# Quarterly Ambient Air Quality Monitoring Report for the Durham York Energy Centre – January to March 2017

Durham York Energy Centre

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# Sign-off Sheet

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# Executive Summary

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

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

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

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

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

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

This quarterly report provides a summary of the ambient air quality data collected at the three stations for the period January to March (Calendar Quarter 1). Some operational issues at the sites were encountered this quarter including: $SO_2$ monitor power cable issues at both stations, and a lost sample due to a power outage at the Rundle Road Station. Data recovery rates for all measured air quality parameters for this quarter were acceptable. Additional details on instrumentation issues are presented in Section 3.2 of this report.

Site personnel noted ongoing Highway 418 construction on the north and south sides of Highway 401 between Courtice and Crago Roads during Quarter 1 2017.

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

1. Measured concentrations of $NO_2$, $SO_2$, and $PM_{2.5}$ were below the applicable O. Reg. 419/05 Standards or human health risk assessment (HHRA) health-based criteria presented in **Table 2-2** of this report.

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

3. The maximum measured concentrations of TSP and all metals with Ministry of Environment and Climate Change (MOECC) air quality Standards, were well below their applicable Standards (as presented in **Table 2-3** in this report).

4. The maximum measured concentrations of PAHs with MOECC air quality Standards were well below their applicable criteria shown in Table 2-4, with the exception of 24-hour benzo(a)pyrene (B(a)P) concentrations in two samples measured at the Courtice WPCP Station and five samples at the Rundle Road Station, which exceeded the applicable Ontario Ambient Air Quality Criteria (AAQC) by between 7% to 216%. The current Ontario 24-hour B(a)P AAQC was introduced in 2011 and levels above this AAQC are commonly measured throughout Ontario. The measurements were however, well below the MOECC Schedule 6 Upper Risk Threshold, the MOECC O. Reg. 419/05 24-hour average guideline, and the HHRA health based criterion.

5. The maximum measured toxic equivalent dioxin and furan concentration was below the applicable Standard presented in **Table 2-4**

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

# Abbreviations

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

| | |
|---|---|
| Cr | Chromium |
| Cu | Copper |
| Mn | Manganese |
| Ni | Nickel |
| Ag | Silver |
| Tl | Thallium |
| Sn | Tin |
| V | Vanadium |
| Zn | Zinc |
| **Miscellaneous** | |
| °C | Temperature in degrees Celsius |
| N/A | Not Available |
| % | Percent |
| ppm | Parts per million |
| ppb | Parts per billion |
| ppbv | Parts per billion by volume |
| ppt | Parts per trillion |
| min | Minimum |
| max | Maximum |
| mm | Millimetre |
| m | Metre |
| km/hr | Kilometres per hour |
| $mg/m^3$ | Milligrams per cubic metre |
| $\mu g/m^3$ | Microgram per cubic metre |
| $ng/m^3$ | Nanograms per cubic metre |
| $pg/m^3$ | Picograms per cubic metre |
| pg TEQ/$m^3$ | Picograms of toxic exposure equivalents per cubic metre |

# 1.0 INTRODUCTION

## 1.1 BACKGROUND AND OBJECTIVES

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

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

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

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

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

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

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

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

This quarterly report provides a summary of the ambient air quality data collected at the three stations for the period January to March 2017 (Q1).

## 1.2 LOCATIONS OF AMBIENT AIR QUALITY MONITORING STATIONS

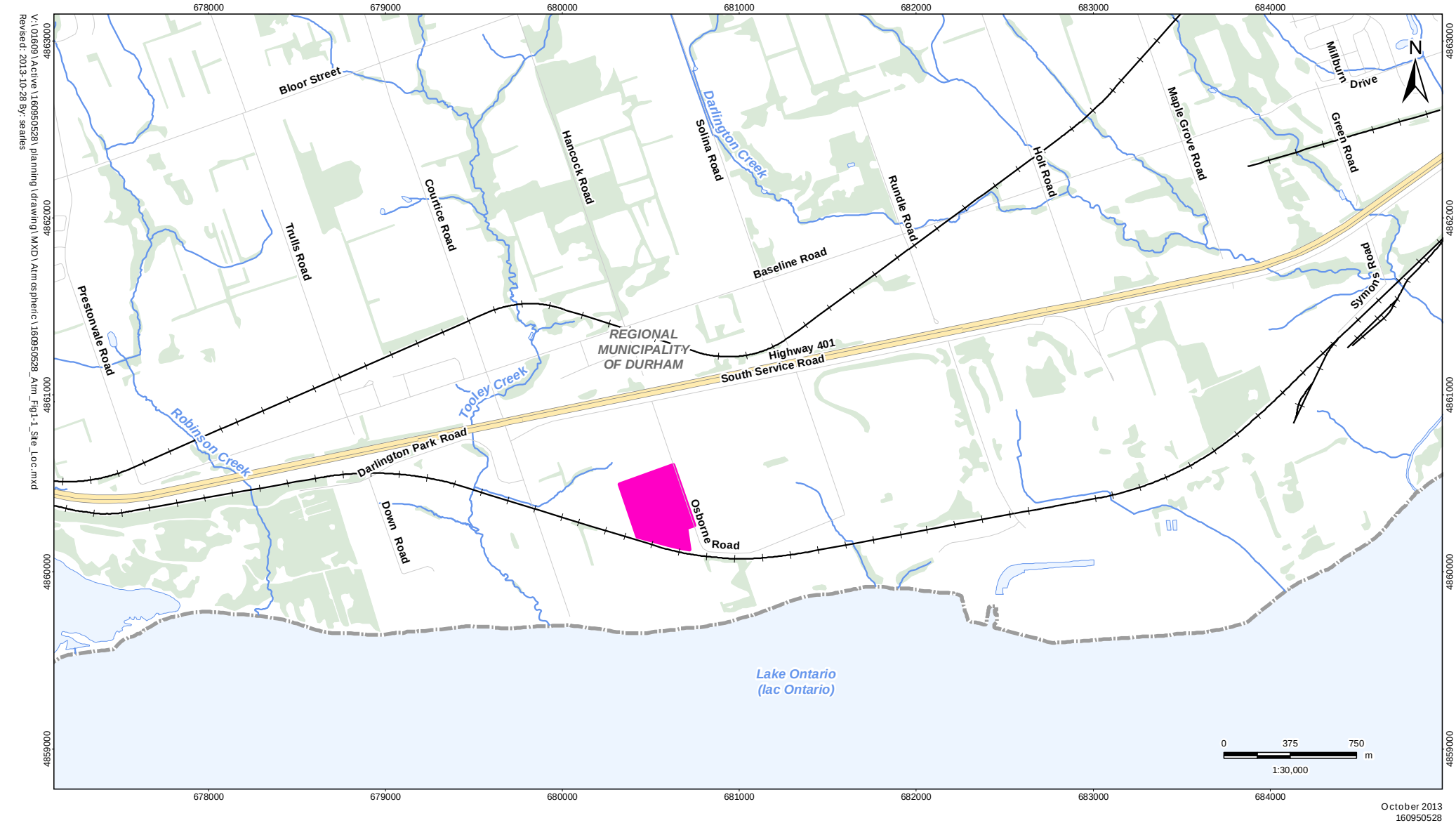
The selection of sites for the monitoring stations was accomplished in consultation with the Ontario Ministry of Environment and Climate Change (MOECC) and Regional Municipality of Durham and York representatives based on the results of air quality modelling done in support of the environmental assessment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

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

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

Introduction
May 9, 2017

A third Fence Line Station, which measures non-continuous parameters (metals and total particulate matter), was installed prior to full operation of the DYEC. As per Section 1.2 of the Ambient Monitoring Plan (Stantec, 2012), the Fence Line Station, which collects non-continuous parameters began operation after the Facility's commissioning period was completed. The Fence Line Station was scheduled to run for a one-year period but this period has been extended by one year for a total of two years. The location is presented in **Figure 1-2** and **Figure1-5**.

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October 2013
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Stantec

Legend

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

Notes

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


Client/Project

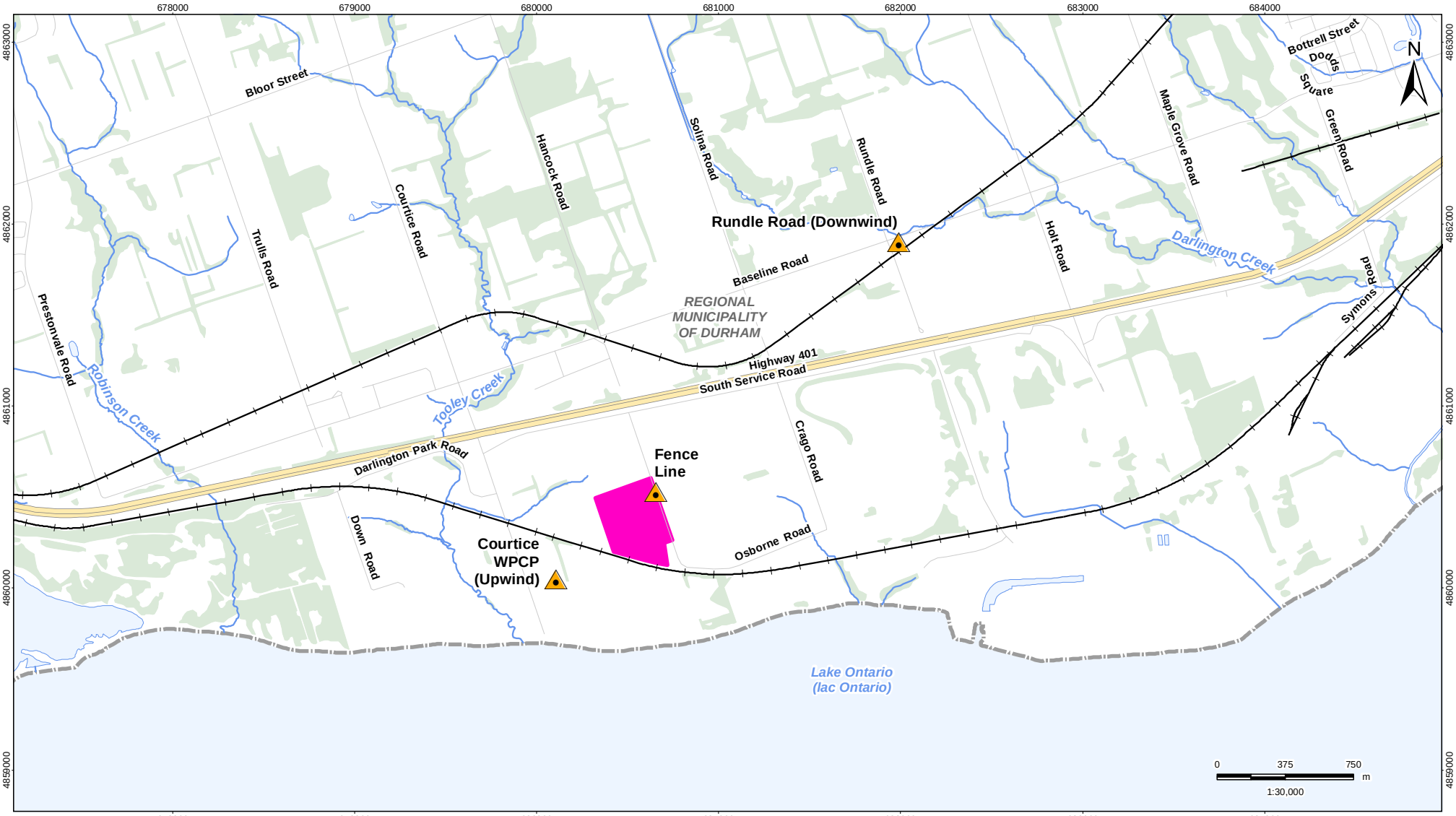
The Region of Durham
Durham York Energy Centre

Figure No.

1-1

Title

Site Location Plan

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Revised: 2016-05-11 By: searles

Stantec

Legend

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

Notes

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

Client/Project

The Region of Durham
Durham York Energy Centre

Figure No.

1-2

Title

# Locations of Ambient Monitoring Stations

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

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

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

# 2.0 KEY COMPONENTS ASSESSED

## 2.1 METEOROLOGY

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

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

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

## 2.2 AIR QUALITY CONTAMINANTS OF CONCERN

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

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

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

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

Key Components Assessed
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Metals:

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

Polycyclic Aromatic Hydrocarbons:

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

Dioxins and Furans:

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

## 2.3 AIR QUALITY CRITERIA

Two sets of criteria were used for comparison to the air quality data as specified in the Ambient Air Monitoring Plan (Stantec, 2012). The first set of criteria was the Standards reported in O. Reg. 419/05 (Schedules 3 and 6). These are compliance based Standards used throughout the province of Ontario. These criteria, along with O. Reg. 419/05 guidelines and Jurisdictional Screening Levels are unchanged but were consolidated in December 2016 into a new format known as the "Air Contaminants Benchmark List: Standards, Guidelines and Screening Levels for Assessing Point of Impingement Concentrations of Air Contaminants" (MOECC, 2016). However, not all chemicals have O. Reg. 419/05 Standards, or in some instances updated health-based criteria were used in the human health risk assessment (HHRA) conducted in support of the Environmental Assessment (July 31, 2009 - December 10, 2009). These health-based values, which were reported in Table 7-2 (Summary of Inhalation TRVs and Inhalation Benchmarks Selected for CACs) and Table 7-3 (Inhalation TRVs and Inhalation Benchmarks for Selected COPCs) of the HHRA (Stantec, 2009) were used as the second set of criteria.

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

Summaries of the relevant air quality criteria for the contaminants monitored in Q1 2017 are presented in **Table 2-2** to **Table 2-4**.

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

| Contaminant | CAS | O. Reg. 419/05 – Schedule 3 Standards /AAQC | | | HHRA Health-Based Criteria | | |
|---|---|---|---|---|---|---|---|
| | | 1-Hour (ppb / µg/m³) | 24-Hour (ppb / µg/m³) | Annual (ppb / µg/m³) | 1-Hour (ppb / µg/m³) | 24-Hour (ppb / µg/m³) | Annual (ppb / µg/m³) |
| Sulphur dioxide | 7446095 | 250 /690 | 100 / 275 | 20 / 55 | 250 / 690 | 100 / 275 | 11 / 29 |
| Nitrogen oxides [A] | 10102-44-0 | 200 /400 | 100 / 200 | - | 200 / 400 | 100 / 200 | 30 / 60 |
| **Contaminant** | **CAS** | **Canadian Ambient Air Quality Standards (CAAQS)** | | | **HHRA Health-Based Criteria** | | |
| | | 1-Hour (µg/m³) | 24-Hour (µg/m³) | Annual (µg/m³) | 1-Hour (µg/m³) | 24-Hour (µg/m³) | Other time Period (µg/m³) |
| $PM_{2.5}$ | N/A | - | 28 [B] | 10 [C] | - | 30 [D] | - |

**Notes**:

A. The Schedule 3 Standard for $NO_X$ is based on health effects of $NO_2$, as $NO_2$ has adverse health effects at much lower concentrations than NO. Therefore, the Standard was compared to $NO_2$ in this report. However, as per the current (December 2016) version of the Air Contaminants Benchmark List: Standards, Guidelines and Screening Levels for Assessing Point of Impingement Concentrations of Air Contaminants, the Standard was also compared to the monitored $NO_X$.

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

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

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

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

| Contaminant | CAS | O. Reg. 419/05 – Schedule 3 Standards | | | HHRA Health-Based Criteria | | |
|---|---|---|---|---|---|---|---|
| | | 1-Hour (µg/m³) | 24-Hour (µg/m³) | Other time Period (µg/m³) | 1-Hour (µg/m³) | 24-Hour (µg/m³) | Annual (µg/m³) |
| Total Particulate | NA | - | 120 | - | - | 120 | 60 |
| Aluminum | 7429-90-5 | - | 4.8 | - | - | - | - |
| Antimony | 7440-36-0 | - | 25 | - | 5 | 25 | 0.2 |
| Arsenic | 7440-38-2 | - | 0.3 | - | 0.2 | 0.3 | 0.015 [A] 0.0043 [B] |
| Barium | 7440-39-3 | - | 10 | - | 5 | 10 | 1 |
| Beryllium | 7440-41-7 | - | 0.01 | - | 0.02 | 0.01 | 0.007 [A] 0.0024 [B] |
| Bismuth | 7440-69-9 | - | | | | | |
| Boron | 7440-42-8 | - | 120 | - | 50 | - | 5 |

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

| Contaminant | CAS | O. Reg. 419/05 – Schedule 3 Standards | | | HHRA Health-Based Criteria | | |
|---|---|---|---|---|---|---|---|
| | | 1-Hour (µg/m³) | 24-Hour (µg/m³) | Other time Period (µg/m³) | 1-Hour (µg/m³) | 24-Hour (µg/m³) | Annual (µg/m³) |
| Cadmium | 7440-43-9 | - | 0.025 | 0.005; annual | 0.1 | 0.025 | 0.005 [A] 0.0098 [B] |
| Chromium (Total) | 7440-47-3 | - | 0.5 | - | 1 | - | 60 |
| Cobalt | 7440-48-4 | - | 0.1 | - | 0.2 | 0.1 | 0.1 |
| Copper | 8440-50-8 | - | 50 | - | - | - | - |
| Iron | 15438-31-0 | - | 4 | - | - | - | - |
| Lead | 7439-92-1 | - | 0.5 | 0.2; 30-day | 1.5 | 0.5 | 0.5 |
| Magnesium | 7439-95-4 | - | | | | | |
| Manganese | 7439-96-5 | - | 0.4 | - | - | - | - |
| Mercury | 7439-97-6 | - | 2 | - | 0.6 | 2 | 0.3 |
| Molybdenum | 7439-87-7 | - | 120 | - | - | - | - |
| Nickel | 7440-02-0 | - | 0.2 | 0.04; annual | 6 | - | 0.05 |
| Phosphorus | 7723-14-0 | - | - | - | - | - | $6.4 \times 10^7$ |
| Selenium | 7782-49-2 | - | 10 | - | 2 | 10 | 0.2 |
| Silver | 7440-22-4 | - | 1 | - | 0.1 | 1 | 0.01 |
| Strontium | 7440-24-6 | - | 120 | - | - | - | - |
| Thallium | 7440-28-0 | - | - | - | 1 | - | 0.1 |
| Tin | 7440-31-5 | - | 10 | - | 20 | 10 | 2 |
| Titanium | 7440-32-6 | - | 120 | - | - | - | - |
| Vanadium | 7440-62-2 | - | 2 | - | 0.5 | 1 | 1 |
| Uranium | 7440-61-1 | - | 1.5 | 0.03; annual | - | - | - |
| Zinc | 7440-66-6 | - | 120 | - | 50 | - | 5 |
| Zirconium | 7440-67-7 | - | 20 | - | - | - | - |

**Notes:**

A. Annual Average

B. Carcinogenic Annual Average

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

| Contaminant | CAS | O. Reg. 419/05 – Schedule 3 Standards | | | HHRA Health-Based Criteria | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1-Hour ($ng/m^3$) | 24-Hour ($ng/m^3$) | Other time Period ($ng/m^3$) | 1-Hour ($ng/m^3$) | 24-Hour ($ng/m^3$) | Annual ($ng/m^3$) | Toxic Equivalency Factor Annual [A, G] $(ng/m^3)^{-1}$ |
| 1-Methylnaphthalene | 90-12-0 | - | 12,000 | - | - | - | 3,000 | - |
| 2-Methylnaphthalene | 91-57-6 | - | 10,000 | - | - | - | 3,000 | - |
| Acenaphthene | 83-32-9 | - | - | - | 1,000 | - | - | 1 |
| Acenaphthylene | 208-96-8 | - | 3,500 | - | 1,000 | - | - | 10 |
| Anthracene | 120-12-7 | - | 200 | - | 500 | - | 50 | - |
| Benzo(a)anthracene | 56-55-3 | - | - | - | 500 | - | - | 100 |
| Benzo(b)fluoranthene | 205-99-2 | - | - | - | 500 | - | - | 100 |
| Benzo(k)fluoranthene | 207 -08-9 | - | - | - | 500 | - | - | 100 |
| Benzo(a)fluorene | 238-84-6 | - | - | - | 500 | - | 50 | - |
| Benzo(b)fluorene | 243-17-4 | - | - | - | 500 | - | 50 | - |
| Benzo (g,h,i) perylene | 191-24-2 | - | - | - | 500 | - | - | 100 |
| Benzo(a)pyrene | 50-32-8 | - | 0.05 [B]<br>5 [C]<br>1.1 [D] | 0.01; annual | - | 1 | 87 [A] | - |
| Benzo(e)pyrene | 192-97-2 | - | - | - | 500 | - | - | 10 |
| Biphenyl | 92-52-4 | - | - | - | - | - | 224,000 | - |
| Chrysene | 218-01-9 | - | | | | | | - |
| Dibenzo(a,c)anthracene | 215-58-7 | - | - | - | - | - | - | 100 |
| Dibenzo(a,h)anthracene | 53-70-3 | - | - | - | 500 | - | - | 1,000 |
| Fluoranthene | 206-44-0 | - | - | - | 500 | - | - | 1 |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | - | - | - | 500 | - | - | 100 |
| Naphthalene | 91-20-3 | - | 22,500 | - | - | 22,500 | 3,000 | - |
| o-Terphenyl | 84-15-1 | - | - | - | 50,000 | - | 5,000 | - |

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

| Contaminant | CAS | O. Reg. 419/05 – Schedule 3 Standards | | | HHRA Health-Based Criteria | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1-Hour ($ng/m^3$) | 24-Hour ($ng/m^3$) | Other time Period ($ng/m^3$) | 1-Hour ($ng/m^3$) | 24-Hour ($ng/m^3$) | Annual ($ng/m^3$) | Toxic Equivalency Factor Annual [A, G] $(ng/m^3)^{-1}$ |
| Perylene | 198-55-0 | - | - | - | 500 | - | - | 1 |
| Phenanthrene | 85-01-8 | - | - | - | 500 | - | - | 1 |
| Pyrene | 129-00-0 | - | - | - | 500 | - | - | 1 |
| Tetralin | 119-64-2 | - | | | | | | - |
| Dioxins and Furans Total Toxic Equivalency [E] | NA | - | 0.1 (pg TEQ/$m^3$) [F]<br>1 (pg TEQ/$m^3$) [C] | - | - | - | - | - |

**Notes:**

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

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

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

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

E. Application of the air standard for dioxins, furans, and dioxin-like PCBs requires the calculation of the total toxicity equivalent (TEQ) concentration contributed by all dioxin-like compounds in the mixture. TEQ is calculated using the methodology as per the O. Reg. 419/05 Summary of Standards and Guidelines, and the corresponding $WHO_{2005}$ toxic equivalency factors (i-TEFs).

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

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

# 3.0 INSTRUMENTATION SUMMARY AND FIELD CONDITIONS

## 3.1 INSTRUMENTATION

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

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

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

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

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

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

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

Horizontal wind speed, wind direction, atmospheric temperature, relative humidity, and rainfall are measured at the predominantly downwind Rundle Road Station. The meteorological sensors at the Rundle Road Station are mounted on an external 10 m aluminum tower. Atmospheric temperature, relative humidity, rainfall, and barometric pressure are measured at the predominantly upwind Courtice WPCP Station. Wind speed and wind direction data at the predominantly upwind location are measured on a 20 m tower and are provided by the Courtice Water Pollution Control Plant.

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

**Table 3-3 Summary of Meteorological Equipment**

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

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

## 3.2 INSTRUMENTATION ISSUES

Some operational issues at the sites were encountered this quarter including $SO_2$ monitor power cable issues at both stations and a lost sample due to a ground fault interrupter (GFI) trip resulting in a power outage to the Rundle Road Station PAH/D/F Hi-vol. A summary of operational issues for each measurement parameter during the monitoring period is presented in **Table 3-4** to **Table 3-6**.

