

**Quarterly Ambient Air Quality
Monitoring Report for the Durham
York Energy Centre – April to June
2015**

Durham York Energy Centre



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

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

Project No.: 160950528

August 6, 2015

Sign-off Sheet

This document entitled Quarterly Ambient Air Quality Monitoring Report for the Durham York Energy Centre – April to June 2015 was prepared by Stantec Consulting Ltd. for the account of The Region of Durham. The material in it reflects Stantec's best judgment in light of 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.

ORIGINAL SIGNATURE ON FILE

Prepared by _____
(signature)

Timothy Hung, B.A.Sc.

ORIGINAL SIGNATURE ON FILE

Reviewed by _____
(signature)

Gregory Crooks M.Eng., P.Eng.

V:\01609\Active\160950528\planning\report\final\2015\2015 Q2 report\160950528_rpt_2015_Q2_Aug_6_2015.docx

**QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY
CENTRE – APRIL TO JUNE 2015**

Table of Contents

Executive Summary.....	i
Abbreviations	iii
1.0 Introduction	1.1
1.1 BACKGROUND AND OBJECTIVES	1.1
1.2 LOCATIONS OF AMBIENT AIR QUALITY MONITORING STATIONS	1.2
2.0 Key Components Assessed	2.1
2.1 METEOROLOGY	2.1
2.2 AIR QUALITY CONTAMINANTS OF CONCERN	2.1
2.3 AIR QUALITY CRITERIA	2.2
3.0 Instrumentation Summary	3.1
3.1 INSTRUMENTATION	3.1
3.2 INSTRUMENTATION ISSUES	3.2
3.3 DATA RECOVERY RATES.....	3.3
4.0 Summary of Ambient Measurements	4.1
4.1 METEOROLOGICAL DATA	4.1
4.2 CAC AMBIENT AIR QUALITY MEASUREMENTS	4.3
4.2.1 Sulphur Dioxide (SO ₂)	4.9
4.2.2 Nitrogen Dioxide (NO ₂)	4.10
4.2.3 Nitrogen Oxides (NO _x)	4.12
4.2.4 Particulate Matter Smaller than 2.5 Microns (PM _{2.5})	4.13
5.0 Conclusions	5.1
6.0 References.....	6.1

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

LIST OF TABLES

Table 2-1	Summary of Meteorological Parameters Measured at Each Station.....	2.1
Table 2-2	Summary of Air Quality Criteria for CACs	2.2
Table 3-1	Summary of Continuous Ambient Air Quality Monitors	3.1
Table 3-2	Summary of Meteorological Equipment.....	3.2
Table 3-3	Summary of Instrument Issues at Courtice WPCP Station (Predominately Upwind)	3.3
Table 3-4	Summary of Instrument Issues at Rundle Road Station (Predominately Downwind)	3.3
Table 3-5	Summary of Data Recovery Rates for the Courtice WPCP Station (Predominately Upwind) – April to June 2015.....	3.3
Table 3-6	Summary of Data Recovery Rates for the Rundle Road Station (Predominately Downwind) – April to June 2015	3.4
Table 4-1	Summary of Hourly Meteorological Measurements – April to June 2015	4.1
Table 4-2	Summary of Ambient CAC Monitoring Data – April to June 2015	4.5

LIST OF FIGURES

Figure 1-1	Durham York Energy Centre Site Location Plan	1.3
Figure 1-2	Locations of Ambient Air Quality Monitoring Stations	1.5
Figure 1-3	View of Rundle Road Ambient Air Quality Monitoring Station.....	1.7
Figure 1-4	View of Courtice WPCP Ambient Air Quality Monitoring Station	1.7
Figure 4-1	Wind Roses for April to June 2015.....	4.3
Figure 4-2	Comparison of NO ₂ / NO _x and SO ₂ Ambient Air Quality Monitoring Data to Applicable Criteria	4.9
Figure 4-3	Pollution Roses of Measured Hourly Average SO ₂ Concentrations – April to June 2015.....	4.10
Figure 4-4	Pollution Roses of Measured Hourly Average NO ₂ Concentrations – April to June 2015.....	4.11
Figure 4-5	Pollution Roses of Measured Hourly Average NO _x Concentrations – April to June 2015.....	4.13
Figure 4-6	Pollution Roses of Measured 24-Hour Average PM _{2.5} Concentrations – April to June 2015.....	4.14

**QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY
CENTRE – APRIL TO JUNE 2015**

LIST OF APPENDICES

APPENDIX A	SO₂ DATA SUMMARIES AND TIME HISTORY PLOTS	A.1
APPENDIX B	NO₂ DATA SUMMARIES AND TIME HISTORY PLOTS.....	B.1
APPENDIX C	NO_x DATA SUMMARIES AND TIME HISTORY PLOTS	C.1
APPENDIX D	PM_{2.5} DATA SUMMARIES AND TIME HISTORY PLOTS	D.1
APPENDIX E	CONTINUOUS PARAMETER EDIT LOGS	E.1

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Executive Summary

The Regional Municipalities of Durham and York are constructing 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 processing waste on February 13, 2015 and is currently in the commissioning phase of the project.

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:

- Sulphur Dioxide (SO_2);
- Nitrogen Oxides (NO_x);
- Particulate Matter smaller than 2.5 microns ($\text{PM}_{2.5}$);
- Metals in total suspended particulate matter (TSP);
- Polycyclic Aromatic Hydrocarbons (PAHs); and,
- Dioxins and Furans.

Operation of the non-continuous monitors was temporarily discontinued on June 28, 2014 as per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012). When the EFW facility is fully operational, monitoring of non-continuous monitors will resume (as specified in the Ambient Monitoring Plan).

Meteorological data is also measured at the two 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.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

This quarterly report provides a summary of the ambient air quality data collected at these two stations for the period April to June (Calendar Quarter 2). During this quarter, a few instrumentation issues were encountered with above acceptable data recovery rates for all measured air quality parameters. Additional details on instrumentation issues are presented in **Section 3.2** of this report.

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

1. Measured levels of NO₂, SO₂ and PM_{2.5} were below the applicable O. Reg. 419/05 criteria or human health risk assessment (HHRA) health-based standards 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 24-hour, 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. In summary, all monitored contaminants were below their applicable MOECC criteria for the monitoring data presented in this report. All measured levels of all monitored contaminants were below their applicable HHRA health-based standards.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Abbreviations

AAQC	Ambient Air Quality Criteria
CAAQS	Canadian Ambient Air Quality Standards
CAC	Criteria Air Contaminants
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

**QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY
CENTRE – APRIL TO JUNE 2015**

Tl	Thallium
Sn	Tin
V	Vanadium
Zn	Zinc
Miscellaneous	
°C	temperature in degrees Celsius
N/A	not available
%	percent
ppm	part per million
ppb	part per billion
ppt	part per trillion
min	minimum
max	maximum
µg/m ³	microgram per cubic metre

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Introduction
August 6, 2015

1.0 INTRODUCTION

1.1 BACKGROUND AND OBJECTIVES

The Regional Municipalities of Durham and York are constructing 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 processing waste on February 13, 2015 and is currently in the commissioning phase of the project.

A monitoring plan, 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.

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

1. Quantify any measureable 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 in the vicinity of the DYEC were set up in April 2013. Since May 2013, the two stations have measured the following air contaminants:

- Sulphur Dioxide (SO_2);
- Nitrogen Oxides (NO_x);
- Particulate Matter smaller than 2.5 microns ($\text{PM}_{2.5}$);
- Metals in Total Suspended Particulate matter (TSP);
- Polycyclic Aromatic Hydrocarbons (PAHs); and,
- Dioxins and Furans.

This quarterly report provides a summary of the ambient air quality data collected at these two stations for the period April to June 2015.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Introduction
August 6, 2015

Operation of the non-continuous monitors was temporarily discontinued on June 28, 2014 as per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012). When the EFW facility is fully operational, monitoring of non-continuous monitors will resume as specified in the Ambient Monitoring Plan (Stantec, 2012).

1.2 LOCATIONS OF AMBIENT AIR QUALITY MONITORING STATIONS

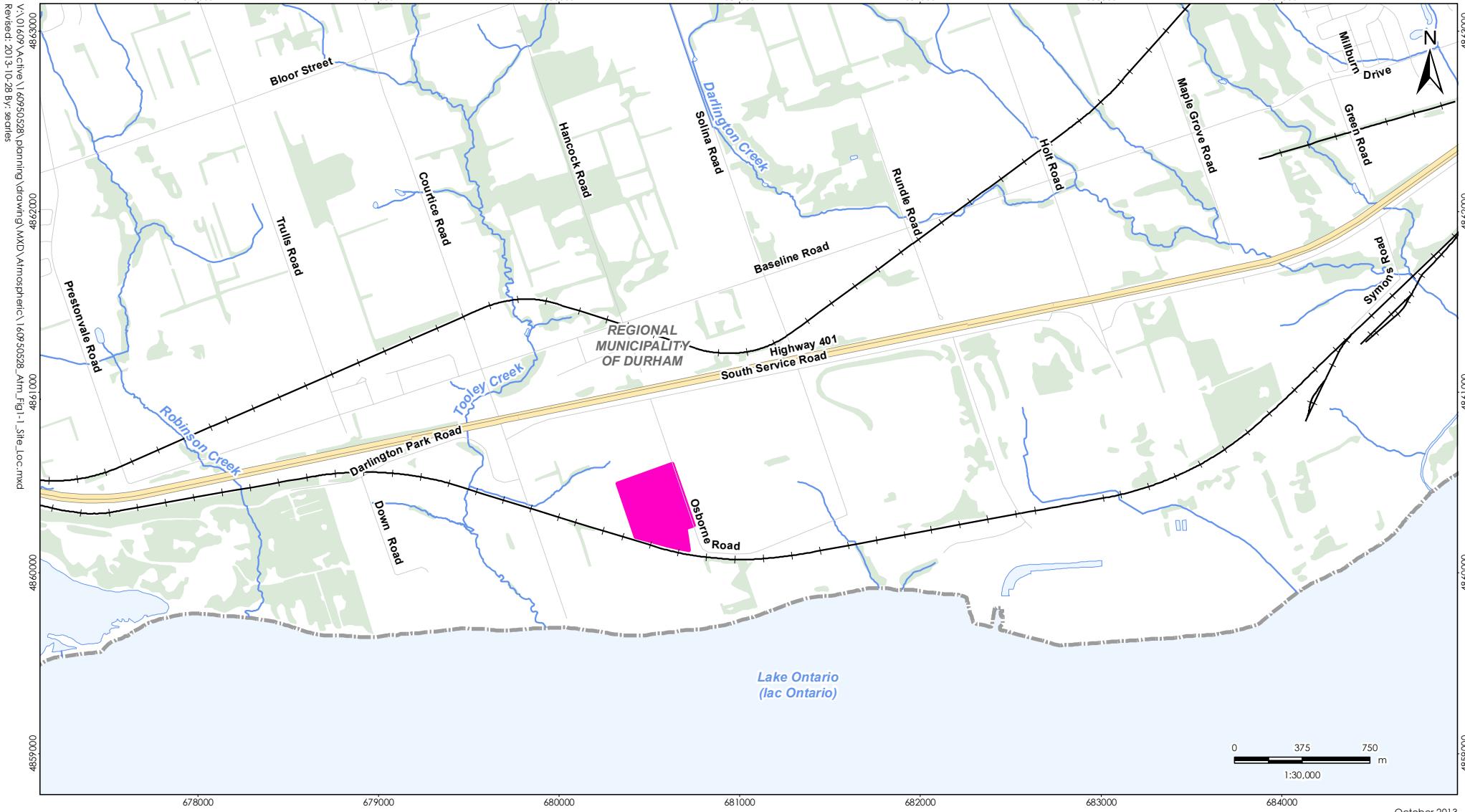
The selection of sites for the monitoring stations was done in consultation with the Ontario Ministry of Environment and Climate Change (MOECC) and Durham/York representatives based on the results of air quality modelling done in support of the environmental assessment for the project, the locations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

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

The predominately upwind Courtice WPCP Station, is sited at the Courtice Water Pollution Control Plant (WPCP), located to the southwest of the DYEC in order to measure background air quality in the predominantly upwind direction. The location is presented in **Figure 1-2**. 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 will measure non-continuous parameters (metals and total particulate matter) will be installed prior to full operation of the DYEC. As per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012), the Fence Line station will collect non-continuous parameters beginning after the Facility's commissioning period is complete, and will run for a one year period.

Photographs of the Rundle Road and Courtice WPCP ambient air quality monitoring stations are shown in **Figure 1-3** and **Figure 1-4**, respectively.



October 2013
160950528



Notes

1. Coordinate System: NAD 1983 UTM Zone 17N

2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.

Legend

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



Client/Project

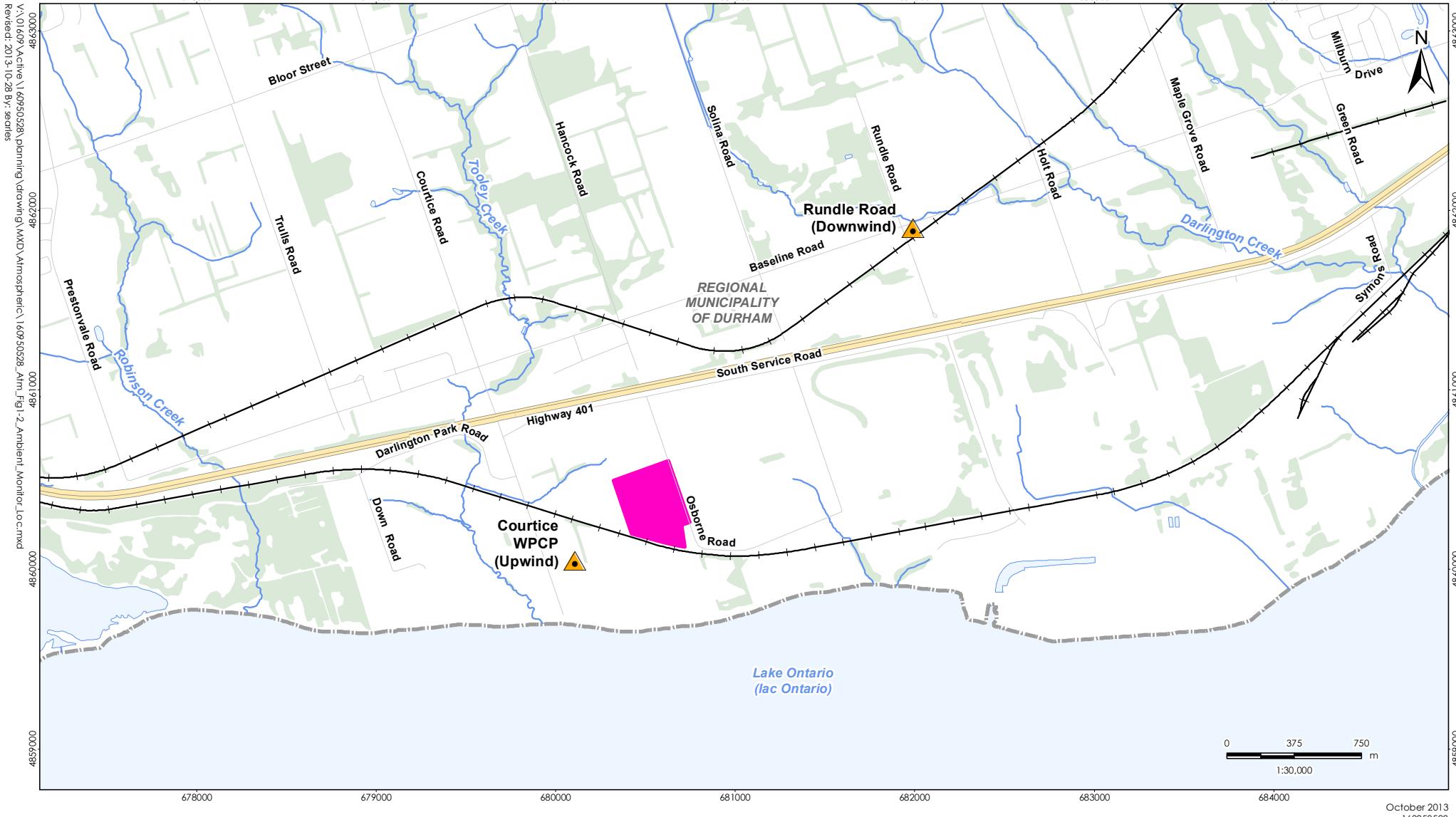
The Region of Durham
Durham York Energy Centre

Figure No.

1-1

Title

Site Location Plan



Legend

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

Client/Project

The Region of Durham
Durham York Energy Centre

Figure No.

1-2

Title

Locations of Ambient Monitoring Stations

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.

October 2013
160950528

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Introduction
August 6, 2015

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



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



QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Key Components Assessed
August 6, 2015

2.0 KEY COMPONENTS ASSESSED

2.1 METEOROLOGY

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

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

Courtice WPCP (Predominately Upwind) Ambient Air Quality Monitoring Station	Rundle Road (Predominately Downwind) Ambient Air Quality Monitoring Station
Wind Speed and Direction @ 20-m	Wind Speed and Direction @10-m
Ambient Temperature @ 2-m	Ambient Temperature @ 2-m
Relative Humidity	Relative Humidity
Rainfall	Rainfall
Barometric Pressure	

2.2 AIR QUALITY CONTAMINANTS OF CONCERN

The ambient air quality monitoring program for the DYEC includes the following contaminants specified in the Ambient Air Quality Monitoring Plan:

- Nitrogen Oxides (NO_x);
- Sulphur Dioxide (SO₂);
- Particulate Matter smaller than 2.5 microns (PM_{2.5});
- Total Suspended Particulate (TSP) matter and metals;
- Polycyclic Aromatic Hydrocarbons (PAHs); and,
- Dioxins and Furans (D/Fs).

Operation of the non-continuous monitors was temporarily discontinued on June 28, 2014 as per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012). When the EFW facility is fully operational, monitoring of non-continuous monitors will resume (as specified in the Ambient Monitoring Plan). Therefore, the following contaminants were not measured this quarter:

- Total Suspended Particulate (TSP) matter and metals,
- Polycyclic Aromatic Hydrocarbons (PAHs), and
- Dioxins and Furans (D/Fs).

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Key Components Assessed
August 6, 2015

2.3 AIR QUALITY CRITERIA

Two sets of standards were used for comparison to the air quality data as specified in the Ambient Air Monitoring Plan. The first set of standards is the limits 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 criteria, or in some instances updated health-based standards 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 standards.

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) as noted in **Table 2-2**. The proposed CAAQS 24-hour objective for 2020 is 27 µg/m³.

A summary of the relevant air quality criteria for the contaminants monitored in Q2 2015 is presented in **Table 2-2**.

Table 2-2 Summary of Air Quality Criteria for CACs

Contaminant	CAS	O. Reg 419/05 – Schedule 3/AAQC			HHRA Health-Based Standards		
		1-Hour (µg/m ³)	24-Hour (µg/m ³)	Other time Period (µg/m ³)	1-Hour (µg/m ³)	24-Hour (µg/m ³)	Annual (µg/m ³)
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 Standards		
		1-Hour (µg/m ³)	24-Hour (µg/m ³)	Other time Period (µg/m ³)	1-Hour (µg/m ³)	24-Hour (µg/m ³)	Other time Period (µg/m ³)
PM _{2.5}	N/A		28 ^B	10 ^C		30 ^D	

Notes:

- A. The Schedule 3 standards for NO_x are based on health effects of NO₂, as NO₂ has adverse health effects at much lower concentrations than NO. Therefore the standard was compared to NO₂ in this report. However, as per the current April 2012 version of O. Reg. 419 Summary of Standards and Guidelines, the standard was also compared to the monitored NO_x.
- B. Canadian Ambient Air Quality Standard for Respirable Particulate Matter, effective by 2015. The Respirable Particulate Matter Objective is referenced to the 98th percentile 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 Standard for PM_{2.5} was selected referencing CCME (2006).

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Instrumentation Summary

August 6, 2015

3.0 INSTRUMENTATION SUMMARY

3.1 INSTRUMENTATION

The measurement program at the monitoring sites includes both continuous and non-continuous monitors to sample air contaminant concentrations. The monitors were set up in April 2013, and monitoring started in May 2013.

Monitoring for respirable particulate matter (PM_{2.5}), nitrogen oxides (NO_x) and sulphur dioxide (SO₂) 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 Fluorescence - 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

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Instrumentation Summary

August 6, 2015

Horizontal wind speed, wind direction, atmospheric temperature, relative humidity and rainfall are measured at the predominantly downwind Rundle Road Station. 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 and provided by the Courtice Water Pollution Control Plant. The meteorological sensors at the Rundle Road Station are mounted on an external 10-m aluminum tower and are logged using a digital data acquisition system (DAS). The meteorological equipment includes the following:

Table 3-2 Summary of Meteorological Equipment

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

A Campbell Scientific CRX1000 station data acquisition system is used to collect continuous instrument monitoring data and status codes from the 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

A few minor instrumentation issues were encountered during this quarter. A summary of operational issues for each measurement parameter during the monitoring period is presented in **Table 3-3** and **Table 3-4**.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Instrumentation Summary

August 6, 2015

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

Parameter	Issues	Time Frame	Remedial Action
SO ₂	None		
NOx	None		
PM _{2.5}	None		
Other	Unable to connect to logger remotely	May 11, 2015	Reset logger on the same day. No lost data
	Maintenance work at the Courtice WPCP required power to be turned off.	May 13, 2015 (08:00 – 14:00)	Invalidated appropriate data. Courtice WPCP personnel restored power.
	Rain gauge cable to data logger cut by lawn mower.	Noted on June 29, 2015. Based on rainfall data it was likely cut June 28, 2015.	Cable repaired on site but no signal to logger. Rain gauge removed to shop for repairs or replacement.

