	<10	10	<10	10	23	10	17	10	14	10	13	10	<10	10	<10	10	<10	10	<10	10	<10	10	<10	10
Vanadium (V)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Zinc (Zn)	µg	32.0	5.0	19.0	5.0	25.6	5.0	18.8	5.0	18.8	5.0	90.8	5.0	80.7	5.0	95.9	5.0	37.7	5.0	26.2	5.0	32.1	5.0	114	5.0	80.5	5.0	63.4	5.0	18.5	5.0
Zirconium (Zr)	µg	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0
Total Uranium (U)	µg	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45[1]	0.45	<0.45[2]	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45	<0.45	0.45

Notes:
1. Total Uranium on a Hi-Vol Filter : CCV recovery for U range from 92.3% to 88.5%, data for U may be slightly biased low
2. Total Uranium on a Hi-Vol Filter : CCV recovery for U range from 91.3% to 89.8%, data for U may be slightly biased low

Calculated Concentrations	Units	Quarter 4 Maximum	Quarter 4 Minimum	Fenceline 41 03/10/2016	Fenceline 42 09/10/2016	Fenceline 43 15/10/2016	Fenceline 44 21/10/2016	Fenceline 45 27/10/2016	Fenceline 46 02/11/2016	Fenceline 47 08/11/2016	Fenceline 48 14/11/2016	Fenceline 49 20/11/2016	Fenceline 50 26/11/2016	Fenceline 51 02/12/2016	Fenceline 52 08/12/2016	Fenceline 53 14/12/2016	Fenceline 54 20/12/2016	Fenceline 55 26/12/2016
Particulate	$\mu g/m^3$	47.45	11.01	19.418	11.014	14.280	12.128	12.618	47.452	33.310	39.559	18.483	15.167	13.921	29.419	27.427	22.543	14.269
Total Mercury (Hg)	$\mu g/m^3$	2.00E-05	6.22E-06	6.41E-06	6.22E-06	6.40E-06	6.25E-06	6.64E-06	1.94E-05	6.30E-06	2.00E-05	6.29E-06	6.86E-06	6.30E-06	1.36E-05	7.07E-06	6.71E-06	6.89E-06
Aluminum (Al)	$\mu g/m^3$	2.28E-01	4.17E-02	8.97E-02	4.17E-02	7.17E-02	4.56E-02	9.10E-02	2.28E-01	1.66E-01	1.84E-01	1.48E-01	6.52E-02	7.43E-02	8.20E-02	1.17E-01	5.64E-02	7.65E-02
Antimony (Sb)	$\mu g/m^3$	3.53E-03	3.11E-03	3.20E-03	3.11E-03	3.20E-03	3.13E-03	3.32E-03	3.24E-03	3.15E-03	3.34E-03	3.14E-03	3.43E-03	3.15E-03	3.39E-03	3.53E-03	3.35E-03	3.45E-03
Arsenic (As)	$\mu g/m^3$	2.12E-03	1.87E-03	1.92E-03	1.87E-03	1.92E-03	1.88E-03	1.99E-03	1.94E-03	1.89E-03	2.00E-03	1.89E-03	2.06E-03	1.89E-03	2.03E-03	2.12E-03	2.01E-03	2.07E-03
Barium (Ba)	$\mu g/m^3$	2.29E-02	4.27E-03	8.84E-03	7.34E-03	5.64E-03	5.00E-03	4.32E-03	2.29E-02	1.76E-02	1.29E-02	5.41E-03	1.07E-02	7.68E-03	8.07E-03	8.48E-03	5.97E-03	4.27E-03
Beryllium (Be)	$\mu g/m^3$	3.53E-04	3.11E-04	3.20E-04	3.11E-04	3.20E-04	3.13E-04	3.32E-04	3.24E-04	3.15E-04	3.34E-04	3.14E-04	3.43E-04	3.15E-04	3.39E-04	3.53E-04	3.35E-04	3.45E-04
Bismuth (Bi)	$\mu g/m^3$	2.12E-03	1.87E-03	1.92E-03	1.87E-03	1.92E-03	1.88E-03	1.99E-03	1.94E-03	1.89E-03	2.00E-03	1.89E-03	2.06E-03	1.89E-03	2.03E-03	2.12E-03	2.01E-03	2.07E-03
Boron (B)	$\mu g/m^3$	2.12E-03	1.87E-03	1.92E-03	1.87E-03	1.92E-03	1.88E-03	1.99E-03	1.94E-03	1.89E-03	2.00E-03	1.89E-03	2.06E-03	1.89E-03	2.03E-03	2.12E-03	2.01E-03	2.07E-03
Cadmium (Cd)	$\mu g/m^3$	7.07E-04	6.22E-04	6.41E-04	6.22E-04	6.40E-04	6.25E-04	6.64E-04	6.48E-04	6.30E-04	6.67E-04	6.29E-04	6.86E-04	6.30E-04	6.78E-04	7.07E-04	6.71E-04	6.89E-04
Chromium (Cr)	$\mu g/m^3$	3.34E-03	1.56E-03	1.60E-03	1.56E-03	1.60E-03	1.56E-03	1.66E-03	1.62E-03	3.34E-03	1.67E-03	1.57E-03	1.72E-03	1.57E-03	1.69E-03	1.77E-03	1.68E-03	1.72E-03
Cobalt (Co)	$\mu g/m^3$	7.07E-04	6.22E-04	6.41E-04	6.22E-04	6.40E-04	6.25E-04	6.64E-04	6.48E-04	6.30E-04	6.67E-04	6.29E-04	6.86E-04	6.30E-04	6.78E-04	7.07E-04	6.71E-04	6.89E-04
Copper (Cu)	$\mu g/m^3$	6.55E-02	2.18E-02	5.26E-02	3.46E-02	5.90E-02	2.18E-02	4.48E-02	6.55E-02	5.76E-02	5.32E-02	2.63E-02	4.93E-02	3.14E-02	3.04E-02	4.02E-02	2.25E-02	3.90E-02
Iron (Fe)	$\mu g/m^3$	7.26E-01	1.13E-01	2.65E-01	1.66E-01	2.27E-01	1.13E-01	1.91E-01	7.26E-01	5.30E-01	6.39E-01	2.99E-01	2.39E-01	2.77E-01	3.02E-01	3.13E-01	2.17E-01	1.46E-01
Lead (Pb)	$\mu g/m^3$	7.12E-03	9.33E-04	9.61E-04	9.33E-04	1.92E-03	9.38E-04	9.96E-04	5.25E-03	7.12E-03	6.00E-03	9.43E-04	1.03E-03	9.45E-04	2.44E-03	4.45E-03	2.88E-03	1.03E-03
Magnesium (Mg)	$\mu g/m^3$	4.50E-01	6.97E-02	1.42E-01	6.97E-02	1.05E-01	7.13E-02	1.09E-01	3.51E-01	2.63E-01	4.50E-01	1.36E-01	8.24E-02	1.23E-01	2.64E-01	2.02E-01	1.09E-01	9.93E-02
Manganese (Mn)	$\mu g/m^3$	2.28E-02	3.81E-03	6.99E-03	5.48E-03	7.94E-03	3.81E-03	6.91E-03	2.28E-02	1.66E-02	2.05E-02	1.05E-02	5.97E-03	8.38E-03	1.29E-02	1.28E-02	7.31E-03	3.86E-03
Molybdenum (Mo)	$\mu g/m^3$	1.06E-03	9.33E-04	9.61E-04	9.33E-04	9.61E-04	9.38E-04	9.96E-04	9.72E-04	9.45E-04	1.00E-03	9.43E-04	1.03E-03	9.45E-04	1.02E-03	1.06E-03	1.01E-03	1.03E-03
Nickel (Ni)	$\mu g/m^3$	3.39E-03	9.33E-04	9.61E-04	9.33E-04	9.61E-04	9.38E-04	9.96E-04	9.72E-04	9.45E-04	1.00E-03	3.39E-03	1.03E-03	9.45E-04	1.02E-03	1.06E-03	1.01E-03	1.03E-03
Phosphorus (P)	$\mu g/m^3$	6.35E-02	7.87E-03	5.26E-02	1.93E-02	8.00E-03	3.25E-02	1.86E-02	6.35E-02	3.21E-02	3.20E-02	2.45E-02	8.58E-03	7.87E-03	8.47E-03	8.84E-03	8.39E-03	8.62E-03
Selenium (Se)	$\mu g/m^3$	3.53E-03	3.11E-03	3.20E-03	3.11E-03	3.20E-03	3.13E-03	3.32E-03	3.24E-03	3.15E-03	3.34E-03	3.14E-03	3.43E-03	3.15E-03	3.39E-03	3.53E-03	3.35E-03	3.45E-03
Silver (Ag)	$\mu g/m^3$	1.77E-03	1.56E-03	1.60E-03	1.56E-03	1.60E-03	1.56E-03	1.66E-03	1.62E-03	1.57E-03	1.67E-03	1.57E-03	1.72E-03	1.57E-03	1.69E-03	1.77E-03	1.68E-03	1.72E-03
Strontium (Sr)	$\mu g/m^3$	8.17E-03	1.38E-03	4.10E-03	2.05E-03	2.24E-03	1.38E-03	3.59E-03	8.17E-03	5.48E-03	6.54E-03	2.77E-03	2.75E-03	3.53E-03	4.27E-03	3.96E-03	2.48E-03	3.31E-03
Thallium (Tl)	$\mu g/m^3$	3.53E-03	3.11E-03	3.20E-03	3.11E-03	3.20E-03	3.13E-03	3.32E-03	3.24E-03	3.15E-03	3.34E-03	3.14E-03	3.43E-03	3.15E-03	3.39E-03	3.53E-03	3.35E-03	3.45E-03
Tin (Sn)	$\mu g/m^3$	3.53E-03	3.11E-03	3.20E-03	3.11E-03	3.20E-03	3.13E-03	3.32E-03	3.24E-03	3.15E-03	3.34E-03	3.14E-03	3.43E-03	3.15E-03	3.39E-03	3.53E-03	3.35E-03	3.45E-03
Titanium (Ti)	$\mu g/m^3$	1.49E-02	3.11E-03	3.20E-03	3.11E-03	3.20E-03	3.13E-03	3.32E-03	1.49E-02	1.07E-02	9.34E-03	8.17E-03	3.43E-03	3.15E-03	3.39E-03	3.53E-03	3.35E-03	3.45E-03
Vanadium (V)	$\mu g/m^3$	1.77E-03	1.56E-03	1.60E-03	1.56E-03	1.60E-03	1.56E-03	1.66E-03	1.62E-03	1.57E-03	1.67E-03	1.57E-03	1.72E-03	1.57E-03	1.69E-03	1.77E-03	1.68E-03	1.72E-03
Zinc (Zn)	$\mu g/m^3$	7.73E-02	1.18E-02	2.05E-02	1.18E-02	1.64E-02	1.18E-02	1.25E-02	5.89E-02	5.08E-02	6.40E-02	2.37E-02	1.80E-02	2.02E-02	7.73E-02	5.69E-02	4.25E-02	1.28E-02
Zirconium (Zr)	$\mu g/m^3$	1.77E-03	1.56E-03	1.60E-03	1.56E-03	1.60E-03	1.56E-03	1.66E-03	1.62E-03	1.57E-03	1.67E-03	1.57E-03	1.72E-03	1.57E-03	1.69E-03	1.77E-03	1.68E-03	1.72E-03
Total Uranium (U)	$\mu g/m^3$	1.59E-04	1.40E-04	1.44E-04	1.40E-04	1.44E-04	1.41E-04	1.49E-04	1.46E-04	1.42E-04	1.50E-04	1.41E-04	1.54E-04	1.42E-04	1.53E-04	1.59E-04	1.51E-04	1.55E-04