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

| Parameter | Issues | Time Frame | Remedial Action |
|---|---|---|---|
| $SO_2$ | UV Lamp Warning | 20-Jan-17, 22-Feb-17 | Lamp re-calibrated. All data intact. |
| | Equipment supplier identified potential internal power cable issue. | 14-Mar-17 | Supplier provided a new power cable under warranty, which was installed by VES. All data intact. |
| | Internal clock not synchronized with actual time | 27-Feb-17 | Adjusted internal clock. All data intact. |
| $NO_X$ | Equipment supplier identified potential internal power cable issue. | 14-Mar-17 | Supplier provided a new power cable under warranty, which was installed by VES. All data intact. |
| | NO, NOx, $NO_2$ measurements inconsistent | Noted 15-Mar-17<br>Addressed 20-Mar-17 | Adjusted analogue voltages. Data downloaded directly from monitor. All data intact. |
| $PM_{2.5}$ | None | | |
| TSP/Metals Hi-Vol | Mass flow controller (MFC) unable to maintain consistent flow | Noted: 2-Feb-17 | Chart recorder for the 31-Jan-17 run showed a consistent flowrate through the sample and the sample results were comparable to other stations. The data was deemed valid.<br>The MFC was sent for repair and a spare immediately installed. The original MFC was re-installed after repair |
| PAH/ D/F Hi-Vol | None | | |

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

| Parameter | Issues | Time Frame | Remedial Action |
|---|---|---|---|
| $SO_2$ | Lamp voltage drift greater than acceptable levels identified. | Noted 23-Feb-17<br>Addressed 14-Mar-17 | The equipment manufacturer was contacted and they identified a systemic issue with the internal power cables of all monitors of the same vintage as the DYEC equipment. Replacement power cables were provided (under warranty) and installed by VES. All data intact. |
| | Internal clock not synchronized with actual time | 23-Feb-17 | Adjusted internal clock. All data intact. |
| $NO_X$ | Evidence of brief power outage | 6-Jan-17 | Reviewed and invalidated 2 minutes of data |
| | Internal clock not synchronized with actual time | 2-Feb-17 and 16-Mar-17 | Adjusted internal clock. All data intact. |
| | Equipment supplier identified potential internal power cable issue. | 14-Mar-17 | Supplier provided a new power cable under warranty, which was installed by VES. All data intact. |
| | NO, NOx, $NO_2$ measurements inconsistent | Noted 15-Mar-17<br>Addressed 20-Mar-17 | Adjusted analogue voltages. Data downloaded directly from monitor. All data intact. |
| $PM_{2.5}$ | Negative internal humidity reading | Noted 3-Mar-17<br>Addressed 20-Mar-17 | Recalibrated relative humidity sensor as per manufacturer's recommendation. No effect on data. |
| TSP/Metals Hi-Vol | None | | |
| PAH/ D/F Hi-Vol | GFI tripped during sample run. | 24-Feb-17 | 24-Feb-17 PAH / D/F sample invalidated. Reset GFI. Additional sealing applied to electrical connections and secured connections under sampler housing for additional shielding from precipitation. |
| Other | Wind sensor frozen | 7-Feb-17 | Invalidated 12 hours of data |

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

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

## 3.3 INSTRUMENTATION RECOVERY RATES

Data recovery rates for each continuous monitor at the three monitoring stations during Quarter 1 (January to March 2017) are presented in **Table 3-7** to **Table 3-9**.

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

| Parameter | Valid Measurement Hours | Data Recovery Rate (%) |
|---|---|---|
| $SO_2$ | 2144 | 99.3% [A] |
| $NO_X$ | 2147 | 99.4% [A] |
| $PM_{2.5}$ | 2153 | 99.7% [A] |
| Temperature | 2160 | 100% [A] |
| Rainfall | 2160 | 100% [A] |
| Relative Humidity | 2160 | 100% [A] |
| Pressure | 2160 | 100% [A] |
| Wind Speed/Direction | 2160 | 100% [A] |
| TSP/Metals | 15 [B] | 100% |
| PAHs | 7 [B] | 100% |
| Dioxins and Furans | 4 [B] | 100% |

**Notes:**

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

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

| Parameter | Valid Measurement Hours | Data Recovery Rate (%) |
|---|---|---|
| $SO_2$ | 2148 | 99.4% [A] |
| $NO_X$ | 2150 | 99.5% [A] |
| $PM_{2.5}$ | 2147 | 99.4% [A] |
| Temperature | 2160 | 100% [A] |
| Rainfall | 2160 | 100% [A] |

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

| Parameter | Valid Measurement Hours | Data Recovery Rate (%) |
|---|---|---|
| Relative Humidity | 2160 | 100% [A] |
| Wind Speed/Direction | 2148 | 99.4% [A] |
| TSP/Metals | 15 [B] | 100% |
| PAHs | 6 [B] | 86% [A] |
| Dioxins and Furans | 3 [B] | 75% |

**Notes:**

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

**Table 3-9 Summary of Data Recovery Rates for the Fence Line Station – January to March 2017**

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

**Notes:**

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

## 3.4 CONTINUOUS MONITOR INTERNAL CALIBRATIONS

Summaries of the Courtice WPCP and Rundle Road Station $SO_2$ and $NO_x$ monitor daily internal zero checks for Q1 2017 are presented in **Appendix A**. Daily internal zero checks are informal checks of an analyzer's response intended as a quick, convenient way to check for possible analyzer malfunction or calibration drift. They are not recommended as a basis for analyzer zero or span adjustments, calibration updates, or adjustment of ambient data (Environment Canada, 1995).

All internal zero calibrations of the $SO_2$ and $NO_x$ analyzers at the Courtice WPCP and Rundle Road Stations were less than 5 ppb throughout Q1.

## 3.5 FIELD CONDITION OBSERVATIONS

During Q1 2017 activities in the vicinity of the ambient air monitoring stations were observed that had the potential to be affecting air quality levels during the period. These observations were noted by Stantec and Valley Environmental Services personnel during field visits.

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Construction of Highway 418, which will connect with Highway 401 between Courtice Road and Crago Road was ongoing during this quarter. Highway 418 will provide a north-south link between Highway 401 and the Phase 2 expansion of Highway 407. The Highway 401/418 interchange will be located almost directly north of the DYEC. Throughout the quarter, hydro crews were observed working in a large area immediately north of the DYEC between Energy Drive and Hwy 401 for the relocation/re-alignment of South Service Road. The new South Service Road will be located immediately south of the existing South Service Road and run between Courtice Road and Crago Road. A photograph of South Service Road realignment construction is shown in **Figure 3-1**.

On the north side of Highway 401, the highway construction contractor has located a construction camp along Baseline Road about 1.5 km west of the Rundle Road Station. A photograph of construction activities during Q1 2017 just north of Highway 401 and about 1.5 km west of the Rundle Road Station is presented in **Figure 3-2**. A photograph of the construction area continuing north of Baseline Road is presented in **Figure 3-3**.

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

- Trucks idling while loading and unloading supplies at the WPCP Chemical Building about 50 m north of the Courtice WPCP Station.

During Q1, 2017 Boiler #1 at the DYEC was offline from February 6 to March 22, 2017 while Boiler #2 was offline from January 28 to March 17, 2017.

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

**Figure 3-2 View Looking Southwest from Baseline Road at the Highway 418 Construction Activities North of Highway 401**

**Figure 3-3 View Looking North from Baseline Road at the Highway 418 Construction Area**

# 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 January to March 2017 period are presented in **Table 4-1**.

**Table 4-1 Summary of Hourly Meteorological Measurements – January to March 2017**

| Parameter | | Courtice WPCP Station (Predominately Upwind) | Rundle Road Station (Predominately Downwind) | Units |
|---|---|---|---|---|
| Temperature | Maximum | 12.9 | 13.7 | $^0$C |
| | Minimum | -14.3 | -16.2 | $^0$C |
| | Mean (January) | -1.2 | -1.7 | $^0$C |
| | Mean (February) | -0.4 | -1.0 | $^0$C |
| | Mean (March) | -1.2 | -1.5 | $^0$C |
| | Mean (Period) | -1.0 | -1.4 | $^0$C |
| | Standard Deviation | 5.4 | 5.5 | $^0$C |
| Rainfall | Maximum | 8.4 | 8.2 | mm |
| | Minimum | 0.0 | 0.0 | mm |
| | Mean (January) | 0.09 | 0.10 | mm |
| | Mean (February) | 0.06 | 0.07 | mm |
| | Mean (March) | 0.09 | 0.10 | mm |
| | Mean (Period) | 0.08 | 0.09 | mm |
| | Standard Deviation | 0.43 | 0.50 | mm |
| Relative Humidity | Maximum | 95.7 | 99.6 | % |
| | Minimum | 22.8 | 25.4 | % |
| | Mean (January) | 73.5 | 78.8 | % |
| | Mean (February) | 69.6 | 74.6 | % |
| | Mean (March) | 65.2 | 69.3 | % |
| | Mean (Period) | 69.5 | 74.2 | % |
| | Standard Deviation | 15.2 | 16.0 | % |

**Table 4-1 Summary of Hourly Meteorological Measurements – January to March 2017**

| Parameter | | Courtice WPCP Station (Predominately Upwind) | Rundle Road Station (Predominately Downwind) | Units |
|---|---|---|---|---|
| Pressure [A] | Maximum | 30.5 | - | in Hg |
| | Minimum | 28.9 | - | in Hg |
| | Mean (January) | 29.6 | - | in Hg |
| | Mean (February) | 29.6 | - | in Hg |
| | Mean (March) | 29.8 | - | in Hg |
| | Mean (Period) | 29.7 | - | in Hg |
| | Standard Deviation | 0.3 | - | in Hg |
| Wind Speed [B] | Maximum | 55.9 | 43.6 | km/hr |
| | Minimum | 0.1 | 0.0 | km/hr |
| | Mean (January) | 14.1 | 12.9 | km/hr |
| | Mean (February) | 13.6 | 12.8 | km/hr |
| | Mean (March) | 16.6 | 13.6 | km/hr |
| | Mean (Period) | 14.8 | 13.1 | km/hr |
| | Standard Deviation | 7.8 | 7.4 | km/hr |

**Notes:**

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

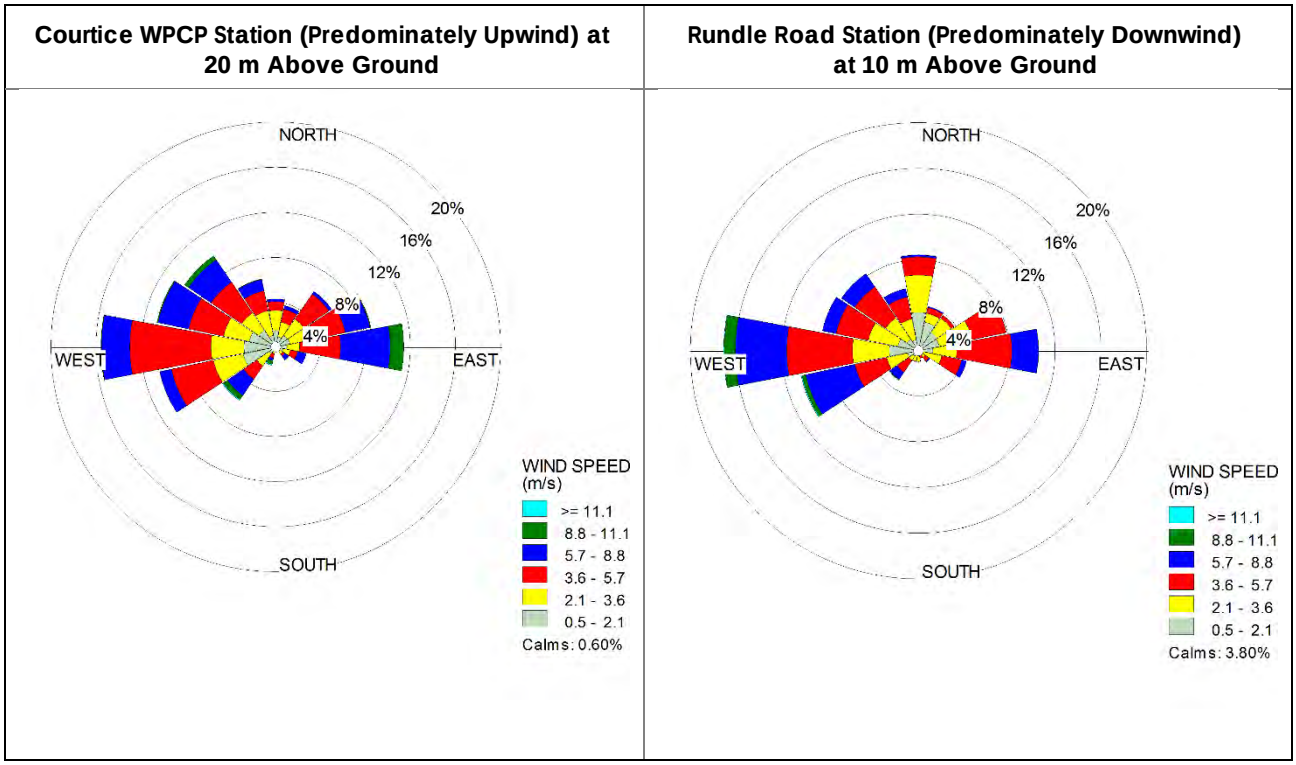
B. Wind speed at Courtice WPCP Station measured at 20 m and at Rundle Road Station at 10 m.

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

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

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

**Figure 4-1 Wind Roses for January to March 2017**




## 4.2 CAC AMBIENT AIR QUALITY MEASUREMENTS

A summary of the maximum, minimum, arithmetic mean, and standard deviation of the CAC pollutant concentrations measured at each station are presented in **Table 4-2**. Also presented in this table are the number of exceedances (if any occurred), of the relevant O. Reg. 419/05 Schedule 3 Standards, Ontario Ambient Air Quality Criteria (AAQC) or health-based criteria for each contaminant. All monitored contaminants were below their applicable criteria during the period January to March 2017.

Nitric oxide (NO) has no regulatory criteria as discussed in Section 4.2.2 below. There are both hourly and daily AAQCs as well as O. Reg. 419/05 Schedule 3 Standards for $NO_X$ which are based on health effects of $NO_2$, therefore the AAQC were compared to measured $NO_2$ concentrations in this report. As per the current (December 2016) version of the Air Contaminants Benchmark List: Standards, Guidelines and Screening Levels for Assessing Point of Impingement Concentrations of Air Contaminants (MOECC, 2016), the Schedule 3 Standard for $NO_X$ was also 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**.

Summary of Ambient Measurements
May 9, 2017

## Table 4-2 Summary of Ambient CAC Monitoring Data – January to March 2017

| Pollutant | Averaging Period | AAQC / Schedule 3 / HHRA Health-Based Criteria | | | Courtice WPCP Station (Predominately Upwind) | | Rundle Road Station (Predominately Downwind) | |
|---|---|---|---|---|---|---|---|---|
| | | ppb | µg/m³ | | Concentration (ppbv) | Concentration (µg/m³) | Concentration (ppbv) | Concentration (µg/m³) |
| SO2 | 1 | 250 | 690 | Maximum | 39.4 | 111.5 | 3.9 | 11.6 |
| | | | | Minimum | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | Mean (January) | 1.2 | 3.5 | 0.5 | 1.3 |
| | | | | Mean (February) | 2.1 | 6.0 | 0.5 | 1.4 |
| | | | | Mean (March) | 1.4 | 4.0 | 0.3 | 0.7 |
| | | | | Mean (Period) | 1.6 | 4.4 | 0.4 | 1.1 |
| | | | | Standard Deviation | 2.7 | 7.6 | 0.4 | 1.3 |
| | | | | # of Exceedances | 0 | 0 | 0 | 0 |
| | 24 | 100 | 275 | Maximum | 12.7 | 35.8 | 1.7 | 5.0 |
| | | | | Minimum | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | Mean (January) | 1.2 | 3.5 | 0.5 | 1.3 |
| | | | | Mean (February) | 2.1 | 5.9 | 0.5 | 1.4 |
| | | | | Mean (March) | 1.4 | 3.9 | 0.3 | 0.7 |
| | | | | Mean (Period) | 1.5 | 4.4 | 0.4 | 1.1 |
| | | | | Standard Deviation | 1.6 | 4.5 | 0.4 | 1.0 |
| | | | | # of Exceedances | 0 | 0 | 0 | 0 |

Summary of Ambient Measurements
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## Table 4-2 Summary of Ambient CAC Monitoring Data – January to March 2017

| Pollutant | Averaging Period | AAQC / Schedule 3 / HHRA Health-Based Criteria | | | Courtice WPCP Station (Predominately Upwind) | | Rundle Road Station (Predominately Downwind) | |
|---|---|---|---|---|---|---|---|---|
| | | ppb | µg/m³ | | Concentration (ppbv) | Concentration (µg/m³) | Concentration (ppbv) | Concentration (µg/m³) |
| PM2.5 | 24 | N/A | 28 [A] | Maximum | - | 27.7 | - | 35.8 |
| | | | | Minimum | - | 0.4 | - | 0.2 |
| | | | | Mean (January) | - | 7.1 | - | 9.8 |
| | | | | Mean (February) | - | 6.9 | - | 9.3 |
| | | | | Mean (March) | - | 5.2 | - | 6.0 |
| | | | | Mean (Period) | - | 6.4 | - | 8.3 |
| | | | | Standard Deviation | - | 4.5 | - | 6.5 |
| | | | | # of Exceedances | - | N/A | - | N/A |
| NO2 | 1 | 200 [B] | 400 [B] | Maximum | 42.8 | 89.4 | 33.3 | 70.4 |
| | | | | Minimum | 0.2 | 0.4 | 0.0 | 0.0 |
| | | | | Mean (January) | 8.8 | 18.1 | 7.4 | 15.1 |
| | | | | Mean (February) | 8.2 | 16.7 | 6.0 | 12.1 |
| | | | | Mean (March) | 5.5 | 11.3 | 3.6 | 7.3 |
| | | | | Mean (Period) | 7.5 | 15.3 | 5.6 | 11.5 |
| | | | | Standard Deviation | 7.0 | 14.3 | 5.6 | 11.5 |
| | | | | # of Exceedances | 0 | 0 | 0 | 0 |
| | 24 | 100 [B] | 200 [B] | Maximum | 25.1 | 52.0 | 22.9 | 47.3 |
| | | | | Minimum | 1.1 | 2.3 | 0.1 | 0.2 |
| | | | | Mean (January) | 8.7 | 17.9 | 7.4 | 15.1 |
| | | | | Mean (February) | 8.2 | 16.7 | 5.9 | 12.0 |

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## Table 4-2 Summary of Ambient CAC Monitoring Data – January to March 2017

| Pollutant | Averaging Period | AAQC / Schedule 3 / HHRA Health-Based Criteria | | | Courtice WPCP Station (Predominately Upwind) | | Rundle Road Station (Predominately Downwind) | |
|---|---|---|---|---|---|---|---|---|
| | | ppb | µg/m³ | | Concentration (ppbv) | Concentration (µg/m³) | Concentration (ppbv) | Concentration (µg/m³) |
| | | | | Mean (March) | 5.5 | 11.3 | 3.7 | 7.5 |
| | | | | Mean (Period) | 7.5 | 15.3 | 5.6 | 11.5 |
| | | | | Standard Deviation | 4.5 | 9.1 | 4.0 | 8.1 |
| | | | | # of Exceedances | 0 | 0 | 0 | 0 |
| NO [C] | 1 | N/A | N/A | Maximum | 67.2 | 90.5 | 88.5 | 121.3 |
| | | | | Minimum | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | Mean (January) | 2.6 | 3.5 | 1.7 | 2.2 |
| | | | | Mean (February) | 3.4 | 4.6 | 1.1 | 1.5 |
| | | | | Mean (March) | 1.8 | 2.5 | 1.1 | 1.5 |
| | | | | Mean (Period) | 2.6 | 3.5 | 1.3 | 1.7 |
| | | | | Standard Deviation | 4.7 | 6.3 | 3.1 | 4.2 |
| | | | | # of Exceedances | N/A | N/A | N/A | N/A |
| | 24 | N/A | N/A | Maximum | 19.6 | 26.5 | 7.9 | 10.8 |
| | | | | Minimum | 0.3 | 0.4 | 0.0 | 0.0 |
| | | | | Mean (January) | 2.6 | 3.5 | 1.7 | 2.2 |
| | | | | Mean (February) | 3.4 | 4.6 | 1.1 | 1.5 |
| | | | | Mean (March) | 1.8 | 2.5 | 1.2 | 1.6 |
| | | | | Mean (Period) | 2.6 | 3.5 | 1.3 | 1.8 |
| | | | | Standard Deviation | 2.5 | 3.4 | 1.2 | 1.7 |
| | | | | # of Exceedances | N/A | N/A | N/A | N/A |

Summary of Ambient Measurements
May 9, 2017

## Table 4-2 Summary of Ambient CAC Monitoring Data – January to March 2017

| Pollutant | Averaging Period | AAQC / Schedule 3 / HHRA Health-Based Criteria | | | Courtice WPCP Station (Predominately Upwind) | | Rundle Road Station (Predominately Downwind) | |
|---|---|---|---|---|---|---|---|---|
| | | ppb | µg/m³ | | Concentration (ppbv) | Concentration (µg/m³) | Concentration (ppbv) | Concentration (µg/m³) |
| NOX | 1 | 200 [B] | 400 [B] | Maximum | 106.9 | 223.5 | 89.3 | 187.7 |
| | | | | Minimum | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | Mean (January) | 11.5 | 23.6 | 8.9 | 18.3 |
| | | | | Mean (February) | 11.4 | 23.3 | 6.9 | 14.0 |
| | | | | Mean (March) | 7.2 | 14.8 | 4.7 | 9.5 |
| | | | | Mean (Period) | 10.0 | 20.5 | 6.8 | 13.9 |
| | | | | Standard Deviation | 10.6 | 21.9 | 7.5 | 15.3 |
| | | | | # of Exceedances | 0 | 0 | 0 | 0 |
| | 24 | 100 [B] | 200 [B] | Maximum | 45.0 | 93.1 | 30.7 | 63.6 |
| | | | | Minimum | 1.4 | 2.9 | 0.0 | 0.1 |
| | | | | Mean (January) | 11.4 | 23.4 | 9.0 | 18.4 |
| | | | | Mean (February) | 11.4 | 23.3 | 6.8 | 13.9 |
| | | | | Mean (March) | 7.2 | 14.9 | 4.8 | 9.7 |
| | | | | Mean (Period) | 10.0 | 20.4 | 6.9 | 14.0 |
| | | | | Standard Deviation | 6.6 | 13.6 | 4.9 | 9.9 |
| | | | | # of Exceedances | 0 | 0 | 0 | 0 |

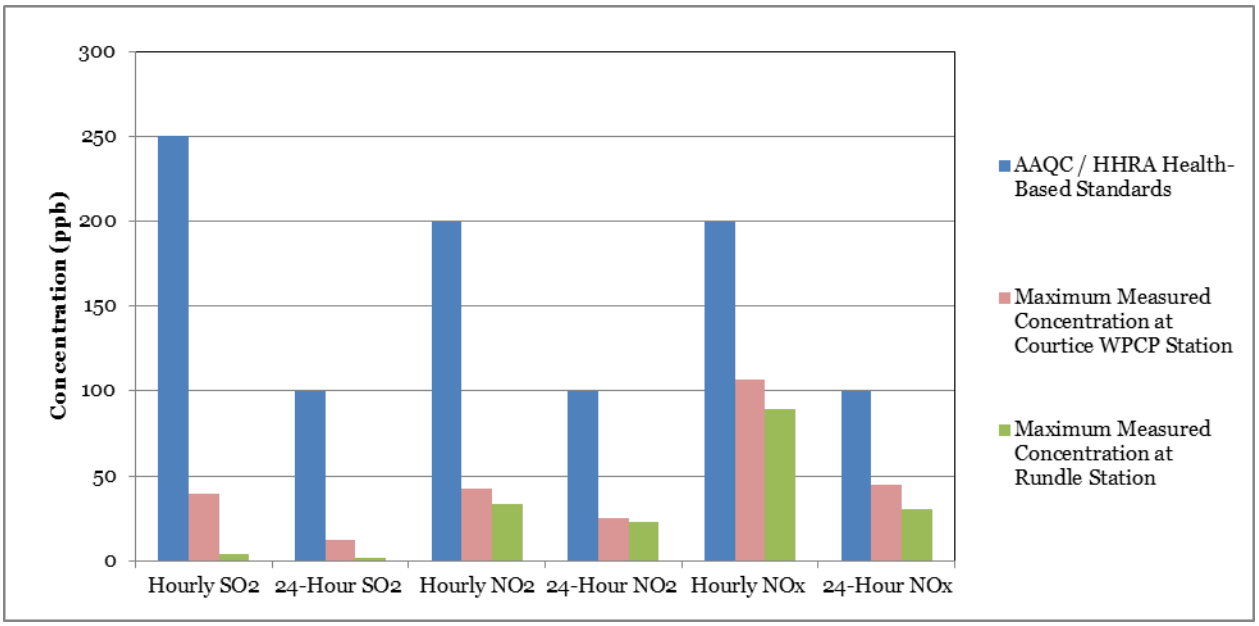
**Notes:**

A. Canadian Ambient Air Quality Standard for Respirable Particulate Matter. The Respirable Particulate Matter Objective is referenced to the 98th percentile over 3 consecutive years.