Table 3-4 Summary of Instrument Issues at Rundle Road Station (Predominately Downwind)

Parameter	Issues	Time Frame	Remedial Action
SO ₂	None		
NOx	None		
PM _{2.5}	None		
Other	Rain gauge full of water due to blockage from debris	Noted on June 18, 2015. Likely blocked from June 10, 2015.	Cleared debris and replaced screen.

3.3 DATA RECOVERY RATES

Data recovery rates for each continuous monitor at the two monitoring stations during Quarter 2 (April to June 2015) are presented in **Table 3-5** and **Table 3-6**.

Table 3-5 Summary of Data Recovery Rates for the Courtice WPCP Station (Predominately Upwind) – April to June 2015

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
SO ₂	2165	99.1%
NOx	2165	99.1%
PM _{2.5}	2165	99.1%
Temperature	2184	100.0%

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Instrumentation Summary
August 6, 2015

Table 3-5 Summary of Data Recovery Rates for the Courtice WPCP Station (Predominately Upwind) – April to June 2015

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
Rainfall	2130	97.5%
Relative Humidity	2184	100.0%
Pressure	2184	100.0%
Wind Speed/Direction	2184	100.0%
TSP/Metals	N/A ^A	N/A ^A
PAHs	N/A ^A	N/A ^A
Dioxins and Furans	N/A ^A	N/A ^A

Note:

- A. Monitoring of these parameters was temporarily discontinued after June 28, 2014. Monitoring will resume when the Facility is fully operational.

Table 3-6 Summary of Data Recovery Rates for the Rundle Road Station (Predominately Downwind) – April to June 2015

Parameter	Valid Measurement Hours	Data Recovery Rate (%)
SO ₂	2175	99.6%
NOx	2175	99.6%
PM _{2.5}	2175	99.6%
Temperature	2184	100.0%
Rainfall	1977	90.5%
Relative Humidity	2184	100.0%
Wind Speed/Direction	2184	100.0%
TSP/Metals	N/A ^A	N/A ^A
PAHs	N/A ^A	N/A ^A
Dioxins and Furans	N/A ^A	N/A ^A

Note:

- A. Monitoring of these parameters was temporarily discontinued after June 28, 2014. Monitoring will resume when the EFW Facility is fully operational.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

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 April to June 2015 period are presented in **Table 4-1**.

Table 4-1 Summary of Hourly Meteorological Measurements – April to June 2015

Parameter	Courcier WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)	Units
Temperature	Max	26.1	C
	Min	-3.0	C
	Mean (April)	5.9	C
	Mean (May)	12.9	C
	Mean (June)	15.9	C
	Mean (Period)	11.6	C
	Standard Deviation	5.6	C
Rainfall	Max	19.7	mm
	Min	0.0	mm
	Mean (April)	0.10	mm
	Mean (May)	0.05	mm
	Mean (June)	0.25	mm
	Mean (Period)	0.13	mm
	Standard Deviation	0.82	mm
Relative Humidity	Max	97.6	%
	Min	18.2	%
	Mean (April)	65.2	%
	Mean (May)	67.2	%
	Mean (June)	75.8	%
	Mean (Period)	69.4	%
	Standard Deviation	16.5	%

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

Table 4-1 Summary of Hourly Meteorological Measurements – April to June 2015

Parameter	Courtice WPCP Station (Predominately Upwind)	Rundle Road Station (Predominately Downwind)	Units
Pressure ^A	Max	30.2	-
	Min	29.1	-
	Mean (April)	29.7	-
	Mean (May)	29.8	-
	Mean (June)	29.6	-
	Mean (Period)	29.7	-
	Standard Deviation	0.2	-
Wind Speed ^B	Max	41.6	km/hr
	Min	0.3	km/hr
	Mean (April)	14.2	km/hr
	Mean (May)	9.4	km/hr
	Mean (June)	9.6	km/hr
	Mean (Period)	11.0	km/hr
	Standard Deviation	7.3	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.

At the Courtice WPCP Station (located near Lake Ontario), wind data were measured and provided by the Courtice Water Pollution Control Plant on a 20-m tower, while at the Rundle Road Station they are measured on a 10-m tower.

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.

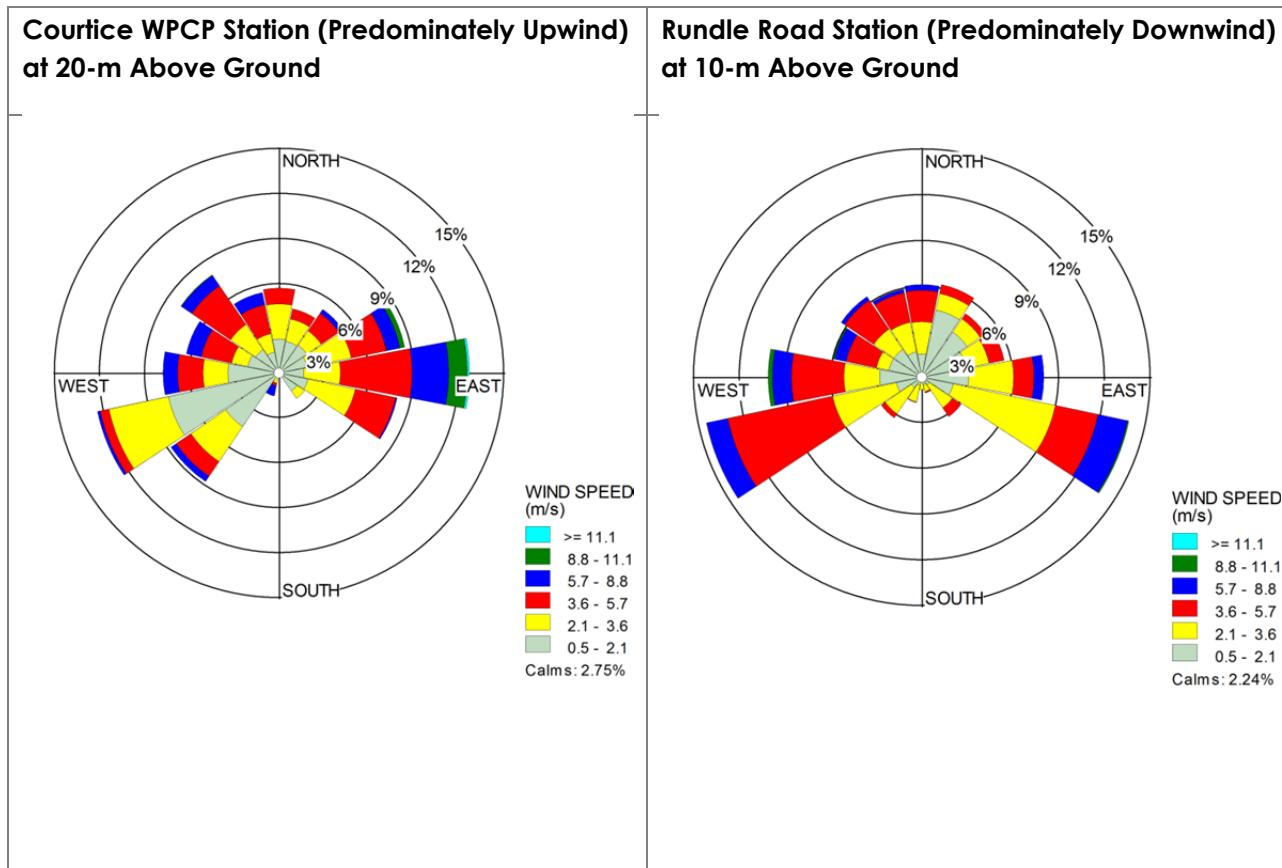
Winds over the three-month period at the Courtice WPCP Station occurred predominantly from easterly and west-southwesterly directions. Wind contribution from the south was low. Higher wind speeds occurred from easterly directions, and lower wind speeds from the southwesterly directions.

At the Rundle Road Station, the wind rose over the three-month period showed predominant winds occurring from east-southeasterly and west-southwesterly directions. Higher wind speeds are noted occurring from the west..

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

Figure 4-1 Wind Roses for April to June 2015



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 Ontario ambient air quality criteria (AAQC) or health-based standard for each contaminant. All monitored contaminants were below their applicable criteria during the period between April to June 2015.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

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 Reg. 419 Schedule 3 criteria for NO_x which are based on health effects of NO₂. As specified in the MOECC's listing of AAQCs (MOECC, 2012a) the AAQC were compared to measured NO₂ concentrations in this report. However, as per the current April 2012 version of O. Reg. 419 Summary of Standards and Guidelines, the Schedule 3 criterion 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**.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

Table 4-2 Summary of Ambient CAC Monitoring Data – April to June 2015

Pollutant	Averaging Period	AAQC / Schedule 3 / HHRA Health-Based Standards			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	39.0	103.8	28.3	79.3
				Minimum	0.0	0.0	0.0	0.0
				Mean (April)	1.6	4.6	1.5	4.2
				Mean (May)	1.5	4.1	0.5	1.4
				Mean (June)	1.0	2.7	0.3	0.7
				Mean (Period)	1.4	3.8	0.8	2.1
				Standard Deviation	2.6	7.2	1.4	3.9
				# of Exceedances	0	0	0	0
SO ₂	24	100	275	Maximum	8.8	23.5	5.2	14.8
				Minimum	0.1	0.2	0.0	0.0
				Mean (April)	1.6	4.5	1.5	4.2
				Mean (May)	1.5	4.1	0.5	1.5
				Mean (June)	1.0	2.7	0.2	0.6
				Mean (Period)	1.4	3.8	0.8	2.1
				Standard Deviation	1.4	3.8	1.0	2.8
				# of Exceedances	0	0	0	0

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

Table 4-2 Summary of Ambient CAC Monitoring Data – April to June 2015

Pollutant	Averaging Period	AAQC / Schedule 3 / HHRA Health-Based Standards			Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		ppb	µg/m ³		Concentration (ppbv)	Concentration (µg/m ³)	Concentration (ppbv)	Concentration (µg/m ³)
PM _{2.5}	24	N/A	28 ^A	Maximum	-	20.3	-	64.7
				Minimum	-	0.2	-	0.6
				Mean (April)	-	4.2	-	10.2
				Mean (May)	-	6.9	-	10.6
				Mean (June)	-	4.4	-	6.3
				Mean (Period)	-	5.2	-	9.1
				Standard Deviation	-	4.4	-	8.1
				# of Exceedances	-	N/A	-	N/A
NO ₂	1	200 ^B	400 ^B	Maximum	33.2	65.3	32.5	63.6
				Minimum	0.0	0.0	0.0	0.0
				Mean (April)	5.4	10.8	4.5	9.1
				Mean (May)	4.8	9.5	5.5	10.8
				Mean (June)	3.2	6.2	3.7	7.2
				Mean (Period)	4.5	8.8	4.6	9.0
				Standard Deviation	5.8	11.5	4.4	8.7
				# of Exceedances	0	0	0	0
	24	100 ^B	200 ^B	Maximum	13.7	27.3	12.2	23.6
				Minimum	0.2	0.4	0.2	0.3
				Mean (April)	5.3	10.6	4.4	8.9
				Mean (May)	5.0	9.8	5.7	11.0

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

Table 4-2 Summary of Ambient CAC Monitoring Data – April to June 2015

Pollutant	Averaging Period	AAQC / Schedule 3 / HHRA Health-Based Standards			Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		ppb	µg/m³		Concentration (ppbv)	Concentration (µg/m³)	Concentration (ppbv)	Concentration (µg/m³)
				Mean (June)	3.1	6.1	3.7	7.1
				Mean (Period)	4.5	8.8	4.6	9.0
				Standard Deviation	3.1	6.2	2.6	5.2
				# of Exceedances	0	0	0	0
NO _C	1	NA	NA	Maximum	40.1	50.6	37.8	47.3
				Minimum	0.0	0.0	0.4	0.5
				Mean (April)	1.6	2.1	2.0	2.6
				Mean (May)	1.6	2.0	2.3	2.9
				Mean (June)	1.6	2.1	2.4	3.0
				Mean (Period)	1.6	2.1	2.2	2.9
				Standard Deviation	3.5	4.5	2.2	2.9
				# of Exceedances	N/A	N/A	N/A	N/A
	24	NA	NA	Maximum	8.7	11.3	5.0	6.3
				Minimum	0.1	0.1	0.8	1.1
				Mean (April)	1.6	2.1	2.0	2.6
				Mean (May)	1.6	2.0	2.3	2.9
				Mean (June)	1.6	2.1	2.4	3.0
				Mean (Period)	1.6	2.1	2.2	2.9
				Standard Deviation	1.5	2.0	0.8	1.0
				# of Exceedances	N/A	N/A	N/A	N/A

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

Table 4-2 Summary of Ambient CAC Monitoring Data – April to June 2015

Pollutant	Averaging Period	AAQC / Schedule 3 / HHRA Health-Based Standards			Courtice WPCP Station (Predominately Upwind)		Rundle Road Station (Predominately Downwind)	
		ppb	µg/m³		Concentration (ppbv)	Concentration (µg/m³)	Concentration (ppbv)	Concentration (µg/m³)
NOx	1	200 ^B	400 ^B	Maximum	62.6	124.7	51.8	99.3
				Minimum	0.0	0.0	0.0	0.0
				Mean (April)	6.7	13.4	5.5	11.0
				Mean (May)	6.1	11.9	6.7	13.1
				Mean (June)	4.4	8.6	5.0	9.7
				Mean (Period)	5.7	11.3	5.8	11.3
				Standard Deviation	8.5	16.9	5.9	11.6
				# of Exceedances	0	0	0	0
	24	100 ^B	200 ^B	Maximum	22.1	44.1	14.6	28.3
				Minimum	0.2	0.4	0.4	0.7
				Mean (April)	6.6	13.2	5.4	10.8
				Mean (May)	6.3	12.3	6.9	13.4
				Mean (June)	4.4	8.5	5.0	9.6
				Mean (Period)	5.7	11.3	5.8	11.3
				Standard Deviation	4.4	8.7	3.2	6.2
				# of Exceedances	0	0	0	0

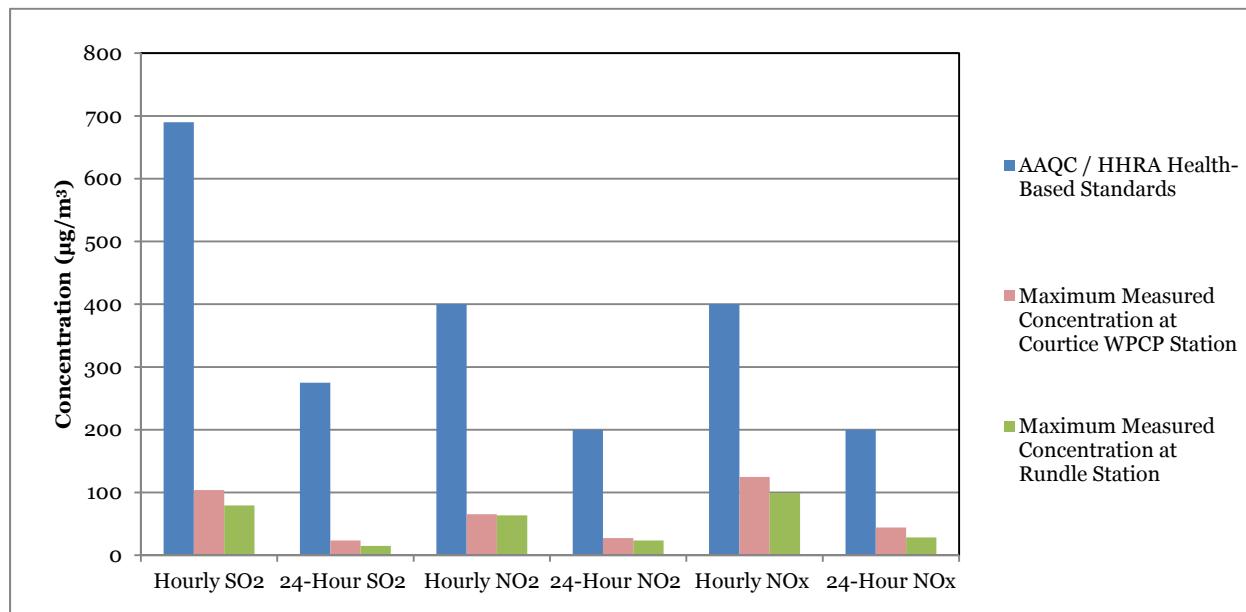
Note:

- 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 Reg 419 Summary of Standards and Guidelines, the air standard for NOx is compared to a monitored NOx concentration, although the Reg419 Schedule 3 standard for NOx is based on health effects of NO₂.
- C. NO has no regulatory criteria.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

Figure 4-2 Comparison of NO₂ / NO_x and SO₂ 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 (SO₂)

Data summaries are presented in **Appendix A** for sulphur dioxide for each station and month as well as time history plots of the hourly and 24-hour average SO₂ concentrations. For the hourly and 24-hour averages, the Ontario AAQCs of $690 \mu\text{g}/\text{m}^3$ and $275 \mu\text{g}/\text{m}^3$ are shown as blue lines on each plot. As shown in these figures, measured ambient SO₂ concentrations at both stations were well below the criteria.

The maximum hourly and 24-hour average concentrations measured at the Courtice WPCP Station during April to June 2015 were 103.8 and $23.5 \mu\text{g}/\text{m}^3$ respectively, which are 15% and 9% of the applicable 1-hour and 24-hour ambient air quality criteria.

The maximum hourly and 24-hour average concentrations measured at the Rundle Road Station during this quarter were 79.3 and $14.8 \mu\text{g}/\text{m}^3$ respectively, which are 11% and 5% of the applicable 1-hour and 24-hour ambient air quality criteria.

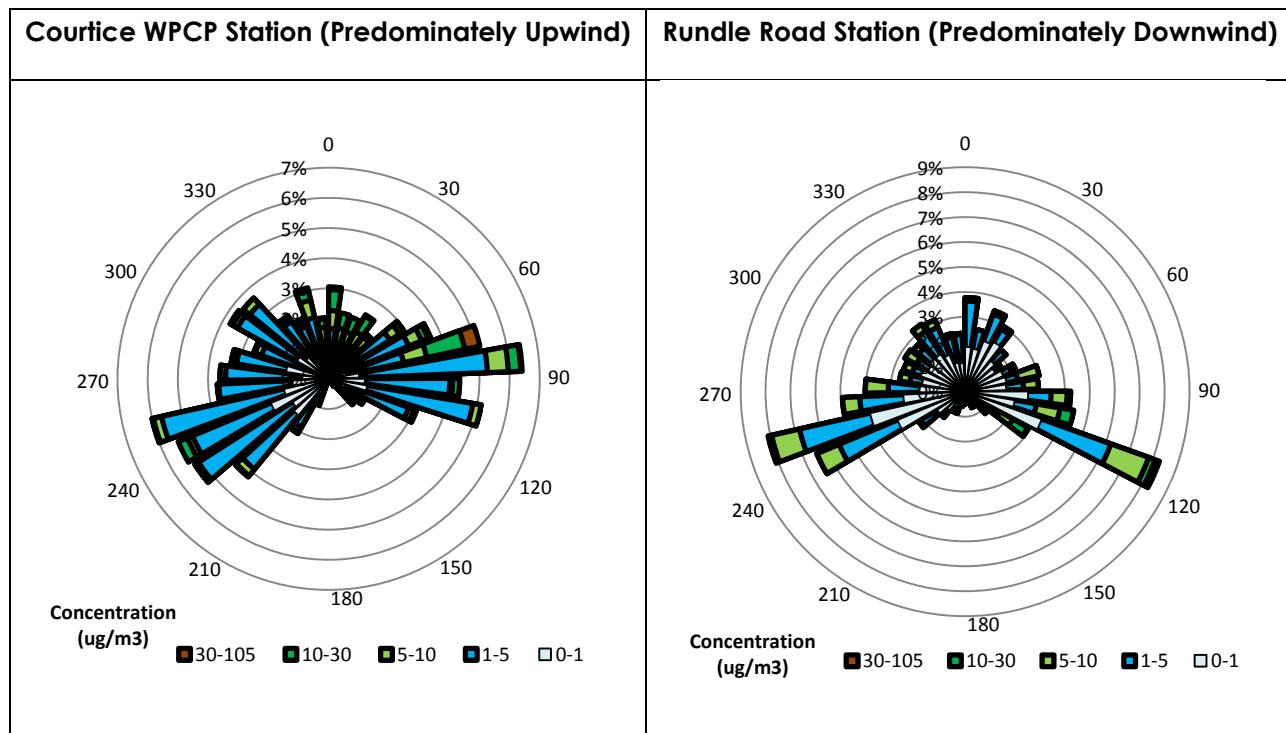
Pollution roses of hourly average SO₂ concentrations measured at the Courtice WPCP Station and Rundle Road Station are presented in **Figure 4-3**. The pollution rose plots present measured hourly average contaminant concentrations versus measured wind direction (over 10° wind sectors).

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

For the Courtice WPCP Station, higher hourly concentrations were measured when winds were blowing from the east-northeasterly direction. For the Rundle Road Station, the maximum measured hourly concentration occurred for east-southeasterly winds.

Figure 4-3 Pollution Roses of Measured Hourly Average SO₂ Concentrations – April to June 2015



4.2.2 Nitrogen Dioxide (NO₂)

Nitrogen oxides (NOx) are almost entirely made up of nitric oxide (NO) and nitrogen dioxide (NO₂). Together, they are often referred to as NOx. Most NO₂ 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 NO₂ can result in adverse health effects to an exposed population. NO₂ is the regulated form of NOx. Similar to other jurisdictions (e.g., Alberta Environment, World Health Organization), the O. Reg. 419/05 Schedule 3 standards for NOx are based on health effects of NO₂, as health effects are seen at much lower concentrations of NO₂ than NO. In this report, because NO₂ is the regulated form of NOx, the AAQC were compared to measured NO₂ concentrations (as per MOECC 2012a). However, as per the current April 2012 version of O. Reg. 419 Summary of Standards and Guidelines, the Schedule 3 NOx criteria were also compared to the monitored NOx concentrations (see **Section 4.2.3** below).