Appendix H PAHS DATA SUMMARY

Polycyclic Aromatic Hydrocarbons	Courtice WPCP Station																	
Location			Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice		Courtice	
Date	dd/mm/yyyy		3/10/2016		15/10/2016		27/10/2016		8/11/2016		20/11/2016		2/12/2016		14/12/2016		26/12/2016	
Start Time	hh:mm		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00	
Sample Duration	hours		22.76		24.1		23.5		24.07		24.15		24.01		22.86		23.49	
Technician			TH		TH		TH		KM		TH		TH		TH		TH	
Filter Number			CXB828-01		DAQ811-01		DAR654-01		DAR743-01		DGG896-01		DGH085-01		DGH052-01		DGH107-01	
Maxaam ID			DER857		DGO780		DIZ235		DKT748		DMN612		DOT134		DQP475		DRM493	
Maxxam Job #			B6L4666		B6M4121		B6N5690		B6O4947		B6P4166		B6Q5575		B6R5537		B6S0260	
Total Volumetric Flow	Am^3/sample		341.29		380.29		364.38		371.23		376.40		365.38		358.04		352.34	
Analytical Results	Units		Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL
Benzo(a)pyrene	µg		0.0022	0.0011	0.0083	0.0014	0.0069	0.0028	0.0385	0.0055	0.0045	0.0029	0.00373	0.00069	0.0084	0.0016	<0.014	0.014
1-Methylnaphthalene	µg		1.60	0.15	0.64	0.15	1.12	0.15	3.00	0.15	0.46	0.15	0.88	0.10	0.86	0.15	1.00	0.10
2-Methylnaphthalene	µg		2.72	0.15	0.95	0.15	1.54	0.15	4.59	0.15	0.72	0.15	1.37	0.10	1.17	0.15	1.40	0.10
Acenaphthene	µg		1.20	0.075	0.474	0.075	0.522	0.075	0.951	0.075	0.225	0.075	0.182	0.050	<0.075	0.075	0.346	0.050
Acenaphthylene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	0.090	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Anthracene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Benzo(a)anthracene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Benzo(a)fluorene	µg		<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Benzo(b)fluoranthene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Benzo(b)fluorene	µg		<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Benzo(e)pyrene	µg		<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Benzo(g,h,i)perylene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Benzo(k)fluoranthene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Biphenyl	µg		0.59	0.15	0.40	0.15	0.52	0.15	1.33	0.15	0.21	0.15	0.37	0.10	0.58	0.15	0.59	0.10
Chrysene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Dibenz(a,h)anthracene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Dibenzo(a,c) anthracene + Picene [1]	µg		<0.10	0.10	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.15	0.15
Fluoranthene	µg		0.246	0.075	0.129	0.075	0.147	0.075	0.303	0.075	<0.075	0.075	0.104	0.050	0.096	0.075	0.218	0.050
Indeno(1,2,3-cd)pyrene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	<0.050	0.050
Naphthalene	µg		5.99	0.11	3.50	0.11	5.35	0.11	16.1	0.11	2.57	0.11	4.58	0.072	5.60	0.11	6.00	0.072
o-Terphenyl	µg		<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Perylene	µg		<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15	<0.10	0.10
Phenanthrene	µg		1.28	0.075	0.570	0.075	0.573	0.075	1.31	0.075	0.270	0.075	0.394	0.050	0.333	0.075	0.716	0.050
Pyrene	µg		0.129	0.075	<0.075	0.075	<0.075	0.075	0.168	0.075	<0.075	0.075	0.060	0.050	<0.075	0.075	0.124	0.050
Tetralin	µg		0.77	0.15	0.24	0.15	0.62	0.15	1.42	0.15	0.36	0.15	0.97	0.10	0.73	0.15	0.48	0.10