B. As per current version (December 2016) of Air Contaminants Benchmark List: Standards, Guidelines and Screening Levels for Assessing Point of Impingement Concentrations of Air Contaminants, the air standard for $NO_X$ is compared to a monitored $NO_X$ concentration, although the O. Reg. 419/05 Schedule 3 Standard for $NO_X$ is based on health effects of $NO_2$.

C. NO has no regulatory criteria.

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




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

### 4.2.1 Sulphur Dioxide ($SO_2$)

Data summaries are presented in **Appendix B** for sulphur dioxide for each station and month as well as time history plots of the hourly and 24-hour average $SO_2$ concentrations. For the hourly and 24-hour averages, the Ontario AAQCs of 250 ppb and 100 ppb (690 µg/m³ and 275 µg/m³) are shown with blue lines in the respective plot. As shown in these figures, measured ambient $SO_2$ concentrations at both stations were well below the Ontario AAQCs.

The maximum hourly and 24-hour average $SO_2$ concentrations measured at the Courtice WPCP Station during January to March 2017 were 39.4 and 12.7 ppb (111.5 and 35.8 µg/m³) respectively, which are 15.8% and 12.7% of the applicable 1-hour and 24-hour Ontario AAQCs.

The maximum hourly and 24-hour average $SO_2$ concentrations measured at the Rundle Road Station during this quarter were 3.9 and 1.7 ppb (11.6 and 5 µg/m³) respectively, which are 1.6% and 1.7% of the applicable 1-hour and 24-hour Ontario AAQCs.

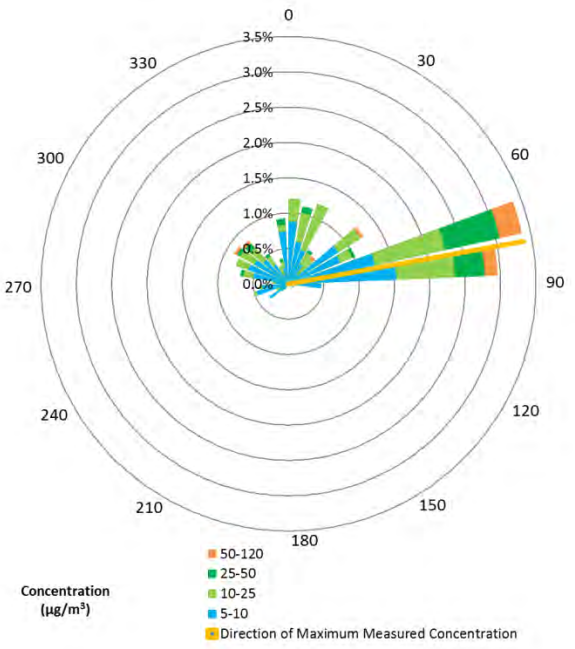
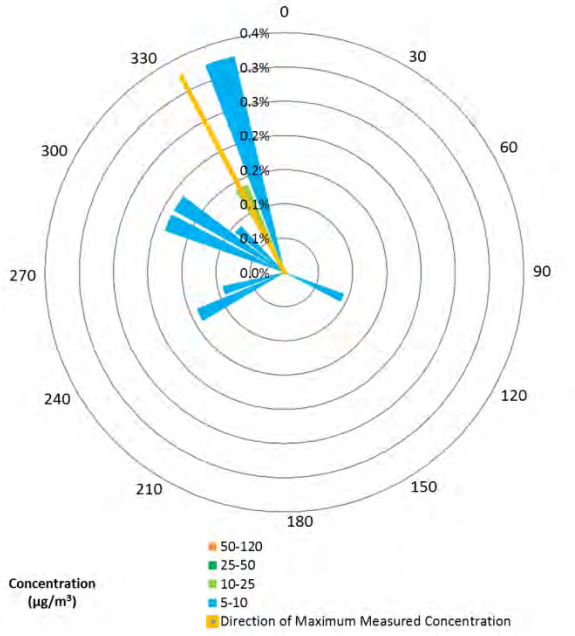
Pollution roses of hourly average $SO_2$ concentrations measured at the Courtice WPCP Station and Rundle Road Station are presented in **Figure 4-3**. The pollution rose plots present measured hourly average contaminant concentrations versus measured wind direction (over 10° wind sectors). Concentrations less than 5 µg/m³, which account for 78% of the measurements at the Courtice WPCP and 97% at the Rundle Road Station, have been removed from the plot to allow the distribution of maximum levels to be more clearly shown in the figure. For the Courtice WPCP

Station, higher hourly concentrations were measured when winds were blowing from easterly directions. For the Rundle Road Station, higher hourly concentrations occurred for north-northwesterly winds.

The maximum hourly $SO_2$ concentrations measured at the Courtice WPCP and Rundle Road Stations occurred on February 7, 2017 at 11:00 and March 15, 2017 at 4:00 measuring 39.4 and 3.9 ppb (111.5 and 11.6 µg/m³), respectively. The highest measured concentration at the Courtice WPCP Station occurred for winds blowing from the east-northeast, for which the Courtice WPCP, a CN railroad and the St. Mary's Cement plant were upwind. The maximum measured concentration at the Rundle Road Station occurred for a north-northwesterly wind for which agricultural activities and local roads were upwind.

The maximum 24-hour average $SO_2$ concentrations at the Courtice WPCP and Rundle Road Stations were 12.7 and 1.7 ppb (35.8 and 5 µg/m³) and occurred on February 8, 2017 and March 15, 2017 respectively. The wind directions during the measurements at the Courtice WPCP and Rundle Road Stations were from the east-northeast and north-northwest respectively. The Courtice WPCP, a CN railroad and the St. Mary's Cement plant were upwind of the Courtice WPCP Station, while for the Rundle Road Station measurement, agricultural areas and local roads were generally upwind of the station for this wind direction.

**Figure 4-3 Pollution Roses of Measured Hourly Average $SO_2$ Concentrations – January to March 2017**

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



## 4.2.2 Nitrogen Dioxide ($NO_2$)

Nitrogen oxides ($NO_X$) are almost entirely made up of nitric oxide (NO) and nitrogen dioxide ($NO_2$). Together, they are often referred to as $NO_X$. Most $NO_2$ in the atmosphere is formed by the oxidation of NO, which is emitted directly by combustion processes, particularly those at high temperature and pressure. Exposure to both NO and $NO_2$ can result in adverse health effects to an exposed population. $NO_2$ is the regulated form of $NO_X$. Similar to other jurisdictions (e.g., Alberta Environment, World Health Organization), the O. Reg. 419/05 Schedule 3 Standards for $NO_X$ are based on health effects of $NO_2$, as health effects are seen at much lower concentrations of $NO_2$ than NO. In this report, because $NO_2$ is the regulated form of $NO_X$, the AAQC were compared to measured $NO_2$ concentrations. However, as per the current (December 2016) version of the Air Contaminants Benchmark List: Standards, Guidelines and Screening Levels for Assessing Point of Impingement Concentrations of Air Contaminants, the Schedule 3 $NO_X$ criteria were also compared to the monitored $NO_X$ concentrations (see Section 4.2.3 below).

Data summaries are presented in **Appendix C** for nitrogen dioxide for each station and month as well as time history plots of the hourly and 24-hour average $NO_2$ concentrations. For the hourly and 24-hour averages, the Ontario AAQCs of 200 ppb and 100 ppb (400 µg/m³ and 200 µg/m³) are shown with blue lines on the respective plot. As shown in these figures, measured ambient $NO_2$ concentrations at both stations were well below the Ontario AAQCs.

The maximum hourly and 24-hour average $NO_2$ concentrations measured at the Courtice WPCP Station during this quarter were 42.8 and 25.1 ppb (89.4 and 52 µg/m³) respectively, which are 21.4% and 25.1% of the applicable 1-hour and 24-hour Ontario AAQCs. At the Rundle Road Station, the maximum measured hourly and 24-hour average concentrations were 33.3 and 22.9 ppb (70.4 and 47.3 µg/m³), which are 16.7% and 22.9% of the applicable 1-hour and 24-hour Ontario AAQCs.

Pollution roses of measured hourly average $NO_2$ concentrations are presented in **Figure 4-4**. To more clearly show the distribution of maximum levels in the figures, concentrations less than 20 µg/m³, which account for 76% of the measurements at the Courtice WPCP Station and 81% at the Rundle Road Station, have been removed from the plots.

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

The maximum measured hourly average $NO_2$ concentration at the Courtice WPCP was 42.8 ppb (89.4 µg/m³) on February 13, 2017 at 20:00. During this hour, the wind at the Courtice WPCP Station was blowing from the northwest, for which Highway 401 and the CN Railroad were upwind. The measured hourly $NO_2$ concentration at the MOECC Oshawa Station in the same hour was 9 ppb which is lower than that at the Courtice WPCP Station, suggesting the elevated hourly concentration was due to local emissions sources.

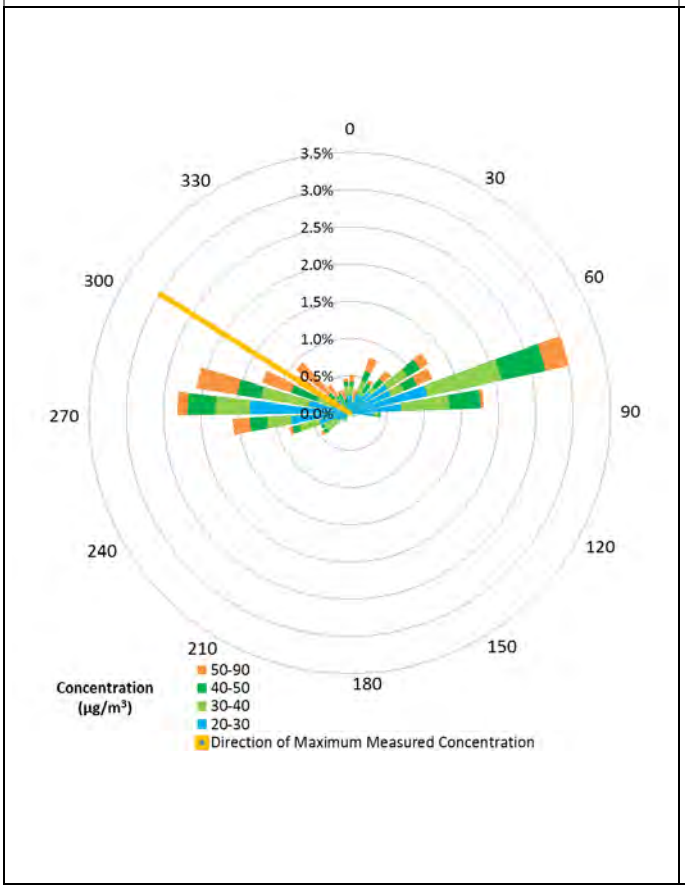
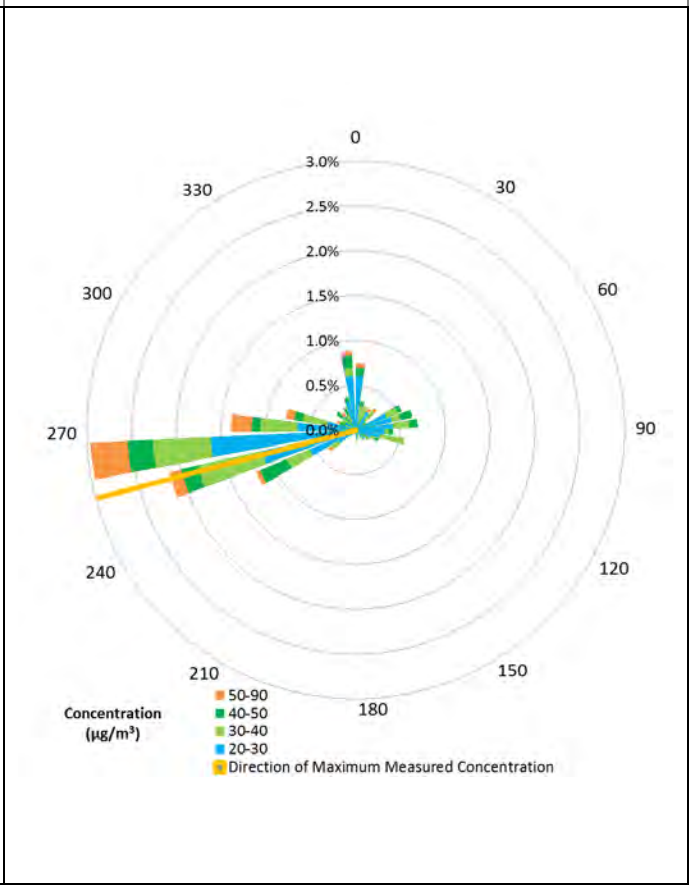
The maximum measured hourly average $NO_2$ concentration at the Rundle Road Station was 33.3 ppb (70.4 µg/m³) on January 15, 2017 at 0:00, at which time winds were blowing from the west. Local roads, commercial facilities along Baseline Road and Highway 418 construction areas were upwind of the Rundle Road Station for this direction. At the same time, the measured $NO_2$ concentrations at the MOECC Oshawa Station and the Courtice WPCP Stations were 31 ppb and 31.8 ppb respectively, which is comparable to that at the Rundle Station, suggesting that the elevated Rundle Road Station measurement was due to elevated regional $NO_2$ levels.

The maximum measured hourly average $NO_2$ concentration at the MOECC Oshawa Station during Q1 was 41 ppb which is comparable to the maximum Courtice WPCP Station measurement during the quarter.

The maximum measured 24-hour average $NO_2$ concentrations at the Courtice WPCP and Rundle Road Stations both occurred on January 17, 2017 and were 25.1 and 22.9 ppb (52 and 47.3 µg/m³), respectively. The wind direction at the Courtice WPCP Station during this

measurement was from the west-northwest for which agricultural lands are upwind. At the Rundle Road Station, winds were from the northwest for which local roads and agricultural lands are upwind. The maximum measured 24-hour average $NO_2$ concentration (32 ppb) at the MOECC Oshawa Station during this quarter was also measured on January 17, 2017, suggesting that the measurements were due to elevated regional $NO_2$ levels.

**Figure 4-4 Pollution Roses of Measured Hourly Average $NO_2$ Concentrations – January to March 2017**

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



## 4.2.3 Nitrogen Oxides ($NO_X$)

Data summaries are presented in **Appendix D** for nitrogen oxides for each station and month as well as time history plots of the hourly and 24-hour average $NO_X$ concentrations. For the hourly and 24-hour averages, the O. Reg. 419/05 Schedule 3 Standards of 200 ppb and 100 ppb (400 µg/m³ and 200 µg/m³) are shown with blue lines on the respective plot. As shown in these figures, the maximum measured ambient hourly and 24-hour average $NO_X$ concentrations at the

Courtice WPCP Station were below the Ontario AAQCs during this quarter. The measured concentrations at the Rundle Road Station were also well below the Ontario AAQCs.

As shown in **Table 4-2**, the maximum hourly average $NO_X$ concentration measured at the Courtice WPCP Station was 106.9 ppb (223.5 µg/m³), which is 53.4% of the 1-hour Ontario AAQCs. The 24-hour average $NO_X$ concentration measured at this station was 45 ppb (93.1 µg/m³), which is 45% of the applicable 24-hour Ontario AAQCs. At the Rundle Road Station, the maximum hourly and 24-hour average concentrations measured during this quarter were 89.3 and 30.7 ppb (187.7 and 63.6 µg/m³), which are 44.6% and 30.7% of the Ontario AAQCs.

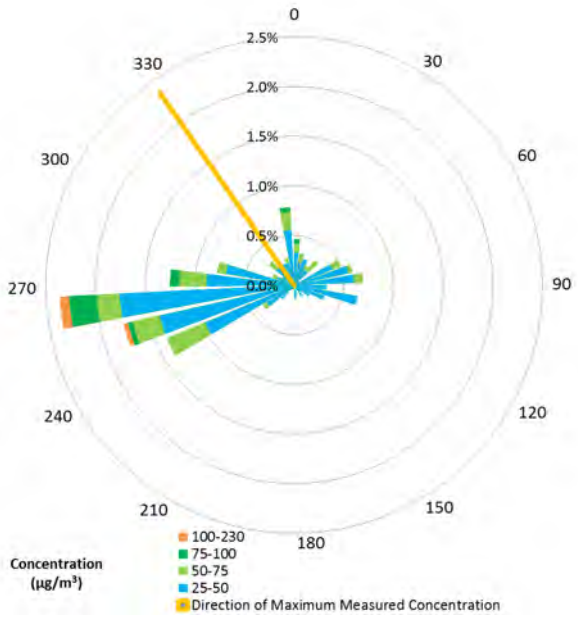
Pollution roses of measured hourly average $NO_X$ concentrations for the Courtice WPCP Station and the Rundle Road Station are presented in **Figure 4-5**. Concentrations less than 25 µg/m³, which account for 76% and 83% of the measurements at the Courtice WPCP and Rundle Road Stations, respectively, have been removed from the plots to allow the distribution of maximum levels to be more clearly shown in the figures.

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

The maximum measured hourly average NOx concentrations at the Courtice WPCP and Rundle Road Stations were 106.9 and 89.3 ppb (223.5 and 187.7 µg/m³) measured on February 13 at 20:00 and March 15, 2017 at 8:00 respectively. Winds at the Courtice WPCP Station during the measurement were blowing from the northwest for which agricultural lands, a CN railroad and Highway 401 were upwind. Winds at the Rundle Road Station were from the northwest for which local roads and agricultural areas were upwind.

The maximum measured 24-hour average NOx concentrations at the Courtice WPCP and Rundle Road Stations of 45 and 30.7 ppb (93.1 and 63.6 µg/m³) were both observed on January 17, 2017. Wind directions at both stations were from the northwest during the period. Agricultural lands, a CN railroad and Highway 401 were upwind of the Courtice WPCP Station, while local roads and agricultural areas were upwind of the Rundle Road Station during this period.

**Figure 4-5 Pollution Roses of Measured Hourly Average $NO_x$ Concentrations – January to March 2017**

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



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

Data summaries and time history plots of measured 24-hour average concentrations are presented in **Appendix E** for $PM_{2.5}$ for the Courtice WPCP and Rundle Road Stations. The maximum measured 24-hour average $PM_{2.5}$ concentrations at the Courtice WPCP and the Rundle Road Stations were 27.7 µg/m³ and 35.8 µg/m³ during this quarter. It should be noted that since an exceedance of the criteria for $PM_{2.5}$ requires the average of the 98$^{th}$ percentile levels in each of three consecutive calendar years to be greater than 28 µg/m³ (CAAQS) or 30 µg/m³ (HHRA criteria) whereas the $PM_{2.5}$ measurement period at both stations in the report was three months, there is insufficient data in a quarter to determine with any certainty if exceedances of the CAAQS/HHRA criteria would occur. Discussion of $PM_{2.5}$ measurements with respect to the CAAQS/HHRA criteria will be provided in the 2017 annual report, at which time sufficient data will have been collected to make comparisons.

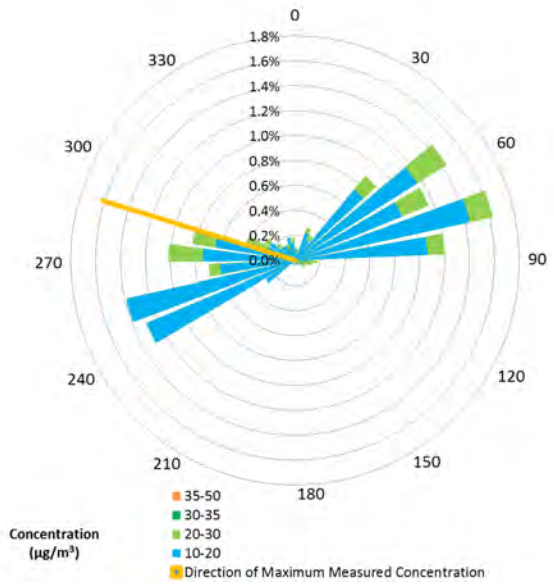
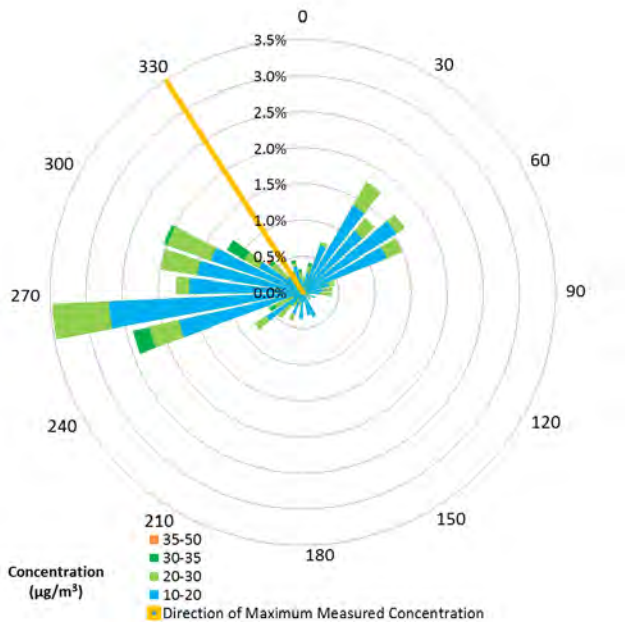
Pollution roses showing the measured 24-hour average ambient $PM_{2.5}$ concentrations versus direction are shown in **Figure 4-6** for both monitoring stations. Concentrations less than 10 µg/m³, which account for 85% of the measurements at the Courtice WPCP and 71% at the Rundle Road Station, have been removed from the plot to allow the distribution of maximum levels to be more clearly shown in the figure.

Higher measured 24-hour average concentrations occurred for west-northwesterly and east-northeasterly winds for the Courtice WPCP Station. For the Rundle Road Station, higher measured 24-hour average concentrations occurred for westerly to west-northwesterly winds.

The maximum measured 24-hour average $PM_{2.5}$ concentrations at the Courtice WPCP and Rundle Road Stations both occurred on January 17, 2017 and were 27.7 and 35.8 µg/m³ respectively. The maximum measured concentration at the Courtice WPCP Station occurred when winds were blowing from the west-northwest for which agricultural lands are upwind. The maximum measured concentration at the Rundle Road Station occurred when winds were from the north-northwest for which local roads and agricultural areas are upwind. On the same day, the MOECC Oshawa Station measured 23.8 µg/m³, which is similar to the Courtice WPCP measurement and suggests all three stations were largely influenced by regional sources.

The maximum measured 24-hour average $PM_{2.5}$ concentration at the MOECC Oshawa Station during Q1 was 23.8 µg/m³, which is comparable to the maximum Courtice WPCP Station measurement during this quarter.