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

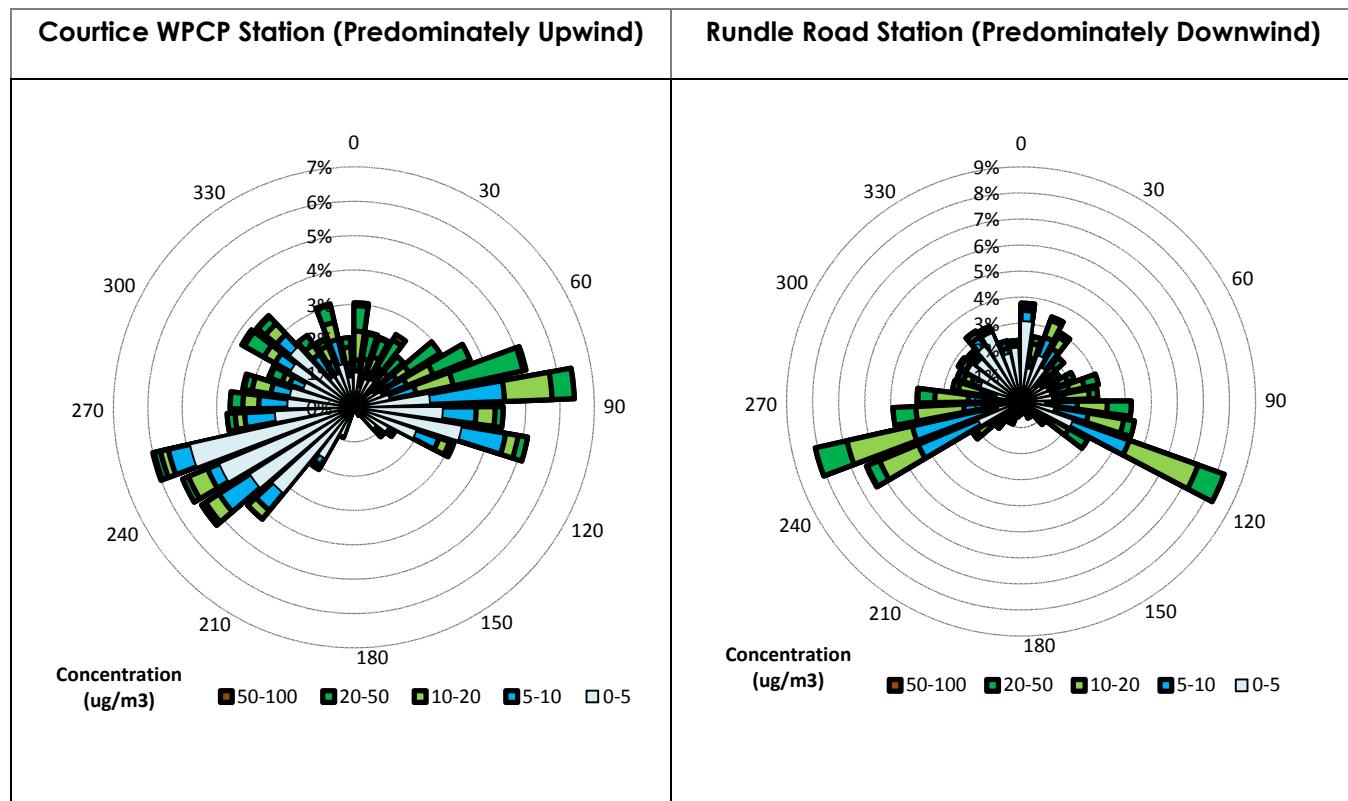
Summary of Ambient Measurements
August 6, 2015

Data summaries are presented in **Appendix B** for nitrogen dioxide for each station and month as well as time history plots of the hourly and 24-hour average NO₂ concentrations. For the hourly and 24-hour averages, the Ontario AAQCs of 400 µg/m³ and 200 µg/m³ are shown as blue lines on each plot. As shown in these figures, measured ambient NO₂ concentrations at both stations were well below the criteria.

The maximum hourly and 24-hour average NO₂ concentrations measured at the Courtice WPCP Station during this quarter were 65.3 and 27.3 µg/m³ respectively, which are 16% and 14% of the applicable 1-hour and 24-hour ambient air quality criteria. At the Rundle Road Station, the maximum measured hourly and 24-hour average concentrations were 63.6 and 23.6 µg/m³, which are 16% and 12% of the applicable 1-hour and 24-hour ambient air quality criteria.

Pollution roses of measured hourly average NO₂ concentrations are presented in **Figure 4-4**. The measured hourly average concentrations at the Courtice WPCP Station were higher for winds from northwesterly to northeasterly directions. For the Rundle Road Station, higher measured hourly average concentrations occurred for winds blowing from the west.

Figure 4-4 Pollution Roses of Measured Hourly Average NO₂ Concentrations – April to June 2015



QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

4.2.3 Nitrogen Oxides (NO_x)

Data summaries are presented in **Appendix C** 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 Ontario Schedule 3 criteria of 400 µg/m³ and 200 µg/m³ are shown as blue lines on each 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 criteria during this quarter. The measured concentrations at the Rundle Road Station were also well below the criteria.

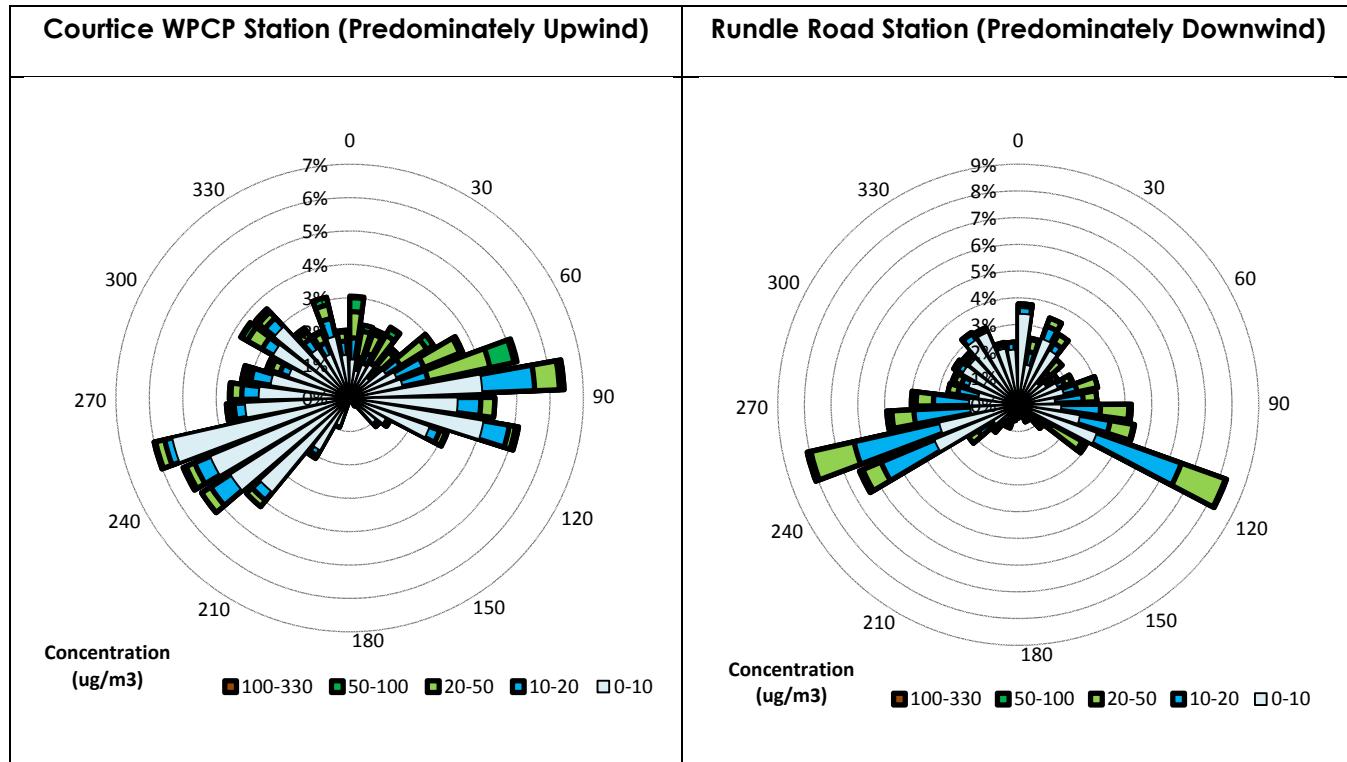
As shown in **Table 4-2**, the maximum hourly average NO_x concentration measured at the Courtice WPCP Station was 124.7 µg/m³, which is 31% of the 1-hour ambient criteria. The 24-hour average NO_x concentration measured at this station was 44.1 µg/m³, which is 22% of the applicable 24-hour air quality criteria. At the Rundle Road Station, the maximum hourly and 24-hour average concentrations measured during this quarter were 99.3 and 28.3 µg/m³, which are 25% and 14% of the applicable air quality criteria.

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**. In Figure 4-5, higher measured hourly average NO_x concentrations at the Courtice WPCP Station occurred for winds blowing from the northwesterly to northeasterly directions. At the Rundle Road Station, higher measured hourly average concentrations occurred for westerly and easterly winds.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

Figure 4-5 Pollution Roses of Measured Hourly Average NO_x Concentrations – April to June 2015



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 D** for PM_{2.5} for the Courtice WPCP and Rundle Road Stations.

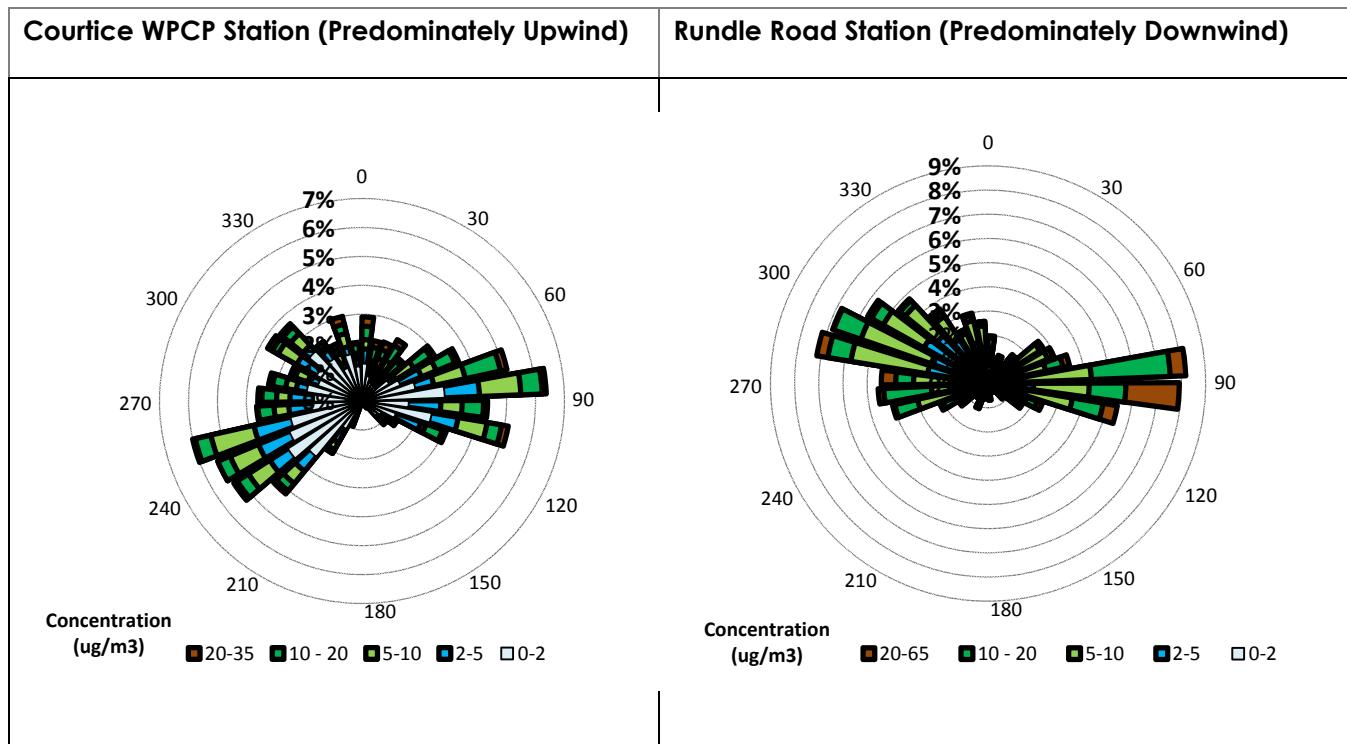
The maximum measured 24-hour average PM_{2.5} concentrations at the Courtice WPCP and the Rundle Road Stations were 20.3 µg/m³ and 64.7 µg/m³ during this quarter. It should be noted that since an exceedance of the criteria for PM_{2.5} requires the average of the 98th percentile levels in each of three consecutive years to be greater than 28 µg/m³ (CAAQS) or 30 µg/m³ (HHRA standard) 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 2015 annual report, at which time sufficient data will have been collected to make preliminary comparisons.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Summary of Ambient Measurements
August 6, 2015

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. The maximum measured concentrations occurred for northerly to easterly winds for the Courtice WPCP Station. For the Rundle Road Station, higher measured 24-hour average concentrations occurred for westerly and easterly winds.

Figure 4-6 Pollution Roses of Measured 24-Hour Average PM_{2.5} Concentrations –April to June 2015



QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

Conclusions
August 6, 2015

5.0 CONCLUSIONS

This quarterly report provides a summary of the ambient air quality data collected at the two monitoring stations located predominantly upwind and downwind in the vicinity of the DYEC for the period April to June 2015.

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

1. Measured levels of NO₂, SO₂ and PM_{2.5} were below the applicable O. Reg. 419/05 criteria or human health risk assessment (HHRA) health-based standards 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. In summary, all monitored contaminants were below their applicable MOECC criteria for the monitoring data presented in this report. All measured levels of all monitored contaminants were below their applicable HHRA health-based standards.

QUARTERLY AMBIENT AIR QUALITY MONITORING REPORT FOR THE DURHAM YORK ENERGY CENTRE – APRIL TO JUNE 2015

References
August 6, 2015

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)
- Jacques Whitford, (2009). Final Environmental Assessment, December 4, 2009
- Ontario Minister of the Environment (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 (MOECC), (2012a). Standards Development Branch, Ontario's Ambient Air Quality Criteria, April 2012. (PIBs 6570e01)
- Ontario Ministry of the Environment (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

SO₂ DATA SUMMARIES AND TIME

HISTORY PLOTS

		SO ₂ - COURTICE April 2015 (µg/m ³)																													
		Hour																													
Day		0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>690	Days>275
1		1.5	5.8	5.0	1.6	1.7	5.5	1.9	2.3	1.3	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.8	1.0	1.0	1.0	0.8	4.3	4.0	24	5.8	0.8	1.9	0	0	
2		3.9	3.0	2.6	3.4	1.7	3.1	3.6	5.2	2.3	2.3	2.8	2.6	2.6	2.4	2.3	1.9	2.2	0.8	1.7	1.9	2.3	2.0	1.8	24	5.2	0.8	2.5	0	0	
3		1.7	1.7	1.7	1.4	1.3	1.9	1.6	3.5	2.7	2.1	3.0	2.8	3.0	4.6	3.2	2.1	1.7	2.0	1.6	2.1	1.7	1.5	1.5	24	4.6	1.3	2.2	0	0	
4		1.6	1.6	1.5	1.2	1.5	1.2	1.5	1.5	1.3	1.6	1.3	1.0	1.3	1.1	1.5	1.7	2.5	1.0	1.0	1.0	1.1	1.1	1.0	24	2.5	1.0	1.3	0	0	
5		0.9	0.9	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.7	1.7	1.6	1.7	1.6	1.6	1.7	1.7	4.8	8.9	24	8.9	0.9	1.9	0	0	
6		8.6	3.3	6.3	5.5	16.0	2.5	2.6	2.7	12.3	29.1	6.4	6.3	2.1	1.7	1.7	1.6	1.6	1.4	1.8	2.9	1.6	2.1	1.8	24	29.1	1.4	5.1	0	0	
7		2.0	4.4	5.4	6.4	2.6	1.6	1.2	1.2	1.1	2.8	1.3	1.2	1.5	1.6	1.9	1.7	2.3	1.9	1.6	1.7	1.3	4.7	6.0	24	6.4	1.1	2.6	0	0	
8		8.8	2.0	1.6	1.5	0.9	1.1	1.5	21.0	21.9	5.7	4.7	15.7	11.5	13.3	17.3	14.1	5.9	2.6	2.5	2.2	2.5	2.4	2.2	24	21.9	0.9	6.9	0	0	
9		2.1	1.9	2.8	1.7	1.7	3.2	13.4	23.0	25.0	10.4	14.9	28.8	20.4	45.3	73.7	76.4	59.8	23.0	22.3	11.2	5.8	5.3	5.5	24	76.4	1.7	20.1	0	0	
10		4.0	3.5	5.4	4.9	6.7	6.2	6.5	4.8	3.6	3.4	2.5	2.4	2.4	2.7	2.3	2.3	2.3	2.3	2.0	1.8	1.7	1.6	24	6.7	1.6	3.3	0	0		
11		1.7	1.7	1.6	1.7	1.7	1.6	1.5	1.3	1.3	1.2	1.0	1.1	1.3	1.2	1.0	0.9	1.4	1.2	1.3	1.2	2.2	1.6	9.1	24	15.6	0.9	2.3	0	0	
12		8.6	4.5	3.2	9.7	5.5	16.8	7.3	2.9	2.5	2.8	3.1	4.2	7.5	7.9	5.8	4.1	3.1	3.0	2.7	2.3	2.3	7.6	14.5	9.0	24	16.8	2.3	5.9	0	0
13		4.8	5.1	5.5	4.4	8.5	6.4	4.0	3.3	13.1	3.3	3.0	3.1	3.4	3.6	3.9	3.3	3.1	2.6	2.4	2.3	2.0	1.9	1.8	24	13.1	1.7	4.0	0	0	
14		2.4	8.0	15.2	4.2	8.7	7.1	3.9	2.4	2.1	2.6	1.9	1.6	2.7	1.8	1.6	2.0	2.0	1.6	1.5	1.5	1.1	1.3	1.3	24	15.2	1.1	3.3	0	0	
15		1.3	8.5	1.2	1.3	2.3	6.7	11.7	12.4	18.7	11.5	9.2	13.0	1.9	1.6	1.7	1.6	1.6	1.5	1.4	2.2	4.8	3.4	94.0	24	94.0	1.2	9.0	0	0	
16		24.4	3.2	10.8	21.9	6.3	9.6	9.8	6.4	11.4	3.9	2.5	2.7	2.6	2.3	9.9	22.1	1.9	1.8	6.4	14.9	5.4	3.3	3.1	2.6	24	24.4	1.8	7.9	0	0
17		2.1	1.9	2.2	1.9	11.0	2.3	3.4	2.3	2.1	2.4	2.5	2.5	2.4	2.8	3.0	3.4	3.6	4.6	3.6	2.8	2.4	3.0	2.2	2.8	24	11.0	1.9	3.1	0	0
18		3.3	8.7	10.9	7.9	5.1	3.0	4.3	2.5	2.3	2.6	3.2	2.7	3.1	4.8	5.2	5.3	2.7	1.5	6.7	17.6	9.8	1.8	24	17.6	1.5	5.0	0	0		
19		1.7	1.4	1.6	1.5	1.4	1.2	1.2	1.5	1.5	1.4	1.6	2.0	1.6	1.6	6.3	28.1	27.7	27.0	13.0	80.4	58.4	3.3	2.7	24	80.4	1.2	11.2	0	0	
20		3.0	9.5	3.9	2.4	2.4	2.3	2.6	4.3	2.8	11.2	14.3	29.1	34.4	8.6	4.8	13.4	13.6	6.8	4.4	2.8	2.8	3.2	2.3	2.7	24	34.4	2.3	7.8	0	0
21		2.4	2.6	2.4	2.4	2.5	2.4	2.4	2.5	2.5	2.3	2.2	2.4	2.6	2.4	2.1	2.1	2.2	2.1	1.9	1.9	2.3	7.4	24	7.4	1.9	2.5	0	0		
22		2.8	2.1	2.2	2.1	2.1	2.4	2.4	2.3	2.6	2.5	2.3	2.8	2.8	2.5	2.4	2.3	2.3	2.3	2.1	2.0	1.9	1.8	1.7	24	2.8	1.7	2.3	0	0	
23		1.8	1.7	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	C	C	1.9	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	22	1.9	1.7	1.7	0	0	
24		1.6	1.8	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.7	1.6	1.5	1.6	1.5	1.6	1.6	1.6	2.2	2.9	24	2.9	1.5	1.7	0	0	
25		2.8	1.9	1.9	1.6	1.7	2.0	1.8	1.8	1.9	1.9	1.7	1.7	1.6	1.9	1.8	1.7	1.6	1.7	1.8	1.7	1.9	13.0	24	13.0	1.6	2.3	0	0		
26		22.0	8.6	9.4	5.4	3.5	7.0	2.4	3.9	3.1	3.3	2.4	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.9	2.4	3.3	3.0	3.3	24	22.0	1.8	4.3	0	0	
27		2.7	3.7	3.2	7.6	5.5	3																								