Calculated Concentrations	Quarter 4			Courtice 21	Courtice 22	Courtice 23	Courtice 24	Courtice 25	Courtice 26	Courtice 27	Courtice 28
	Units	Maximum	Minimum	3/10/2016	15/10/2016	27/10/2016	8/11/2016	20/11/2016	2/12/2016	14/12/2016	26/12/2016
Benzo(a)pyrene	ng/m^3	0.104	0.006	6.45E-03	2.18E-02	1.89E-02	1.04E-01	1.20E-02	1.02E-02	2.35E-02	1.99E-02
1-Methylnaphthalene	ng/m^3	8.08E+00	1.22E+00	4.69E+00	1.68E+00	3.07E+00	8.08E+00	1.22E+00	2.41E+00	2.40E+00	2.84E+00
2-Methylnaphthalene	ng/m^3	1.24E+01	1.91E+00	7.97E+00	2.50E+00	4.23E+00	1.24E+01	1.91E+00	3.75E+00	3.27E+00	3.97E+00
Acenaphthene	ng/m^3	3.52E+00	1.05E-01	3.52E+00	1.25E+00	1.43E+00	2.56E+00	5.98E-01	4.98E-01	1.05E-01	9.82E-01
Acenaphthylene	ng/m^3	2.42E-01	6.84E-02	1.10E-01	9.86E-02	1.03E-01	2.42E-01	9.96E-02	6.84E-02	1.05E-01	7.10E-02
Anthracene	ng/m^3	1.10E-01	6.84E-02	1.10E-01	9.86E-02	1.03E-01	1.01E-01	9.96E-02	6.84E-02	1.05E-01	7.10E-02
Benzo(a)anthracene	ng/m^3	1.10E-01	6.84E-02	1.10E-01	9.86E-02	1.03E-01	1.01E-01	9.96E-02	6.84E-02	1.05E-01	7.10E-02
Benzo(a)fluorene	ng/m^3	2.20E-01	1.37E-01	2.20E-01	1.97E-01	2.06E-01	2.02E-01	1.99E-01	1.37E-01	2.09E-01	1.42E-01
Benzo(b)fluoranthene	ng/m^3	1.10E-01	6.84E-02	1.10E-01	9.86E-02	1.03E-01	1.01E-01	9.96E-02	6.84E-02	1.05E-01	7.10E-02
Benzo(b)fluorene	ng/m^3	2.20E-01	1.37E-01	2.20E-01	1.97E-01	2.06E-01	2.02E-01	1.99E-01	1.37E-01	2.09E-01	1.42E-01
Benzo(e)pyrene	ng/m^3	2.20E-01	1.37E-01	2.20E-01	1.97E-01	2.06E-01	2.02E-01	1.99E-01	1.37E-01	2.09E-01	1.42E-01
Benzo(g,h,i)perylene	ng/m^3	1.10E-01	6.84E-02	1.10E-01	9.86E-02	1.03E-01	1.01E-01	9.96E-02	6.84E-02	1.05E-01	7.10E-02
Benzo(k)fluoranthene	ng/m^3	1.10E-01	6.84E-02	1.10E-01	9.86E-02	1.03E-01	1.01E-01	9.96E-02	6.84E-02	1.05E-01	7.10E-02
Biphenyl	ng/m^3	3.58E+00	5.58E-01	1.73E+00	1.05E+00	1.43E+00	3.58E+00	5.58E-01	1.01E+00	1.62E+00	1.67E+00
Chrysene	ng/m^3	1.10E-01	6.84E-02	1.10E-01	9.86E-02	1.03E-01	1.01E-01	9.96E-02	6.84E-02	1.05E-01	7.10E-02
Dibenz(a,h)anthracene	ng/m^3	1.10E-01	6.84E-02	1.10E-01	9.86E-02	1.03E-01	1.01E-01	9.96E-02	6.84E-02	1.05E-01	7.10E-02
Dibenzo(a,c) anthracene + Picene	ng/m^3	2.13E-01	1.37E-01	1.47E-01	1.97E-01	2.06E-01	2.02E-01	1.99E-01	1.37E-01	2.09E-01	2.13E-01
Fluoranthene	ng/m^3	8.16E-01	9.96E-02	7.21E-01	3.39E-01	4.03E-01	8.16E-01	9.96E-02	2.85E-01	2.68E-01	6.19E-01
Indeno(1,2,3-cd)pyrene	ng/m^3	1.10E-01	6.84E-02	1.10E-01	9.86E-02	1.03E-01	1.01E-01	9.96E-02	6.84E-02	1.05E-01	7.10E-02
Naphthalene	ng/m^3	4.34E+01	6.83E+00	1.76E+01	9.20E+00	1.47E+01	4.34E+01	6.83E+00	1.25E+01	1.56E+01	1.70E+01
o-Terphenyl	ng/m^3	2.20E-01	1.37E-01	2.20E-01	1.97E-01	2.06E-01	2.02E-01	1.99E-01	1.37E-01	2.09E-01	1.42E-01
Perylene	ng/m^3	2.20E-01	1.37E-01	2.20E-01	1.97E-01	2.06E-01	2.02E-01	1.99E-01	1.37E-01	2.09E-01	1.42E-01
Phenanthrene	ng/m^3	3.75E+00	7.17E-01	3.75E+00	1.50E+00	1.57E+00	3.53E+00	7.17E-01	1.08E+00	9.30E-01	2.03E+00
Pyrene	ng/m^3	4.53E-01	9.86E-02	3.78E-01	9.86E-02	1.03E-01	4.53E-01	9.96E-02	1.64E-01	1.05E-01	3.52E-01
Tetralin	ng/m^3	3.83E+00	6.31E-01	2.26E+00	6.31E-01	1.70E+00	3.83E+00	9.56E-01	2.65E+00	2.04E+00	1.36E+00
Total PAH	ng/m^3	8.09E+01	1.51E+01	4.48E+01	2.03E+01	3.08E+01	8.09E+01	1.51E+01	2.58E+01	2.86E+01	3.24E+01