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

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



## 4.3 AMBIENT TSP / METALS CONCENTRATIONS

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

The maximum measured concentrations of TSP and all metals with MOECC air quality criteria were well below their applicable 24-hour criteria (shown in **Table 4-3** below) at all three stations.

Summary of Ambient Measurements
May 9, 2017

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

| Contaminant | Units | MOECC Standard | HHRA Health Based Criteria | Courtice WPCP (Predominately Upwind) | | | Rundle Road (Predominately Downwind) | | | Fence Line | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Maximum | Minimum | No. of Exceedances | Maximum | Minimum | No. of Exceedances | Maximum | Minimum | No. of Exceedances |
| Particulate | µg/m³ | 120 | 120 | 45 | 10 | 0 | 62 | 11 | 0 | 72 | 15 | 0 |
| Total Mercury (Hg) | µg/m³ | 2 | 2 | 1.41E-05 | 6.48E-06 [A] | 0 | 1.29E-05 | 6.53E-06 [A] | 0 | 1.36E-05 | 6.39E-06 [A] | 0 |
| Aluminum (Al) | µg/m³ | 4.8 | - | 3.18E-01 | 1.69E-02 [A] | 0 | 2.66E-01 | 1.66E-02 [A] | 0 | 3.06E-01 | 1.66E-02 [A] | 0 |
| Antimony (Sb) | µg/m³ | 25 | 25 | 3.57E-03 [A] | 3.24E-03 [A] | 0 | 3.57E-03 [A] | 3.23E-03 [A] | 0 | 3.48E-03 [A] | 3.19E-03 [A] | 0 |
| Arsenic (As) | µg/m³ | 0.3 | 0.3 | 2.14E-03 [A] | 1.94E-03 [A] | 0 | 2.14E-03 [A] | 1.94E-03 [A] | 0 | 2.09E-03 [A] | 1.92E-03 [A] | 0 |
| Barium (Ba) | µg/m³ | 10 | 10 | 1.41E-02 | 3.49E-03 | 0 | 1.20E-02 | 3.45E-03 | 0 | 1.33E-02 | 3.48E-03 | 0 |
| Beryllium (Be) | µg/m³ | 0.01 | 0.01 | 3.57E-04 [A] | 3.24E-04 [A] | 0 | 3.57E-04 [A] | 3.23E-04 [A] | 0 | 3.48E-04 [A] | 3.19E-04 [A] | 0 |
| Bismuth (Bi) | µg/m³ | - | - | 2.14E-03 [A] | 1.94E-03 [A] | - | 2.14E-03 [A] | 1.94E-03 [A] | - | 2.09E-03 [A] | 1.92E-03 [A] | - |
| Boron (B) | µg/m³ | 120 | - | 2.14E-03 [A] | 1.94E-03 [A] | 0 | 2.14E-03 [A] | 1.94E-03 [A] | 0 | 2.09E-03 [A] | 1.92E-03 [A] | 0 |
| Cadmium (Cd) | µg/m³ | 0.025 | 0.025 | 7.13E-04 [A] | 6.48E-04 [A] | 0 | 7.13E-04 [A] | 6.47E-04 [A] | 0 | 2.69E-03 | 6.39E-04 [A] | 0 |
| Chromium (Cr) | µg/m³ | 0.5 | - | 4.64E-03 | 1.62E-03 [A] | 0 | 3.49E-03 | 1.63E-03 [A] | 0 | 6.14E-03 | 1.60E-03 [A] | 0 |
| Cobalt (Co) | µg/m³ | 0.1 | 0.1 | 7.13E-04 [A] | 6.48E-04 [A] | 0 | 7.13E-04 [A] | 6.47E-04 [A] | 0 | 6.97E-04 [A] | 6.39E-04 [A] | 0 |
| Copper (Cu) | µg/m³ | 50 | - | 3.91E-02 | 1.20E-02 | 0 | 1.28E-01 | 1.81E-02 | 0 | 3.81E-02 | 1.55E-02 | 0 |
| Iron (Fe) | µg/m³ | 4 | - | 5.88E-01 | 1.18E-01 | 0 | 6.07E-01 | 1.29E-01 | 0 | 6.10E-01 | 1.21E-01 | 0 |
| Lead (Pb) | µg/m³ | 0.5 | 0.5 | 4.02E-03 | 9.72E-04 [A] | 0 | 4.58E-03 | 9.98E-04 [A] | 0 | 1.04E-02 | 9.63E-04 [A] | 0 |
| Magnesium (Mg) | µg/m³ | - | - | 3.13E-01 | 3.85E-02 | - | 3.83E-01 | 5.15E-02 | - | 4.15E-01 | 3.99E-02 | - |
| Manganese (Mn) | µg/m³ | 0.4 | - | 1.89E-02 | 3.14E-03 | 0 | 2.21E-02 | 3.31E-03 | 0 | 3.21E-02 | 3.54E-03 | 0 |
| Molybdenum (Mo) | µg/m³ | 120 | - | 1.07E-03 [A] | 9.72E-04 [A] | 0 | 4.58E-03 | 9.79E-04 [A] | 0 | 3.17E-03 | 9.58E-04 [A] | 0 |
| Nickel (Ni) | µg/m³ | 0.2 | - | 3.95E-03 | 9.72E-04 [A] | 0 | 3.62E-03 | 9.79E-04 [A] | 0 | 1.24E-02 | 9.58E-04 [A] | 0 |
| Phosphorus (P) | µg/m³ | - | - | 3.42E-02 | 8.10E-03 [A] | - | 4.40E-02 | 8.16E-03 [A] | - | 3.87E-02 | 7.98E-03 [A] | - |
| Selenium (Se) | µg/m³ | 10 | 10 | 3.57E-03 [A] | 3.24E-03 [A] | 0 | 3.57E-03 [A] | 3.23E-03 [A] | 0 | 3.48E-03 [A] | 3.19E-03 [A] | 0 |
| Silver (Ag) | µg/m³ | 1 | 1 | 1.78E-03 [A] | 1.62E-03 [A] | 0 | 1.78E-03 [A] | 1.62E-03 [A] | 0 | 1.74E-03 [A] | 1.60E-03 [A] | 0 |
| Strontium (Sr) | µg/m³ | 120 | - | 1.25E-02 | 1.21E-03 | 0 | 1.04E-02 | 1.34E-03 | 0 | 1.33E-02 | 9.97E-04 | 0 |
| Thallium (Tl) | µg/m³ | - | - | 3.57E-03 [A] | 3.24E-03 [A] | - | 3.57E-03 [A] | 3.23E-03 [A] | - | 3.48E-03 [A] | 3.19E-03 [A] | - |
| Tin (Sn) | µg/m³ | 10 | 10 | 3.57E-03 [A] | 3.24E-03 [A] | 0 | 3.57E-03 [A] | 3.23E-03 [A] | 0 | 3.48E-03 [A] | 3.19E-03 [A] | 0 |
| Titanium (Ti) | µg/m³ | 120 | - | 1.83E-02 | 3.24E-03 [A] | 0 | 1.58E-02 | 3.26E-03 [A] | 0 | 1.77E-02 | 3.19E-03 [A] | 0 |
| Vanadium (V) | µg/m³ | 2 | 1 | 1.78E-03 [A] | 1.62E-03 [A] | 0 | 1.78E-03 [A] | 1.62E-03 [A] | 0 | 1.74E-03 [A] | 1.60E-03 [A] | 0 |
| Zinc (Zn) | µg/m³ | 120 | - | 5.03E-02 | 9.23E-03 | 0 | 8.48E-02 | 1.09E-02 | 0 | 6.24E-02 | 1.37E-02 | 0 |
| Zirconium (Zr) | µg/m³ | 20 | - | 1.78E-03 [A] | 1.62E-03 [A] | 0 | 1.78E-03 [A] | 1.62E-03 [A] | 0 | 1.74E-03 [A] | 1.60E-03 [A] | 0 |
| Total Uranium (U) | µg/m³ | 1.5 | - | 1.60E-04 [A] | 1.46E-04 [A] | 0 | 1.60E-04 [A] | 1.46E-04 [A] | 0 | 1.57E-04 [A] | 1.44E-04 [A] | 0 |

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

## 4.4 AMBIENT PAH CONCENTRATIONS

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

The maximum measured concentrations of the PAHs with MOECC AAQCs were below their applicable 24-hour criteria, with the exception of the benzo(a)pyrene (B(a)P) measurements collected at the Courtice WPCP Station on January 7 and March 20, 2017 and at the Rundle Road Station on January 7, 19, 31, February 12, and March 20, 2017.

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

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

The B(a)P samples collected at the Courtice WPCP Station on January 7 and March 20, 2017 exceeded the Ontario AAQC by 77% and 38%, respectively while at the Rundle Road Station, the criterion was exceeded by between 7% to 216%. The B(a)P samples were however, well below the MOECC Schedule 6 Upper Risk Threshold, the MOECC O. Reg. 419/05 24-hour average guideline, and the HHRA health based criterion. Summaries of the wind direction and potential source contributions for these measurements are presented in **Table 4-5**.

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

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## Table 4-4 Summary of Measured Ambient PAH Concentrations

| Contaminant | Units | MOECC Standards | HHRA Health Based Criteria | Courtice WPCP (Predominately Upwind) | | | Rundle Road (Predominately Downwind) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Maximum | Minimum | No. of Exceedances | Maximum | Minimum | No. of Exceedances |
| Benzo(a)pyrene | ng/m³ | 0.05 [A]<br>5 [B]<br>1.1 [C] | 1 | 8.84E-02 | 1.50E-02 | 2<br>0<br>0 | 1.58E-01 | 4.82E-02 | 5<br>0<br>0 |
| 1-Methylnaphthalene | ng/m³ | 12,000 | - | 5.62E+00 | 1.64E+00 | 0 | 9.67E+00 | 3.18E+00 | 0 |
| 2-Methylnaphthalene | ng/m³ | 10,000 | - | 9.17E+00 | 2.55E+00 | 0 | 1.75E+01 | 5.59E+00 | 0 |
| Acenaphthene | ng/m³ | - | - | 2.22E+00 | 2.70E-01 | - | 5.98E+00 | 8.35E-01 | - |
| Acenaphthylene | ng/m³ | 3,500 | - | 2.90E-01 | 6.72E-02 [F] | 0 | 3.05E-01 | 7.17E-02 [F] | 0 |
| Anthracene | ng/m³ | 200 | - | 1.08E-01 [F] | 6.72E-02 [F] | 0 | 1.33E-01 [F] | 7.05E-02 [F] | 0 |
| Benzo(a)anthracene | ng/m³ | - | - | 1.08E-01 [F] | 6.72E-02 [F] | - | 1.33E-01 [F] | 7.05E-02 [F] | - |
| Benzo(a)fluorene | ng/m³ | - | - | 2.16E-01 [F] | 1.34E-01 [F] | - | 2.66E-01 [F] | 1.41E-01 [F] | - |
| Benzo(b)fluoranthene | ng/m³ | - | - | 1.08E-01 [F] | 6.72E-02 [F] | - | 2.43E-01 | 7.17E-02 [F] | - |
| Benzo(b)fluorene | ng/m³ | - | - | 2.16E-01 [F] | 1.34E-01 [F] | - | 2.66E-01 [F] | 1.41E-01 [F] | - |
| Benzo(e)pyrene | ng/m³ | - | - | 2.16E-01 [F] | 1.34E-01 [F] | - | 2.66E-01 [F] | 1.41E-01 [F] | - |
| Benzo(g,h,i)perylene | ng/m³ | - | - | 1.08E-01 [F] | 6.72E-02 [F] | - | 1.33E-01 [F] | 7.05E-02 [F] | - |
| Benzo(k)fluoranthene | ng/m³ | - | - | 1.08E-01 [F] | 6.72E-02 [F] | - | 1.33E-01 [F] | 7.05E-02 [F] | - |
| Biphenyl | ng/m³ | - | - | 2.63E+00 | 7.18E-01 | - | 4.32E+00 | 1.32E+00 | - |
| Chrysene | ng/m³ | - | - | 1.08E-01 [F] | 6.72E-02 [F] | - | 1.33E-01 [F] | 7.05E-02 [F] | - |
| Dibenz(a,h)anthracene [D] | ng/m³ | - | - | 1.08E-01 [F] | 6.72E-02 [F] | - | 1.33E-01 [F] | 7.05E-02 [F] | - |
| Dibenzo(a,c) anthracene + Picene [D] | ng/m³ | - | - | 2.16E-01 [F] | 1.34E-01 [F] | - | 2.66E-01 [F] | 1.41E-01 [F] | - |
| Fluoranthene | ng/m³ | - | - | 7.45E-01 | 3.10E-01 | - | 1.20E+00 | 7.44E-01 | - |

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## Table 4-4 Summary of Measured Ambient PAH Concentrations

| Contaminant | Units | MOECC Standards | HHRA Health Based Criteria | Courtice WPCP (Predominately Upwind) | | | Rundle Road (Predominately Downwind) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Maximum | Minimum | No. of Exceedances | Maximum | Minimum | No. of Exceedances |
| Indeno (1,2,3-cd)pyrene | ng/m³ | - | - | 1.08E-01 [F] | 6.72E-02 [F] | - | 1.33E-01 [F] | 7.05E-02 [F] | - |
| Naphthalene | ng/m³ | 22,500 | 22,500 | 3.56E+01 | 1.03E+01 | 0 | 5.28E+01 | 1.39E+01 | 0 |
| o-Terphenyl | ng/m³ | - | - | 2.16E-01 [F] | 1.34E-01 [F] | - | 2.66E-01 [F] | 1.41E-01 [F] | - |
| Perylene | ng/m³ | - | - | 2.16E-01 [F] | 1.34E-01 [F] | - | 2.66E-01 [F] | 1.41E-01 [F] | - |
| Phenanthrene | ng/m³ | - | - | 3.46E+00 | 7.23E-01 | - | 5.91E+00 | 2.68E+00 | - |
| Pyrene | ng/m³ | - | - | 5.34E-01 | 1.72E-01 | - | 6.72E-01 | 4.02E-01 | - |
| Tetralin | ng/m³ | - | - | 3.01E+00 | 1.32E+00 | - | 3.01E+00 | 1.18E+00 | - |
| Total PAH [E] | ng/m³ | - | - | 5.95E+01 | 2.06E+01 | - | 1.04E+02 | 3.40E+01 | - |

**Notes:**

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

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

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

D. Based on laboratory analyses, dibenzo(a,c)anthracene co-elutes with dibenz(a,h)anthracene. Picene elutes after dibenz(a,h)anthracene.

E. The reported total PAH is the sum of all analyzed PAH species.

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

**Table 4-5 Source Contribution Analysis – Quarter 1 2017 B(a)P Exceedances**

| Date | Station | % above the MOECC B(a)P Criterion | Wind Direction (blowing from) | Potential Source Contributions |
|---|---|---|---|---|
| 7-Jan-17 | Courtice WPCP | 77% | West-Northwest | Highway 401, local roads and the CN railroad are located upwind of the Courtice WPCP Station. Potential sources could be vehicle or locomotive exhaust emissions. |
| | Rundle Road | 216% | Northwest | Land use in this direction is mainly agricultural with some residences. Highway 418 construction activities were observed upwind of the Rundle Road Station during this quarter. Potential sources could be agricultural activities, a residence with a poorly controlled combustion source operating, construction vehicle exhaust, or Highway 418 construction activities. |
| 19-Jan-17 | Rundle Road | 17% | West | Land use in this direction is a mix of agricultural and commercial. Highway 418 construction activities were observed upwind of the Rundle Road Station during this quarter. Potential sources could be a nearby business with a poorly controlled combustion source operating, construction vehicle exhaust, or Highway 418 construction activities. |
| 31-Jan-17 | Rundle Road | 50% | East-Northeast | Land use in this direction is mainly agricultural with some residences and a CP railroad. Potential sources could be agricultural activities, a residence with a poorly controlled combustion source operating or locomotive exhaust emissions. |
| 12-Feb-17 | Rundle Road | 7% | North-Northeast | Land use in this direction is mainly agricultural with some residences. Potential sources could be agricultural activities or a residence with a poorly controlled combustion source operating. |

**Table 4-5 Source Contribution Analysis – Quarter 1 2017 B(a)P Exceedances**

| Date | Station | % above the MOECC B(a)P Criterion | Wind Direction (blowing from) | Potential Source Contributions |
|---|---|---|---|---|
| 20-Mar-17 | Courtice WPCP | 38% | West-Southwest | Land use in this direction is primarily agricultural. Potential sources could be agricultural activities. |
| | Rundle Road | 36% | West | Land use in this direction is a mix of agricultural and commercial. Highway 418 construction activities were observed upwind of the Rundle Road Station during this quarter. Potential sources could be a nearby business with a poorly controlled combustion source operating, construction vehicle exhaust, or Highway 418 construction activities. |

## 4.5 AMBIENT DIOXINS AND FURANS CONCENTRATIONS

A summary of the maximum and minimum ambient dioxins and furans concentrations (for a daily averaging period) are presented in **Table 4-6**. In this summary, both individual dioxins and furans concentrations (pg/m$^3$) as well as the total toxic equivalency concentration (TEQ) are reported. A detailed summary of the concentrations measured for each sample is presented in **Appendix I**.

The maximum measured toxic equivalent dioxins and furans concentrations at both stations were below the applicable 24-hour AAQC of 0.1 pg TEQ/m$^3$ (as shown in **Table 4-6**).

Summary of Ambient Measurements
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**Table 4-6 Summary of Measured Ambient Dioxins and Furans Concentrations**

| Contaminant | Units | MOECC Standards | HHRA Health Based Criteria | Courtice WPCP (Predominately Upwind) | | | Rundle Road (Predominately Downwind) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Maximum | Minimum | No. of Exceedances | Maximum | Minimum | No. of Exceedances |
| 2,3,7,8-Tetra CDD * | pg/m³ | | | 5.51E-03 [A] | 4.10E-03 [A] | | 6.55E-03 [A] | 4.54E-03 [A] | |
| 1,2,3,7,8-Penta CDD | pg/m³ | | | 5.31E-03 [A] | 3.97E-03 [A] | | 6.91E-03 [A] | 4.58E-03 [A] | |
| 1,2,3,4,7,8-Hexa CDD | pg/m³ | | | 5.16E-03 [A] | 4.10E-03 [A] | | 8.48E-03 | 4.58E-03 [A] | |
| 1,2,3,6,7,8-Hexa CDD | pg/m³ | | | 1.32E-02 | 4.36E-03 [A] | | 1.70E-02 | 4.87E-03 [A] | |
| 1,2,3,7,8,9-Hexa CDD | pg/m³ | | | 2.15E-02 | 4.18E-03 [A] | | 2.67E-02 | 4.28E-03 [A] | |
| 1,2,3,4,6,7,8-Hepta CDD | pg/m³ | | | 1.49E-01 | 4.47E-02 | | 1.87E-01 | 9.77E-02 | |
| Octa CDD | pg/m³ | | | 3.39E-01 | 1.50E-01 | | 3.85E-01 | 2.77E-01 | |
| Total Tetra CDD | pg/m³ | | | 5.51E-03 [A] | 4.10E-03 [A] | | 6.55E-03 [A] | 4.54E-03 [A] | |
| Total Penta CDD | pg/m³ | | | 1.55E-02 | 3.97E-03 [A] | | 2.15E-02 | 4.58E-03 [A] | |
| Total Hexa CDD | pg/m³ | | | 1.46E-01 | 9.52E-03 | | 1.79E-01 | 2.51E-02 | |
| Total Hepta CDD | pg/m³ | | | 3.44E-01 | 1.03E-01 | | 4.15E-01 | 1.96E-01 | |
| 2,3,7,8-Tetra CDF ** | pg/m³ | | | 1.35E-02 | 4.33E-03 [A] | | 1.27E-02 | 4.58E-03 [A] | |
| 1,2,3,7,8-Penta CDF | pg/m³ | - | - | 5.82E-03 [A] | 4.02E-03 [A] | N/A | 7.26E-03 [A] | 4.39E-03 [A] | N/A |
| 2,3,4,7,8-Penta CDF | pg/m³ | | | 5.95E-03 [A] | 4.16E-03 [A] | | 7.26E-03 [A] | 4.54E-03 [A] | |
| 1,2,3,4,7,8-Hexa CDF | pg/m³ | | | 4.94E-03 [A] | 3.57E-03 [A] | | 5.31E-03 [A] | 3.84E-03 [A] | |
| 1,2,3,6,7,8-Hexa CDF | pg/m³ | | | 4.94E-03 [A] | 3.57E-03 [A] | | 5.31E-03 [A] | 3.84E-03 [A] | |
| 2,3,4,6,7,8-Hexa CDF | pg/m³ | | | 5.08E-03 [A] | 3.83E-03 [A] | | 5.49E-03 [A] | 4.13E-03 [A] | |
| 1,2,3,7,8,9-Hexa CDF | pg/m³ | | | 5.37E-03 [A] | 4.10E-03 [A] | | 5.67E-03 [A] | 4.43E-03 [A] | |
| 1,2,3,4,6,7,8-Hepta CDF | pg/m³ | | | 1.55E-02 | 4.33E-03 [A] | | 1.56E-02 | 8.27E-03 | |
| 1,2,3,4,7,8,9-Hepta CDF | pg/m³ | | | 5.37E-03 [A] | 4.36E-03 [A] | | 6.73E-03 [A] | 4.58E-03 [A] | |
| Octa CDF | pg/m³ | | | 2.15E-02 | 5.34E-03 [A] | | 1.64E-02 | 3.99E-03 [A] | |
| Total Tetra CDF | pg/m³ | | | 1.35E-02 | 4.33E-03 [A] | | 1.31E-02 | 4.58E-03 [A] | |
| Total Penta CDF | pg/m³ | | | 1.05E-02 | 4.16E-03 [A] | | 1.24E-02 | 5.17E-03 [A] | |
| Total Hexa CDF | pg/m³ | | | 9.18E-03 | 3.83E-03 [A] | | 5.49E-03 [A] | 4.13E-03 [A] | |
| Total Hepta CDF | pg/m³ | | | 2.38E-02 | 4.62E-03 [A] | | 1.56E-02 | 8.27E-03 | |
| TOTAL TOXIC EQUIVALENCY [B] | pg TEQ/m³ | 0.1<br>1 [C] | - | 2.05E-02 | 1.46E-02 | 0 | 2.27E-02 | 1.58E-02 | 0 |

**Notes:**

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

## 4.6 REVIEW OF MTO MONITORING FOR THE PREVIOUS QUARTER

The Ministry of Transportation Ontario (MTO) installed an ambient air monitoring station at 1939 Highway 2, Courtice, Ontario that has been operating since March 4, 2016. This sampling is being conducted as a condition of the EA notice of approval for the Highway 407 East Phase 2 construction project. The MTO Station is located approximately 3.5 km north-northwest of the Rundle Road Station and 4.4 km north of the DYEC. The station measures $PM_{10}$, $PM_{2.5}$ and NOx. NOx is measured using a chemiluminescence monitor which uses a similar principle of operation to the DYEC monitors, while $PM_{10}$ and $PM_{2.5}$ are measured using Beta Attenuation Monitors (BAMs). The DYEC stations measure $PM_{2.5}$ with monitors based on light scattering photometry with beta attenuation, which is believed to more accurately measure the aerosol fraction of $PM_{2.5}$ relative to a BAM (which typically underestimates the aerosol fraction).

The DYEC monitoring stations, as discussed in the Ambient Monitoring Plan (Stantec, 2012), are located to capture neighbourhood scales of representativeness (100's of metres to about 4 km). Given the distance between the MTO Station and the DYEC, the DYEC monitors would not generally be expected to be representative of ambient air quality levels in the vicinity of the MTO Station – the DYEC monitoring stations are influenced by local sources including Highway 401, St. Mary's Cement, the Courtice WPCP and CN/CP rail lines, as well as the DYEC. The MTO station is more distant from these sources and therefore is influenced less from these sources than the DYEC monitoring stations. The MTO quarterly reports issued for the monitoring (RWDI, 2016a, b; RWDI, 2017) do not discuss the scale of representativeness that the MTO Station was situated for, but it is expected to be similar or less than that of the DYEC stations - therefore the MTO Station measurements would not typically be representative of air quality near the DYEC.