		SO ₂ - COURTICE May 2015 (µg/m ³)																												
Hour																														
Day	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>690	Days>275
1	9.8	4.4	13.8	8.1	5.7	4.1	4.1	2.6	2.5	2.3	2.4	2.3	2.3	2.3	2.6	2.4	2.3	2.2	2.4	9.3	5.9	4.1	5.4	24	13.8	2.2	4.4	0	0	
2	4.9	3.8	3.0	3.0	6.6	5.1	3.2	2.8	2.3	2.7	3.8	4.1	4.6	3.5	2.9	3.3	3.2	2.6	3.2	2.7	2.4	2.4	2.5	5.2	24	6.6	2.3	3.5	0	0
3	3.8	5.2	6.4	4.1	3.9	12.0	3.2	4.1	4.3	4.3	5.3	12.4	8.9	8.3	6.5	6.0	5.3	4.1	3.6	3.3	3.4	7.1	13.6	12.1	24	13.6	3.2	6.3	0	0
4	7.3	5.7	13.5	20.0	10.0	8.2	4.9	4.5	4.2	4.1	3.5	3.4	3.4	3.5	3.9	3.2	2.9	3.0	3.2	3.0	3.5	3.6	2.8	2.4	24	20.0	2.4	5.3	0	0
5	3.2	2.5	6.6	8.7	6.4	12.4	8.9	4.1	2.3	2.9	2.7	2.4	2.2	2.2	2.1	1.7	1.5	1.6	1.7	26.8	24.7	32.5	11.9	27.4	24	32.5	1.5	8.3	0	0
6	8.8	10.3	39.9	13.5	25.1	16.9	4.9	4.0	3.1	3.3	3.1	3.2	2.6	2.2	2.1	2.1	2.2	2.0	1.9	18.7	71.5	46.4	65.5	33.8	24	71.5	1.9	16.1	0	0
7	19.1	33.9	18.9	28.7	24.7	18.3	15.7	4.9	3.3	3.3	4.0	4.2	4.3	3.8	3.3	3.2	4.5	3.2	2.8	2.5	5.5	10.6	22.3	13.8	24	33.9	2.5	10.8	0	0
8	10.3	19.7	20.6	34.6	24.5	6.6	4.5	3.4	3.2	3.4	3.5	3.6	3.4	3.5	3.9	3.6	3.4	3.3	3.1	3.8	6.3	19.8	10.4	6.4	24	34.6	3.1	8.7	0	0
9	16.8	11.2	10.1	6.0	6.8	6.8	3.9	12.2	4.5	3.9	5.9	6.0	5.3	5.3	4.8	3.6	3.3	3.1	2.8	3.1	3.0	10.0	17.5	10.0	24	17.5	2.8	6.9	0	0
10	5.9	4.7	3.7	4.2	6.9	9.4	3.8	3.3	2.8	2.7	2.7	3.0	2.9	2.9	2.7	2.7	2.8	2.9	3.1	3.4	2.9	2.6	2.3	2.4	24	9.4	2.3	3.6	0	0
11	2.6	3.3	3.5	5.0	3.4	2.9	2.5	2.5	2.4	C	C	2.8	3.4	3.2	2.9	2.9	3.1	17.9	27.6	5.7	3.8	3.0	21	27.6	2.4	5.1	0	0		
12	3.0	2.8	2.6	2.4	2.6	2.4	2.4	2.3	2.3	0.9	2.2	1.8	1.7	1.7	1.6	1.7	1.6	1.6	1.4	1.1	1.5	1.7	24	3.0	0.9	2.0	0	0		
13	1.4	1.2	1.3	1.1	1.0	0.9	0.9	0.9	M	M	M	M	M	M	0.7	0.7	1.0	1.3	1.4	1.4	2.5	2.2	1.1	17	2.5	0.7	0	0	0	
14	1.3	2.0	4.3	2.0	1.3	3.1	2.6	7.5	1.8	0.9	0.9	0.9	1.2	1.6	1.2	1.5	0.9	0.8	0.8	1.2	2.9	1.1	12.5	24	12.5	0.8	2.8	0	0	
15	20.9	18.6	28.7	16.7	4.8	7.0	5.5	7.5	1.7	1.7	1.6	1.6	1.6	1.6	1.7	1.7	1.7	2.1	1.8	2.2	5.7	2.1	24	28.7	1.6	5.9	0	0		
16	3.4	2.3	1.7	2.5	1.4	1.2	2.0	1.3	1.3	1.1	1.0	2.7	16.4	27.9	13.5	8.9	7.6	5.2	3.5	2.5	2.3	3.3	2.6	24	27.9	1.0	5.1	0	0	
17	8.3	6.7	3.1	4.2	14.0	11.8	12.7	3.1	2.3	1.9	1.7	1.6	1.5	1.6	1.7	1.3	1.6	1.4	1.5	1.6	1.6	1.4	1.9	24	14.0	1.3	3.8	0	0	
18	3.9	3.2	2.9	2.4	2.0	1.7	2.5	3.1	1.7	1.6	1.4	1.0	1.1	1.5	1.5	1.7	1.4	1.4	1.6	2.0	1.6	1.6	1.4	24	3.9	1.0	1.9	0	0	
19	1.4	1.7	1.9	1.6	1.6	1.7	1.7	1.6	1.5	1.6	1.1	1.4	1.3	1.4	1.1	1.6	1.1	1.0	0.9	1.0	0.9	1.0	24	1.9	0.9	1.4	0	0		
20	1.1	0.6	1.7	1.1	1.1	1.4	4.8	2.2	2.0	1.9	1.9	2.1	1.1	0.9	1.4	1.5	1.5	1.7	2.7	1.0	0.9	0.8	0.8	24	4.8	0.6	1.6	0	0	
21	1.0	0.9	1.1	1.0	0.9	1.1	1.2	1.5	2.5	3.7	1.6	2.2	5.9	6.0	3.4	2.3	2.3	2.0	1.6	1.8	1.7	1.7	1.5	24	6.0	0.9	2.1	0	0	
22	2.5	2.1	1.2	1.4	1.0	1.1	1.2	3.0	8.2	1.2	0.9	0.9	0.9	0.9	0.9	1.5	2.5	2.2	1.3	2.1	2.4	1.7	1.6	1.4	24	8.2	0.9	1.8	0	0
23	1.0	1.0	2.1	1.3	1.2	1.6	1.3	1.4	1.0	3.3	8.9	2.9	2.7	2.2	2.1	1.9	1.4	1.2	2.9	3.2	2.3	1.8	2.8	2.9	24	8.9	1.0	2.3	0	0
24	2.7	3.3	3.1	2.9	1.6	2.1	1.7	1.9	2.9	3.4	10.0	6.1	5.3	4.2	2.9	2.4	2.2	2.3	2.2	4.2	3.1	2.6	2.1	24	10.0	1.6	3.2	0	0	
25	2.3	3.5	3.8	2.9	1.9	1.8	1.6	1.7	2.1	3.4	2.2	2.1	2.1	1.9	2.0	2.2	1.8	1.8	1.6	1.7	1.6	1.8	2.4	24	3.8	1.6	2.2	0	0	
26	2.7	2.6	3.9	1.8	1.8	2.1	2.2	1.5	1.5	1.6	1.4	1.5	1.5	1.7	1.8	1.6	1.6	1.5	1.4	1.6	1.6	1.6	1.6	24	3.9	1.4	1.8	0	0	
27	1.6	1.6	1.7	1.7	1.5	1.3	1.5	1.4	1.4	1.0	1.2	0.9	1.3	1.6	1.5</td															

		SO ₂ - COURTICE June 2015 (µg/m ³)																													
		Hour																													
Day		0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	Hrs>690	Days>275
1		1.7	1.0	3.0	4.1	4.2	7.5	23.1	15.9	6.5	4.2	4.4	3.1	0.8	0.5	0.5	0.2	0.3	0.3	0.2	0.3	0.2	1.4	1.6	0.4	24	23.1	0.2	3.6	0	0
2		0.3	0.3	0.2	0.2	0.3	0.7	1.0	2.0	0.5	0.6	0.9	0.7	0.9	0.9	0.9	0.8	0.8	0.8	1.0	0.9	0.9	1.6	1.4	24	2.0	0.2	0.8	0	0	
3		1.9	3.3	1.0	1.6	4.3	2.4	1.7	1.3	0.9	1.0	18.6	2.3	1.4	1.0	0.8	0.9	0.9	1.1	1.0	4.3	5.7	1.9	2.7	1.9	24	18.6	0.8	2.7	0	0
4		1.2	2.7	3.5	2.6	1.4	2.2	2.1	0.9	0.5	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.6	1.9	2.8	1.7	1.3	1.0	24	3.5	0.0	1.1	0	0
5		0.2	0.4	0.7	2.1	1.1	0.4	0.3	0.3	0.3	0.3	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.2	0.9	1.6	0.5	1.6	3.3	24	3.3	0.1	0.7	0	0
6		4.4	4.8	4.0	3.9	4.4	4.1	5.1	4.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.8	1.1	1.6	3.1	2.8	24	5.1	0.0	2.0	0	0	
7		7.4	2.4	2.1	2.8	3.1	1.7	1.7	2.4	2.2	2.0	2.1	1.8	1.9	1.6	1.5	1.7	1.8	1.6	1.2	0.4	0.8	0.9	0.5	24	7.4	0.4	1.9	0	0	
8		0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.4	0.8	0.5	0.4	0.5	0.5	0.3	1.1	0.7	0.3	0.3	24	1.1	0.2	0.4	0	0	
9		0.4	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.4	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.4	4.0	11.9	7.3	24	11.9	0.2	1.2	0	0	
10		7.4	3.3	4.6	6.3	2.6	9.4	2.2	1.3	1.0	1.0	2.4	1.3	1.3	0.9	0.8	0.8	0.9	0.7	0.4	0.5	0.3	0.3	0.4	0.3	24	9.4	0.3	2.1	0	0
11		0.1	0.2	0.2	0.3	0.3	0.3	0.1	0.3	0.4	0.3	0.4	1.2	2.0	2.7	2.0	1.1	0.6	0.5	1.0	1.9	1.4	0.4	0.3	0.2	24	2.7	0.1	0.8	0	0
12		0.7	0.9	0.5	0.3	0.9	1.1	1.5	0.5	0.6	1.8	0.8	1.1	1.2	0.4	0.9	1.0	0.5	0.3	0.3	1.3	1.0	0.9	0.7	0.4	24	1.8	0.3	0.8	0	0
13		0.6	0.7	0.3	0.7	0.7	0.2	0.1	0.9	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.7	8.1	4.4	5.8	2.5	24	8.1	0.0	1.1	0	0	
14		4.8	8.1	10.9	9.3	8.8	4.4	2.2	6.8	1.5	2.2	1.5	0.9	0.4	0.8	0.5	0.3	4.5	7.6	3.5	1.6	1.3	1.4	0.8	1.3	24	10.9	0.3	3.6	0	0
15		0.8	0.4	0.3	0.5	0.9	0.3	0.3	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.3	24	0.9	0.1	0.3	0	0	
16		0.3	0.3	0.4	0.3	0.5	1.1	0.8	0.7	0.3	0.2	0.2	0.3	0.6	2.0	0.9	0.4	1.6	3.1	2.7	1.9	1.1	0.4	0.3	1.1	24	3.1	0.2	0.9	0	0
17		3.6	2.3	0.6	0.5	0.7	0.3	3.4	0.5	0.3	0.3	0.2	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.5	2.1	8.5	14.0	24	14.0	0.0	1.6	0	0
18		5.0	7.0	15.3	12.3	5.6	3.0	2.5	1.1	0.9	0.8	0.4	0.4	0.6	0.8	1.0	1.0	0.5	0.4	0.7	0.4	0.5	0.9	0.4	0.2	24	15.3	0.2	2.6	0	0
19		0.2	0.2	0.5	1.2	2.1	2.6	3.2	1.9	1.9	2.2	0.4	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.6	8.1	8.9	7.4	6.3	24	8.9	0.1	2.0	0	0	
20		4.9	4.6	3.3	7.2	8.7	2.1	1.2	10.7	13.8	1.9	1.1	0.7	0.6	0.8	0.4	0.5	0.3	0.4	0.8	0.7	0.9	3.1	2.0	24	13.8	0.3	3.0	0	0	
21		0.0	0.8	2.1	0.9	0.9	0.9	0.9	0.8	0.6	0.7	0.7	0.9	1.0	1.1	1.0	0.7	0.7	0.7	0.9	0.9	0.9	0.8	1.0	24	2.1	0.0	0.9	0	0	
22		1.6	0.7	2.4	1.9	1.0	1.7	1.3	0.9	0.9	0.9	0.9	0.4	0.3	0.5	0.8	0.8	0.7	0.2	0.4	0.4	0.4	0.6	0.8	0.9	24	2.4	0.2	0.9	0	0
23		0.7	1.1	0.5	0.6	0.7	0.7	0.9	0.8	1.0	0.9	0.9	0.7	0.5	0.5	0.4	0.3	0.4	0.4	0.2	0.2	0.3	0.3	0.2	24	1.1	0.2	0.6	0	0	
24		0.8	0.3	0.5	0.1	0.4	1.7	4.1	1.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	1.3	1.6	1.4	1.0	0.4	0.3	1.6	9.2	24	9.2	0.1	1.4	0	0	
25		24.7	2.7	7.5	20.4	11.1	5.0	4.2	1.4	0.9	1.0	0.8	1.3	1.7	1.9	3.7	4.7	5.8	3.6	4.0	2.1	1.0	1.8	7.1	9.1	24	24.7	0.8	5.3	0	0
26		13.7	5.2	8.6	10.2	8.7	9.7	8.2	6.2	5.1	2.7	2.8	1.0	0.9	0.8	0.5	0.6	0.2	0.5	0.3	2.7	12.0	15.4	18.4	21.7</						

		SO2 - Rundle Road																													
		May 2015																													
		(µg/m³)																													
Hour																															
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>690	Days>275
1	0	1.4	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.7	2.0	2.0	1.8	1.6	2.1	2.3	1.9	1.5	1.8	1.9	1.8	2.1	2.7	3.5	24	3.5	1.3	1.8	0	0
2	0	2.7	2.0	2.1	1.9	1.9	1.8	2.1	2.1	2.1	2.0	2.3	2.0	2.5	2.1	1.9	2.5	1.7	1.4	2.4	1.9	1.8	1.9	1.9	1.7	24	2.7	1.4	2.0	0	0
3	0	1.7	1.3	1.3	1.2	1.4	1.5	1.4	2.3	2.7	2.8	8.3	11.1	7.6	4.5	3.8	3.3	3.2	3.0	2.8	2.8	2.2	2.0	2.0	1.7	24	11.1	1.2	3.2	0	0
4	0	1.9	1.5	1.7	1.6	1.4	1.5	2.1	2.8	2.6	2.7	2.7	2.2	2.1	2.4	2.6	2.2	2.0	2.1	2.0	2.0	2.1	1.7	1.6	1.8	24	2.8	1.4	2.1	0	0
5	0	1.5	1.5	1.4	1.4	1.5	1.6	1.5	1.5	1.7	1.7	1.7	2.2	3.3	2.4	11.7	7.4	3.1	2.0	2.0	1.9	1.9	2.0	1.9	1.9	24	11.7	1.4	2.5	0	0
6	0	2.0	2.3	3.7	2.3	2.1	2.1	2.5	2.7	2.8	2.5	8.5	4.3	40.1	4.3	2.2	2.0	2.4	2.5	2.2	2.1	2.1	2.5	2.0	2.1	24	40.1	2.0	4.3	0	0
7	0	2.0	2.2	2.2	2.1	2.4	2.3	2.6	2.2	2.9	15.3	3.2	2.7	2.3	2.2	2.7	3.1	6.0	2.9	2.2	2.6	2.4	2.2	2.3	24	15.3	2.0	3.1	0	0	
8	0	2.3	2.1	2.1	2.2	2.1	2.0	2.2	2.1	2.2	3.0	2.8	4.7	9.9	16.5	3.3	3.1	2.8	2.8	2.5	2.2	2.1	2.1	2.1	24	16.5	2.0	3.4	0	0	
9	0	2.1	2.1	1.9	2.1	1.5	1.8	2.1	2.2	2.8	3.1	3.8	5.4	5.9	3.5	3.6	2.7	2.2	2.0	2.1	1.9	1.8	1.9	1.6	24	5.9	1.5	2.6	0	0	
10	0	1.7	1.5	1.6	1.7	1.5	1.3	1.5	1.6	1.7	1.4	1.4	1.6	1.4	1.5	1.7	1.6	1.8	1.4	1.4	1.3	1.3	1.4	1.4	24	1.8	1.3	1.5	0	0	
11	0	1.4	1.4	1.3	1.3	1.4	1.3	1.4	1.4	1.5	1.3	1.4	1.3	2.5	C	C	1.3	9.2	10.4	7.4	0.0	0.0	0.0	0.0	0.0	22	10.4	0.0	2.2	0	0
12	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	
13	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	
14	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	1.8	0.0	0.1	0	0	
15	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.0	0.0	0.0	0	0	
16	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	4.2	0.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	4.2	0.0	0.3	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	0.7	0.0	14.8	15.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	15.5	0.0	1.3	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	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	
19	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	0.0	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	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	
21	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	6.2	0.0	0.3	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	0.7	0.7	1.0	1.9	1.3	1.3	1.5	1.7	1.3	1.0	24	1.9	0.0	0.6	0	0	
23	0	0.5	0.6	0.4	0.4	0.0	0.6	0.7	5.2	6.1	11.8	6.9	3.9	2.8	2.3	2.8	1.8	1.3	1.3	1.5	1.7	1.3	1.0	0.9	24	11.8	0.0	2.7	0	0	
24	0	3.2	3.9	2.8	1.1	0.7	1.1	1.8	2.3	2.5	7.9	11.0	6.8	4.4	3.2	2.2	1.8	2.0	2.1	2.0	1.9	1.3	1.4	1.7	24	11.0	0.7	2.9	0	0	
25	0	1.4	0.9	0.8	0.8	0.7	0.7	0.7	0.9	1.2	9.9	10.8	7.1	2.8	1.9	1.7	1.7	1.7	1.6	1.7</td											

Figure A-1 Time History Plots of Measured Hourly Average and 24-Hour Average SO₂ Concentrations– Courtice (WPCP) Station

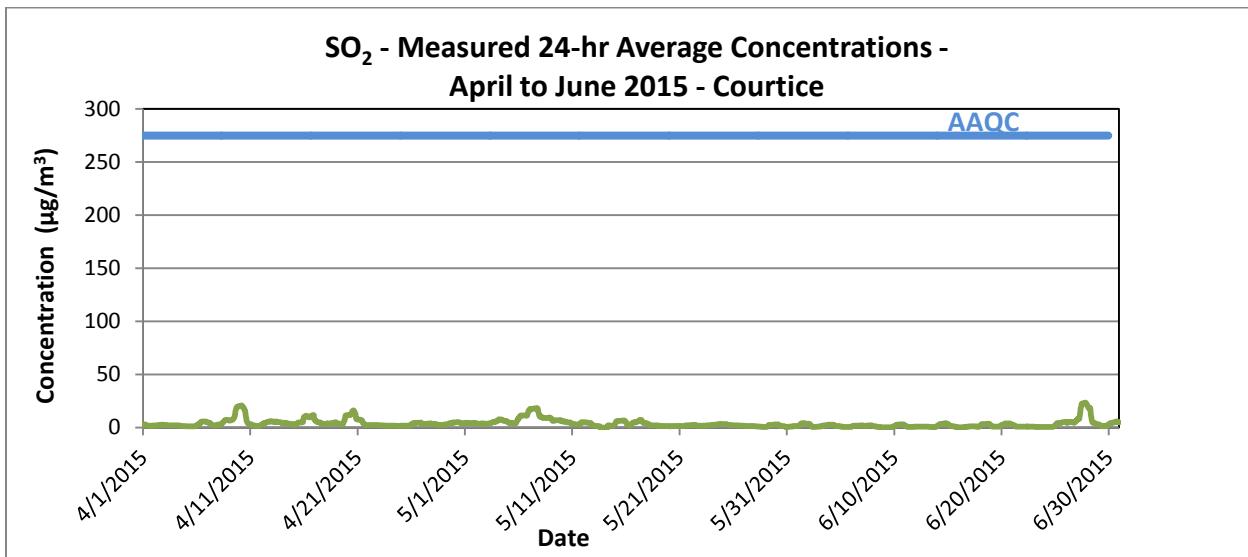
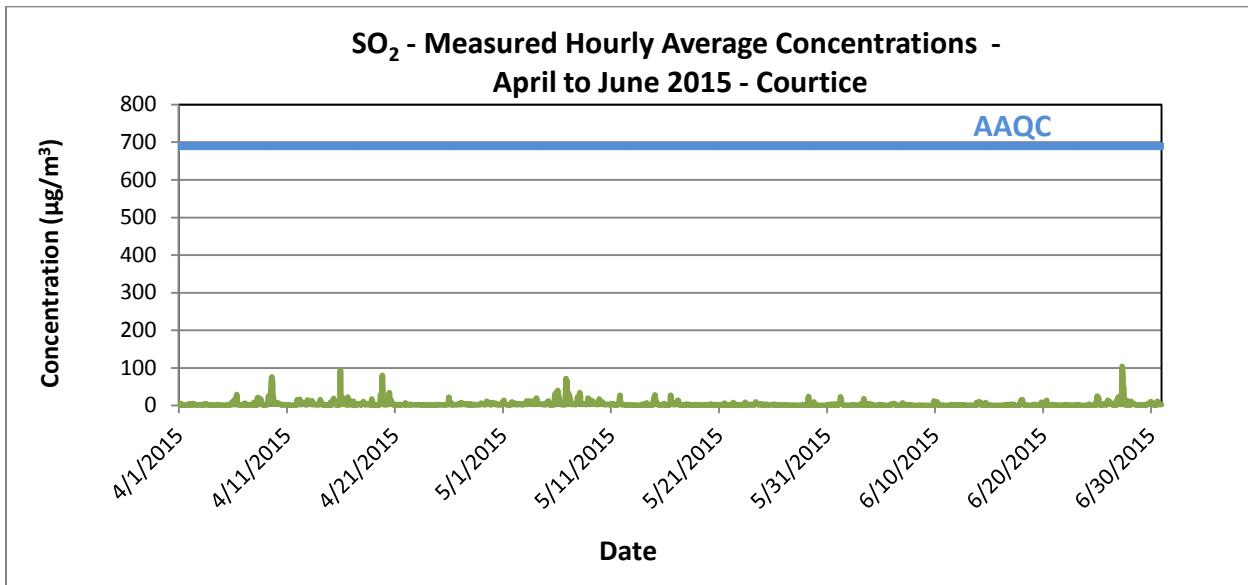
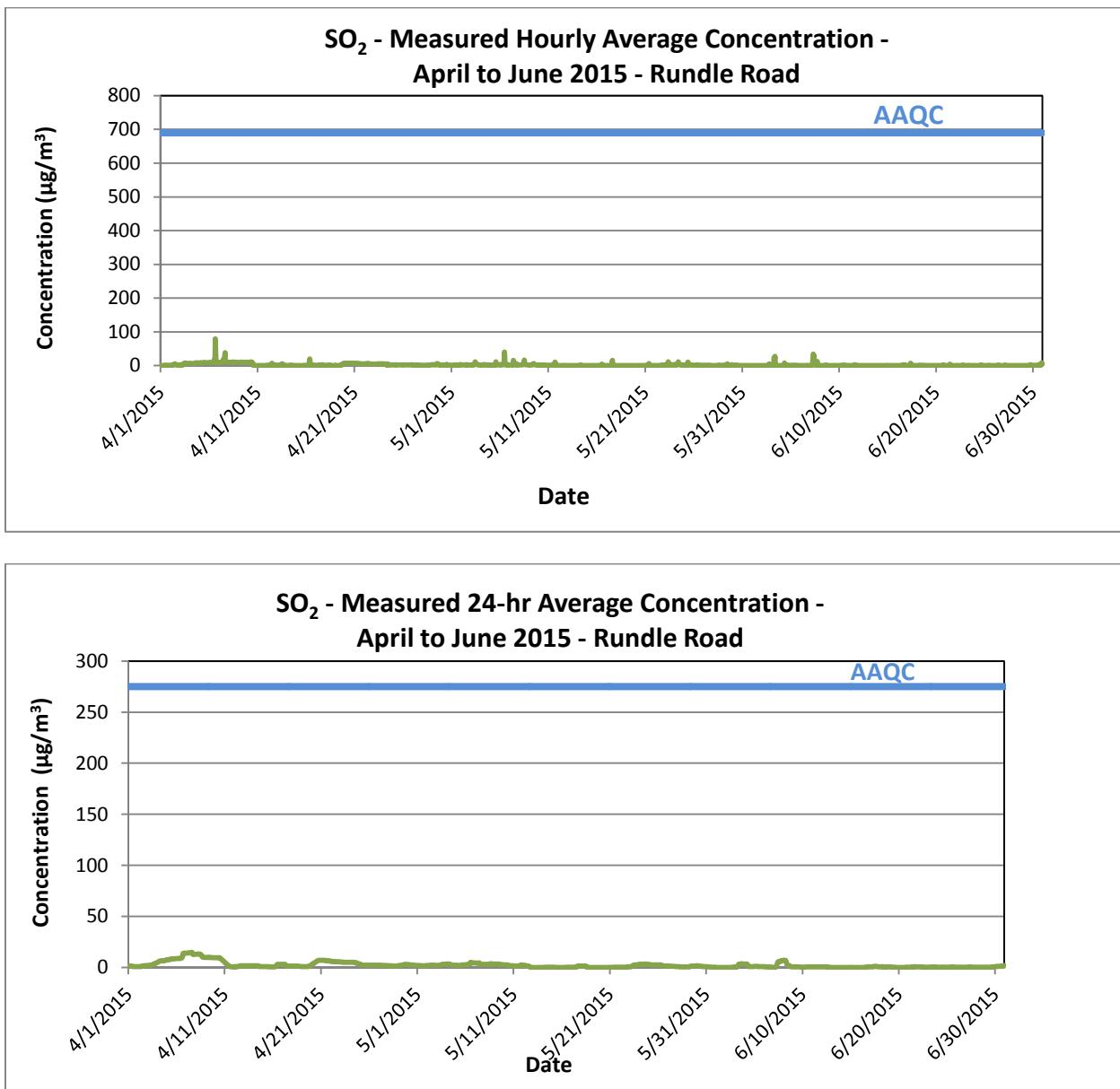