Polycyclic Aromatic Hydrocarbons	Rundle Road Station																	
Location			Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle		Rundle	
Date	dd/mm/yyyy		03/10/2016		15/10/2016		27/10/2016		08/11/2016		20/11/2016		02/12/2016		14/12/2016		26/12/2016	
Start Time	hh:mm		0:00		0:00		0:00		0:00		0:00		0:00		0:00		0:00	
Sample Duration	hours		23.66		23.77		24.17		24.32		24.06		24.49		23.54		7.49	
Technician			TH		TH		TH		KM		TH		TH		TH		TH	
Filter Number			CXB829-01		DAQ810-01		CAR653-01		DAR742-01		DGG897-01		DGH084-01		DGH051-01		DGH106-01	
Maxaam ID			DER858		DGO781		DIZ236		DKT749		DMN613		DOT135		DQP476		N/A	
Maxxam Job #			B6L4666		B6M4121		B6N5690		B6O4947		B6P4166		B6Q5575		B6R5537		N/A	
Total Volumetric Flow	Am^3/sample		342.02		364.96		365.43		379.51		357.72		369.08		365.42		114.63	
Analytical Results	Units		Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL	Value	RDL
Benzo(a)pyrene	µg		0.0103	0.0014	0.0170	0.0014	0.0062	0.0052	0.0665	0.0037	<0.0041	0.0041	0.0052	0.0010	0.0127	0.0015		
1-Methylnaphthalene	µg		3.31	0.15	5.21	0.15	1.29	0.15	5.04	0.15	0.32	0.15	0.96	0.10	1.21	0.15		
2-Methylnaphthalene	µg		6.58	0.15	9.95	0.15	2.04	0.15	8.41	0.15	0.48	0.15	1.47	0.10	1.82	0.15		
Acenaphthene	µg		3.99	0.075	5.55	0.075	1.05	0.075	2.52	0.075	0.138	0.075	0.204	0.050	<0.075	0.075		
Acenaphthylene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	0.078	0.075		
Anthracene	µg		0.144	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075		
Benzo(a)anthracene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075		
Benzo(a)fluorene	µg		<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15		
Benzo(b)fluoranthene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075		
Benzo(b)fluorene	µg		<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15		
Benzo(e)pyrene	µg		<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15	GFI tripped.	
Benzo(g,h,i)perylene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	Sample did not run	
Benzo(k)fluoranthene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	for sufficient time.	
Biphenyl	µg		1.43	0.15	2.27	0.15	0.61	0.15	2.18	0.15	0.18	0.15	0.36	0.10	0.58	0.15	Sample	
Chrysene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075	invalidated.	
Dibenz(a,h)anthracene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075		
Dibenzo(a,c) anthracene + Picene [1]	µg		<0.10	0.10	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15		
Fluoranthene	µg		0.552	0.075	0.930	0.075	0.237	0.075	0.564	0.075	<0.075	0.075	0.114	0.050	0.126	0.075		
Indeno(1,2,3-cd)pyrene	µg		<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.075	0.075	<0.050	0.050	<0.075	0.075		
Naphthalene	µg		7.06	0.11	13.1	0.11	5.60	0.11	24.1	0.11	1.96	0.11	4.66	0.072	6.89	0.11		
o-Terphenyl	µg		<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15		
Perylene	µg		<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.15	0.15	<0.10	0.10	<0.15	0.15		
Phenanthrene	µg		3.74	0.075	6.33	0.075	1.26	0.075	3.27	0.075	0.240	0.075	0.476	0.050	0.432	0.075		
Pyrene	µg		0.273	0.075	0.399	0.075	0.129	0.075	0.288	0.075	<0.075	0.075	0.074	0.050	0.087	0.075		
Tetralin	µg		0.37	0.15	0.80	0.15	0.38	0.15	1.66	0.15	0.25	0.15	0.80	0.10	1.01	0.15		

Calculated Concentrations	Quarter 4			Rundle 21	Rundle 22	Rundle 23	Rundle 24	Rundle 25	Rundle 26	Rundle 27	Rundle 28
	Units	Maximum	Minimum	03/10/2016	15/10/2016	27/10/2016	08/11/2016	20/11/2016	02/12/2016	14/12/2016	26/12/2016
Benzo(a)pyrene	ng/m^3	0.18	0.0057	3.01E-02	4.66E-02	1.70E-02	1.75E-01	5.73E-03	1.41E-02	3.48E-02	N/A
1-Methylnaphthalene	ng/m^3	1.43E+01	8.95E-01	9.68E+00	1.43E+01	3.53E+00	1.33E+01	8.95E-01	2.60E+00	3.31E+00	N/A
2-Methylnaphthalene	ng/m^3	2.73E+01	1.34E+00	1.92E+01	2.73E+01	5.58E+00	2.22E+01	1.34E+00	3.98E+00	4.98E+00	N/A
Acenaphthene	ng/m^3	1.52E+01	1.03E-01	1.17E+01	1.52E+01	2.87E+00	6.64E+00	3.86E-01	5.53E-01	1.03E-01	N/A
Acenaphthylene	ng/m^3	2.13E-01	6.77E-02	1.10E-01	1.03E-01	1.03E-01	9.88E-02	1.05E-01	6.77E-02	2.13E-01	N/A
Anthracene	ng/m^3	4.21E-01	6.77E-02	4.21E-01	1.03E-01	1.03E-01	9.88E-02	1.05E-01	6.77E-02	1.03E-01	N/A
Benzo(a)anthracene	ng/m^3	1.10E-01	6.77E-02	1.10E-01	1.03E-01	1.03E-01	9.88E-02	1.05E-01	6.77E-02	1.03E-01	N/A
Benzo(a)fluorene	ng/m^3	2.19E-01	1.35E-01	2.19E-01	2.05E-01	2.05E-01	1.98E-01	2.10E-01	1.35E-01	2.05E-01	N/A
Benzo(b)fluoranthene	ng/m^3	1.10E-01	6.77E-02	1.10E-01	1.03E-01	1.03E-01	9.88E-02	1.05E-01	6.77E-02	1.03E-01	N/A
Benzo(b)fluorene	ng/m^3	2.19E-01	1.35E-01	2.19E-01	2.05E-01	2.05E-01	1.98E-01	2.10E-01	1.35E-01	2.05E-01	N/A
Benzo(e)pyrene	ng/m^3	2.19E-01	1.35E-01	2.19E-01	2.05E-01	2.05E-01	1.98E-01	2.10E-01	1.35E-01	2.05E-01	N/A
Benzo(g,h,i)perylene	ng/m^3	1.10E-01	6.77E-02	1.10E-01	1.03E-01	1.03E-01	9.88E-02	1.05E-01	6.77E-02	1.03E-01	N/A
Benzo(k)fluoranthene	ng/m^3	1.10E-01	6.77E-02	1.10E-01	1.03E-01	1.03E-01	9.88E-02	1.05E-01	6.77E-02	1.03E-01	N/A
Biphenyl	ng/m^3	6.22E+00	5.03E-01	4.18E+00	6.22E+00	1.67E+00	5.74E+00	5.03E-01	9.75E-01	1.59E+00	N/A
Chrysene	ng/m^3	1.10E-01	6.77E-02	1.10E-01	1.03E-01	1.03E-01	9.88E-02	1.05E-01	6.77E-02	1.03E-01	N/A
Dibenz(a,h)anthracene	ng/m^3	1.10E-01	6.77E-02	1.10E-01	1.03E-01	1.03E-01	9.88E-02	1.05E-01	6.77E-02	1.03E-01	N/A
Dibenzo(a,c) anthracene + Picene	ng/m^3	2.10E-01	1.35E-01	1.46E-01	2.05E-01	2.05E-01	1.98E-01	2.10E-01	1.35E-01	2.05E-01	N/A
Fluoranthene	ng/m^3	2.55E+00	1.05E-01	1.61E+00	2.55E+00	6.49E-01	1.49E+00	1.05E-01	3.09E-01	3.45E-01	N/A
Indeno(1,2,3-cd)pyrene	ng/m^3	1.10E-01	6.77E-02	1.10E-01	1.03E-01	1.03E-01	9.88E-02	1.05E-01	6.77E-02	1.03E-01	N/A
Naphthalene	ng/m^3	6.35E+01	5.48E+00	2.06E+01	3.59E+01	1.53E+01	6.35E+01	5.48E+00	1.26E+01	1.89E+01	N/A
o-Terphenyl	ng/m^3	2.19E-01	1.35E-01	2.19E-01	2.05E-01	2.05E-01	1.98E-01	2.10E-01	1.35E-01	2.05E-01	N/A
Perylene	ng/m^3	2.19E-01	1.35E-01	2.19E-01	2.05E-01	2.05E-01	1.98E-01	2.10E-01	1.35E-01	2.05E-01	N/A
Phenanthrene	ng/m^3	1.73E+01	6.71E-01	1.09E+01	1.73E+01	3.45E+00	8.62E+00	6.71E-01	1.29E+00	1.18E+00	N/A
Pyrene	ng/m^3	1.09E+00	1.05E-01	7.98E-01	1.09E+00	3.53E-01	7.59E-01	1.05E-01	2.00E-01	2.38E-01	N/A
Tetralin	ng/m^3	4.37E+00	6.99E-01	1.08E+00	2.19E+00	1.04E+00	4.37E+00	6.99E-01	2.17E+00	2.76E+00	N/A
Total PAH	ng/m^3	1.29E+02	1.24E+01	8.24E+01	1.24E+02	3.66E+01	1.29E+02	1.24E+01	2.61E+01	3.57E+01	N/A