At the time of preparation of this quarterly report, the most recent MTO Station data available was for October to December 2016 (Q4 2016). The following discussion compares the MTO Q4 2016 data (RWDI, 2017) to the measurements at the Courtice WPCP and Rundle Road Stations for the same period:

- The maximum measured 1-hour and 24-hour $NO_2$ concentrations at the MTO station in Q4 2016 were 30 ppb and 18 ppb, respectively. The maximum measured hourly and daily average $NO_2$ concentrations at the Courtice WPCP and Rundle Road Stations in Q4 were similar to the MTO Station (maximum hourly average $NO_2$ Concentration of 35.5 and 31.0 ppb and maximum daily average concentrations of 18.8 and 21.5 ppb respectively).
- The maximum 24-hour average $PM_{2.5}$ concentration measured at the MTO Station in Q4 2016 was 22 $\mu g/m^3$ while those at the Courtice WPCP and Rundle Road Stations were 24.0 and 41.8 $\mu g/m^3$.
- The maximum measured 24-hour average $PM_{10}$ concentration at the MTO station in Q4 2016 was 30 $\mu g/m^3$. The DYEC stations do not measure $PM_{10}$ and the MTO measurements are not comparable to the DYEC monitoring data.

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The ability to compare and draw conclusions between the DYEC and MTO Station data is limited since the MTO reports do not include information on the timing and type of construction occurring in proximity to the MTO Station, which would likely have influenced measured concentrations differently relative to the construction activities observed near the DYEC. Construction sources such as a contractor's camp located approximately 1 km to the west (upwind) of the Rundle Road Station would have a larger influence on this station than the MTO Station which is situated approximately 3.5 km north-northwest of the same contractor's camp.

# 5.0 CONCLUSIONS

This quarterly report provides a summary of the ambient air quality data collected at the three monitoring stations located predominantly upwind and downwind in the vicinity of the DYEC for the period January to March 2017.

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

1. Measured concentrations of $NO_2$, $SO_2$ and $PM_{2.5}$ were below the applicable O. Reg. 419/05 Standards or human health risk assessment (HHRA) health-based criteria presented in **Table 2-2** of this report.

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

3. The maximum measured concentrations of TSP and all metals with MOECC air quality Standards were well below their applicable Standard (as presented in **Table 2-3** in this report).

4. The maximum measured concentrations of PAHs with MOECC air quality Standards were well below their applicable criteria shown in Table 2-4, with the exception of 24-hour benzo(a)pyrene (B(a)P) concentrations in two samples measured at the Courtice WPCP Station and five samples at the Rundle Road Station, which exceeded the applicable Ontario Ambient Air Quality Criteria (AAQC) by between 7% to 216%. The current Ontario 24-hour B(a)P AAQC was introduced in 2011 and levels above this AAQC are commonly measured throughout Ontario. The measurements were however, well below the MOECC Schedule 6 Upper Risk Threshold, the MOECC O. Reg. 419/05 24-hour average guideline, and the HHRA health based criterion.

5. The maximum measured toxic equivalent dioxin and furan concentration was below the applicable Standard presented in **Table 2-4**

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

# 6.0 REFERENCES

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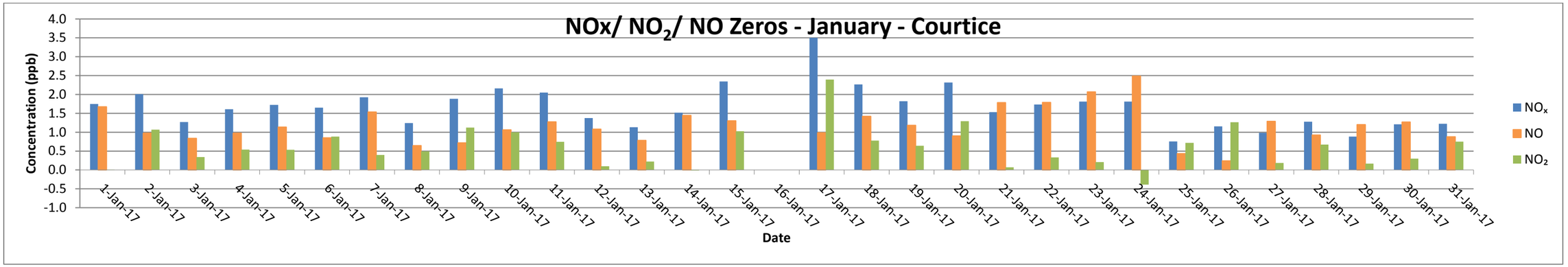
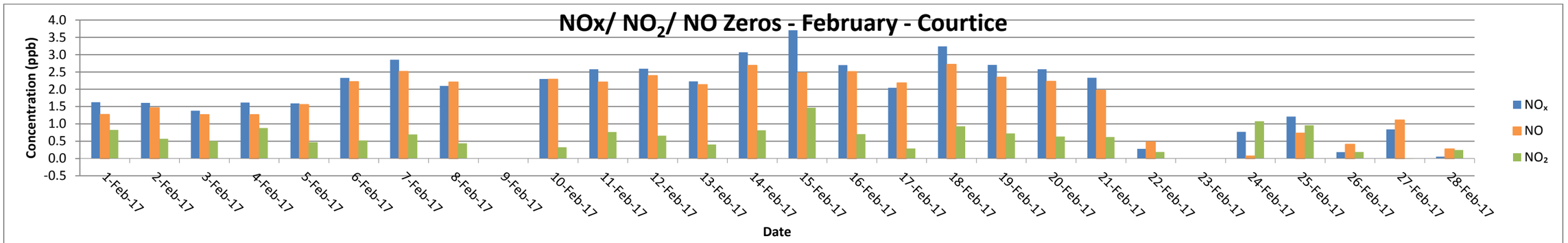
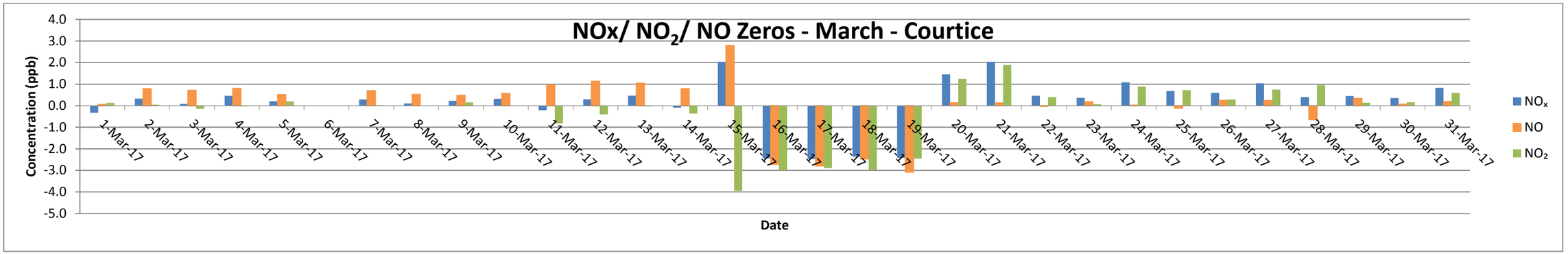
# Appendix A $SO_2$ AND $NO_X$ INSTRUMENT DAILY INTERNAL ZERO CALIBRATION SUMMARIES

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



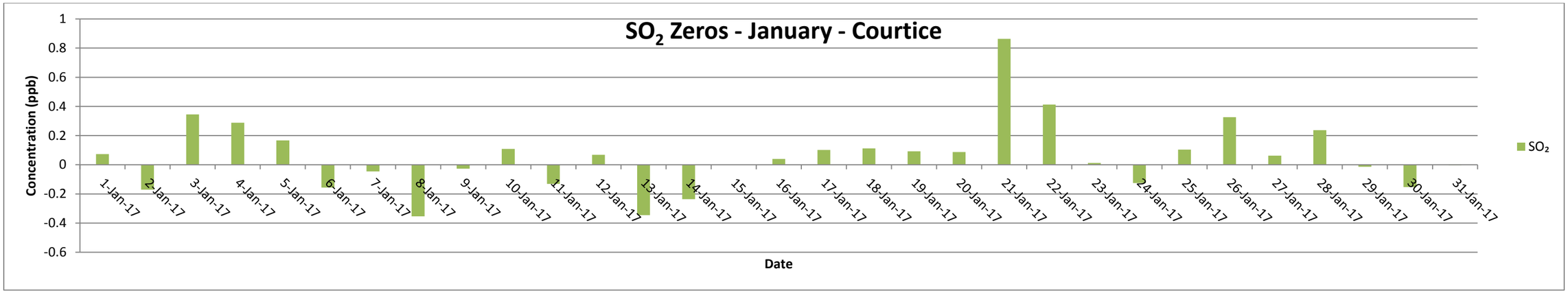



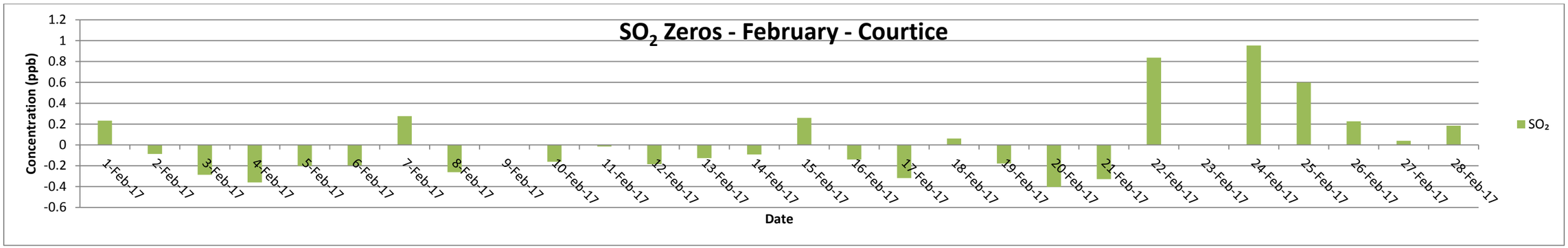



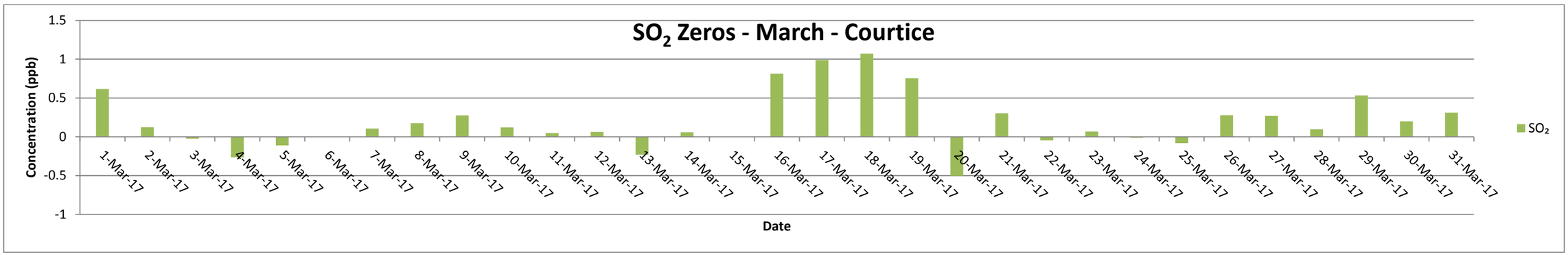

**Notes:**

- Auto-calibrations occur every 25 hours
- 23-Feb-17: MOECC audit. Internal zero calibration unavailable

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



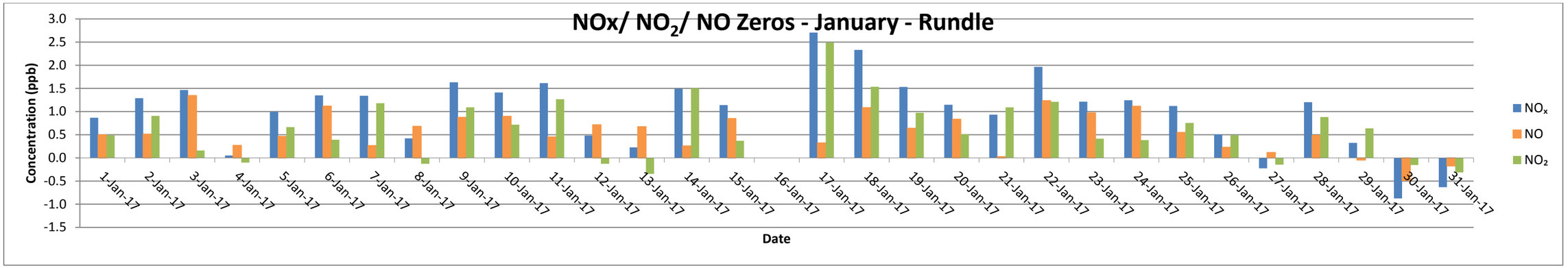



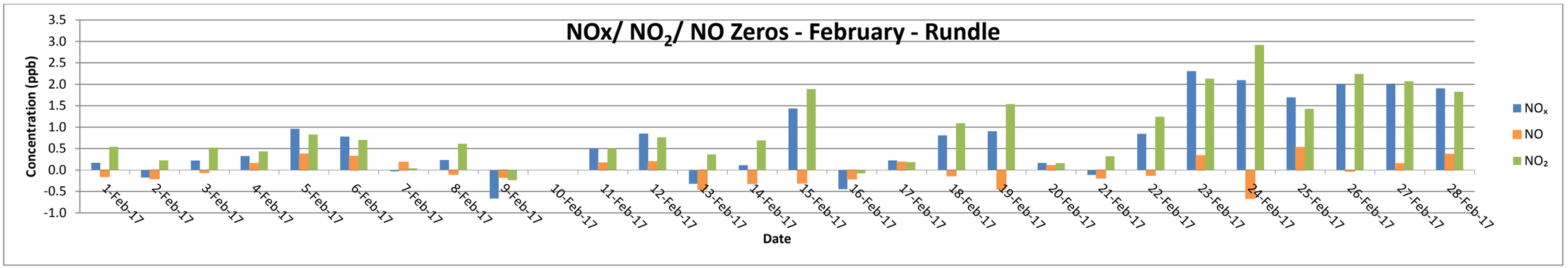



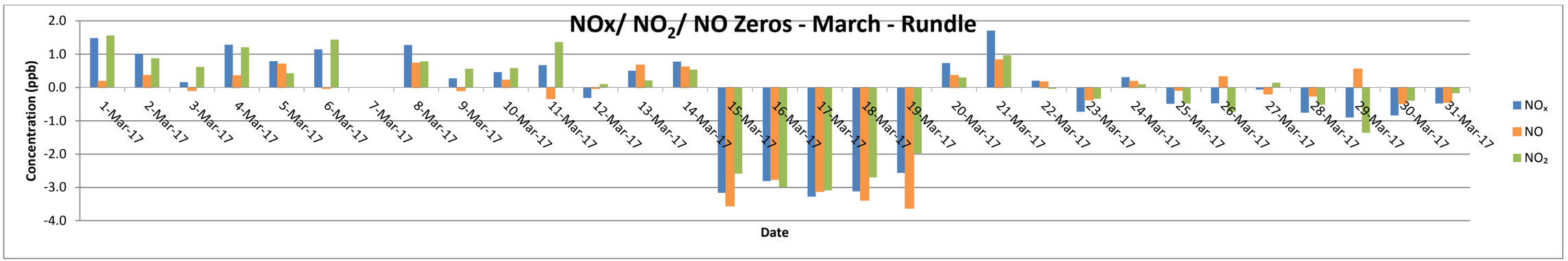

**Notes:**

Auto-calibrations occur every 25 hours.
23-Feb-17: MOECC audit. Internal zero calibration unavailable
15-Mar-17 – Monthly calibration occurred at the same time as the scheduled internal zero calibration. Internal zero calibration for this day unavailable.

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



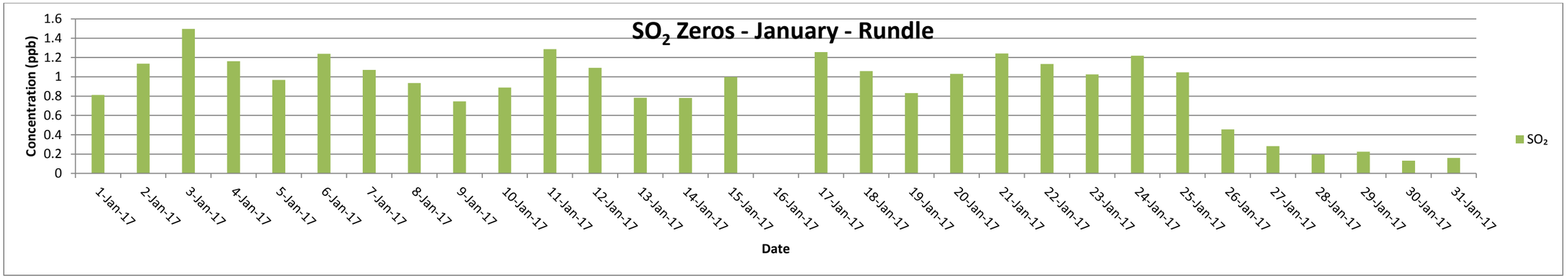



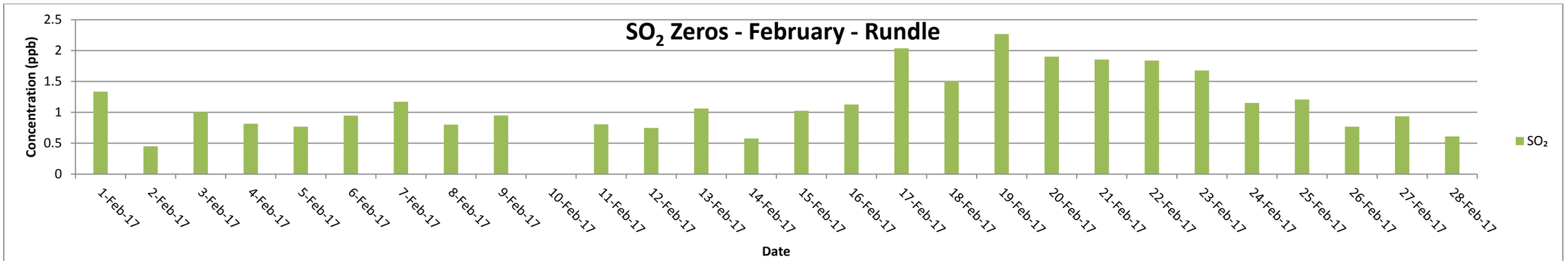



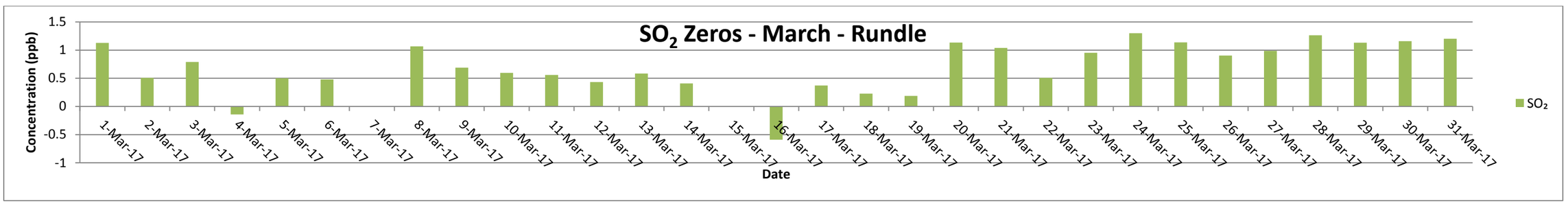

**Notes:**

- Auto-calibrations occur every 25 hours

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




**Notes:**

Auto-calibrations occur every 25 hours

15-Mar-17 – Monthly calibration occurred at the same time as the scheduled internal zero calibration. Internal zero calibration for this day unavailable.