Figure A-2 Time History Plots of Measured Hourly Average and 24-Hour Average SO₂ Concentrations– Rundle Road Station



APPENDIX B

NO₂ DATA SUMMARIES AND TIME

HISTORY PLOTS

		NO ₂ - COURTICE																												
		May 2015																												
		(µg/m ³)																												
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					
Day																														
1	42.9	39.9	26.7	16.0	15.8	17.3	20.2	11.4	12.0	15.8	11.6	10.3	15.4	22.7	22.9	15.5	14.1	8.4	20.5	27.3	28.7	34.5	15.4	5.9	19.6	0	0			
2	3.8	7.3	5.1	8.2	12.4	44.9	19.0	7.7	5.7	10.2	15.5	11.9	9.1	8.6	5.5	4.1	8.5	3.7	3.8	4.3	7.5	3.8	2.8	4.1	24	44.9	2.8	9.1		
3	8.0	18.0	16.9	5.3	13.4	24.2	7.8	6.0	8.2	5.4	5.2	6.0	4.9	4.9	4.9	5.0	5.0	5.2	6.4	18.8	25.1	46.2	47.1	24	47.1	4.9	12.6	0	0	
4	36.8	38.6	31.0	40.8	52.6	51.0	42.8	23.2	8.4	6.8	6.0	5.9	6.6	5.1	5.0	7.1	13.0	20.3	20.2	17.9	50.6	56.7	24.1	13.3	24	56.7	5.0	24.3	0	0
5	12.8	13.7	7.4	31.6	33.6	54.1	44.3	23.6	9.3	7.0	4.9	4.3	3.6	5.0	3.0	2.8	1.3	1.9	2.1	3.2	49.0	50.5	42.3	36.0	24	54.1	1.3	18.7	0	0
6	32.8	31.2	25.4	23.5	40.3	41.0	27.1	18.6	11.6	8.7	8.3	13.1	6.3	4.6	6.4	9.7	9.0	2.3	8.9	21.3	64.8	57.0	27.9	43.0	24	64.8	2.3	22.6	0	0
7	39.3	34.8	28.8	31.0	45.1	47.0	38.7	21.0	11.6	5.5	6.3	4.2	3.4	3.1	3.1	4.4	12.3	2.9	2.8	3.8	39.0	62.0	44.6	56.1	24	62.0	2.8	22.9	0	0
8	36.4	41.6	41.5	42.5	49.6	23.8	18.6	15.7	9.4	6.4	11.1	10.0	9.0	8.7	7.3	5.7	4.7	5.1	10.1	15.2	12.0	33.4	39.9	29.6	24	49.6	4.7	20.3	0	0
9	33.3	11.1	14.1	4.0	8.6	17.8	6.7	27.2	20.3	12.8	10.6	10.5	26.0	28.2	20.3	8.2	6.8	6.6	10.2	7.6	9.5	22.3	22.0	23.6	24	33.3	4.0	15.3	0	0
10	13.1	6.0	6.2	11.1	15.3	14.8	8.1	6.3	4.1	5.4	4.9	6.9	7.3	8.5	7.1	5.9	7.1	10.2	13.3	17.7	12.4	7.2	4.8	4.9	24	17.7	4.1	8.7	0	0
11	5.5	8.0	7.8	14.3	7.7	4.9	8.5	6.7	6.2	3.5	C	C	3.5	0.9	0.4	0.0	2.4	6.0	29.3	36.0	3.0	7.2	0.2	21	36.0	0.0	7.7	0	0	
12	3.2	1.5	0.5	0.0	0.6	1.7	0.7	0.8	3.9	3.0	1.2	2.2	1.3	2.2	3.7	3.8	3.9	2.7	3.7	3.8	4.2	4.1	3.6	2.6	24	4.2	0.0	2.5	0	0
13	0.0	1.7	0.0	1.3	0.6	3.1	5.9	4.0	M	M	M	M	M	M	M	0.9	2.0	1.3	2.8	4.7	6.9	7.4	4.1	8.2	17	8.2	0.0	0	0	0
14	4.0	1.8	1.4	3.0	1.7	9.5	13.2	3.1	6.2	7.3	3.3	2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	6.4	5.1	37.3	39.2	24	39.2	0.0	6.0	0	0	
15	34.5	20.9	16.4	20.4	23.7	28.1	15.2	11.2	4.2	3.1	5.1	2.8	2.9	8.2	15.5	12.1	7.4	24.1	26.6	30.0	14.5	29.2	19.2	6.8	24	34.5	2.8	15.9	0	0
16	17.8	14.4	8.1	6.3	2.2	0.6	7.5	2.3	0.0	0.0	0.0	5.0	16.3	14.6	5.7	2.9	2.2	2.1	3.6	3.8	5.3	2.3	1.3	4.8	24	17.8	0.0	5.4	0	0
17	8.8	6.7	1.9	7.7	13.9	9.1	6.5	4.7	2.8	2.8	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	16.6	6.4	2.1	2.6	7.9	24	16.6	0.0	4.2	0	0
18	6.0	9.8	7.0	6.9	10.8	2.3	9.5	11.6	2.9	3.0	2.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.0	24	11.6	0.0	3.0	0	0	
19	0.0	0.0	0.6	1.5	3.6	3.3	3.6	2.5	1.5	1.1	0.6	1.0	2.0	2.0	3.2	2.6	2.0	3.3	2.5	3.0	2.2	2.3	3.3	24	3.6	0.0	2.1	0	0	
20	1.8	0.8	0.0	3.6	13.0	2.8	3.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	7.5	6.0	12.0	18.7	24	18.7	0.0	3.1	0	0
21	2.5	0.2	6.1	11.1	2.4	6.5	3.8	6.0	3.6	6.3	2.8	1.8	3.8	3.0	0.5	0.0	0.0	0.0	0.5	2.1	1.0	1.1	2.1	24	11.1	0.0	2.8	0	0	
22	14.3	44.7	15.0	3.6	6.4	17.7	4.5	2.0	0.4	0.3	0.0	1.6	0.0	0.0	0.1	0.0	0.0	0.2	0.7	1.6	3.1	5.0	15.3	18.9	24	44.7	0.0	6.5	0	0
23	15.3	22.6	23.8	32.1	26.6	29.1	23.0	19.4	11.4	5.9	4.9	1.4	0.0	0.0	0.0	0.0	0.0	1.0	0.8	0.0	0.0	0.0	0.0	24	32.1	0.0	9.1	0	0	
24	0.0	0.1	0.3	1.0	19.2	24.2	16.1	10.8	7.9	4.3	3.9	1.1	0.5	0.1	0.0	0.0	0.0	0.6	5.6	30.4	20.2	28.1	0.8	24	30.4	0.0	7.3	0	0	
25	0.3	9.5	4.3	12.0	39.6	23.0	32.4	11.5	5.2	6.3	4.5	4.7	6.7	9.3	19.4	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	24	39.6	0.0	8.0	0	0	
26	0.0	0.0	0.1	0.2	1.1	2.2	2.0	0.2	1.0	1.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	4.1	4.9	2.8	4.8	24	4.					

Figure B-1 Time History Plots of Measured Hourly Average and 24-Hour Average NO₂ Concentrations – Courtice (WPCP) Station

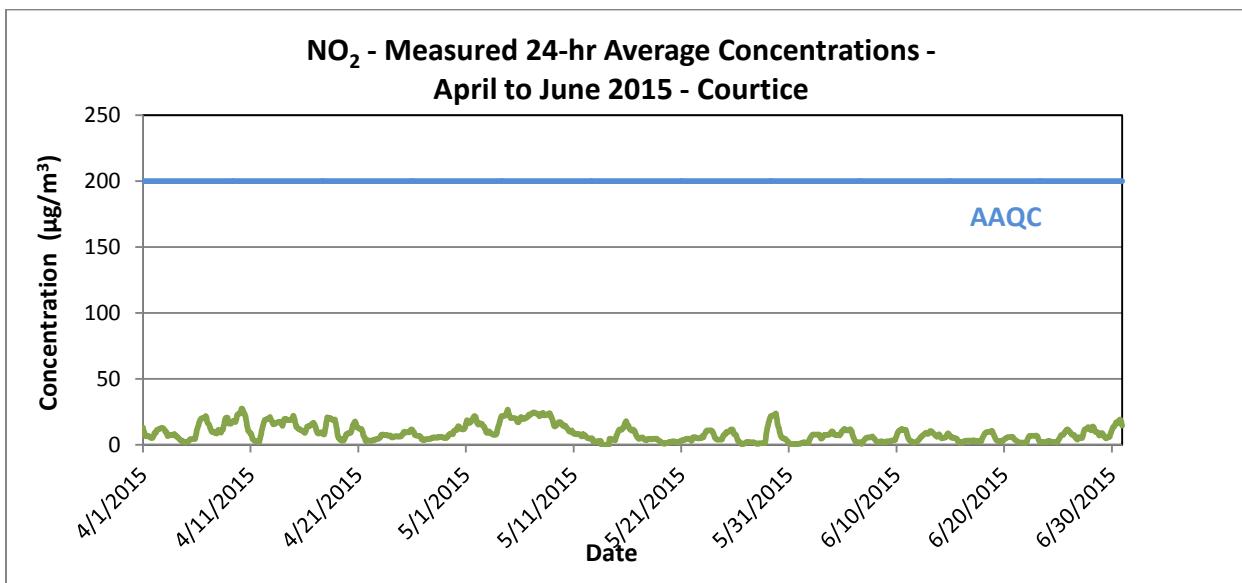
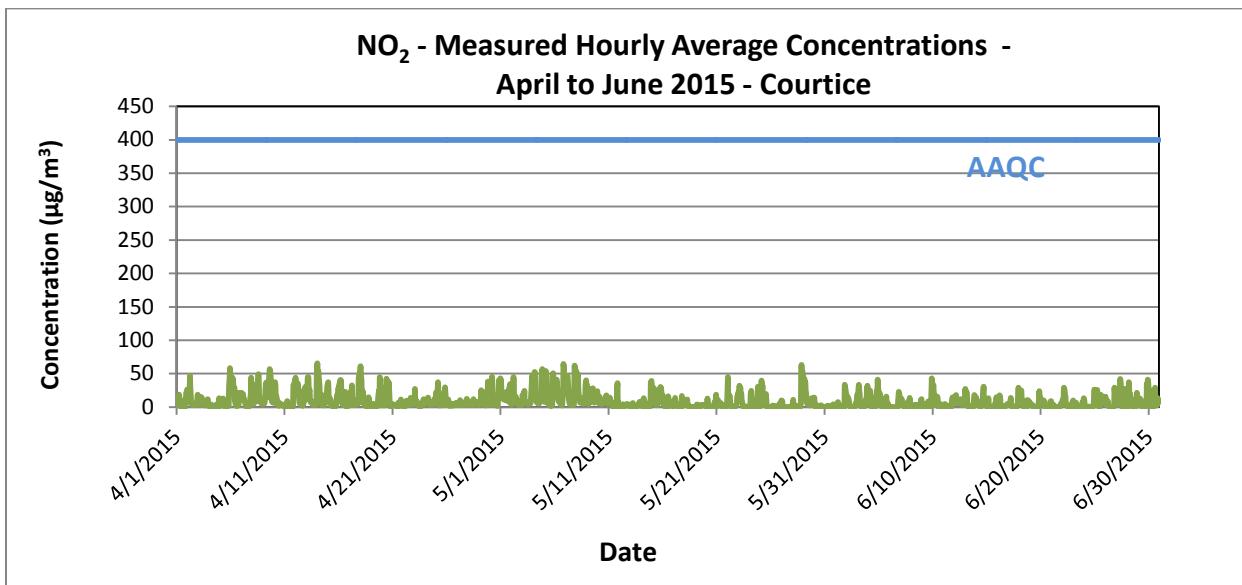
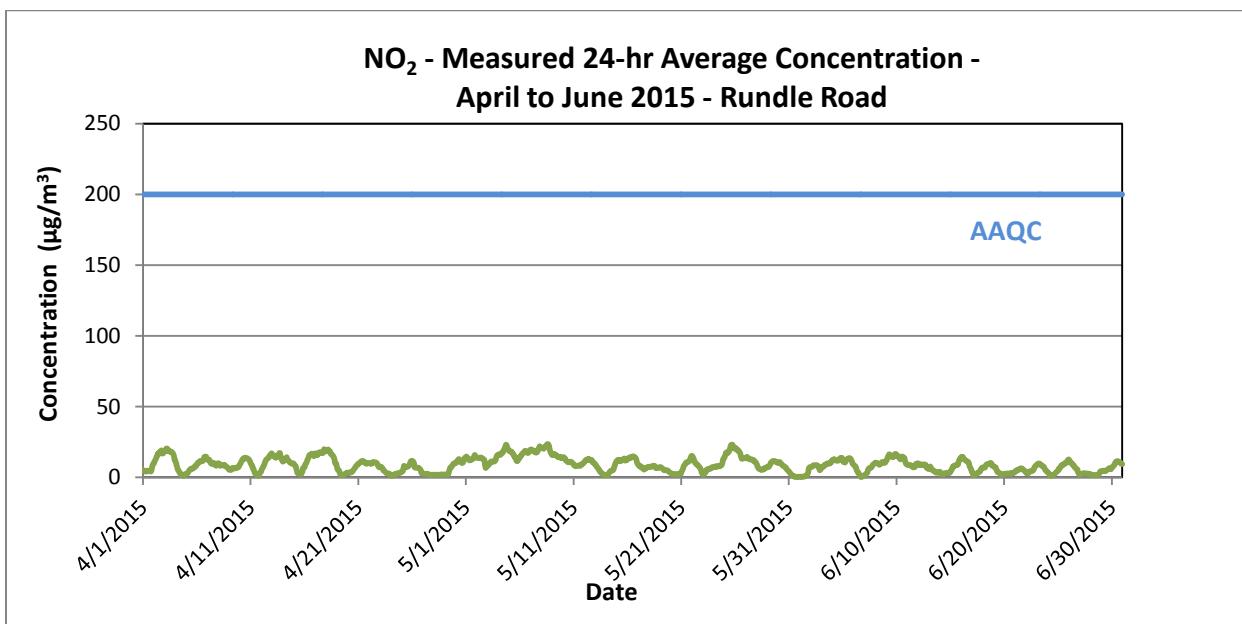
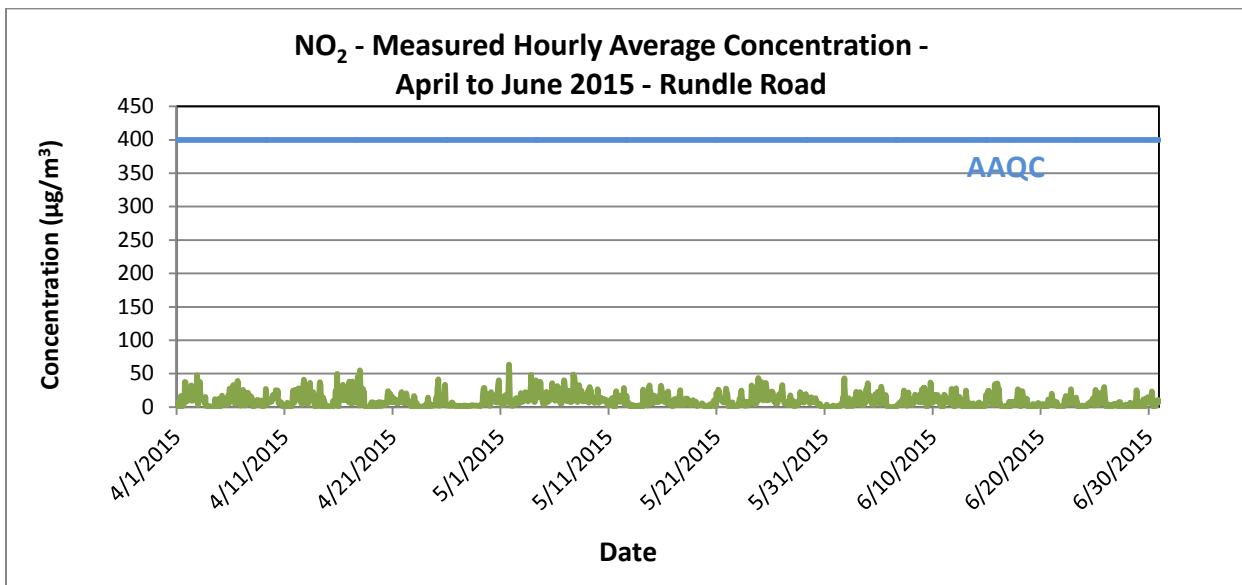


Figure B-2 Time History Plots of Measured Hourly Average and 24-Hour Average NO₂ Concentrations – Rundle Road Station