Appendix I DIOXINS AND FURANS DATA SUMMARY

Dioxins and Furans	Courtice WPCP Station																	
Location		Courtice			Courtice			Courtice			Courtice			Courtice			Courtice		
Date	dd/mm/yyyy	3/10/2016			15/10/2016			27/10/2016			8/11/2016			20/11/2016			14/12/2016		
Start Time	hh:mm	0:00			0:00			0:00			0:00			0:00			0:00		
Sample Duration	hours	22.76			24.1			23.5			24.07			24.15			22.86		
Technician		TH			TH			TH			KM			TH			TH		
Filter Number		CXB828-01			DAQ811-01[2]			DAR654-01			DAR743-01[2]			DGG896-01			DGH052-01		
Maxaam ID		DER857			DGO780			DIZ235			DKT748			DMN612			DQP475		
Maxxam Job #		B6L4666			B6M4121			B6N5690			B6O4947			B6P4166			B6R5537		
Total Volumetric Flow	Am^3/sample	341.29			380.29			364.38			371.23			376.40			358.04		
Analytical Results	Units	Value	EDL	WHO_{2005} TEF	Value	EDL	WHO_{2005} TEF	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	<3.8	3.8	1	<3.7	3.7	1	<3.2	3.2	1	<3.2	3.2	1	<3.8	3.8	1
1,2,3,7,8-Penta CDD *	pg	<3.4	3.4	1	<2.5	2.5	1	<3.5	3.5	1	<4.8	4.8	1	<3.3	3.3	1	<3.6	3.6	1
1,2,3,4,7,8-Hexa CDD *	pg	<2.8	2.8	0.1	<4.1	4.1	0.1	<3.4	3.4	0.1	<2.8	2.8	0.1	<3.2	3.2	0.1	<3.3	3.3	0.1
1,2,3,6,7,8-Hexa CDD *	pg	<2.9	2.9	0.1	<4.2	4.2	0.1	<3.4	3.4	0.1	3.9	2.8	0.1	<3.3	3.3	0.1	<3.5	3.5	0.1
1,2,3,7,8,9-Hexa CDD *	pg	<2.6	2.6	0.1	<3.9	3.9	0.1	<3.1	3.1	0.1	7.0	2.6	0.1	<3.0	3.0	0.1	4.7	3.1	0.1
1,2,3,4,6,7,8-Hepta CDD *	pg	10.0	3.5	0.01	10.9	2.6	0.01	<22 (1)	22	0.01	59.2	3.2	0.01	5.2	3.3	0.01	26.4	2.7	0.01
Octa CDD *	pg	75.5	3.1	0.0003	69.9	3.7	0.0003	96.5	3.3	0.0003	198	3.8	0.0003	14.3	3.2	0.0003	87.3	4.1	0.0003
Total Tetra CDD *	pg	<5.1 (1)	5.1		<6.7 (1)	6.7		<12 (1)	12		<4.3 (1)	4.3		<4.3 (1)	4.3		<3.8	3.8	
Total Penta CDD *	pg	<8.9 (1)	8.9		<5.7 (1)	5.7		<5.5 (1)	5.5		<8.1 (1)	8.1		<4.5 (3)	4.5		<3.6	3.6	
Total Hexa CDD *	pg	3.3	2.8		4.6	4.1		25.3	3.3		48.9	2.7		<12 (1)	12		17.5	3.3	
Total Hepta CDD *	pg	10.0	3.5		26.3	2.6		36.5	3.4		133	3.2		10.2	3.3		55.7	2.7	
2,3,7,8-Tetra CDF **	pg	<3.4	3.4	0.1	<3.5	3.5	0.1	<4.0	4.0	0.1	7.2	4.4	0.1	<3.2	3.2	0.1	<2.8	2.8	0.1
1,2,3,7,8-Penta CDF **	pg	<3.4	3.4	0.03	<3.9	3.9	0.03	<3.5	3.5	0.03	<4.0	4.0	0.03	<3.5	3.5	0.03	<3.0	3.0	0.03
2,3,4,7,8-Penta CDF **	pg	<3.4	3.4	0.3	<3.9	3.9	0.3	<3.5	3.5	0.3	<4.0	4.0	0.3	<3.6	3.6	0.3	<3.1	3.1	0.3
1,2,3,4,7,8-Hexa CDF **	pg	<2.8	2.8	0.1	<2.2	2.2	0.1	<3.1	3.1	0.1	7.3	3.4	0.1	<3.2	3.2	0.1	<2.3	2.3	0.1
1,2,3,6,7,8-Hexa CDF **	pg	<2.6	2.6	0.1	<2.1	2.1	0.1	<2.9	2.9	0.1	5.1	3.3	0.1	<3.0	3.0	0.1	<2.3	2.3	0.1
2,3,4,6,7,8-Hexa CDF **	pg	<2.9	2.9	0.1	<2.3	2.3	0.1	<3.2	3.2	0.1	<4.3 (1)	4.3	0.1	<3.3	3.3	0.1	<2.5	2.5	0.1
1,2,3,7,8,9-Hexa CDF **	pg	<3.0	3.0	0.1	<2.4	2.4	0.1	<3.4	3.4	0.1	<3.8	3.8	0.1	<3.5	3.5	0.1	<2.6	2.6	0.1
1,2,3,4,6,7,8-Hepta CDF **	pg	4.4	2.6	0.01	<3.6	3.6	0.01	4.5	3.0	0.01	15.2	3.3	0.01	<3.2	3.2	0.01	5.7	3.5	0.01
1,2,3,4,7,8,9-Hepta CDF **	pg	<3.1	3.1	0.01	<4.2	4.2	0.01	<3.6	3.6	0.01	<3.8	3.8	0.01	<3.8	3.8	0.01	<4.6	4.6	0.01
Octa CDF **	pg	7.0	3.9	0.0003	<4.0	4.0	0.0003	4.9	3.2	0.0003	10.2	3.3	0.0003	<3.2	3.2	0.0003	5.1	3.3	0.0003
Total Tetra CDF **	pg	<3.4	3.4		<3.0 (1)	3.0		4.0	3.4		28.6	4.4		<3.2	3.2		<2.8	2.8	
Total Penta CDF **	pg	<3.4	3.4		<3.9	3.9		<3.5	3.5		20.4	4.0		<3.5	3.5		3.5	3.1	
Total Hexa CDF **	pg	<2.8	2.8		<2.2	2.2		<3.1	3.1		21.1	3.5		<3.3	3.3		2.5	2.4	
Total Hepta CDF **	pg	4.4	2.8		<3.9	3.9		4.5	3.3		15.2	3.5		<3.5	3.5		5.7	4.0	
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
(3) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit. RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds
* CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan

Calculated Concentrations	Units	Quarter 4 Maximum	Quarter 4 Minimum	Courtice 12 3/10/2016	Courtice 13 15/10/2016	Courtice 14 27/10/2016	Courtice 15 8/11/2016	Courtice 16 20/11/2016	Courtice 17 14/12/2016
2,3,7,8-Tetra CDD *	pg/m^3	5.31E-03	4.25E-03	0.005	0.005	0.005	0.004	0.004	0.005
1,2,3,7,8-Penta CDD *	pg/m^3	6.47E-03	3.29E-03	0.005	0.003	0.005	0.006	0.004	0.005
1,2,3,4,7,8-Hexa CDD *	pg/m^3	5.39E-03	3.77E-03	0.004	0.005	0.005	0.004	0.004	0.005
1,2,3,6,7,8-Hexa CDD *	pg/m^3	1.05E-02	4.25E-03	0.004	0.006	0.005	0.011	0.004	0.005
1,2,3,7,8,9-Hexa CDD *	pg/m^3	1.89E-02	3.81E-03	0.004	0.005	0.004	0.019	0.004	0.013
1,2,3,4,6,7,8-Hepta CDD *	pg/m^3	1.59E-01	1.38E-02	0.029	0.029	0.030	0.159	0.014	0.074
Octa CDD *	pg/m^3	5.33E-01	3.80E-02	0.221	0.184	0.265	0.533	0.038	0.244
Total Tetra CDD *	pg/m^3	1.65E-02	5.31E-03	0.007	0.009	0.016	0.006	0.006	0.005
Total Penta CDD *	pg/m^3	1.30E-02	5.03E-03	0.013	0.007	0.008	0.011	0.006	0.005
Total Hexa CDD *	pg/m^3	1.32E-01	9.67E-03	0.010	0.012	0.069	0.132	0.016	0.049
Total Hepta CDD *	pg/m^3	3.58E-01	2.71E-02	0.029	0.069	0.100	0.358	0.027	0.156
2,3,7,8-Tetra CDF **	pg/m^3	1.94E-02	3.91E-03	0.005	0.005	0.005	0.019	0.004	0.004
1,2,3,7,8-Penta CDF **	pg/m^3	5.39E-03	4.19E-03	0.005	0.005	0.005	0.005	0.005	0.004
2,3,4,7,8-Penta CDF **	pg/m^3	5.39E-03	4.33E-03	0.005	0.005	0.005	0.005	0.005	0.004
1,2,3,4,7,8-Hexa CDF **	pg/m^3	1.97E-02	2.89E-03	0.004	0.003	0.004	0.020	0.004	0.003
1,2,3,6,7,8-Hexa CDF **	pg/m^3	1.37E-02	2.76E-03	0.004	0.003	0.004	0.014	0.004	0.003
2,3,4,6,7,8-Hexa CDF **	pg/m^3	5.79E-03	3.02E-03	0.004	0.003	0.004	0.006	0.004	0.003
1,2,3,7,8,9-Hexa CDF **	pg/m^3	5.12E-03	3.16E-03	0.004	0.003	0.005	0.005	0.005	0.004
1,2,3,4,6,7,8-Hepta CDF **	pg/m^3	4.09E-02	4.25E-03	0.013	0.005	0.012	0.041	0.004	0.016
1,2,3,4,7,8,9-Hepta CDF **	pg/m^3	6.42E-03	4.54E-03	0.005	0.006	0.005	0.005	0.005	0.006
Octa CDF **	pg/m^3	2.75E-02	4.25E-03	0.021	0.005	0.013	0.027	0.004	0.014
Total Tetra CDF **	pg/m^3	7.70E-02	3.91E-03	0.005	0.004	0.011	0.077	0.004	0.004
Total Penta CDF **	pg/m^3	5.50E-02	4.65E-03	0.005	0.005	0.005	0.055	0.005	0.010
Total Hexa CDF **	pg/m^3	5.68E-02	2.89E-03	0.004	0.003	0.004	0.057	0.004	0.007
Total Hepta CDF **	pg/m^3	4.09E-02	4.65E-03	0.013	0.005	0.012	0.041	0.005	0.016
Toxic Equivalency	pg/m^3								
TOTAL TOXIC EQUIVALENCY	pg TEQ/m^3	0.024	0.014	0.016	0.014	0.016	0.024	0.014	0.017

Calculated TEQ Concentrations	Units			Courtice 03/10/2016	Courtice 15/10/2016	Courtice 27/10/2016	Courtice 08/11/2016	Courtice 20/11/2016	Courtice 14/12/2016
2,3,7,8-Tetra CDD *	pg TEQ/m^3			0.005	0.005	0.005	0.004	0.004	0.005
1,2,3,7,8-Penta CDD	pg TEQ/m^3			0.005	0.003	0.005	0.006	0.004	0.005
1,2,3,4,7,8-Hexa CDD	pg TEQ/m^3			0.0004	0.0005	0.0005	0.0004	0.0004	0.0005
1,2,3,6,7,8-Hexa CDD	pg TEQ/m^3			0.0004	0.0006	0.0005	0.0011	0.0004	0.0005
1,2,3,7,8,9-Hexa CDD	pg TEQ/m^3			0.0004	0.0005	0.0004	0.0019	0.0004	0.0013
1,2,3,4,6,7,8-Hepta CDD	pg TEQ/m^3			0.0003	0.0003	0.0003	0.0016	0.0001	0.0007
Octa CDD	pg TEQ/m^3			0.00007	0.00006	0.00008	0.00016	0.00001	0.00007
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	0.0005	0.0019	0.0004	0.0004
1,2,3,7,8-Penta CDF	pg TEQ/m^3			0.0001	0.0002	0.0001	0.0002	0.0001	0.0001
2,3,4,7,8-Penta CDF	pg TEQ/m^3			0.001	0.002	0.001	0.002	0.001	0.001
1,2,3,4,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0003	0.0004	0.0020	0.0004	0.0003
1,2,3,6,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0003	0.0004	0.0014	0.0004	0.0003
2,3,4,6,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0003	0.0004	0.0006	0.0004	0.0003
1,2,3,7,8,9-Hexa CDF	pg TEQ/m^3			0.0004	0.0003	0.0005	0.0005	0.0005	0.0004
1,2,3,4,6,7,8-Hepta CDF	pg TEQ/m^3			0.00013	0.00005	0.00012	0.00041	0.00004	0.00016
1,2,3,4,7,8,9-Hepta CDF	pg TEQ/m^3			0.00005	0.00006	0.00005	0.00005	0.00005	0.00006
Octa CDF	pg TEQ/m^3			0.000006	0.000002	0.000004	0.000008	0.000001	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			0.016	0.014	0.016	0.024	0.014	0.017