# Appendix B $SO_2$ DATA SUMMARIES AND TIME HISTORY PLOTS

| $SO_2$ - January (ppb) | COURTICE 2017 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hour | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Day | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>250 | Days>100 |
| 1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 1.4 | 1.4 | 0.9 | 0.9 | 1.1 | 0.9 | 0.7 | 0.7 | 1.3 | 10.3 | 24 | 10.3 | 0.1 | 0.9 | 0 | 0 |
| 2 | 12.5 | 6.3 | 6.1 | 4.3 | 1.8 | 0.9 | 1.1 | 0.9 | 0.3 | 0.7 | 5.8 | 3.5 | 1.4 | 10.2 | 11.1 | 8.5 | 11.3 | 8.4 | 3.4 | 0.8 | 0.6 | 0.4 | 0.4 | 0.3 | 24 | 12.5 | 0.3 | 4.2 | 0 | 0 |
| 3 | 0.4 | 0.3 | 0.3 | 4.0 | 7.1 | 2.7 | 2.0 | 0.8 | 0.6 | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 2.1 | 2.8 | 2.6 | 1.1 | 1.4 | 1.2 | 0.7 | 0.9 | 1.2 | 8.4 | 24 | 8.4 | 0.3 | 1.8 | 0 | 0 |
| 4 | 4.3 | 1.0 | 0.8 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.4 | 0.4 | 0.3 | 0.5 | 0.4 | 0.3 | 0.4 | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 24 | 4.3 | 0.2 | 0.6 | 0 | 0 |
| 5 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 24 | 0.2 | 0.0 | 0.1 | 0 | 0 |
| 6 | 0.0 | 0.1 | 0.1 | 0.2 | 0.0 | 0.1 | 0.0 | 0.3 | 0.7 | 0.3 | 0.1 | 0.2 | 0.5 | 0.3 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.7 | 0.0 | 0.1 | 0 | 0 |
| 7 | 0.0 | 0.0 | 0.0 | 1.8 | 1.0 | 1.7 | 0.1 | 0.4 | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.3 | 0.3 | 24 | 1.8 | 0.0 | 0.3 | 0 | 0 |
| 8 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 0.5 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 24 | 0.7 | 0.0 | 0.1 | 0 | 0 |
| 9 | 0.0 | 0.0 | 0.0 | 0.2 | 0.4 | 0.3 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.6 | 0.6 | 0.6 | 0.6 | 0.8 | 0.7 | 0.4 | 0.5 | 0.8 | 0.8 | 24 | 0.8 | 0.0 | 0.3 | 0 | 0 |
| 10 | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.8 | 0.7 | 0.8 | 0.7 | 0.9 | 0.6 | 0.6 | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.3 | 0.4 | 24 | 0.9 | 0.3 | 0.6 | 0 | 0 |
| 11 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | 0.5 | 0.3 | 0.4 | 0.2 | 0.1 | 0.2 | 4.8 | 2.8 | 0.4 | 0.7 | 0.3 | 0.4 | 0.5 | 0.5 | 24 | 4.8 | 0.1 | 0.6 | 0 | 0 |
| 12 | 0.4 | 1.3 | 0.8 | 1.7 | 0.6 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 24 | 1.7 | 0.1 | 0.4 | 0 | 0 |
| 13 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.8 | 0.5 | 0.4 | 2.6 | 24 | 2.6 | 0.0 | 0.2 | 0 | 0 |
| 14 | 3.9 | 0.1 | 0.0 | 0.0 | 0.2 | 0.4 | 0.5 | 0.1 | 0.2 | 0.3 | 4.6 | 7.1 | 2.2 | 0.8 | 2.3 | 0.3 | 0.6 | 1.1 | 1.3 | 0.4 | 1.8 | 0.2 | 0.2 | 0.2 | 24 | 7.1 | 0.0 | 1.2 | 0 | 0 |
| 15 | 0.0 | 0.3 | 0.3 | 0.3 | 0.3 | 0.6 | 0.3 | 0.3 | 0.4 | 0.7 | 3.3 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 17.5 | 1.9 | 24 | 17.5 | 0.0 | 1.2 | 0 | 0 |
| 16 | 0.9 | 5.1 | 19.4 | 15.5 | 1.9 | 3.3 | 6.0 | 9.3 | 1.6 | 1.4 | 1.3 | 1.3 | 2.1 | 2.0 | 1.5 | 1.7 | 1.7 | 1.3 | 1.1 | 1.1 | 3.1 | 8.1 | 13.9 | 3.6 | 24 | 19.4 | 0.9 | 4.5 | 0 | 0 |
| 17 | 13.8 | 10.3 | 10.9 | 8.4 | 2.0 | 1.4 | 2.4 | 8.1 | 8.5 | 15.2 | 16.6 | 7.3 | 2.5 | 8.0 | 6.1 | 6.1 | 10.0 | 5.0 | 1.2 | 1.0 | 0.9 | 2.2 | 6.5 | 1.9 | 24 | 16.6 | 0.9 | 6.5 | 0 | 0 |
| 18 | 1.1 | 0.9 | 0.8 | 0.6 | 0.6 | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 24 | 1.1 | 0.3 | 0.5 | 0 | 0 |
| 19 | 0.3 | 0.4 | 0.3 | 0.5 | 0.7 | 0.3 | 0.3 | 0.5 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 24 | 0.7 | 0.3 | 0.3 | 0 | 0 |
| 20 | 0.3 | 0.5 | 0.4 | 0.3 | 0.3 | 0.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | C | C | C | C | 2.1 | 5.6 | 13.0 | 10.4 | 5.0 | 3.0 | 2.9 | 3.2 | 2.4 | 20 | 13.0 | 0.3 | 2.6 | 0 | 0 |
| 21 | 1.9 | 2.0 | 1.6 | 1.6 | 1.4 | 1.7 | 1.9 | 1.8 | 1.8 | 1.7 | 2.0 | 2.2 | 1.8 | 2.1 | 1.8 | 1.3 | 1.2 | 1.2 | 1.1 | 2.0 | 2.0 | 1.6 | 1.9 | 3.5 | 24 | 3.5 | 1.1 | 1.8 | 0 | 0 |
| 22 | 5.4 | 3.7 | 1.4 | 1.2 | 1.5 | 1.4 | 1.1 | 1.0 | 0.9 | 1.0 | 1.1 | 1.0 | 1.0 | 0.9 | 0.9 | 1.0 | 0.9 | 1.6 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 24 | 5.4 | 0.6 | 1.3 | 0 | 0 |
| 23 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 2.2 | 4.5 | 7.5 | 8.2 | 5.6 | 1.0 | 0.7 | 0.6 | 0.5 | 0.4 | 0.5 | 0.4 | 0.5 | 24 | 8.2 | 0.4 | 1.6 | 0 | 0 |
| 24 | 0.7 | 0.7 | 1.2 | 3.6 | 3.6 | 2.9 | 5.6 | 4.1 | 2.1 | 1.1 | 1.8 | 2.2 | 0.6 | 0.5 | 0.6 | 0.7 | 0.6 | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 0.5 | 0.6 | 24 | 5.6 | 0.5 | 1.5 | 0 | 0 |
| 25 | 0.5 | 0.5 | 0.5 | 0.6 | 0.7 | 1.1 | 1.4 | 1.1 | 1.1 | 0.6 | 0.5 | 0.7 | 0.8 | 0.6 | 0.6 | 0.9 | 0.8 | 0.8 | 0.9 | 0.8 | 0.6 | 0.7 | 1.3 | 1.9 | 24 | 1.9 | 0.5 | 0.8 | 0 | 0 |
| 26 | 4.0 | 1.7 | 0.9 | 0.9 | 0.8 | 1.0 | 1.0 | 0.9 | 0.9 | 0.8 | 0.8 | 0.8 | 0.9 | 1.2 | 1.2 | 2.4 | 0.9 | 1.0 | 1.1 | 0.8 | 0.6 | 0.6 | 0.6 | 0.6 | 24 | 4.0 | 0.6 | 1.1 | 0 | 0 |
| 27 | 0.5 | 0.4 | 0.4 | 0.4 | 0.3 | 0.7 | 0.6 | 0.5 | 0.6 | 0.6 | 0.6 | 0.4 | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 | 0.6 | 0.9 | 0.7 | 0.4 | 0.6 | 0.5 | 0.5 | 24 | 0.9 | 0.3 | 0.5 | 0 | 0 |
| 28 | 0.7 | 0.6 | 0.6 | 0.5 | 0.3 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.9 | 0.8 | 0.6 | 0.8 | 24 | 0.9 | 0.3 | 0.6 | 0 | 0 |
| 29 | 0.6 | 0.7 | 0.5 | 0.4 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 1.4 | 3.0 | 24 | 3.0 | 0.2 | 0.5 | 0 | 0 |
| 30 | 2.0 | 2.1 | 1.7 | 1.2 | 1.3 | 0.3 | 0.3 | 0.5 | 0.8 | 0.4 | 0.6 | 0.5 | 0.5 | 0.4 | 0.4 | 0.5 | 0.3 | 1.1 | 1.3 | 1.8 | 2.7 | 4.1 | 2.5 | 1.1 | 24 | 4.1 | 0.3 | 1.2 | 0 | 0 |
| 31 | 0.5 | 0.5 | 1.0 | 2.4 | 0.7 | 1.4 | 0.7 | 0.6 | 0.6 | 0.6 | 1.1 | 0.9 | 0.7 | 0.8 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.5 | 0.5 | 24 | 2.4 | 0.4 | 0.7 | 0 | 0 |
| Count | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 30 | 30 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 740 | | | | | |
| Maximum | 13.8 | 10.3 | 19.4 | 15.5 | 7.1 | 3.3 | 6.0 | 9.3 | 8.5 | 15.2 | 16.6 | 7.3 | 4.5 | 10.2 | 11.1 | 8.5 | 11.3 | 13.0 | 10.4 | 5.0 | 3.1 | 8.1 | 17.5 | 10.3 | 24 | | | | | |
| Minimum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20 | | | | | |
| Average | 1.8 | 1.4 | 1.7 | 1.7 | 1.0 | 0.9 | 1.0 | 1.2 | 0.8 | 1.0 | 1.5 | 1.2 | 0.8 | 1.3 | 1.4 | 1.3 | 1.5 | 1.4 | 1.0 | 0.7 | 0.8 | 1.0 | 1.9 | 1.6 | | | | | | |

| Percentiles | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data | 0.0 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.9 | 1.3 | 2.6 | 5.8 | 12.8 | 19.4 | Maximum Hourly | 19.4 |
| | | | | | | | | | | | | | Maximum Daily | 6.5 |
| | | | | | | | | | | | | | Monthly Average | 1.2 |

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

# $SO_2$ - February (ppb) COURTICE 2017

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>250 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.7 | 1.3 | 2.7 | 4.0 | 8.7 | 5.0 | 1.0 | 0.7 | 0.6 | 0.7 | 0.8 | 0.6 | T | T | 0.9 | 0.9 | 0.8 | 1.1 | 1.1 | 0.9 | 1.1 | 1.0 | 0.8 | 0.8 | 22 | 8.7 | 0.6 | 1.6 | 0 | 0 |
| 2 | 0.7 | 0.7 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.6 | 0.4 | 0.2 | 0.5 | 0.7 | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 24 | 0.7 | 0.2 | 0.5 | 0 | 0 |
| 3 | 0.3 | 0.3 | 0.5 | 0.5 | 0.4 | 0.3 | 0.5 | 0.5 | 0.6 | 0.6 | 0.4 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.5 | 0.5 | 0.4 | 0.5 | 24 | 0.6 | 0.3 | 0.4 | 0 | 0 |
| 4 | 0.6 | 0.6 | 0.5 | 0.7 | 0.8 | 0.4 | 0.3 | 0.3 | 0.3 | 0.4 | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.8 | 0.8 | 0.6 | 0.7 | 1.3 | 1.4 | 24 | 1.4 | 0.3 | 0.6 | 0 | 0 |
| 5 | 1.2 | 0.9 | 0.8 | 1.1 | 1.1 | 1.4 | 1.6 | 1.4 | 1.3 | 1.3 | 1.3 | 1.1 | 1.2 | 1.2 | 1.1 | 1.0 | 0.9 | 0.8 | 0.6 | 0.4 | 0.3 | 0.4 | 0.3 | 0.8 | 24 | 1.6 | 0.3 | 1.0 | 0 | 0 |
| 6 | 1.4 | 1.1 | 1.2 | 1.6 | 3.2 | 4.3 | 3.2 | 2.5 | 1.8 | 2.9 | 2.2 | 1.1 | 1.4 | 1.8 | 0.7 | 0.7 | 1.5 | 3.7 | 6.9 | 4.7 | 3.9 | 2.2 | 1.2 | 1.2 | 24 | 6.9 | 0.7 | 2.3 | 0 | 0 |
| 7 | 1.1 | 0.9 | 0.8 | 1.1 | 18.1 | 20.1 | 24.1 | 10.7 | 1.5 | 6.8 | 22.9 | 39.4 | 30.6 | 26.4 | 13.3 | 10.8 | 4.5 | 4.6 | 8.3 | 24.3 | 19.0 | 6.8 | 3.0 | 2.7 | 24 | 39.4 | 0.8 | 12.6 | 0 | 0 |
| 8 | 1.9 | 1.9 | 1.7 | 1.5 | 1.3 | 1.3 | 1.2 | 1.0 | 0.8 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 24 | 1.9 | 0.5 | 0.9 | 0 | 0 |
| 9 | 1.0 | 1.4 | 3.3 | 3.2 | 2.8 | 0.8 | 0.5 | 1.0 | 1.5 | 1.2 | 0.8 | 0.5 | 0.6 | 0.8 | 1.0 | 0.9 | 0.9 | 1.0 | 0.6 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 24 | 3.3 | 0.4 | 1.1 | 0 | 0 |
| 10 | 0.4 | 0.5 | 0.4 | 0.4 | 1.5 | 1.4 | 0.6 | 0.5 | 1.3 | 1.3 | 1.0 | 1.0 | 1.2 | 0.7 | 0.7 | 0.5 | 0.6 | 0.6 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.1 | 24 | 1.5 | 0.4 | 0.8 | 0 | 0 |
| 11 | 1.1 | 1.4 | 2.0 | 1.7 | 2.0 | 1.9 | 2.6 | 2.8 | 1.7 | 1.5 | 1.4 | 1.2 | 1.1 | 1.1 | 1.1 | 1.0 | 0.9 | 2.8 | 5.4 | 4.4 | 1.1 | 1.0 | 1.1 | 1.1 | 24 | 5.4 | 0.9 | 1.8 | 0 | 0 |
| 12 | 0.9 | 0.8 | 3.0 | 4.8 | 2.1 | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 | 2.2 | 2.4 | 1.6 | 2.7 | 1.3 | 1.1 | 1.1 | 1.1 | 1.4 | 2.4 | 1.4 | 1.2 | 1.1 | 1.0 | 24 | 4.8 | 0.8 | 1.6 | 0 | 0 |
| 13 | 1.0 | 1.3 | 2.3 | 1.7 | 2.4 | 1.9 | 0.9 | 0.8 | 2.7 | 4.6 | 4.0 | 1.4 | 1.0 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 2.4 | 10.0 | 14.5 | 11.5 | 3.4 | 1.7 | 24 | 14.5 | 0.7 | 3.0 | 0 | 0 |
| 14 | 6.0 | 7.3 | 4.7 | 4.3 | 8.6 | 2.7 | 1.5 | 1.5 | 1.4 | 1.3 | 1.7 | 2.1 | 1.7 | 1.6 | 1.7 | 1.8 | 1.7 | 1.5 | 1.5 | 1.5 | 1.6 | 2.3 | 1.8 | 1.7 | 24 | 8.6 | 1.3 | 2.6 | 0 | 0 |
| 15 | 1.5 | 1.6 | 1.7 | 1.6 | 3.3 | 3.6 | 1.6 | 2.3 | 1.8 | 1.7 | 1.4 | 1.5 | 1.3 | 1.3 | 1.6 | 1.5 | 2.1 | 2.2 | 2.6 | 1.9 | 1.3 | 1.7 | 1.7 | 1.2 | 24 | 3.6 | 1.2 | 1.8 | 0 | 0 |
| 16 | 1.1 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 0.9 | 1.0 | 0.9 | 0.9 | 1.0 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.2 | 1.4 | 2.0 | 2.6 | 1.8 | 1.4 | 1.6 | 24 | 2.6 | 0.9 | 1.2 | 0 | 0 |
| 17 | 1.3 | 1.2 | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.0 | 1.1 | 1.3 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.6 | 1.6 | 24 | 1.6 | 1.0 | 1.2 | 0 | 0 |
| 18 | 4.8 | 3.2 | 1.8 | 1.5 | 1.9 | 3.6 | 3.0 | 3.7 | 2.9 | 3.0 | 2.8 | 2.3 | 2.4 | 2.7 | 2.2 | 1.9 | 2.1 | 2.0 | 1.9 | 1.9 | 1.8 | 1.8 | 1.6 | 3.6 | 24 | 4.8 | 1.5 | 2.5 | 0 | 0 |
| 19 | 5.0 | 4.6 | 2.5 | 2.3 | 1.8 | 2.0 | 1.7 | 1.6 | 1.8 | 1.6 | 1.7 | 1.7 | 1.6 | 1.5 | 1.5 | 1.4 | 1.6 | 1.9 | 1.8 | 1.6 | 1.3 | 1.2 | 1.3 | 1.4 | 24 | 5.0 | 1.2 | 1.9 | 0 | 0 |
| 20 | 1.2 | 1.7 | 1.7 | 1.4 | 1.8 | 5.9 | 6.8 | 1.6 | 2.0 | 1.5 | 1.0 | 1.2 | 1.2 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 3.0 | 1.5 | 1.7 | 1.2 | 1.3 | 24 | 6.8 | 1.0 | 1.8 | 0 | 0 |
| 21 | 1.2 | 1.3 | 1.2 | 1.3 | 1.2 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 | 1.5 | 1.5 | 1.6 | 1.6 | 1.5 | 1.8 | 1.9 | 2.1 | 3.8 | 3.9 | 2.9 | 3.3 | 3.3 | 3.0 | 24 | 3.9 | 1.2 | 1.9 | 0 | 0 |
| 22 | 7.3 | 2.4 | 6.9 | 6.6 | 3.7 | 3.6 | 5.9 | 4.1 | 2.9 | C | C | 2.3 | 2.6 | 2.7 | 2.6 | 2.7 | 2.7 | 2.6 | 2.6 | 3.8 | 3.6 | 2.9 | 2.6 | 2.6 | 22 | 7.3 | 2.3 | 3.6 | 0 | 0 |
| 23 | 2.7 | 3.0 | 2.4 | 3.2 | 2.6 | 2.3 | 2.3 | 2.2 | 2.1 | 2.1 | A | A | A | A | 2.9 | 2.8 | 2.4 | 2.3 | 2.3 | 2.1 | 2.1 | 2.0 | 3.6 | 6.7 | 20 | 6.7 | 2.0 | 2.7 | 0 | 0 |
| 24 | 6.4 | 6.8 | 7.9 | 4.2 | 4.8 | 2.6 | 2.3 | 2.3 | 2.1 | 2.0 | 2.0 | 2.0 | 2.1 | 1.9 | 1.8 | 1.4 | 1.8 | 1.8 | 1.9 | 1.9 | 1.9 | 1.8 | 1.8 | 1.8 | 24 | 7.9 | 1.4 | 2.8 | 0 | 0 |
| 25 | 1.8 | 1.9 | 3.3 | 2.6 | 2.0 | 1.8 | 1.9 | 1.9 | 1.8 | 1.7 | 1.6 | 1.7 | 1.6 | 1.6 | 1.6 | 1.6 | 1.4 | 1.3 | 1.3 | 1.2 | 1.3 | 1.2 | 1.1 | 1.1 | 24 | 3.3 | 1.1 | 1.7 | 0 | 0 |
| 26 | 1.1 | 1.1 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 | 1.0 | 1.1 | 1.0 | 0.9 | 1.1 | 1.1 | 1.6 | 1.3 | 1.4 | 1.3 | 1.3 | 1.2 | 1.1 | 1.2 | 1.3 | 24 | 1.6 | 0.9 | 1.1 | 0 | 0 |
| 27 | 1.5 | 1.3 | 1.2 | 1.3 | 1.5 | 1.5 | 1.7 | 1.7 | 1.5 | 2.3 | 2.3 | 1.8 | 1.7 | 2.0 | 2.0 | 1.6 | 1.5 | 3.5 | 3.4 | 5.1 | 2.6 | 3.7 | 4.0 | 2.6 | 24 | 5.1 | 1.2 | 2.2 | 0 | 0 |
| 28 | 2.0 | 1.2 | 1.2 | 1.5 | 2.5 | 1.3 | 1.3 | 1.3 | 1.4 | 1.5 | 1.5 | 1.6 | 1.6 | 2.1 | 1.7 | 1.6 | 1.7 | 1.7 | 1.7 | 1.8 | 2.6 | 2.8 | 2.1 | 3.7 | 24 | 3.7 | 1.2 | 1.8 | 0 | 0 |
| 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Count** | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 27 | 26 | 27 | 26 | 26 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 664 | | | | | |
| **Maximum** | 7.3 | 7.3 | 7.9 | 6.6 | 18.1 | 20.1 | 24.1 | 10.7 | 2.9 | 6.8 | 22.9 | 39.4 | 30.6 | 26.4 | 13.3 | 10.8 | 4.5 | 4.6 | 8.3 | 24.3 | 19.0 | 11.5 | 4.0 | 6.7 | 24 | | | | | |
| **Minimum** | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 | 0.4 | 0.3 | 0.4 | 0.3 | 0.3 | 20 | | | | | |
| **Average** | 2.0 | 1.9 | 2.1 | 2.1 | 3.0 | 2.7 | 2.6 | 1.9 | 1.5 | 1.7 | 2.3 | 2.7 | 2.4 | 2.3 | 1.7 | 1.6 | 1.4 | 1.7 | 2.1 | 3.0 | 2.6 | 2.1 | 1.6 | 1.7 | | | | | | |

| Percentiles | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data | 0.5 | 0.8 | 1.1 | 1.2 | 1.4 | 1.6 | 1.9 | 2.4 | 3.6 | 5.4 | 19.4 | 39.4 |

| | |
|---|---|
| Maximum Hourly | 39.4 |
| Maximum Daily | 12.6 |
| Monthly Average | 2.1 |

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

# $SO_2$ - March (ppb) COURTICE 2017

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>250 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.4 | 1.8 | 2.0 | 1.9 | 1.7 | 1.6 | 2.0 | 1.5 | 1.5 | 1.5 | 1.4 | 1.6 | 1.5 | 1.5 | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.3 | 1.3 | 1.2 | 24 | 2.4 | 1.2 | 1.6 | 0 | 0 |
| 2 | 1.2 | 1.0 | 0.9 | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 | 1.5 | 3.2 | 2.5 | 1.8 | 1.9 | 2.2 | 2.8 | 3.1 | 1.8 | 1.1 | 0.8 | 0.7 | 0.6 | 0.7 | 0.7 | 0.7 | 24 | 3.2 | 0.6 | 1.4 | 0 | 0 |
| 3 | 1.4 | 1.7 | 3.2 | 4.7 | 0.9 | 1.0 | 1.8 | C | C | 0.3 | A | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.7 | 0.6 | 0.7 | 2.3 | 2.8 | 21 | 4.7 | 0.3 | 1.4 | 0 | 0 |
| 4 | 3.4 | 3.6 | 2.1 | 1.9 | 0.7 | 0.9 | 1.3 | 1.2 | 0.8 | 0.8 | 0.9 | 0.8 | 0.7 | 0.7 | 0.5 | 0.6 | 0.5 | 0.4 | 0.5 | 0.5 | 0.8 | 0.7 | 0.7 | 1.6 | 24 | 3.6 | 0.4 | 1.1 | 0 | 0 |
| 5 | 2.4 | 2.7 | 2.4 | 0.6 | 0.9 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.5 | 0.6 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 24 | 2.7 | 0.5 | 0.9 | 0 | 0 |
| 6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.1 | 1.0 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 24 | 1.1 | 0.8 | 0.9 | 0 | 0 |
| 7 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.1 | 1.0 | 1.1 | 0.9 | 0.9 | 0.8 | 0.9 | 0.9 | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 | 1.0 | 24 | 1.1 | 0.8 | 1.0 | 0 | 0 |
| 8 | 0.9 | 0.8 | 0.9 | 0.9 | 0.9 | 1.0 | 1.0 | 1.2 | 1.2 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 1.0 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 24 | 1.2 | 0.8 | 1.0 | 0 | 0 |
| 9 | 0.9 | 0.8 | 0.7 | 0.8 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.7 | 0.7 | 0.6 | 0.7 | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 24 | 0.9 | 0.6 | 0.8 | 0 | 0 |
| 10 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 1.0 | 24 | 1.0 | 0.7 | 0.8 | 0 | 0 |
| 11 | 1.1 | 0.7 | 0.9 | 1.6 | 0.7 | 1.0 | 1.5 | 1.9 | 2.5 | 2.5 | 1.9 | 3.8 | 4.1 | 2.1 | 1.3 | 1.1 | 1.3 | 0.9 | 0.8 | 0.8 | 0.7 | 0.7 | 0.7 | 1.0 | 24 | 4.1 | 0.7 | 1.5 | 0 | 0 |
| 12 | 0.9 | 1.5 | 1.9 | 0.9 | 0.7 | 0.7 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 1.0 | 2.5 | 2.1 | 0.9 | 0.8 | 0.7 | 0.7 | 0.8 | 1.3 | 1.7 | 24 | 2.5 | 0.7 | 1.1 | 0 | 0 |
| 13 | 2.1 | 1.6 | 2.6 | 4.4 | 2.6 | 0.9 | 0.8 | 0.9 | 0.8 | 3.4 | 4.5 | 1.7 | 2.7 | 3.4 | 1.8 | 1.0 | 1.2 | 1.1 | 0.9 | 0.9 | 0.9 | 0.9 | 1.1 | 1.3 | 24 | 4.5 | 0.8 | 1.8 | 0 | 0 |
| 14 | 1.1 | 1.2 | 1.2 | 1.5 | 2.6 | 2.5 | 2.0 | 2.2 | 2.7 | 2.7 | 2.3 | 2.2 | 1.8 | 1.2 | 0.5 | 0.4 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 2.7 | 0.0 | 1.2 | 0 | 0 |
| 15 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.1 | 0.2 | C | 0.9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.3 | 2.3 | 1.5 | 1.2 | 1.2 | 1.2 | 1.4 | 1.4 | 23 | 2.3 | 0.1 | 0.8 | 0 | 0 |
| 16 | 1.4 | 1.5 | 1.2 | 1.0 | 1.1 | 1.0 | 1.0 | 1.2 | 1.4 | 1.1 | 1.2 | 1.1 | 1.2 | 0.9 | 0.8 | 1.0 | 0.9 | 1.0 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 24 | 1.5 | 0.8 | 1.0 | 0 | 0 |
| 17 | 0.8 | 0.7 | 3.1 | 4.3 | 0.9 | 2.8 | 5.9 | 2.5 | 1.2 | 1.2 | 1.0 | 1.0 | 1.1 | 0.9 | 1.2 | 1.0 | 1.0 | 1.0 | 0.9 | 2.0 | 2.5 | 0.8 | 0.7 | 0.8 | 24 | 5.9 | 0.7 | 1.6 | 0 | 0 |
| 18 | 0.8 | 1.3 | 2.1 | 7.2 | 11.1 | 5.5 | 8.5 | 13.1 | 19.1 | 11.0 | 2.0 | 3.8 | 5.4 | 1.3 | 1.0 | 1.2 | 1.0 | 0.9 | 0.8 | 1.1 | 1.0 | 2.8 | 0.9 | 0.9 | 24 | 19.1 | 0.8 | 4.3 | 0 | 0 |
| 19 | 0.8 | 1.1 | 1.0 | 1.3 | 3.0 | 2.4 | 1.9 | 2.5 | 2.3 | 1.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 3.6 | 6.0 | 4.8 | 1.2 | 24 | 6.0 | 0.8 | 1.7 | 0 | 0 |
| 20 | 1.3 | 1.5 | 1.1 | 1.8 | 4.2 | 5.0 | 4.5 | 1.0 | 0.8 | 0.8 | 1.0 | 1.3 | 0.9 | 1.1 | 0.2 | 0.2 | 0.1 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 24 | 5.0 | 0.0 | 1.1 | 0 | 0 |
| 21 | 0.8 | 3.9 | 0.5 | 0.5 | 0.7 | 0.3 | 0.3 | 0.6 | 0.6 | 0.3 | 0.2 | 0.4 | 0.4 | 1.2 | 0.5 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.0 | 0.0 | 24 | 3.9 | 0.0 | 0.5 | 0 | 0 |
| 22 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| 23 | 0.0 | 0.0 | 0.4 | 0.0 | 1.7 | 0.5 | 1.8 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.4 | 0.5 | 0.4 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 24 | 1.8 | 0.0 | 0.3 | 0 | 0 |
| 24 | 0.3 | 0.1 | 0.2 | 0.3 | 0.4 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.8 | 1.1 | 1.1 | 0.9 | 1.7 | 1.7 | 0.5 | 24 | 1.7 | 0.0 | 0.4 | 0 | 0 |
| 25 | 0.7 | 0.6 | 0.2 | 0.2 | 0.1 | 0.0 | 0.4 | 0.1 | 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 | 1.0 | 1.1 | 24 | 1.1 | 0.0 | 0.2 | 0 | 0 |
| 26 | 2.5 | 3.0 | 4.8 | 1.3 | 0.2 | 0.2 | 6.2 | 3.2 | 5.9 | 4.5 | 3.4 | 2.7 | 3.6 | 9.8 | 25.1 | 17.2 | 17.9 | 19.8 | 10.3 | 7.4 | 11.6 | 9.3 | 2.0 | 0.8 | 24 | 25.1 | 0.2 | 7.2 | 0 | 0 |
| 27 | 0.5 | 0.5 | 0.8 | 2.3 | 0.6 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.6 | 0.5 | 0.6 | 0.3 | 8.6 | 2.6 | 0.6 | 0.5 | 24 | 8.6 | 0.2 | 0.9 | 0 | 0 |
| 28 | 0.6 | 0.8 | 0.4 | 0.3 | 0.2 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.4 | 0.0 | 0.3 | 0.4 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.8 | 0.0 | 0.2 | 0 | 0 |
| 29 | 0.1 | 0.4 | 0.3 | 1.6 | 2.3 | 2.8 | 2.9 | 2.0 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.3 | 4.9 | 3.1 | 2.0 | 0.0 | 24 | 4.9 | 0.0 | 1.0 | 0 | 0 |
| 30 | 0.2 | 1.0 | 4.8 | 1.5 | 0.0 | 0.1 | 0.7 | 1.5 | 2.7 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 0.2 | 0.0 | 6.1 | 0.9 | 3.5 | 24 | 6.1 | 0.0 | 1.0 | 0 | 0 |
| 31 | 2.6 | 9.3 | 3.1 | 0.8 | 1.1 | 1.6 | 1.1 | 4.1 | 10.0 | 2.9 | 9.0 | 10.4 | 12.5 | 13.3 | 9.7 | 6.5 | 1.1 | 0.6 | 0.5 | 0.3 | 0.4 | 0.3 | 0.5 | 0.8 | 24 | 13.3 | 0.3 | 4.3 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 29 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 740 | | | | | |
| **Maximum** | 3.4 | 9.3 | 4.8 | 7.2 | 11.1 | 5.5 | 8.5 | 13.1 | 19.1 | 11.0 | 9.0 | 10.4 | 12.5 | 13.3 | 25.1 | 17.2 | 17.9 | 19.8 | 10.3 | 7.4 | 11.6 | 9.3 | 4.8 | 3.5 | 24 | | | | | |
| **Minimum** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21 | | | | | |
| **Average** | 1.1 | 1.5 | 1.5 | 1.5 | 1.4 | 1.2 | 1.7 | 1.6 | 2.1 | 1.5 | 1.3 | 1.3 | 1.5 | 1.6 | 1.8 | 1.5 | 1.3 | 1.3 | 0.9 | 0.9 | 1.5 | 1.5 | 1.0 | 0.9 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 0.0 | 0.2 | 0.6 | 0.8 | 0.8 | 1.0 | 1.1 | 1.5 | 2.7 | 4.5 | 12.1 | 25.1 |