APPENDIX C

NOX DATA SUMMARIES AND TIME

HISTORY PLOTS

		NOx		COURTICE																										
		May		2015																										
Hour																														
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					
1	54.8	51.5	28.1	17.5	17.4	19.0	25.8	13.2	16.4	25.5	17.2	15.8	21.5	31.8	32.7	19.9	16.3	8.8	21.3	27.5	28.9	39.6	15.4	6.1	23.8	0	0			
2	4.2	10.0	4.7	8.1	12.7	79.3	27.3	9.1	7.6	15.4	25.2	18.0	12.2	11.4	6.3	4.3	9.9	3.7	3.4	4.1	7.4	3.3	2.1	3.6	24	79.3	2.1	12.2	0	0
3	8.0	18.4	17.0	4.8	13.5	27.5	8.4	6.3	9.8	5.9	5.9	6.2	4.9	4.4	4.5	4.9	4.4	4.6	5.8	18.8	25.2	47.5	47.7	4.4	12.9	0	0	0	0	
4	37.4	40.7	33.1	43.4	82.7	100.1	81.4	27.7	9.1	7.5	6.2	5.5	6.3	4.8	4.7	6.5	12.8	20.8	20.3	18.2	80.6	70.2	24.8	14.0	24	100.1	4.7	31.6	0	0
5	12.5	13.4	7.3	33.3	42.2	85.9	82.0	31.3	10.5	9.1	5.6	5.2	3.9	5.6	3.1	2.2	1.0	1.6	1.7	2.8	71.9	90.2	87.2	89.4	24	90.2	1.0	29.1	0	0
6	59.6	61.2	27.2	24.2	52.3	54.3	40.6	28.1	17.0	11.6	10.5	18.2	7.7	5.2	7.2	12.2	11.2	1.9	9.2	25.3	86.5	94.4	32.2	114.2	1.9	33.8	0	0		
7	92.3	49.3	31.4	33.4	59.2	84.2	75.3	31.6	15.3	6.4	7.4	4.1	3.0	2.8	2.7	4.6	16.9	2.4	2.5	3.5	39.9	70.5	45.9	80.0	24	92.3	2.4	31.9	0	0
8	42.2	47.0	48.3	45.7	64.4	26.8	25.1	22.2	11.1	6.8	11.8	10.9	9.7	9.3	7.6	5.4	4.5	4.8	10.2	15.3	11.4	33.6	40.3	30.5	24	64.4	4.5	22.7	0	0
9	33.6	10.8	14.0	3.2	8.0	17.8	6.6	33.3	24.0	15.0	11.6	11.5	31.9	34.6	23.4	8.3	6.5	6.3	9.8	9.0	21.9	22.1	25.4	24	34.6	3.2	16.5	0	0	
10	12.8	5.3	5.8	10.8	15.2	14.9	8.1	6.0	3.9	5.6	4.5	6.8	7.1	8.8	7.3	5.3	6.7	10.0	13.6	18.4	12.2	8.9	5.7	7.3	24	18.4	3.9	8.8	0	0
11	6.5	9.6	9.7	18.4	10.6	5.1	12.3	8.8	9.5	4.7	C	C	5.5	2.3	1.3	0.0	2.3	6.8	31.1	38.4	2.8	7.6	0.0	21	38.4	0.0	9.2	0	0	
12	2.7	0.9	0.0	0.0	0.0	0.7	0.1	0.1	6.1	5.0	2.4	3.1	1.6	1.8	4.3	4.2	4.1	2.5	3.5	3.7	3.8	3.5	3.5	2.4	24	6.1	0.0	2.5	0	0
13	0.0	1.4	0.0	1.3	0.4	3.3	6.5	5.4	M	M	M	M	M	M	M	1.3	2.8	1.5	3.1	4.5	7.0	9.3	4.1	10.1	17	10.1	0.0	0	0	0
14	4.1	1.6	1.6	2.9	1.5	11.0	17.4	4.2	10.0	13.2	5.9	3.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0	6.0	4.9	39.0	41.1	24	41.1	0.0	7.1	0	0	
15	36.6	22.2	16.4	21.1	25.8	31.3	17.7	15.4	6.1	4.4	7.2	4.0	4.0	11.0	19.7	14.1	8.5	27.2	28.2	34.8	15.2	30.8	20.0	7.3	24	36.6	4.0	17.9	0	0
16	19.8	16.2	8.0	6.4	1.9	0.4	9.4	2.4	0.0	0.0	6.5	21.1	19.5	6.9	2.9	2.3	2.1	3.7	3.8	6.0	2.0	0.9	5.3	24	21.1	0.0	6.2	0	0	
17	9.2	6.6	1.5	7.9	14.2	9.8	7.8	6.9	4.0	4.9	0.5	0.0	0.0	0.0	0.0	0.0	1.1	0.4	0.0	20.2	7.0	2.3	2.6	8.9	24	20.2	0.0	4.8	0	0
18	5.9	11.6	8.2	7.6	12.1	2.7	11.8	15.2	3.7	3.8	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	15.2	0.0	3.6	0	0	
19	0.0	0.0	0.5	1.0	3.6	3.6	5.1	3.4	2.5	1.8	2.0	2.6	4.0	2.7	4.6	3.9	3.1	5.2	2.8	3.4	2.3	2.0	1.6	2.8	24	5.2	0.0	2.7	0	0
20	1.6	0.4	0.0	3.5	13.6	2.9	4.4	1.1	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	7.5	6.0	12.2	19.1	24	19.1	0.0	3.3	0	0
21	2.4	0.0	5.8	11.4	2.1	6.7	4.6	8.5	6.0	11.2	5.4	3.2	6.1	3.9	1.0	0.0	0.0	0.0	1.1	1.8	0.8	0.5	1.8	24	11.4	0.0	3.5	0	0	
22	14.8	62.8	17.4	4.3	6.5	20.8	6.6	3.4	1.1	1.7	0.7	2.9	0.0	0.2	0.8	0.8	0.5	1.0	0.5	1.6	3.4	4.5	15.3	20.7	24	62.8	0.0	8.0	0	0
23	15.7	24.8	31.1	49.5	46.2	47.6	41.1	36.8	23.1	11.9	9.7	3.3	0.4	0.0	0.0	0.0	0.0	0.9	0.4	0.0	0.0	0.0	0.0	24	49.5	0.0	14.3	0	0	
24	0.0	0.0	0.0	0.6	20.7	39.0	22.1	15.4	11.4	5.9	4.8	0.8	0.2	0.0	0.0	0.0	0.0	0.3	5.8	30.9	20.7									

		NOx		COURTICE																											
		June		2015																											
Hour																															
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>400	Days>200
1	4.8	1.1	0.3	1.2	3.7	6.1	20.9	9.2	2.0	4.5	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.3	39.9	34.2	24	70.3	0.0	8.3	0	0	
2	20.7	14.8	13.7	20.9	14.6	18.5	23.6	13.1	3.5	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.6	5.8	7.6	6.3	24	23.6	0.0	6.9	0	0				
3	8.8	20.1	9.2	39.0	92.7	55.6	32.7	6.9	3.3	1.4	12.6	0.6	0.0	1.1	0.0	0.0	0.5	9.1	3.9	4.4	12.2	9.4	22.0	41.7	24	92.7	0.0	16.1	0	0	
4	9.3	9.0	15.4	8.4	11.4	33.1	20.2	2.4	3.9	1.8	0.0	0.0	1.9	0.0	0.0	0.7	0.0	0.1	17.5	16.5	25.0	25.4	55.7	37.7	24	55.7	0.0	12.3	0	0	
5	31.5	21.4	17.6	37.7	42.0	17.1	1.5	0.0	1.7	1.1	0.0	0.0	0.0	1.1	0.6	4.6	20.0	8.0	3.6	6.0	4.9	1.3	0.7	24	42.0	0.0	9.3	0	0		
6	2.1	0.0	1.1	0.0	0.8	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	19.2	29.1	25.2	15.3	24	29.1	0.0	4.1	0	0		
7	11.3	7.7	8.7	14.3	8.2	4.9	2.9	5.7	1.1	1.6	0.0	0.0	0.2	0.0	0.0	0.7	5.0	9.4	3.8	3.6	1.9	13.5	9.4	0.0	24	14.3	0.0	4.8	0	0	
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.5	3.3	1.4	3.3	3.7	3.7	1.2	0.3	0.0	0.0	3.4	1.6	10.4	12.1	24	12.1	0.0	2.1	0	0		
9	2.0	2.5	1.7	3.2	1.3	0.0	0.0	4.0	6.0	3.5	3.3	2.3	11.0	12.5	7.9	4.1	3.4	0.9	0.0	0.0	6.8	82.8	109.2	24	109.2	0.0	11.2	0	0		
10	80.9	51.3	52.8	19.5	9.7	37.4	11.4	3.6	5.1	4.0	22.8	15.9	5.2	0.5	0.0	0.0	0.0	0.0	4.3	2.8	4.1	2.7	2.0	2.4	24	80.9	0.0	14.1	0	0	
11	0.9	1.4	0.0	4.3	0.0	1.8	1.6	1.4	2.7	3.9	4.5	2.5	1.4	1.3	0.0	0.0	0.0	2.2	0.3	6.3	15.8	2.4	9.2	10.2	24	15.8	0.0	3.1	0	0	
12	9.7	11.4	6.3	13.1	23.0	18.7	18.5	12.0	9.2	10.6	6.3	11.2	11.8	6.1	13.6	6.3	5.2	10.7	5.6	3.5	5.4	3.0	5.1	4.0	24	23.0	3.0	9.6	0	0	
13	37.7	42.6	27.2	37.2	41.9	11.2	3.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	13.8	19.0	21.3	14.4	24	42.6	0.0	11.4	0	0		
14	22.4	21.0	7.4	12.2	3.1	2.7	3.1	10.6	9.2	4.0	0.2	2.6	2.0	1.2	7.2	7.9	22.2	42.1	14.5	4.8	5.2	8.8	1.8	30	24	42.1	0.2	9.1	0	0	
15	4.7	0.0	0.0	1.0	15.5	0.3	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	6.0	0.0	4.6	15.2	4.1	24	15.5	0.0	2.3	0	0	
16	0.0	0.0	1.8	0.0	0.0	18.3	19.0	2.9	4.2	2.3	2.2	3.2	0.0	2.3	2.2	1.0	0.5	0.5	1.7	2.3	3.2	3.4	4.7	7.4	24	19.0	0.0	3.5	0	0	
17	3.1	4.2	3.5	4.3	5.3	13.2	23.1	4.1	0.5	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	1.2	7.4	26.9	33.3	24	33.3	0.0	5.6	0	0
18	27.1	18.8	25.0	22.4	26.2	55.8	26.6	17.0	20.7	8.3	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	4.5	7.6	9.9	8.6	24	55.8	0.0	12.3	0	0	
19	7.0	2.4	2.2	2.2	4.6	2.4	5.1	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.1	31.3	19.4	16.8	24	31.3	0.0	4.8	0	0		
20	16.5	9.7	6.6	8.5	6.2	10.9	7.4	22.3	19.7	1.0	0.7	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.1	0.6	2.2	3.8	8.1	9.1	24	22.3	0.0	5.6	0	0	
21	4.7	2.1	1.6	0.2	0.0	3.5	1.4	0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.1	0.0	0.0	0.5	1.3	0.4	5.2	3.5	4.6	24	5.2	0.0	1.2	0	0		
22	4.6	11.6	9.6	15.2	33.3	36.7	30.3	22.8	9.7	8.1	4.6	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	2.6	4.0	1.3	8.1	24	36.7	0.0	8.7	0	0	
23	10.3	3.9	0.0	0.0	0.4	0.5	3.4	8.1	1.8	1.4	1.7	0.2	1.2	0.4	0.2	0.2	0.7	0.8	0.5	1.4	0.2	6.9	6.0	8.3	24	10.3	0.0	2.5	0	0	
24	13.7	9.3	3.3	0.6	1.1	2.4	1.2																								

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

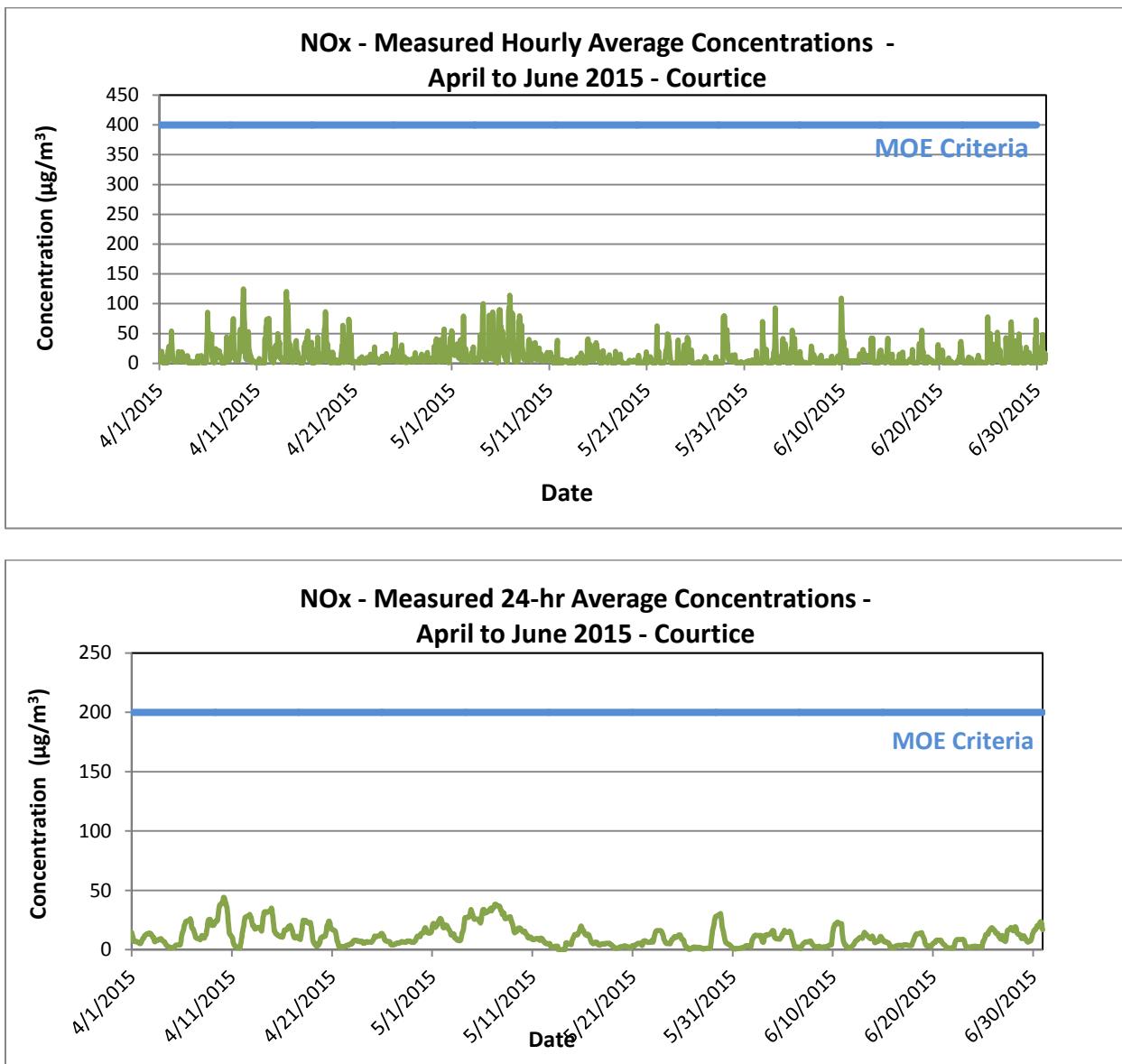
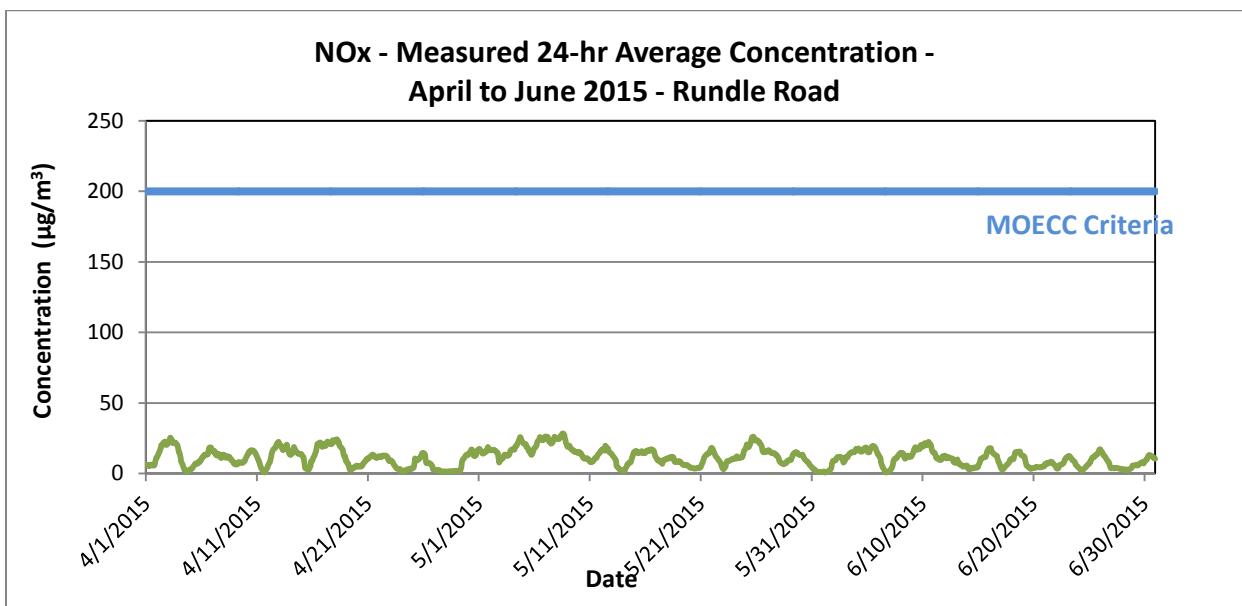
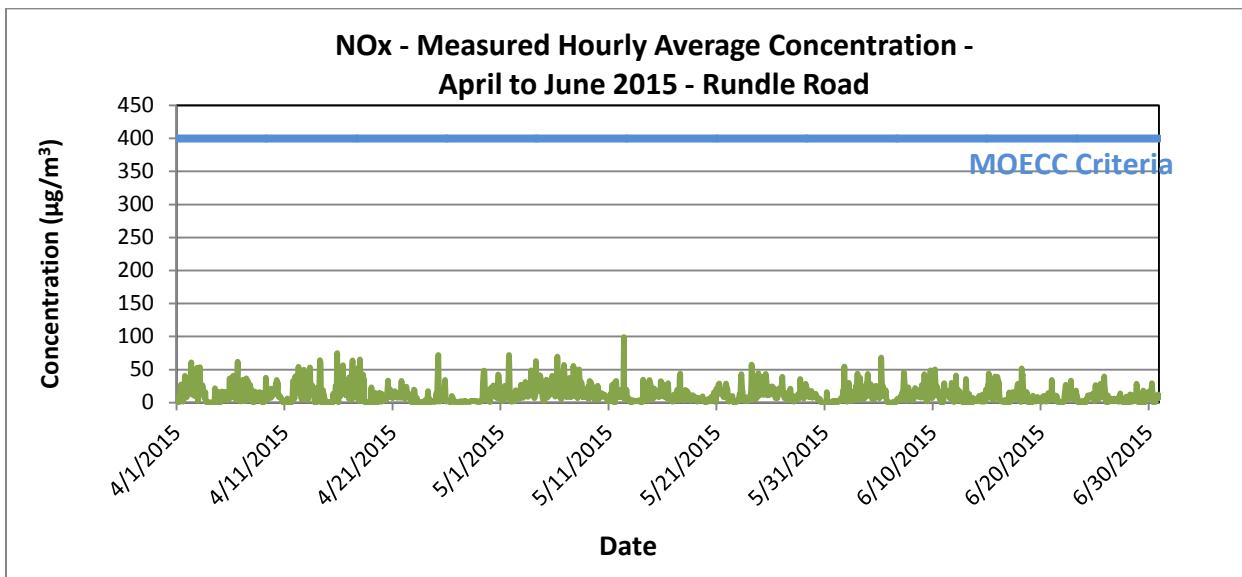


Figure C-2 Time History Plots of Measured Hourly Average and 24-Hour Average NO_x Concentrations – Rundle Road Station