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

Dioxins and Furans	Rundle Road Station																	
Location		Rundle			Rundle[2]			Rundle			Rundle[2]			Rundle			Rundle		
Date	dd/mm/yyyy	3/10/2016			15/10/2016			27/10/2016			8/11/2016			20/11/2016			14/12/2016		
Start Time	hh:mm	0:00			0:00			0:00			0:00			0:00			0:00		
Sample Duration	hours	23.66			23.77			24.17			24.32			24.06			23.54		
Technician		TH			TH			TH			KM			TH			TH		
Filter Number		CX8829-01			DAQ810-01			CAR653-01			DAR742-01			DGG897-01			DGH051-01		
Maxaam ID		DER858			DGO781			DIZ236			DKT749			DMN613			DQP476		
Maxxam Job #		B6L4666			B6M4121			B6N5690			B6O4947			B6P4166			B6R5537		
Total Volumetric Flow	Am^3/sample	342.02			364.96			365.43			379.51			357.72			365.42		
Analytical Results	Units	Value	EDL	WHO_{2005} TEF	Value	EDL	WHO_{2005} TEF	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	<4.0	4.0	1	<3.0	3.0	1	<3.9	3.9	1	<4.1	4.1	1	<3.2	3.2	1	<2.9	2.9	1
1,2,3,7,8-Penta CDD *	pg	4.4	3.6	1	<3.0	3.0	1	<4.9	4.9	1	<4.1	4.1	1	<3.4	3.4	1	<3.0	3.0	1
1,2,3,4,7,8-Hexa CDD *	pg	<3.4	3.4	0.1	<3.2 (4)	3.2	0.1	<3.7	3.7	0.1	<3.8	3.8	0.1	<3.6	3.6	0.1	<3.4	3.4	0.1
1,2,3,6,7,8-Hexa CDD *	pg	<3.5	3.5	0.1	<3.3	3.3	0.1	<3.7	3.7	0.1	4.1	3.9	0.1	<3.6	3.6	0.1	<3.7	3.7	0.1
1,2,3,7,8,9-Hexa CDD *	pg	<3.2	3.2	0.1	3.3	3.0	0.1	<3.4	3.4	0.1	7.1	3.6	0.1	<3.3	3.3	0.1	3.6	3.2	0.1
1,2,3,4,6,7,8-Hepta CDD *	pg	7.1	2.9	0.01	33.6	2.4	0.01	12.1	3.5	0.01	49.8	3.1	0.01	17.4	3.6	0.01	28.1	2.4	0.01
Octa CDD *	pg	50.7	3.5	0.0003	177	3.9	0.0003	50.4	3.4	0.0003	197	4.1	0.0003	51.6	3.3	0.0003	74.3	3.8	0.0003
Total Tetra CDD *	pg	<5.4 (1)	5.4		<8.0 (1)	8.0		<11 (1)	11		<4.4 (1)	4.4		<4.5 (1)	4.5		<2.9	2.9	
Total Penta CDD *	pg	4.4	3.6		<6.1 (1)	6.1		<5.3 (1)	5.3		<4.1	4.1		<3.4	3.4		<5.6 (1)	5.6	
Total Hexa CDD *	pg	<9.5 (1)	9.5		18.6	3.2		<16 (1)	16		21.7	3.8		<12 (1)	12		17.0	3.4	
Total Hepta CDD *	pg	15.2	2.9		67.6	2.4		26.0	3.5		113	3.1		30.1	3.6		58.7	2.4	
2,3,7,8-Tetra CDF **	pg	<4.6 (1)	4.6	0.1	<3.1	3.1	0.1	<3.7	3.7	0.1	<5.0 (1)(4)	5.0	0.1	<3.1	3.1	0.1	<4.2 (4)	4.2	0.1
1,2,3,7,8-Penta CDF **	pg	<3.4	3.4	0.03	<3.6	3.6	0.03	<4.9	4.9	0.03	<4.7	4.7	0.03	<3.4	3.4	0.03	<2.8	2.8	0.03
2,3,4,7,8-Penta CDF **	pg	<3.5 (1)	3.5	0.3	<3.6	3.6	0.3	<4.9	4.9	0.3	<4.7	4.7	0.3	<3.5	3.5	0.3	<2.9	2.9	0.3
1,2,3,4,7,8-Hexa CDF **	pg	3.5	3.0	0.1	4.9	3.5	0.1	<3.2	3.2	0.1	<4.6 (1)	4.6	0.1	<3.2	3.2	0.1	<2.4	2.4	0.1
1,2,3,6,7,8-Hexa CDF **	pg	<2.8	2.8	0.1	<3.4	3.4	0.1	<3.1	3.1	0.1	<3.7	3.7	0.1	<3.1	3.1	0.1	<2.4	2.4	0.1
2,3,4,6,7,8-Hexa CDF **	pg	<3.1	3.1	0.1	<3.7	3.7	0.1	<3.4	3.4	0.1	<4.1	4.1	0.1	<3.4	3.4	0.1	<2.6	2.6	0.1
1,2,3,7,8,9-Hexa CDF **	pg	<3.3	3.3	0.1	<3.9	3.9	0.1	<3.5	3.5	0.1	<4.3	4.3	0.1	<3.5	3.5	0.1	<2.8	2.8	0.1
1,2,3,4,6,7,8-Hepta CDF **	pg	6.5	2.3	0.01	14.5	3.6	0.01	<3.4 (1)	3.4	0.01	12.4	3.6	0.01	<2.9	2.9	0.01	4.5	2.6	0.01
1,2,3,4,7,8,9-Hepta CDF **	pg	<2.7	2.7	0.01	<4.3	4.3	0.01	<3.8	3.8	0.01	<4.2	4.2	0.01	<3.4	3.4	0.01	<3.3	3.3	0.01
Octa CDF **	pg	<5.7 (1)	5.7	0.0003	11.4	4.8	0.0003	4.3	3.3	0.0003	8.5	3.3	0.0003	3.4	3.2	0.0003	4.0	2.0	0.0003
Total Tetra CDF **	pg	3.7	3.7		<3.2 (1)	3.2		<3.7	3.7		10.9	3.9		<3.1	3.1		4.2	3.3	
Total Penta CDF **	pg	<3.7 (3)	3.7		<3.6	3.6		<4.9	4.9		8.0	4.7		<3.5	3.5		4.8	2.8	
Total Hexa CDF **	pg	7.1	3.0		9.2	3.6		<3.3	3.3		6.1	4.0		<3.3	3.3		<2.5	2.5	
Total Hepta CDF **	pg	6.5	2.5		19.9	3.9		<3.7 (1)	3.7		17.8	3.9		<3.1	3.1		4.5	2.9	
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