| | |
|---|---|
| Maximum Hourly | 25.1 |
| Maximum Daily | 7.2 |
| Monthly Average | 1.4 |

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

# $SO_2$ - January (ppb) Rundle Road 2017

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>250 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.5 | 0.5 | 0.5 | 1.1 | 1.5 | 1.0 | 0.9 | 1.2 | 1.1 | 0.8 | 0.6 | 0.6 | 0.5 | 24 | 1.5 | 0.5 | 0.7 | 0 | 0 |
| 2 | 0.5 | 0.5 | 0.5 | 0.6 | 1.0 | 0.8 | 0.6 | 0.5 | 0.6 | 0.8 | 0.7 | 0.8 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.5 | 24 | 1.0 | 0.5 | 0.6 | 0 | 0 |
| 3 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.8 | 0.7 | 0.7 | 0.7 | 24 | 0.8 | 0.4 | 0.6 | 0 | 0 |
| 4 | 0.7 | 0.8 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.6 | 0.6 | 0.8 | 0.7 | 0.6 | 0.6 | 24 | 0.9 | 0.6 | 0.8 | 0 | 0 |
| 5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.6 | 0.7 | 0.6 | 0.5 | 0.5 | 0.5 | 0.6 | 0.5 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 24 | 0.7 | 0.5 | 0.5 | 0 | 0 |
| 6 | 0.9 | 0.5 | 0.9 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.6 | 0.5 | 0.5 | 0.7 | 0.6 | 0.6 | 0.6 | 0.2 | 0.4 | 0.3 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 24 | 0.9 | 0.2 | 0.5 | 0 | 0 |
| 7 | 0.3 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.5 | 24 | 0.5 | 0.2 | 0.3 | 0 | 0 |
| 8 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.7 | 0.7 | 0.3 | 0.3 | 0.3 | 0.4 | 0.5 | 0.5 | 0.3 | 0.2 | 0.0 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 | 24 | 0.7 | 0.0 | 0.3 | 0 | 0 |
| 9 | 0.0 | 0.2 | 0.2 | 0.3 | 0.5 | 0.3 | 0.4 | 0.5 | 0.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.6 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.9 | 24 | 0.9 | 0.0 | 0.5 | 0 | 0 |
| 10 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 0.9 | 0.9 | 0.8 | 0.9 | 0.9 | 1.0 | 1.1 | 0.8 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.8 | 24 | 1.1 | 0.6 | 0.8 | 0 | 0 |
| 11 | 0.8 | 0.8 | 0.9 | 0.8 | 0.7 | 0.6 | 0.7 | 0.5 | 0.5 | 0.6 | 0.8 | 0.7 | 0.7 | 0.5 | 0.5 | 0.6 | 0.6 | 0.5 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 0.9 | 24 | 0.9 | 0.5 | 0.7 | 0 | 0 |
| 12 | 0.7 | 0.7 | 0.8 | 0.7 | 0.8 | 0.8 | 0.8 | 0.6 | 0.6 | 0.6 | 0.4 | 0.6 | 0.7 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 | 0.5 | 24 | 0.8 | 0.4 | 0.6 | 0 | 0 |
| 13 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | 0.2 | 0.0 | 0.2 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 24 | 0.4 | 0.0 | 0.2 | 0 | 0 |
| 14 | 0.1 | 0.0 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.5 | 0.4 | 0.6 | 0.3 | 0.2 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.5 | 24 | 0.6 | 0.0 | 0.3 | 0 | 0 |
| 15 | 0.7 | 0.5 | 0.6 | 0.7 | 0.5 | 0.3 | 0.3 | 0.4 | 0.4 | 0.2 | 0.4 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 24 | 0.7 | 0.2 | 0.4 | 0 | 0 |
| 16 | 0.6 | 0.4 | 0.1 | 0.3 | 0.4 | 0.4 | 0.4 | 0.6 | 0.6 | 1.0 | 1.0 | 1.1 | 1.5 | 1.7 | 1.3 | 1.5 | 1.6 | 1.3 | 1.1 | 1.1 | 0.6 | 0.4 | 0.7 | 0.7 | 24 | 1.7 | 0.1 | 0.8 | 0 | 0 |
| 17 | 0.7 | 0.8 | 0.8 | 0.7 | 0.8 | 1.0 | 1.0 | 0.9 | 1.1 | 0.8 | 0.9 | 1.0 | 0.9 | 0.9 | 0.8 | 0.8 | 0.7 | 0.6 | 0.5 | 0.6 | 0.6 | 0.4 | 0.6 | 0.5 | 24 | 1.1 | 0.4 | 0.8 | 0 | 0 |
| 18 | 0.6 | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.3 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 24 | 0.6 | 0.3 | 0.5 | 0 | 0 |
| 19 | 0.5 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.7 | 0.6 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.5 | 0.6 | 0.5 | 0.4 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 24 | 0.7 | 0.4 | 0.5 | 0 | 0 |
| 20 | 0.6 | 0.7 | 0.5 | 0.6 | 0.6 | 0.8 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 | 0.7 | 0.8 | 0.6 | 0.6 | 0.7 | 0.6 | 0.3 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 24 | 0.8 | 0.3 | 0.6 | 0 | 0 |
| 21 | 0.6 | 0.7 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 | 1.0 | 0.9 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 0.8 | 0.8 | 0.7 | 0.7 | 0.5 | 0.4 | 0.7 | 0.6 | 0.6 | 24 | 1.0 | 0.4 | 0.7 | 0 | 0 |
| 22 | 0.6 | 0.7 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 | 0.6 | 0.7 | 0.7 | 0.6 | 0.7 | 0.6 | 0.6 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 24 | 0.8 | 0.6 | 0.7 | 0 | 0 |
| 23 | 0.6 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.5 | 0.4 | 0.6 | 0.5 | 0.6 | 0.6 | 24 | 0.7 | 0.4 | 0.6 | 0 | 0 |
| 24 | 0.5 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.5 | 0.3 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.5 | 0.6 | 0.7 | 0.6 | 0.7 | 0.6 | 0.6 | 24 | 0.7 | 0.3 | 0.6 | 0 | 0 |
| 25 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 1.0 | 0.9 | 1.1 | 1.0 | 1.2 | 0.9 | 0.9 | 0.8 | C | C | C | 0.7 | 0.1 | 0.2 | 0.2 | 0.1 | 0.0 | 0.0 | 21 | 1.2 | 0.0 | 0.6 | 0 | 0 |
| 26 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.3 | 0.4 | 1.1 | 0.3 | 0.2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 1.1 | 0.0 | 0.1 | 0 | 0 |
| 27 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| 28 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |
| 29 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |
| 30 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.1 | 0.0 | 0.0 | 0 | 0 |
| 31 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 30 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 741 | | | | | |
| **Maximum** | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 1.0 | 0.9 | 1.1 | 1.0 | 1.2 | 1.1 | 1.5 | 1.7 | 1.3 | 1.5 | 1.6 | 1.3 | 1.2 | 1.1 | 0.8 | 0.8 | 0.9 | 0.9 | 24 | | | | | |
| **Minimum** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21 | | | | | |
| **Average** | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 0.0 | 0.1 | 0.3 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.9 | 1.2 | 1.7 |

| | |
|---|---|
| Maximum Hourly | 1.7 |
| Maximum Daily | 0.8 |
| Monthly Average | 0.5 |

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

# $SO_2$ - February (ppb) Rundle Road 2017

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>250 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | T | 0.3 | 0.5 | 0.5 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.3 | 23 | 0.5 | 0.0 | 0.1 | 0 | 0 |
| 2 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 24 | 0.3 | 0.0 | 0.2 | 0 | 0 |
| 3 | 0.0 | 0.0 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.1 | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.3 | 0.0 | 0.1 | 0 | 0 |
| 4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.2 | 0.4 | 0.2 | 0.2 | 0.4 | 0.7 | 24 | 0.7 | 0.0 | 0.1 | 0 | 0 |
| 5 | 0.6 | 0.4 | 0.3 | 0.5 | 0.5 | 0.7 | 0.9 | 0.8 | 0.5 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.5 | 0.3 | 0.3 | 0.3 | 0.3 | 0.1 | 0.0 | 0.1 | 0.4 | 24 | 0.9 | 0.0 | 0.5 | 0 | 0 |
| 6 | 0.7 | 0.6 | 0.4 | 0.5 | 0.6 | 0.4 | 0.3 | 0.4 | 0.3 | 0.3 | 0.2 | 0.3 | 0.4 | 0.4 | 0.2 | 0.2 | 0.8 | 0.8 | 0.5 | 0.5 | 0.5 | 0.6 | 0.4 | 0.3 | 24 | 0.8 | 0.2 | 0.4 | 0 | 0 |
| 7 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.5 | 0.5 | 0.4 | 0.5 | 0.7 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.4 | 24 | 0.7 | 0.2 | 0.4 | 0 | 0 |
| 8 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 24 | 0.5 | 0.1 | 0.2 | 0 | 0 |
| 9 | 0.1 | 0.4 | 0.8 | 0.6 | 0.3 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.2 | 0.4 | 0.5 | 0.5 | 0.6 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 24 | 0.8 | 0.0 | 0.2 | 0 | 0 |
| 10 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.9 | 0.3 | 0.2 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.2 | 0.3 | 24 | 1.9 | 0.0 | 0.2 | 0 | 0 |
| 11 | 0.4 | 0.4 | 1.0 | 0.7 | 0.4 | 0.5 | 0.9 | 0.6 | 0.9 | 0.7 | 0.7 | 0.6 | 0.6 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 | 0.2 | 0.1 | 0.0 | 0.1 | 0.1 | 24 | 1.0 | 0.0 | 0.5 | 0 | 0 |
| 12 | 0.1 | 0.2 | 0.2 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.3 | 0.2 | 0.4 | 0.5 | 0.5 | 0.4 | 24 | 0.5 | 0.0 | 0.2 | 0 | 0 |
| 13 | 0.2 | 0.2 | 0.5 | 0.8 | 0.9 | 0.7 | 0.4 | 0.3 | 1.2 | 2.0 | 2.2 | 0.9 | 0.5 | 0.3 | 0.3 | 0.2 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 24 | 2.2 | 0.0 | 0.5 | 0 | 0 |
| 14 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.4 | 0.2 | 0.3 | 0.4 | 0.2 | 0.5 | 0.9 | 0.8 | 0.8 | 0.6 | 0.8 | 0.7 | 0.5 | 0.5 | 0.4 | 0.5 | 0.6 | 0.6 | 0.7 | 24 | 0.9 | 0.0 | 0.4 | 0 | 0 |
| 15 | 0.6 | 0.5 | 0.4 | 0.5 | 0.3 | 0.4 | 0.4 | 0.6 | 0.7 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.6 | 0.8 | 0.8 | 0.5 | 0.4 | 0.5 | 0.6 | 0.3 | 24 | 0.8 | 0.3 | 0.5 | 0 | 0 |
| 16 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.4 | 1.1 | 1.1 | 1.4 | 1.3 | 1.4 | 1.4 | 1.5 | 1.8 | 1.4 | 1.4 | 1.2 | 24 | 1.8 | 0.0 | 0.7 | 0 | 0 |
| 17 | 1.3 | 1.3 | 1.2 | 1.2 | 1.2 | 1.3 | 1.3 | 1.1 | 1.1 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 1.3 | 24 | 1.4 | 1.1 | 1.3 | 0 | 0 |
| 18 | 1.3 | 1.3 | 1.3 | 1.4 | 1.3 | 1.3 | 1.3 | 0.9 | 1.3 | 1.7 | 1.8 | 1.4 | 2.0 | 2.3 | 2.2 | 2.0 | 1.9 | 1.7 | 1.5 | 1.4 | 1.5 | 1.5 | 1.5 | 1.3 | 24 | 2.3 | 0.9 | 1.6 | 0 | 0 |
| 19 | 1.3 | 1.4 | 1.3 | 1.3 | 1.2 | 1.2 | 1.3 | 1.2 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.3 | 1.5 | 1.7 | 1.5 | 1.4 | 1.3 | 1.2 | 1.1 | 1.1 | 24 | 1.7 | 1.1 | 1.4 | 0 | 0 |
| 20 | 1.1 | 1.2 | 1.1 | 1.1 | 1.0 | 1.1 | 1.0 | 0.9 | 1.1 | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 1.0 | 24 | 1.2 | 0.9 | 1.1 | 0 | 0 |
| 21 | 1.1 | 1.2 | 1.1 | 1.1 | 1.2 | 1.1 | 1.6 | 1.1 | 1.2 | 1.2 | 1.2 | 0.9 | 1.3 | 1.4 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.3 | 1.2 | 1.2 | 24 | 1.6 | 0.9 | 1.2 | 0 | 0 |
| 22 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.4 | 1.5 | 1.4 | 1.4 | 1.6 | C | C | 0.5 | 0.6 | 0.5 | 0.6 | 0.6 | 0.5 | 0.5 | 0.6 | 0.5 | 22 | 1.6 | 0.5 | 1.0 | 0 | 0 |
| 23 | 0.5 | 0.4 | 0.4 | 0.5 | 0.6 | 0.5 | 0.4 | 0.5 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.4 | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 24 | 0.6 | 0.1 | 0.4 | 0 | 0 |
| 24 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.2 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 24 | 0.2 | 0.0 | 0.1 | 0 | 0 |
| 25 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | 0.3 | 0.2 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 24 | 0.3 | 0.0 | 0.2 | 0 | 0 |
| 26 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.1 | 0.0 | 0.0 | 0 | 0 |
| 27 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.6 | 0.8 | 0.6 | 0.4 | 0.6 | 0.9 | 0.6 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.9 | 0.0 | 0.2 | 0 | 0 |
| 28 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.3 | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.2 | 24 | 0.3 | 0.0 | 0.1 | 0 | 0 |
| 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Count** | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 27 | 26 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 669 | | | | | |
| **Maximum** | 1.3 | 1.4 | 1.3 | 1.4 | 1.3 | 1.3 | 1.6 | 1.3 | 1.5 | 2.0 | 2.2 | 1.5 | 2.0 | 2.3 | 2.2 | 2.0 | 1.9 | 1.7 | 1.5 | 1.5 | 1.8 | 1.5 | 1.5 | 1.3 | 24 | | | | | |
| **Minimum** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22 | | | | | |
| **Average** | 0.4 | 0.4 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.6 | 0.5 | 0.6 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 0.0 | 0.1 | 0.1 | 0.2 | 0.3 | 0.5 | 0.6 | 1.1 | 1.3 | 1.4 | 1.9 | 2.3 |

| | |
|---|---|
| Maximum Hourly | 2.3 |
| Maximum Daily | 1.6 |
| Monthly Average | 0.5 |

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

# $SO_2$ - March (ppb) Rundle Road 2017

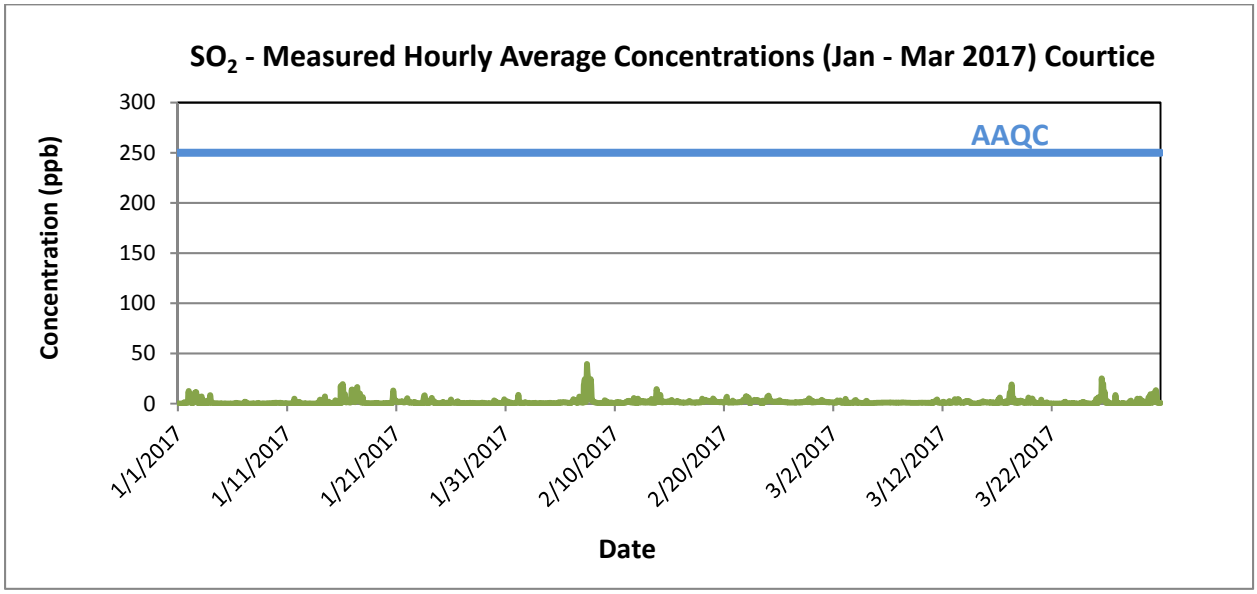
| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>250 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.3 | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.6 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.2 | 24 | 0.6 | 0.0 | 0.3 | 0 | 0 |
| 2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 2.0 | 2.0 | 1.5 | 1.2 | 1.1 | 2.2 | 2.8 | 1.9 | 0.7 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 2.8 | 0.0 | 0.7 | 0 | 0 |
| 3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | C | 0.0 | 0.0 | 0.0 | 0.0 | A | A | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21 | 0.1 | 0.0 | 0.0 | 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 | 0.0 | 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 |
| 5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| 6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 |
| 7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 24 | 0.2 | 0.0 | 0.0 | 0 | 0 |
| 8 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.0 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 24 | 0.3 | 0.0 | 0.1 | 0 | 0 |
| 9 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.1 | 0.0 | 0.0 | 0 | 0 |
| 10 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| 11 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 1.0 | 1.8 | 1.5 | 1.1 | 3.1 | 2.7 | 1.3 | 0.7 | 0.4 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 3.1 | 0.0 | 0.6 | 0 | 0 |
| 12 | 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 | 0.3 | 2.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 2.0 | 0.0 | 0.1 | 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 | 0.0 | 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 | 0.0 | 0.0 | 0.0 | M | 0.0 | 0.6 | 0.8 | 1.1 | 1.3 | 1.4 | 1.8 | 2.1 | 2.4 | 2.7 | 23 | 2.7 | 0.0 | 0.6 | 0 | 0 |
| 15 | 3.0 | 3.2 | 3.4 | 3.6 | 3.9 | C | C | 1.2 | 1.2 | 1.0 | 0.4 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22 | 3.9 | 0.0 | 1.0 | 0 | 0 |
| 16 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.3 | 0.0 | 0.0 | 0 | 0 |
| 17 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.0 | 0.0 | 0.0 | 0 | 0 |
| 18 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 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 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 1.1 | 0.0 | 0.0 | 0 | 0 |
| 20 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.5 | 0.6 | 0.8 | 1.0 | 1.1 | 0.7 | 0.5 | 0.6 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 24 | 1.1 | 0.0 | 0.4 | 0 | 0 |
| 21 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.5 | 0.9 | 0.7 | 0.7 | 0.8 | 0.9 | 0.8 | 1.4 | 1.2 | 0.6 | 0.6 | 0.6 | 0.4 | 0.5 | 0.5 | 0.5 | 0.4 | 0.3 | 24 | 1.4 | 0.3 | 0.6 | 0 | 0 |
| 22 | 0.3 | 0.4 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 0.1 | 0.2 | 24 | 0.4 | 0.0 | 0.1 | 0 | 0 |
| 23 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.4 | 0.5 | 0.6 | 0.6 | 0.5 | 0.3 | 0.4 | 0.5 | 0.4 | 0.7 | 0.4 | 24 | 0.7 | 0.0 | 0.3 | 0 | 0 |
| 24 | 0.6 | 0.4 | 0.6 | 0.5 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.6 | 0.7 | 0.8 | 0.6 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 24 | 0.8 | 0.2 | 0.4 | 0 | 0 |
| 25 | 0.2 | 0.1 | 0.2 | 0.2 | 0.0 | 0.2 | 0.2 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.4 | 0.2 | 0.5 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 24 | 0.5 | 0.0 | 0.2 | 0 | 0 |
| 26 | 0.1 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.4 | 0.3 | 0.3 | 0.4 | 0.5 | 24 | 0.5 | 0.1 | 0.3 | 0 | 0 |
| 27 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.3 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.8 | 1.0 | 0.8 | 1.0 | 1.0 | 0.7 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.6 | 24 | 1.0 | 0.3 | 0.6 | 0 | 0 |
| 28 | 0.6 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.5 | 0.4 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 24 | 0.6 | 0.2 | 0.4 | 0 | 0 |
| 29 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.0 | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.0 | 0.1 | 0.2 | 24 | 0.3 | 0.0 | 0.2 | 0 | 0 |
| 30 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.2 | 0.3 | 0.2 | 0.3 | 0.4 | 1.1 | 2.6 | 0.6 | 0.3 | 0.3 | 0.4 | 0.3 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 24 | 2.6 | 0.0 | 0.4 | 0 | 0 |
| 31 | 0.5 | 0.5 | 0.3 | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.5 | 0.4 | 0.4 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.5 | 0.4 | 0.3 | 0.3 | 0.3 | 0.4 | 24 | 0.5 | 0.3 | 0.4 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 30 | 29 | 31 | 31 | 31 | 31 | 30 | 30 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 738 | | | | | |
| **Maximum** | 3.0 | 3.2 | 3.4 | 3.6 | 3.9 | 0.5 | 0.6 | 1.2 | 1.8 | 2.0 | 2.0 | 3.1 | 2.7 | 2.6 | 2.2 | 2.8 | 1.9 | 1.1 | 1.3 | 1.4 | 1.8 | 2.1 | 2.4 | 2.7 | 24 | | | | | |
| **Minimum** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21 | | | | | |
| **Average** | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.3 | 0.4 | 0.3 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.6 | 1.0 | 2.7 | 3.9 |

| | |
|---|---|
| Maximum Hourly | 3.9 |
| Maximum Daily | 1.0 |
| Monthly Average | 0.3 |