APPENDIX D

PM2.5 DATA SUMMARIES AND TIME HISTORY PLOTS

		PM _{2.5} - COURTICE																												
		April 2015																												
		(µg/m ³)																												
Hour																														
Day	Hour	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average	
1	0	9.9	10.7	10.9	10.5	9.8	9.9	8.6	4.3	1.7	0.9	0.4	0.4	0.3	0.5	0.7	1.2	0.3	0.2	0.4	2.3	3.1	3.0	4.4	3.7	24	10.9	0.2	4.1	
2	0	2.9	3.6	3.5	3.9	4.3	7.6	8.8	10.9	8.7	5.5	2.9	3.0	3.0	4.2	4.1	2.8	3.5	4.4	5.8	9.0	10.7	8.2	3.9	3.9	24	10.9	2.8	5.4	
3	0	0.4	0.4	1.7	4.7	11.7	12.6	10.2	4.8	32.9	8.8	1.5	1.3	5.1	8.2	10.4	8.4	8.7	1.3	0.2	0.2	0.5	0.4	0.8	0.2	24	32.9	0.2	5.6	
4	0	0.3	1.7	0.6	0.4	1.3	2.0	2.0	1.4	1.4	0.8	0.3	0.3	0.3	2.1	3.8	3.7	2.8	2.4	3.0	4.7	6.9	9.3	17.4	12.7	24	17.4	0.3	3.4	
5	0	3.6	2.2	2.3	2.6	3.2	3.0	2.4	1.8	2.4	2.7	1.9	2.0	3.3	5.0	3.5	3.3	4.0	4.4	5.6	6.0	7.2	13.7	19.3	20.7	24	20.7	1.8	5.3	
6	0	19.9	24.7	22.1	20.3	21.9	17.6	17.6	16.3	15.2	11.3	4.3	3.2	3.5	4.6	4.8	3.7	5.4	7.1	7.6	6.5	3.2	1.8	2.0	2.4	24	24.7	1.8	10.3	
7	0	3.2	4.0	2.9	2.7	2.6	1.6	1.6	1.1	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	1.1	2.0	2.7	4.3	5.0	24	5.0	0.2	1.7	
8	0	5.9	7.5	6.9	5.9	5.5	4.6	4.9	7.0	8.8	9.6	10.0	18.8	25.9	19.7	20.7	6.6	1.7	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	25.9	0.2	7.1	
9	0	0.2	0.2	0.2	0.2	0.6	2.5	12.4	11.0	18.6	4.1	11.5	17.6	11.5	18.7	15.3	13.6	13.4	10.2	9.4	4.6	2.1	1.4	0.2	0.2	24	18.7	0.2	7.5	
10	0	0.2	0.2	0.6	1.5	1.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	1.6	0.2	0.3	
11	0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.2	0.2	0.2	1.7	8.7	14.9	15.3	23.0	24	23.0	0.2	2.8
12	0	19.2	19.1	16.4	14.1	15.0	13.9	15.3	13.0	9.4	8.0	6.5	6.5	7.7	7.0	6.2	6.0	6.4	6.9	9.7	19.8	19.8	19.0	20.8	18.6	24	20.8	6.0	12.7	
13	0	18.6	15.8	11.7	11.2	10.2	9.7	7.9	6.5	4.7	4.4	3.6	3.7	2.5	2.1	4.5	5.1	8.1	13.5	8.9	0.2	0.2	0.2	0.2	0.2	24	18.6	0.2	6.4	
14	0	0.7	1.6	1.7	5.6	5.0	5.6	3.7	1.1	1.2	1.1	0.2	0.2	0.2	1.0	2.7	3.5	2.0	0.2	0.2	0.5	1.7	1.4	2.8	24	5.6	0.2	1.8		
15	0	4.0	4.7	2.9	2.0	2.1	2.2	2.6	1.3	0.3	0.2	0.2	0.2	0.3	0.4	1.5	0.7	0.6	0.2	0.3	3.8	7.2	7.9	6.3	6.5	24	7.9	0.2	2.4	
16	0	4.9	9.2	8.4	7.4	6.5	7.4	6.6	1.0	0.7	0.3	0.2	0.3	0.5	1.0	0.4	0.4	0.2	0.7	3.3	4.1	3.7	2.6	3.2	6.7	24	9.2	0.2	3.3	
17	0	16.7	19.0	19.3	22.6	22.9	12.9	16.9	2.1	0.2	1.9	0.9	0.4	0.2	2.5	5.3	5.4	5.8	7.7	13.1	17.7	21.3	10.9	2.4	5.7	24	22.9	0.2	9.7	
18	0	11.4	10.6	8.0	7.7	6.6	8.1	6.0	1.7	0.2	0.7	1.7	0.9	2.5	2.3	0.3	0.2	0.4	0.8	0.5	4.7	10.9	3.3	0.4	0.2	24	42.3	0.2	10.4	
19	0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	1.8	0.2	0.2	0.2	0.3	3.4	2.0	0.6	7.1	3.1	0.2	0.2	24	7.1	0.2	0.9	
20	0	2.0	20.3	11.2	4.4	2.8	2.0	1.7	1.9	3.1	31.7	15.3	5.8	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	31.7	0.2	4.3	
21	0	0.2	0.2	0.2	0.2	0.3	3.1	4.1	5.5	5.5	2.6	2.0	2.8	2.6	3.5	3.2	1.6	0.4	2.2	5.5	5.4	6.8	9.7	8.9	24	9.7	0.2	3.2		
22	0	5.1	6.2	5.6	6.2	6.8	2.0	4.7	4.9	3.7	1.2	0.2	0.3	0.3	0.7	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	6.8	0.2	2.1	
23	0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	C	C	0.2	0.2	0.2	0.2	0.5	1.0	0.8	0.4	0.2	22	1.0	0.2	0.3	
24	0	0.2	0.3	0.4	0.6	0.8	0.8	0.9	0.8	1.0	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.7	2.9	4.6	4.5	3.3	24	4.6	0.2	1.0	
25	0	3.4	4.4	4.1	3.1	5.2	6.7	3.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.2	2.2	4.8	17.3	14.8	13.0	6.7	1.6	24	17.3	0.2	

		PM _{2.5} - COURTICE																											
		May 2015																											
		(µg/m ³)																											
Hour	Day	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average
	1	5.1	4.7	2.1	0.8	1.4	0.4	0.3	0.2	0.2	0.2	0.8	0.2	3.2	11.7	15.0	8.2	4.4	0.3	4.9	13.4	33.3	12.9	2.1	0.2	24	33.3	0.2	5.3
	2	0.2	0.2	0.2	0.5	3.3	5.4	6.3	0.2	0.2	2.3	4.6	2.5	1.5	0.9	0.3	0.2	0.2	0.2	1.5	3.8	3.7	7.2	6.2	10.1	24	10.1	0.2	2.6
	3	18.8	21.6	26.3	35.9	35.9	34.1	32.0	21.8	20.7	13.4	14.1	15.7	15.6	16.0	17.3	18.9	17.7	15.1	12.1	12.3	13.9	12.6	15.5	21.8	24	35.9	12.1	20.0
	4	24.3	22.4	21.4	21.6	24.6	28.7	23.5	14.5	8.3	6.3	5.7	8.2	12.3	9.3	9.7	15.7	15.5	12.9	12.2	10.9	12.5	7.5	2.9	0.2	24	28.7	0.2	13.8
	5	0.2	0.2	0.2	0.2	0.3	2.7	6.2	7.3	5.8	1.8	0.3	0.2	0.4	2.0	2.4	2.0	1.4	2.9	4.6	6.2	20.7	29.4	36.7	43.2	24	43.2	0.2	7.4
	6	37.1	25.4	17.1	23.5	30.6	42.9	20.4	13.4	6.8	7.7	6.1	2.6	4.2	1.3	2.5	0.5	0.2	7.4	4.6	9.4	18.1	16.8	9.6	21.7	24	42.9	0.2	13.7
	7	23.9	16.2	10.8	10.5	12.1	14.7	10.2	4.3	1.8	2.1	11.2	8.9	2.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	24	23.9	0.2	5.4
	8	0.2	0.2	0.2	0.2	1.1	2.0	7.2	2.0	9.4	10.3	9.2	6.7	7.3	6.9	8.0	3.1	2.2	1.8	2.7	4.3	5.7	7.5	8.6	9.9	24	10.3	0.2	4.9
	9	14.5	15.6	17.2	19.6	20.3	21.6	20.1	31.1	17.8	17.0	32.8	28.6	23.0	17.1	12.3	12.5	12.9	10.1	8.9	10.1	13.4	13.9	17.2	18.9	24	32.8	8.9	17.8
	10	22.9	24.5	27.7	31.9	30.4	26.5	24.7	13.6	6.3	1.0	13.7	29.0	26.4	17.4	18.7	13.9	4.9	14.7	22.4	21.2	14.0	0.2	0.2	0.2	24	31.9	0.2	16.9
	11	0.3	0.2	0.5	4.2	1.8	0.7	2.2	0.8	0.6	3.0	C	C	13.6	5.7	4.7	1.6	5.0	18.1	45.7	31.6	9.2	3.9	3.6	21	45.7	0.2	7.5	
	12	3.5	0.2	0.2	0.2	0.6	1.9	8.5	4.7	2.8	0.2	0.2	0.5	0.3	0.4	2.0	5.5	10.6	4.9	5.5	10.0	14.9	10.9	9.9	2.5	24	14.9	0.2	4.2
	13	1.8	1.2	2.9	10.0	13.5	9.0	4.2	3.3	M	M	M	M	M	M	1.7	1.9	1.8	14.1	23.2	23.1	24.1	21.8	18.8	17	24.1	1.2		
	14	18.6	19.0	17.0	15.7	14.4	13.7	10.8	5.2	2.3	1.9	1.6	4.0	3.2	1.6	0.8	1.3	0.3	0.2	0.6	4.3	5.9	6.1	9.1	8.5	24	19.0	0.2	6.9
	15	7.0	5.8	4.6	3.8	3.8	3.7	2.1	0.8	0.4	0.2	0.7	0.8	0.5	2.7	5.2	7.8	9.7	10.9	9.6	4.2	1.1	0.2	0.2	24	10.9	0.2	3.6	
	16	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.0	0.2	1.9	4.6	8.4	12.1	7.2	5.7	5.0	0.3	0.2	0.2	0.2	0.2	24	12.1	0.2	2.0	
	17	0.2	0.2	0.2	0.8	1.5	1.1	1.7	2.1	1.5	1.4	2.8	1.5	0.2	0.7	3.6	4.8	2.5	4.9	8.4	9.4	9.0	6.1	5.2	7.1	24	9.4	0.2	3.2
	18	6.1	5.2	4.7	3.8	3.5	2.3	2.5	2.8	3.1	3.6	5.4	4.4	1.1	2.9	0.4	0.2	0.3	0.2	0.2	0.8	5.4	4.2	4.4	6.0	24	6.1	0.2	3.1
	19	7.5	7.9	4.6	0.4	1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	1.0	4.6	3.9	5.1	6.2	8.2	13.1	17.4	24	17.4	0.2	3.5
	20	19.0	17.8	18.4	15.4	12.5	13.3	34.9	18.4	12.4	6.2	3.2	1.3	3.9	6.3	6.7	5.2	2.3	1.1	1.9	0.2	0.2	0.7	1.3	2.2	24	34.9	0.2	8.5
	21	3.4	4.6	5.5	5.3	4.7	4.1	3.6	2.7	0.6	0.2	0.2	0.7	1.7	0.8	0.9	0.9	4.2	8.8	8.4	8.1	10.3	14.8	14.1	10.3	24	14.8	0.2	4.9
	22	9.8	14.4	5.5	3.0	2.9	3.4	1.6	0.2	0.2	0.2	0.2	2.2	1.1	0.8	1.5	1.1	0.6	1.3	1.5	2.4	3.8	5.2	10.0	7.9	24	14.4	0.2	3.4
	23	6.7	6.6	7.0	9.4	9.1	9.9	6.9	3.4	1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.3	1.0	2.8	5.9	7.9	9.0	9.5	8.7	24	9.9	0.2	4.5
	24	8.3	8.2	9.2	11.6	14.2	17.6	13.1	7.6	4.5	2.9	4.3	5.2	5.3	4.5	4.7	4.2	4.3	8.0	7.1	12.5	16.9	16.6	13.4	12.0	24	17.6	2.9	9.0
	25	10.7	11.9	13.2	12.7	11.3	5.6	1.4	0.9	0.2	0.2	0.2	0.2	0.2	0.2	1.1	1.8	1.0	1.0	1.3	1.7	2.1	1.6	1.4	2.8	24	13.2	0.2	3.6
	26	3.1	3.3	3.8	3.8	4.9	4.9	3.4	1.5	0.8	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.7	0.4	0.4	24	4.9	0.2	1.4	
	27	0.6	0.2	0.8	1.2	1.9	0.2	0.2	0.2	1.0</																			

		PM _{2.5} - Rundle Road April 2015 (µg/m ³)																													
		Hour																													
Day		0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average		
1	4.7	4.1	4.5	5.0	5.4	5.7	6.2	4.7	2.7	2.7	2.8	2.6	2.6	2.9	3.0	3.3	2.8	2.8	4.0	8.8	10.3	9.4	10.0	7.4	24	10.3	2.6	4.9			
2	6.8	7.3	7.4	7.0	7.0	8.4	9.1	13.1	14.3	13.7	9.3	11.2	10.1	9.0	9.4	7.4	9.0	12.0	13.0	20.4	24.0	30.4	21.5	14.3	24	30.4	6.8	12.3			
3	5.9	6.8	5.9	10.0	20.3	15.6	18.9	10.5	32.7	22.3	13.9	10.9	11.8	15.3	15.3	14.2	18.2	5.4	2.9	3.3	2.4	3.5	3.5	3.5	24	32.7	2.4	11.4			
4	3.1	5.0	4.1	3.6	4.3	4.8	4.7	4.4	4.0	3.5	3.0	3.2	3.3	4.9	5.9	5.3	3.9	1.7	2.4	2.0	2.7	4.0	7.0	6.8	24	7.0	1.7	4.1			
5	2.7	2.1	2.2	2.7	3.3	3.1	3.4	4.4	4.1	5.9	4.8	5.8	6.9	8.7	7.0	6.7	7.1	8.0	9.6	10.7	18.5	14.5	17.2	19.7	24	19.7	2.1	7.5			
6	24.0	28.0	24.1	24.4	43.7	138.1	154.4	172.2	121.8	75.0	62.9	40.3	50.3	60.5	50.1	44.2	40.6	13.0	36.4	48.2	19.6	15.5	16.0	20.8	24	172.2	13.0	55.2			
7	62.0	92.9	78.6	78.4	61.5	63.6	38.5	26.6	19.1	17.8	12.2	22.2	45.6	73.6	79.0	71.1	68.8	56.1	55.2	58.8	52.7	56.7	47.9	41.3	24	92.9	12.2	53.3			
8	34.6	31.7	26.1	22.3	19.1	17.3	16.2	15.8	16.0	17.6	18.0	18.3	17.5	14.3	8.7	6.7	6.2	5.5	4.6	4.1	3.4	3.3	3.9	4.2	24	34.6	3.3	14.0			
9	4.1	4.3	4.9	5.0	5.3	6.4	7.4	5.5	5.9	7.8	11.9	12.7	14.1	10.3	6.8	6.7	9.8	12.7	11.7	11.2	13.0	11.7	8.3	24	14.1	4.1	8.5				
10	4.7	4.2	6.6	6.6	5.8	6.4	6.2	5.5	5.3	6.4	6.7	5.1	3.7	1.9	1.5	1.2	1.2	1.2	1.7	1.2	1.0	1.0	0.9	0.9	24	6.7	0.9	3.6			
11	0.8	0.8	0.9	1.0	1.0	1.6	2.1	2.1	1.9	1.6	1.4	1.8	1.6	1.4	1.6	1.7	2.2	3.3	4.4	7.7	12.2	13.0	14.0	14.6	24	14.6	0.8	4.0			
12	16.9	16.5	14.9	13.0	12.2	13.7	14.0	14.5	21.0	25.4	22.8	18.0	18.7	15.6	11.2	10.8	8.9	8.6	12.1	21.7	22.9	27.9	26.6	25.9	24	27.9	8.6	17.2			
13	24.4	21.8	17.4	13.7	13.3	12.6	11.8	10.5	8.5	10.1	9.6	10.2	10.2	10.0	13.2	15.7	13.9	16.3	11.5	2.2	2.4	2.7	2.7	2.7	24	24.4	2.2	11.1			
14	3.7	4.0	6.1	6.2	5.4	6.2	7.5	6.9	7.8	4.3	1.7	1.5	1.3	4.1	5.6	5.6	4.8	3.4	3.2	3.1	3.8	4.4	4.3	4.6	24	7.8	1.3	4.6			
15	4.5	4.3	4.2	3.9	4.1	4.3	4.3	3.1	3.3	3.2	3.4	4.9	10.9	9.5	10.5	5.7	5.9	6.4	6.6	9.2	10.8	23.6	12.1	9.0	24	23.6	3.1	7.0			
16	6.2	6.5	7.1	6.3	7.1	8.2	5.8	3.4	3.8	6.8	8.1	9.1	11.2	12.1	8.4	5.8	8.1	6.9	8.1	8.5	8.1	8.3	12.4	12.4	24	12.4	3.4	7.7			
17	22.4	30.6	33.9	47.1	38.2	31.6	40.7	41.8	21.7	35.9	24.6	20.6	20.9	23.1	23.4	15.2	17.5	17.8	22.6	25.5	22.8	5.1	4.0	4.1	24	47.1	4.0	24.6			
18	7.8	8.6	9.2	9.5	12.6	18.9	22.6	25.3	33.5	20.2	5.8	3.6	2.3	2.0	1.8	1.4	1.4	1.5	1.8	2.4	3.4	3.9	3.3	2.9	24	33.5	1.4	8.6			
19	2.4	3.0	2.5	2.8	3.4	3.9	2.8	1.6	1.9	2.7	2.4	3.5	5.3	2.9	2.8	1.2	2.5	5.4	3.5	3.0	2.9	2.8	3.7	24	5.4	1.2	3.0				
20	5.0	8.5	12.0	8.7	7.7	6.5	6.1	5.1	4.2	4.1	3.4	2.9	2.5	2.6	4.7	3.8	3.0	2.7	3.6	3.0	1.3	1.8	2.7	5.3	24	12.0	1.3	4.6			
21	6.5	2.7	1.8	2.0	2.4	10.7	12.9	12.0	9.9	8.8	5.5	5.1	4.9	4.1	4.8	4.9	3.9	3.7	4.5	6.9	7.4	7.5	9.4	8.1	24	12.9	1.8	6.3			
22	5.0	5.0	5.4	5.8	6.5	4.2	6.0	6.3	6.6	6.6	5.1	4.9	5.1	6.0	4.9	4.1	3.3	1.9	1.8	2.8	2.7	2.4	2.3	24	6.6	1.8	4.4				
23	3.1	3.6	3.4	3.1	2.9	3.0	3.9	2.6	2.4	2.2	1.9	1.9	2.0	2.2	2.8	2.5	2.0	3.2	2.8	3.7	3.0	2.9	2.8	24	3.9	1.9	2.7				
24	2.8	2.9	2.8	2.9	2.8	3.1	3.5	3.7	3.8	C	C	2.1	0.9	1.5	1.7	2.4	2.5	2.6	1.5	1.5	2.9	4.6	4.1	22	4.6	0.9	2.8				
25	4.2	5.0	4.6	4.5	10.4	8.6	6.5	2.0	0.7	0.2	0.7	2.3	4.2	2.2	2.6	4.2	4.0	3.9	5.6	9.7	13.0	12.6	5.2	2.7	24	13.0	0.2	5.0			
26	2.2	1.9	0.9	0.9	0.8	1.4	4.1	1.0	1.1	2.2	1.1	1.1	3.1	4.8	5.1	3.7	2.7														

		PM _{2.5} - Rundle Road May 2015 (µg/m ³)																													
		Hour																													
Day		0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average		
1	8.3	6.1	4.2	3.3	4.5	2.4	2.8	2.6	2.6	6.0	5.6	7.4	13.5	15.9	12.4	4.3	5.5	5.4	12.2	21.9	18.1	2.9	3.5	3.1	24	21.9	2.4	7.3			
2	2.5	2.2	2.2	2.8	3.1	2.9	2.2	2.3	2.9	4.4	10.2	7.9	8.3	7.8	3.5	2.7	4.0	3.2	4.7	5.5	6.4	7.8	9.9	9.4	24	10.2	2.2	5.0			
3	14.8	20.5	21.6	26.4	25.6	25.1	28.9	30.2	28.1	31.3	29.1	32.1	28.1	26.2	23.4	22.8	19.4	20.0	21.7	24.9	23.3	25.6	26.0	26.3	24	32.1	14.8	25.1			
4	26.8	23.6	20.5	20.4	22.1	22.7	27.4	19.9	16.3	15.1	18.6	22.2	21.6	16.0	15.1	21.9	21.0	19.8	24.4	24.6	25.3	22.9	15.0	8.8	24	27.4	8.8	20.5			
5	8.7	5.6	3.3	4.2	5.8	8.3	10.7	13.0	11.0	6.2	4.5	4.2	5.0	5.3	4.9	5.0	5.6	3.0	5.0	9.8	8.4	13.8	31.3	14.7	24	31.3	3.0	8.2			
6	10.4	9.6	9.5	12.9	18.0	29.4	24.0	10.1	8.8	6.5	6.3	4.7	6.2	2.3	2.1	2.1	4.8	4.6	5.5	16.4	14.0	18.1	13.5	18.6	24	29.4	2.1	10.8			
7	17.2	11.1	9.0	10.0	11.6	12.2	8.4	7.9	5.2	7.1	15.1	11.8	3.8	4.0	3.2	3.9	4.0	5.8	7.9	12.7	20.3	26.2	17.5	12.1	24	26.2	3.2	10.3			
8	10.1	8.0	7.0	6.3	6.8	7.7	9.4	12.3	14.0	21.5	23.2	18.0	17.5	18.9	18.6	10.7	9.8	8.6	9.3	10.4	12.4	13.8	17.4	15.8	24	23.2	6.3	12.8			
9	16.6	15.4	15.4	21.2	22.5	22.0	31.0	27.3	23.5	23.6	27.2	28.9	27.5	21.4	18.1	18.8	20.1	20.1	19.0	20.2	20.2	21.5	22.3	23.4	24	31.0	15.4	22.0			
10	27.0	34.7	37.3	42.8	40.9	33.2	30.1	31.9	23.8	10.5	23.0	37.9	37.1	28.7	14.4	8.9	7.8	18.2	26.4	24.6	16.7	2.2	2.0	2.3	24	42.8	2.0	23.4			
11	2.0	2.8	4.2	6.4	8.9	8.1	8.0	8.5	8.4	13.0	15.4	18.9	19.4	C	C	15.2	17.6	19.0	24.7	20.4	20.5	10.1	6.4	5.4	22	24.7	2.0	12.0			
12	3.7	1.8	2.8	4.3	5.6	8.1	9.6	7.4	4.5	2.6	3.6	3.3	2.5	2.3	3.3	3.8	7.3	3.9	3.9	6.0	8.5	6.1	5.0	2.2	24	9.6	1.8	4.7			
13	0.9	0.6	1.1	3.5	4.6	2.4	1.1	0.9	0.9	0.9	1.8	2.5	2.8	2.9	3.5	2.7	2.2	2.1	2.2	3.0	4.1	5.0	6.2	4.4	24	6.2	0.6	2.6			
14	5.2	6.4	7.0	7.3	6.8	7.8	6.8	5.4	4.7	5.4	4.6	5.4	5.5	3.9	3.7	3.5	3.7	6.9	11.5	9.4	14.4	15.7	14.4	12.8	24	15.7	3.5	7.4			
15	13.3	11.2	10.1	8.4	7.8	8.6	8.5	6.0	6.0	6.2	8.1	11.6	13.9	15.6	17.1	17.5	23.2	25.1	20.1	19.2	17.5	15.3	11.0	24	25.1	6.0	12.8				
16	9.8	10.9	13.0	13.2	13.4	14.6	14.7	12.8	12.8	12.6	14.7	24.9	40.8	40.2	24.7	11.3	7.7	5.6	4.5	3.4	3.5	2.9	1.9	1.4	24	40.8	1.4	13.1			
17	2.2	2.8	4.0	3.9	4.2	4.0	5.3	3.6	4.3	3.4	3.1	3.0	3.7	3.4	6.3	6.5	3.9	5.0	7.7	12.2	17.9	11.7	7.1	9.7	24	17.9	2.2	5.8			
18	8.7	8.4	8.7	9.4	9.7	8.2	7.1	7.9	8.7	8.8	11.3	11.6	10.4	8.0	7.3	5.4	4.8	5.1	6.5	8.2	14.7	11.1	10.1	12.2	24	14.7	4.8	8.8			
19	14.6	18.4	17.4	7.3	4.9	1.3	1.6	2.0	2.5	2.9	2.5	3.0	2.4	3.0	3.3	3.1	4.1	10.4	5.1	3.7	3.2	3.0	2.9	2.9	24	18.4	1.3	5.2			
20	4.0	3.9	4.8	4.4	2.6	5.0	15.6	8.3	6.4	5.0	4.2	2.9	7.8	7.4	7.8	5.0	5.5	5.5	4.6	4.1	4.1	4.4	4.6	4.9	24	15.6	2.6	5.5			
21	5.3	5.1	6.2	4.9	5.2	6.0	6.3	5.0	5.0	4.0	5.2	7.1	9.7	8.1	9.0	7.4	8.1	7.7	7.1	7.6	9.0	12.6	13.7	9.8	24	13.7	4.0	7.3			
22	11.3	9.2	4.0	3.5	3.9	4.3	4.1	4.0	3.1	3.1	3.7	7.1	4.9	3.6	4.0	3.3	2.7	2.5	2.4	3.4	4.8	5.4	6.6	6.4	24	11.3	2.4	4.6			
23	7.7	9.5	8.7	9.5	9.2	8.3	7.0	6.8	7.9	7.3	8.1	6.0	4.9	3.6	4.0	3.7	3.6	3.9	5.0	6.5	7.5	8.0	8.1	9.4	24	9.5	3.6	6.8			
24	10.9	12.2	13.6	16.4	16.6	18.8	16.3	10.9	9.7	9.8	15.3	14.5	11.7	11.0	9.8	10.3	12.3	14.1	16.1	22.9	27.6	31.8	26.9	20.1	24	31.8	9.7	15.8			
25	20.1	21.6	24.4	26.4	28.1	21.3	15.6	19.0	18.2	14.5	16.0	15.6	16.9	18.5	20.5	15.8	12.7	12.6	12.3	11.9	10.1	8.5	7.4	8.8	24	28.1	7.4	16.5			
26	11.6	11.6																													