(3) RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds. EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(4) RT > 3 seconds - PCDD/DF analysis - Peak detected exceeds expected retention time (from internal standard) by greater than 3 seconds.
* CDD = Chloro Dibenzo-p-Dioxin ** CDF = Chloro Dibenzo-p-Furan

Calculated Concentrations	Quarter 4			Rundle	Rundle2	Rundle	Rundle2	Rundle	Rundle
				12	13	14	15	16	17
	Units	Maximum	Minimum	3/10/2016	15/10/2016	27/10/2016	8/11/2016	20/11/2016	14/12/2016
2,3,7,8-Tetra CDD *	pg/m^3	5.85E-03	3.97E-03	0.006	0.004	0.005	0.005	0.004	0.004
1,2,3,7,8-Penta CDD	pg/m^3	1.29E-02	4.10E-03	0.01286	0.004	0.007	0.005	0.005	0.004
1,2,3,4,7,8-Hexa CDD	pg/m^3	5.06E-03	4.38E-03	0.005	0.004	0.005	0.005	0.005	0.005
1,2,3,6,7,8-Hexa CDD	pg/m^3	1.08E-02	4.52E-03	0.005	0.005	0.005	0.011	0.005	0.005
1,2,3,7,8,9-Hexa CDD	pg/m^3	1.87E-02	4.61E-03	0.005	0.009	0.005	0.019	0.005	0.010
1,2,3,4,6,7,8-Hepta CDD	pg/m^3	1.31E-01	2.08E-02	0.021	0.092	0.033	0.131	0.049	0.077
Octa CDD	pg/m^3	5.19E-01	1.38E-01	0.148	0.485	0.138	0.519	0.144	0.203
Total Tetra CDD	pg/m^3	1.51E-02	3.97E-03	0.008	0.011	0.015	0.006	0.006	0.004
Total Penta CDD	pg/m^3	1.29E-02	4.75E-03	0.013	0.008	0.007	0.005	0.005	0.008
Total Hexa CDD	pg/m^3	5.72E-02	1.39E-02	0.014	0.051	0.022	0.057	0.017	0.047
Total Hepta CDD	pg/m^3	2.98E-01	4.44E-02	0.044	0.185	0.071	0.298	0.084	0.161
2,3,7,8-Tetra CDF **	pg/m^3	6.72E-03	4.25E-03	0.007	0.004	0.005	0.007	0.004	0.006
1,2,3,7,8-Penta CDF	pg/m^3	6.70E-03	3.83E-03	0.005	0.005	0.007	0.006	0.005	0.004
2,3,4,7,8-Penta CDF	pg/m^3	6.70E-03	3.97E-03	0.005	0.005	0.007	0.006	0.005	0.004
1,2,3,4,7,8-Hexa CDF	pg/m^3	1.34E-02	3.28E-03	0.010	0.013	0.004	0.006	0.004	0.003
1,2,3,6,7,8-Hexa CDF	pg/m^3	4.87E-03	3.28E-03	0.004	0.005	0.004	0.005	0.004	0.003
2,3,4,6,7,8-Hexa CDF	pg/m^3	5.40E-03	3.56E-03	0.005	0.005	0.005	0.005	0.005	0.004
1,2,3,7,8,9-Hexa CDF	pg/m^3	5.67E-03	3.83E-03	0.005	0.005	0.005	0.006	0.005	0.004
1,2,3,4,6,7,8-Hepta CDF	pg/m^3	3.97E-02	4.05E-03	0.019	0.040	0.005	0.033	0.004	0.012
1,2,3,4,7,8,9-Hepta CDF	pg/m^3	5.89E-03	3.95E-03	0.004	0.006	0.005	0.006	0.005	0.005
Octa CDF	pg/m^3	3.12E-02	8.33E-03	0.008	0.031	0.012	0.022	0.010	0.011
Total Tetra CDF	pg/m^3	2.87E-02	4.33E-03	0.011	0.004	0.005	0.029	0.004	0.011
Total Penta CDF	pg/m^3	2.11E-02	4.89E-03	0.005	0.005	0.007	0.021	0.005	0.013
Total Hexa CDF	pg/m^3	2.52E-02	3.42E-03	0.021	0.025	0.005	0.016	0.005	0.003
Total Hepta CDF	pg/m^3	5.45E-02	4.33E-03	0.019	0.055	0.005	0.047	0.004	0.012
Toxic Equivalency	pg/m^3								
TOTAL TOXIC EQUIVALENCY	pg TEQ/m^3	2.54E-02	1.43E-02	0.025	0.016	0.019	0.021	0.015	0.014
Calculated TEQ Concentrations	**Units**			**Rundle**	**Rundle2**	**Rundle**	**Rundle2**	**Rundle**	**Rundle**
				03/10/2016	**15/10/2016**	**27/10/2016**	**08/11/2016**	**20/11/2016**	**14/12/2016**
2,3,7,8-Tetra CDD *	pg TEQ/m^3			0.006	0.004	0.005	0.005	0.004	0.004
1,2,3,7,8-Penta CDD	pg TEQ/m^3			0.013	0.004	0.007	0.005	0.005	0.004
1,2,3,4,7,8-Hexa CDD	pg TEQ/m^3			0.0005	0.0004	0.0005	0.0005	0.0005	0.0005
1,2,3,6,7,8-Hexa CDD	pg TEQ/m^3			0.0005	0.0005	0.0005	0.0011	0.0005	0.0005
1,2,3,7,8,9-Hexa CDD	pg TEQ/m^3			0.0005	0.0009	0.0005	0.0019	0.0005	0.0010
1,2,3,4,6,7,8-Hepta CDD	pg TEQ/m^3			0.0002	0.0009	0.0003	0.0013	0.0005	0.0008
Octa CDD	pg TEQ/m^3			0.00004	0.00015	0.00004	0.00016	0.00004	0.00006
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			0.0007	0.0004	0.0005	0.0007	0.0004	0.0006
1,2,3,7,8-Penta CDF	pg TEQ/m^3			0.0001	0.0001	0.0002	0.0002	0.0001	0.0001
2,3,4,7,8-Penta CDF	pg TEQ/m^3			0.002	0.001	0.002	0.002	0.001	0.001
1,2,3,4,7,8-Hexa CDF	pg TEQ/m^3			0.0010	0.0013	0.0004	0.0006	0.0004	0.0003
1,2,3,6,7,8-Hexa CDF	pg TEQ/m^3			0.0004	0.0005	0.0004	0.0005	0.0004	0.0003
2,3,4,6,7,8-Hexa CDF	pg TEQ/m^3			0.0005	0.0005	0.0005	0.0005	0.0005	0.0004
1,2,3,7,8,9-Hexa CDF	pg TEQ/m^3			0.0005	0.0005	0.0005	0.0006	0.0005	0.0004
1,2,3,4,6,7,8-Hepta CDF	pg TEQ/m^3			0.00019	0.00040	0.00005	0.00033	0.00004	0.00012
1,2,3,4,7,8,9-Hepta CDF	pg TEQ/m^3			0.00004	0.00006	0.00005	0.00006	0.00005	0.00005
Octa CDF	pg TEQ/m^3			0.000002	0.000009	0.000004	0.000007	0.000003	0.000003
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			0.025	0.016	0.019	0.021	0.015	0.014

Notes:
RDL = Reportable 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