		PM _{2.5} - Rundle Road June 2015 (µg/m ³)																													
		Hour																													
Day		0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Count	Maximum	Minimum	Average		
1	2.8	2.5	2.7	2.7	2.9	2.3	2.6	2.9	2.4	2.5	2.7	2.9	2.9	3.0	3.0	3.1	5.3	8.0	9.0	10.9	15.3	14.9	11.4	8.4	24	15.3	2.3	5.3			
2	6.0	4.3	4.7	4.9	4.6	4.8	3.4	1.9	1.3	1.2	0.9	0.8	1.0	0.9	0.8	0.8	1.4	1.0	1.9	3.6	3.9	2.8	3.3	3.2	24	6.0	0.8	2.6			
3	3.4	3.4	2.8	4.0	5.1	5.4	3.5	5.3	2.5	2.3	1.7	1.8	1.9	2.4	3.1	2.5	2.3	2.2	2.5	4.1	6.1	6.5	6.6	9.2	24	9.2	1.7	3.8			
4	9.8	6.9	6.8	5.1	5.2	4.1	2.9	2.5	3.4	4.3	3.7	3.8	6.8	6.1	4.3	6.5	6.5	8.2	8.0	7.6	8.4	9.0	14.2	13.1	24	14.2	2.5	6.6			
5	10.1	9.1	8.6	9.5	9.7	10.3	13.9	12.5	9.2	8.7	9.4	6.7	5.9	5.5	7.1	8.6	14.2	11.0	6.2	2.4	3.1	3.8	4.9	5.3	24	14.2	2.4	8.2			
6	4.9	3.8	3.9	4.1	4.4	4.5	4.3	4.2	4.4	4.8	5.8	6.1	6.5	5.8	5.0	4.2	5.0	5.9	5.9	6.2	8.3	11.8	17.7	23.0	24	23.0	3.8	6.7			
7	24.6	19.7	15.0	11.3	9.2	8.4	5.4	4.7	4.5	5.4	5.2	5.7	5.2	3.8	3.6	3.7	6.1	7.4	8.9	8.5	7.6	8.0	9.0	7.5	24	24.6	3.6	8.3			
8	7.5	7.1	3.4	2.1	2.9	3.5	6.1	5.5	2.2	1.7	2.3	1.2	1.1	2.7	2.4	3.0	4.6	4.7	4.4	5.6	7.4	8.4	10.7	15.4	24	15.4	1.1	4.8			
9	17.2	12.6	9.8	5.1	4.8	3.7	4.3	7.2	7.5	3.5	1.7	1.7	2.4	4.5	8.9	8.1	6.7	4.9	5.1	7.5	8.6	10.1	8.7	8.1	24	17.2	1.7	6.8			
10	9.4	10.5	13.6	13.5	14.9	18.7	18.1	12.7	14.7	13.6	32.3	29.3	24.8	26.2	24.2	21.6	17.7	18.4	17.6	14.9	11.0	11.8	12.6	24	32.3	9.4	17.3				
11	12.6	11.3	12.6	12.1	11.8	10.4	8.9	9.4	9.3	10.0	10.7	10.7	10.1	9.9	9.8	10.5	11.3	11.8	12.4	7.5	5.7	5.8	5.7	24	12.6	5.7	10.0				
12	7.1	7.0	6.0	5.8	8.3	4.7	5.7	7.9	9.4	8.9	7.5	7.0	9.1	8.1	7.5	6.9	6.6	5.2	3.4	1.2	1.1	1.1	1.6	24	9.4	1.1	5.8				
13	2.1	3.0	3.6	3.6	3.0	4.3	2.1	2.5	3.2	3.5	3.8	3.6	3.5	3.3	3.2	2.3	3.9	6.8	8.0	10.0	10.9	14.0	18.2	17.0	24	18.2	2.1	5.8			
14	14.6	12.0	10.2	9.2	7.7	6.7	6.7	6.5	6.7	7.8	7.7	8.9	10.4	8.8	9.5	9.3	8.3	6.9	5.0	2.6	1.8	1.4	1.0	1.4	24	14.6	1.0	7.1			
15	2.2	2.6	4.2	5.1	4.3	4.6	6.4	3.3	2.4	2.2	2.9	4.0	3.4	2.2	2.0	2.5	3.4	5.2	7.5	7.2	8.6	7.3	3.9	6.0	24	8.6	2.0	4.3			
16	8.1	3.6	3.9	5.9	2.5	1.8	3.4	3.1	3.7	4.3	5.6	6.9	6.7	6.4	5.8	6.4	10.3	10.3	10.7	9.4	8.5	8.3	9.3	24	10.7	1.8	6.4				
17	8.5	6.5	6.3	6.1	5.9	5.4	5.9	5.8	6.2	5.8	5.8	5.5	5.5	7.9	6.2	6.5	8.4	9.7	9.6	7.8	9.2	18.5	8.9	5.7	24	18.5	5.4	7.4			
18	6.6	6.1	7.2	4.9	4.9	5.2	5.5	3.9	5.2	6.4	6.6	5.6	6.1	6.8	8.0	9.6	9.2	6.9	11.5	11.8	10.1	9.4	9.2	8.0	24	11.8	3.9	7.3			
19	7.2	5.2	5.7	5.7	3.2	3.1	4.2	4.1	3.6	2.5	2.5	2.7	2.3	2.3	2.5	2.4	2.7	3.4	3.0	3.9	5.6	8.5	13.1	8.7	24	13.1	2.3	4.5			
20	8.2	7.2	5.8	5.4	4.3	3.7	2.3	2.0	2.3	2.5	2.6	2.3	2.8	2.6	2.6	2.7	3.7	5.2	4.8	4.8	7.2	6.1	6.2	7.7	24	8.2	2.0	4.4			
21	6.8	7.3	7.0	8.1	7.8	8.3	9.0	8.7	8.8	8.3	12.6	22.3	17.2	12.7	10.5	8.0	6.5	6.2	5.6	7.0	7.1	8.3	8.8	24	22.3	5.6	9.2				
22	10.3	10.6	10.7	10.1	10.2	11.2	10.5	9.5	8.4	8.3	7.5	6.2	6.0	4.7	3.6	4.1	3.6	3.5	5.9	7.8	6.8	5.5	7.3	7.0	24	11.2	3.5	7.5			
23	6.4	6.0	3.8	6.0	4.3	2.8	3.7	5.1	5.3	4.7	3.3	2.3	2.0	1.6	2.2	3.6	3.1	2.1	2.4	2.9	3.5	4.1	4.8	5.0	24	6.4	1.6	3.8			
24	5.8	5.5	5.3	5.4	5.7	5.2	4.7	4.3	4.4	5.6	6.7	5.6	5.7	5.0	4.7	3.6	3.6	3.6	3.7	4.3	4.7	5.4	5.9	24	6.7	3.6	4.9				
25	6.5	7.3	9.2	8.1	8.1	8.6	7.7	7.1	7.5	6.8	6.9	8.1	11.2	11.6	9.6	8.3	7.6	5.9	5.8	7.9	6.5	6.9	6.1	6.5	24	11.6	5.8	7.8			
26	7.8	7.6	7.0	7.0	6.8	6.9	5.8	5.2	4.1	4.0	4.2	4.7	4.8	4.8	4.5	4.8	5.7	5.7	5.8	7.0	7.6	15.8	15.3	8.7	24	15.8	4.0	6.7			

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

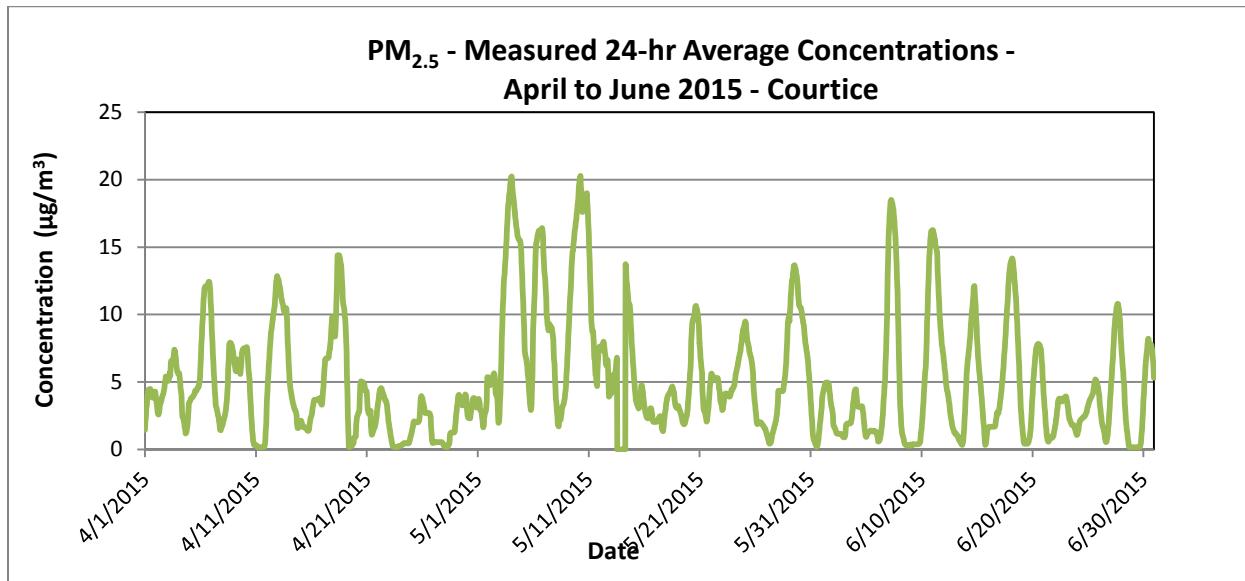
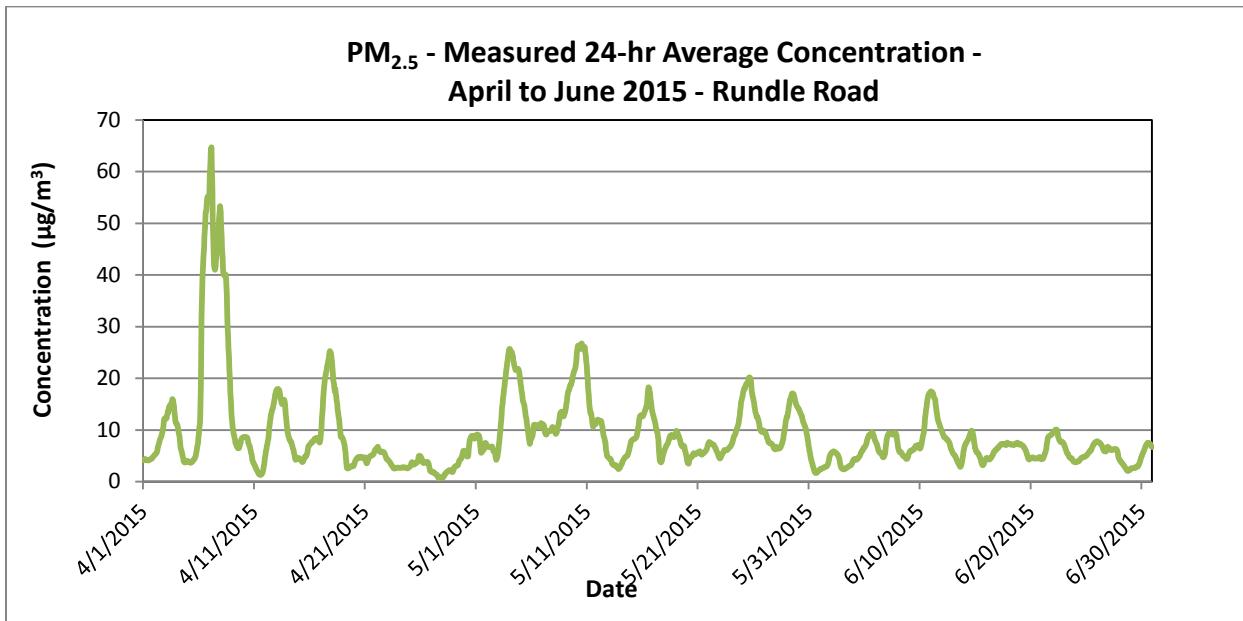


Figure D-2 Time History Plot of Measured 24-Hour Average PM_{2.5} Concentrations – Rundle Road Station



APPENDIX E

CONTINUOUS PARAMETER EDIT LOGS

EDIT LOG TABLE

Examples of Acceptable Edit Actions

Add offset of

Delete hours

Zero Correction

Slope Correction

Manual data entry

In invalidating span & zero check data

Invalidating data due to equipment

Invalidating data when instrumentation off-line

Marking data as out-of-range

...using data from Wang

EDIT LOG TABLE

Examples of Acceptable Edit Actions:

Add offset of

Delete hours

Zero Correction

Slope Correction

Slope correction Manual data entry

Invalidate span & zero check data

Invalidating span & zero check data
Invalidate data due to equipment

In invalidating data due to equipment failure

Marking data as out-of-range

Marking data as out-of-range

EDIT LOG TABLE

Examples of Acceptable Edit Actions

Add offset of

Delete hours

Zero Correction

Slope Correction

Manual data entry

Invalidating span & zero check data

Invalidating data due to equipment failure

Invalidating data when instrumentation off-line
Marking data as out-of-range

Marking data as out-of-range

EDIT LOG TABLE

Project Name	Durham York Energy Centre Ambient Air Monitoring Program						
Contact	Greg Crooks / Connie Lim / Tim Hung		Phone:	905-944-7777	E-mail:	greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com	
Station number:	N/A	Station Name:	Courtice WPCP Station				
Station address:	Courtice Water Pollution Control Plant	Emitter Address:	The Region of Durham, 605 Rossland Rd, Whitby, ON				
Pollutant or parameter:	Temperature	Instrument make & model:	Campbell Scientific Model HMP60	Serial Number:			
Data edit period	Start date:	1-Jan-15	End date:	30-Jun-15			Time Zone : EST
Edit #	Edit date	Editor's Name	Edit Action	Starting Date (dd/mm/yyyy)	Hour (xx:xx)	Ending Date (dd/mm/yyyy)	Hour (xx:xx)
							Reason

EDIT LOG TABLE

Project Name	Durham York Energy Centre Ambient Air Monitoring Program						
Contact	Greg Crooks / Connie Lim / Tim Hung		Phone:	905-944-7777	E-mail:	greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com	
Station number:	N/A	Station Name:	Courtice WPCP Station				
Station address:	Courtice Water Pollution Control Plant	Emitter Address:	The Region of Durham, 605 Rossland Rd, Whitby, ON				
Pollutant or parameter:	Rainfall	Instrument make & model:	Texas Electronic TE525M	Serial Number:			
Data edit period	Start date:	1-Jan-15	End date:	30-Jun-15			Time Zone : EST
Edit #	Edit date	Editor's Name	Edit Action	Starting Date (dd/mm/yyyy)	Hour (xx:xx)	Ending Date (dd/mm/yyyy)	Hour (xx:xx)
1	13-Jul-15	Timothy Hung	Invalidate data	28-Jun-15	18:00	30-Jun-15	23:00
							Rain gauge cable to data logger cut down by lawn mower. Still being repaired, however, for the purposes of the Q2 report, data has been invalidated up to the end of Q2 (June 30, 2015)

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 Lin / Tim Hung		Phone:	905-944-7777	E-mail:	greg.crooks@stantec.com, connie.lin@stantec.com, tim.hung@stantec.com	
Station number:	N/A	Station Name:	Courtice WPCP Station				
Station address:	Courtice Water Pollution Control Plant	Emitter Address:	The Region of Durham, 605 Rossland Rd, Whitby, ON				
Pollutant or parameter:	Relative Humidity	Instrument make & model:	Campbell Scientific Model HMP60	Serial Number:			
Data edit period	Start date:	1-Jan-15	End date:	30-Jun-15	Time Zone : EST		
Edit #	Edit date	Editor's Name	Edit Action	Starting Date (dd/mm/yyyy)	Hour (xx:xx)	Ending Date (dd/mm/yyyy)	Hour (xx:xx)
							Reason

EDIT LOG TABLE

Project Name	Durham York Energy Centre Ambient Air Monitoring Program						
Contact	Greg Crooks / Connie Lin / Tim Hung		Phone:	905-944-7777	E-mail:	greg.crooks@stantec.com, connie.lin@stantec.com, tim.hung@stantec.com	
Station number:	N/A	Station Name:	Courtice WPCP Station				
Station address:	Courtice Water Pollution Control Plant	Emitter Address:	The Region of Durham, 605 Rossland Rd, Whitby, ON				
Pollutant or parameter:	Atmospheric Pressure	Instrument make & model:	Campbell Scientific Model CS106	Serial Number:			
Data edit period	Start date:	1-Jan-15	End date:	30-Jun-15	Time Zone : EST		
Edit #	Edit date	Editor's Name	Edit Action	Starting Date (dd/mm/yyyy)	Hour (xx:xx)	Ending Date (dd/mm/yyyy)	Hour (xx:xx)
							Reason

Examples of Acceptable Edit Actions:

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

EDIT LOG TABLE

Project Name	Durham York Energy Centre Ambient Air Monitoring Program							
Contact	Lisa Heatherington	Phone:	N/A	E-mail:	Lisa.Hetherington@Durham.ca			
Station number:	N/A	Station Name:	Courtice WPCP Station					
Station address:	Courtice Water Pollution Control Plant	Emitter Address:	The Region of Durham, 605 Rossland Rd, Whitby, ON					
Pollutant or parameter:	Wind Speed/Wind direction	Instrument make & model:	N/A	Serial Number:				
Data edit period	Start date:	1-Jan-15	End date:	30-Jun-15	Time Zone : EST			
Edit #	Edit date	Editor's Name	Edit Action	Starting Date (dd/mm/yyyy)	Hour (xx:xx)	Ending Date (dd/mm/yyyy)	Hour (xx:xx)	Reason

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

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.

In invalidating data due to equipment malfunction

Marking data as out-of-range

EDIT LOG TABLE

Examples of Acceptable Edit Actions:

Add offset of

Invalidating span & zero check data

Delete hours

Invalidating data due to equipment malfunctions and power failures.

Zero Correction

Invalidating data when instrumentation off-line

Slope Correction

Marking data as out-of-range

EDIT LOG TABLE

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:	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-Jan-15	End date:	30-Jun-15	Time Zone : EST				
Edit #	Edit date	Editor's Name	Edit Action	Starting	Ending	Reason			
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)		

EDIT LOG TABLE

Project Name	Durham York Energy Centre Ambient Air Monitoring Program								
Contact	Greg Crooks / Connie Lim / 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:	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-Jan-15	End date:	30-Jun-15	Time Zone : EST				
Edit #	Edit date	Editor's Name	Edit Action	Starting	Ending	Reason			
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)		
1	13-Jul-15	Timothy Hung	Invalidate Data	10-Jun-15	00:00	18-Jun-15	14:00	Rain gauge full of water due to blockage from debris. Discovered and cleared on June 18, 2015. Based on rainfall at Courtice, was likely blocked from June 10, 2015	

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:	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-Jan-15	End date:	30-Jun-15				
Edit #	Edit date	Editor's Name	Edit Action	Starting	Ending	Reason		
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	

EDIT LOG TABLE

Project Name	Durham York Energy Centre Ambient Air Monitoring Program							
Contact	Greg Crooks / Connie Lim / 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:	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-Jan-15	End date:	30-Jun-15				
Edit #	Edit date	Editor's Name	Edit Action	Starting	Ending	Reason		
				Date (dd/mm/yyyy)	Hour (xx:xx)	Date (dd/mm/yyyy)	Hour (xx:xx)	

Examples of Acceptable Edit Actions:

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