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

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



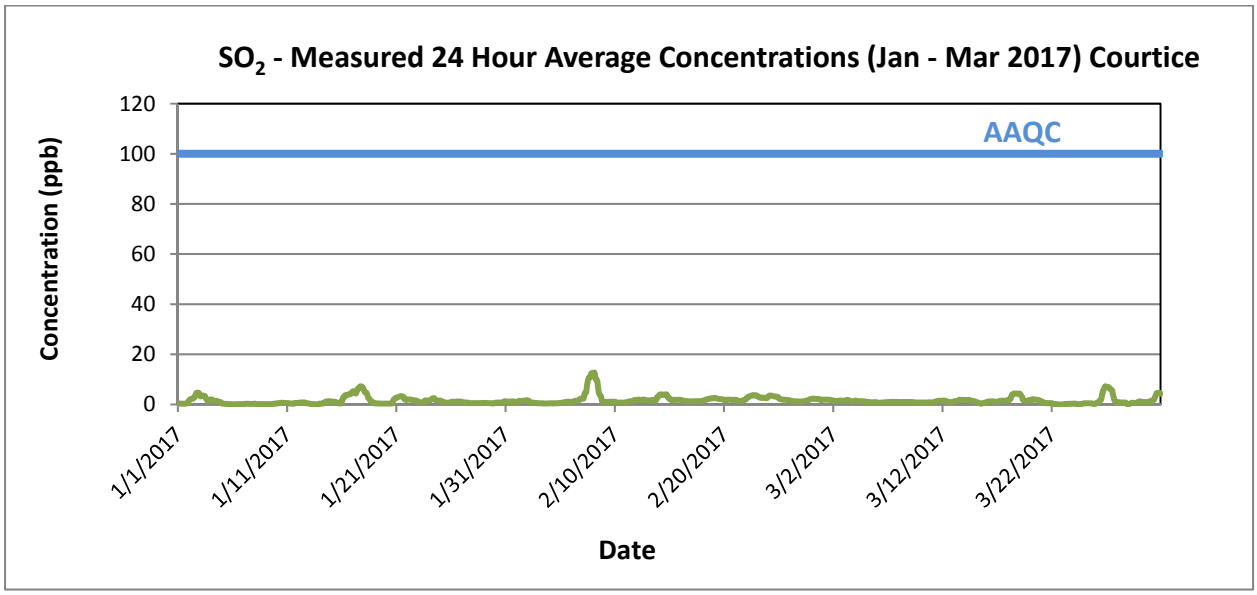
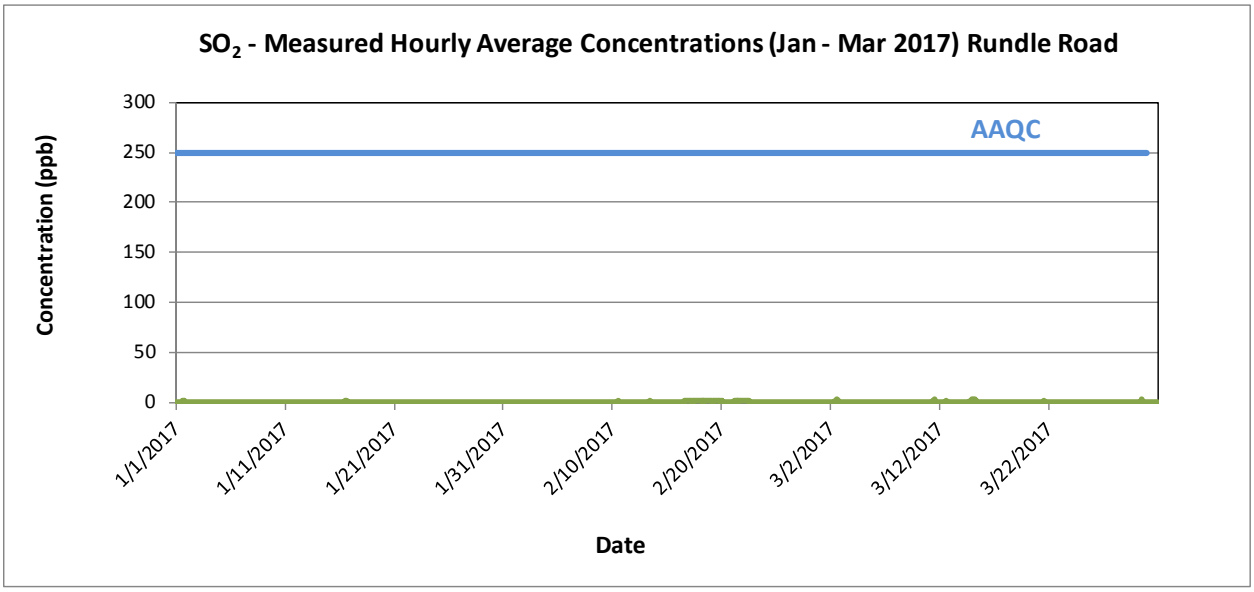
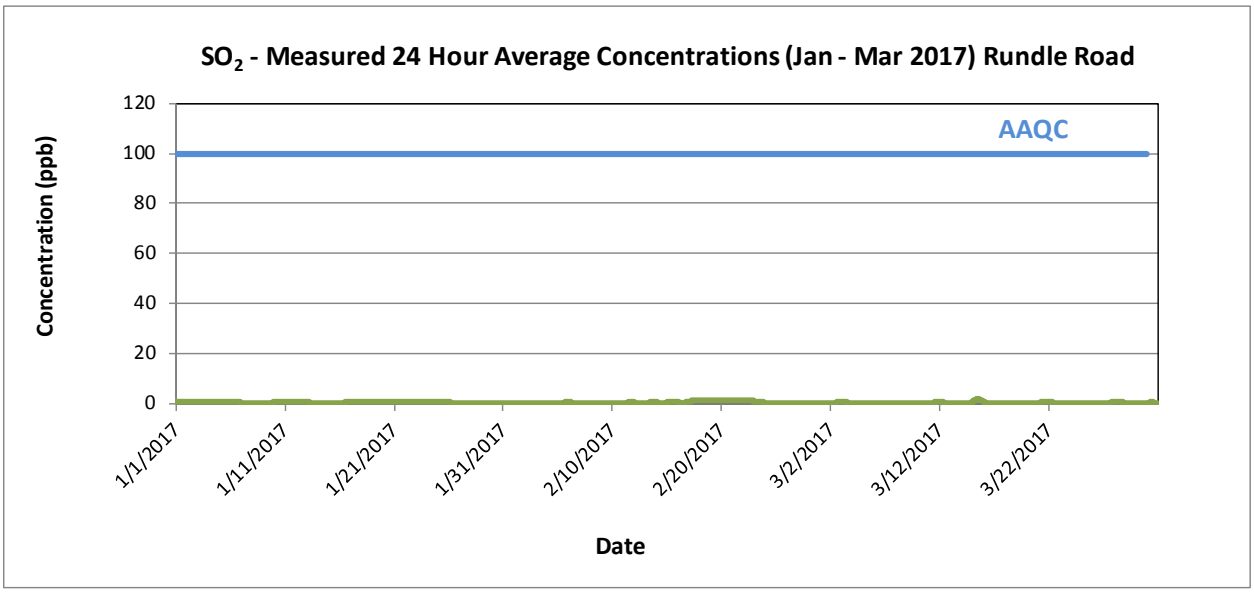



**Figure B-2 Time History Plots of Measured Hourly Average and 24 Hour Average $SO_2$ Concentrations – Rundle Road Station**



# Appendix C $NO_2$ DATA SUMMARIES AND TIME HISTORY PLOTS

## $NO_2$ - COURTICE
## January 2017
## (ppb)

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.2 | 4.2 | 2.4 | 3.4 | 4.8 | 6.0 | 5.7 | 4.8 | 4.4 | 3.7 | 4.3 | 3.0 | 1.7 | 1.3 | 1.5 | 2.1 | 2.2 | 2.9 | 2.8 | 1.9 | 1.2 | 1.5 | 4.6 | 10.8 | 24 | 10.8 | 1.2 | 3.6 | 0 | 0 |
| 2 | 13.0 | 9.4 | 10.0 | 10.5 | 10.5 | 7.9 | 9.1 | 8.5 | 5.6 | 6.0 | 13.3 | 6.8 | 4.8 | 18.4 | 19.6 | 16.1 | 19.5 | 16.7 | 11.1 | 5.6 | 5.8 | 4.2 | 4.1 | 3.1 | 24 | 19.6 | 3.1 | 10.0 | 0 | 0 |
| 3 | 6.1 | 2.9 | 2.4 | 12.5 | 22.4 | 10.0 | 7.4 | 3.8 | 3.1 | 3.6 | 4.9 | 4.5 | 6.6 | 5.6 | 12.7 | 14.4 | 13.3 | 11.6 | 15.1 | 9.6 | 9.5 | 9.7 | 7.5 | 8.6 | 24 | 22.4 | 2.4 | 8.6 | 0 | 0 |
| 4 | 6.1 | 9.9 | 10.4 | 10.5 | 15.2 | 14.8 | 11.2 | 4.0 | 6.4 | 6.4 | 3.3 | 2.8 | 2.8 | 3.5 | 2.9 | 2.0 | 2.8 | 2.9 | 2.4 | 2.7 | 2.6 | 2.5 | 2.2 | 1.7 | 24 | 15.2 | 1.7 | 5.5 | 0 | 0 |
| 5 | 1.8 | 1.5 | 1.6 | 1.6 | 1.3 | 1.6 | 1.8 | 3.9 | 5.1 | 5.0 | 4.8 | 5.4 | 4.3 | 3.9 | 5.1 | 5.1 | 4.6 | 7.9 | 9.2 | 8.9 | 7.7 | 8.0 | 5.4 | 10.3 | 24 | 10.3 | 1.3 | 4.8 | 0 | 0 |
| 6 | 10.5 | 8.4 | 8.4 | 8.2 | 10.7 | 10.5 | 12.6 | 15.1 | 17.3 | 15.4 | 9.4 | 6.8 | 8.8 | 8.2 | 8.2 | 10.5 | 11.4 | 11.6 | 8.1 | 9.7 | 12.2 | 12.9 | 19.7 | 18.6 | 24 | 19.7 | 6.8 | 11.4 | 0 | 0 |
| 7 | 16.7 | 25.8 | 21.5 | 26.2 | 21.3 | 23.1 | 19.4 | 19.0 | 12.7 | 10.0 | 13.9 | 17.5 | 5.0 | 5.0 | 3.9 | 6.8 | 9.4 | 5.5 | 4.5 | 6.3 | 9.4 | 7.0 | 6.6 | 9.2 | 24 | 26.2 | 3.9 | 12.7 | 0 | 0 |
| 8 | 11.7 | 11.6 | 12.4 | 10.8 | 5.8 | 4.0 | 3.8 | 5.2 | 3.7 | 1.5 | 1.7 | 0.9 | 1.3 | 0.9 | 1.2 | 1.7 | 1.7 | 6.2 | 10.4 | 20.8 | 27.9 | 15.7 | 14.0 | 18.4 | 24 | 27.9 | 0.9 | 8.1 | 0 | 0 |
| 9 | 21.3 | 16.2 | 15.9 | 17.4 | 18.9 | 16.7 | 11.8 | 0.9 | 0.6 | 1.0 | 1.7 | 1.7 | 1.7 | 1.6 | 2.7 | 4.3 | 4.9 | 5.8 | 12.4 | 24.2 | 26.6 | 29.5 | 21.3 | 3.7 | 24 | 29.5 | 0.6 | 11.0 | 0 | 0 |
| 10 | 3.7 | 4.3 | 5.1 | 5.1 | 5.3 | 3.7 | 3.2 | 2.9 | 2.9 | 3.2 | 2.5 | 2.2 | 2.3 | 1.9 | 2.2 | 2.0 | 2.2 | 2.1 | 2.3 | 3.1 | 2.7 | 6.3 | 3.0 | 1.6 | 24 | 6.3 | 1.6 | 3.2 | 0 | 0 |
| 11 | 1.5 | 1.4 | 2.7 | 2.4 | 2.5 | 2.9 | 3.1 | 4.9 | 5.6 | 4.6 | 2.9 | 1.9 | 1.7 | 1.8 | 1.9 | 2.6 | 15.6 | 25.9 | 13.6 | 14.7 | 11.3 | 6.1 | 3.7 | 8.0 | 24 | 25.9 | 1.4 | 6.0 | 0 | 0 |
| 12 | 4.5 | 9.8 | 12.0 | 15.3 | 3.7 | 2.1 | 9.6 | 12.1 | 8.1 | 7.7 | 5.6 | 5.8 | 7.7 | 7.6 | 9.0 | 6.5 | 5.1 | 4.5 | 5.9 | 4.8 | 6.7 | 7.2 | 6.8 | 4.6 | 24 | 15.3 | 2.1 | 7.2 | 0 | 0 |
| 13 | 3.3 | 5.0 | 1.5 | 1.7 | 1.8 | 5.4 | 5.0 | 5.0 | 5.1 | 4.6 | 3.0 | 2.5 | 2.0 | 2.5 | 2.2 | 2.3 | 3.0 | 7.2 | 5.1 | 3.3 | 3.9 | 2.2 | 2.2 | 2.4 | 24 | 7.2 | 1.5 | 3.4 | 0 | 0 |
| 14 | 3.9 | 2.8 | 2.3 | 2.6 | 3.9 | 3.2 | 3.6 | 4.8 | 3.7 | 4.4 | 10.8 | 7.3 | 6.3 | 3.3 | 6.2 | 2.7 | 4.2 | 9.2 | 14.5 | 21.6 | 24.0 | 26.9 | 28.6 | 31.5 | 24 | 31.5 | 2.3 | 9.7 | 0 | 0 |
| 15 | 31.8 | 24.3 | 26.9 | 31.0 | 29.3 | 28.3 | 28.7 | 30.0 | 27.4 | 18.0 | 3.4 | 1.8 | 2.4 | 1.3 | 1.9 | 3.8 | 3.3 | 3.3 | 4.0 | 4.9 | 17.6 | 16.0 | 34.9 | 9.9 | 24 | 34.9 | 1.3 | 16.0 | 0 | 0 |
| 16 | 3.7 | 26.7 | 28.9 | 29.1 | 31.1 | 31.4 | 30.8 | 32.4 | 30.4 | 28.4 | 18.7 | 11.9 | 15.2 | 16.1 | 15.5 | 17.4 | 20.1 | 17.0 | 16.3 | 17.5 | 29.8 | 34.6 | 36.4 | 29.8 | 24 | 36.4 | 3.7 | 23.7 | 0 | 0 |
| 17 | 31.1 | 30.8 | 29.6 | 30.4 | 30.3 | 20.4 | 21.1 | 24.8 | 23.0 | 24.6 | 27.6 | 15.3 | 12.4 | 22.5 | 18.0 | 19.0 | 25.1 | 15.5 | 10.3 | 9.5 | 8.9 | 8.8 | 11.0 | 10.3 | 24 | 31.1 | 8.8 | 20.0 | 0 | 0 |
| 18 | 18.7 | 17.2 | 26.9 | 19.2 | 22.0 | 22.3 | 18.8 | 20.9 | 22.3 | 18.8 | 13.1 | 6.8 | 6.7 | 7.6 | 5.9 | 7.0 | 7.6 | 11.5 | 5.7 | 6.1 | 5.5 | 4.2 | 5.4 | 7.3 | 24 | 26.9 | 4.2 | 12.8 | 0 | 0 |
| 19 | 6.2 | 8.9 | 6.7 | 9.2 | 11.4 | 17.0 | 14.0 | 12.1 | 11.5 | 18.4 | 17.4 | 12.2 | 8.3 | 4.5 | 5.1 | 7.7 | 11.9 | 8.5 | 10.2 | 7.2 | 3.5 | 3.4 | 3.3 | 3.0 | 24 | 18.4 | 3.0 | 9.2 | 0 | 0 |
| 20 | 2.5 | 3.0 | 3.1 | 2.6 | 5.0 | 4.4 | 2.6 | 4.3 | 3.1 | 5.1 | 4.6 | C | C | C | C | C | 13.0 | 20.9 | 18.7 | 12.7 | 12.6 | 14.1 | 12.7 | 11.6 | 19 | 20.9 | 2.5 | 8.2 | 0 | 0 |
| 21 | 9.6 | 8.4 | 11.5 | 15.6 | 11.4 | 9.8 | 12.7 | 10.6 | 9.6 | 7.3 | 6.6 | 9.3 | 10.7 | 11.1 | 8.4 | 8.9 | 9.3 | 10.9 | 11.0 | 8.6 | 9.9 | 8.1 | 7.8 | 11.5 | 24 | 15.6 | 6.6 | 9.9 | 0 | 0 |
| 22 | 9.9 | 9.4 | 6.2 | 6.8 | 6.0 | 6.8 | 5.0 | 3.6 | 4.7 | 5.1 | 6.9 | 4.3 | 3.1 | 4.2 | 5.4 | 6.8 | 5.3 | 8.6 | 5.1 | 3.7 | 3.9 | 3.2 | 4.7 | 3.5 | 24 | 9.9 | 3.1 | 5.5 | 0 | 0 |
| 23 | 3.7 | 3.7 | 3.1 | 3.3 | 4.3 | 4.7 | 4.2 | 6.1 | 4.7 | 5.9 | 6.1 | 8.0 | 9.6 | 9.4 | 10.9 | 9.0 | 5.0 | 7.0 | 6.5 | 5.7 | 6.0 | 5.7 | 5.3 | 4.7 | 24 | 10.9 | 3.1 | 6.0 | 0 | 0 |
| 24 | 5.1 | 5.4 | 4.9 | 4.5 | 5.3 | 6.2 | 6.6 | 6.7 | 7.1 | 5.5 | 7.0 | 5.2 | 4.5 | 4.4 | 4.6 | 6.6 | 9.2 | 11.2 | 12.0 | 9.8 | 14.1 | 20.3 | 19.3 | 23.2 | 24 | 23.2 | 4.4 | 8.7 | 0 | 0 |
| 25 | 18.7 | 6.7 | 5.2 | 8.4 | 9.9 | 11.5 | 9.7 | 13.1 | 16.8 | 10.3 | 15.0 | 8.8 | 6.8 | 4.5 | 3.7 | 5.6 | 5.0 | 4.3 | 3.9 | 3.5 | 2.8 | 3.1 | 12.5 | 17.0 | 24 | 18.7 | 2.8 | 8.6 | 0 | 0 |
| 26 | 17.5 | 11.9 | 9.8 | 9.6 | 14.2 | 23.8 | 24.0 | 22.5 | 14.3 | 8.3 | 11.2 | 7.3 | 6.7 | 6.0 | 4.7 | 4.6 | 5.6 | 8.0 | 7.1 | 7.3 | 6.4 | 4.4 | 3.5 | 4.0 | 24 | 24.0 | 3.5 | 10.1 | 0 | 0 |
| 27 | 3.8 | 2.9 | 3.3 | 3.7 | 5.0 | 5.3 | 6.2 | 6.4 | 7.7 | 7.0 | 5.6 | 2.8 | 3.2 | 2.6 | 2.9 | 3.0 | 3.7 | 4.9 | 5.2 | 5.8 | 5.9 | 6.4 | 6.2 | 4.5 | 24 | 7.7 | 2.6 | 4.8 | 0 | 0 |
| 28 | 5.9 | 5.0 | 5.4 | 5.8 | 4.9 | 5.4 | 6.0 | 6.0 | 3.5 | 3.9 | 4.1 | 4.8 | 4.4 | 3.8 | 4.6 | 5.7 | 4.0 | 4.1 | 4.4 | 4.4 | 4.7 | 4.2 | 5.4 | 8.3 | 24 | 8.3 | 3.5 | 4.9 | 0 | 0 |
| 29 | 9.1 | 8.3 | 5.6 | 5.0 | 3.7 | 3.2 | 4.5 | 4.8 | 4.9 | 2.7 | 2.7 | 2.5 | 2.5 | 2.0 | 1.9 | 2.9 | 3.2 | 3.8 | 4.0 | 5.6 | 4.4 | 4.3 | 5.1 | 3.2 | 24 | 9.1 | 1.9 | 4.2 | 0 | 0 |
| 30 | 4.1 | 2.4 | 2.8 | 2.8 | 2.9 | 3.8 | 5.2 | 8.6 | 5.0 | 2.6 | 2.5 | 2.4 | 2.6 | 3.2 | 3.6 | 5.9 | 7.4 | 7.4 | 8.6 | 12.5 | 13.7 | 14.3 | 12.7 | 12.5 | 24 | 14.3 | 2.4 | 6.2 | 0 | 0 |
| 31 | 14.7 | 20.3 | 12.4 | 11.4 | 7.9 | 8.9 | 7.7 | 8.0 | 7.9 | 8.1 | 6.3 | 3.4 | 7.0 | 9.9 | 8.8 | 7.8 | 8.4 | 9.3 | 9.4 | 8.9 | 8.4 | 9.5 | 9.7 | 8.4 | 24 | 20.3 | 3.4 | 9.3 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 30 | 30 | 30 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 739 | | | | | |
| **Maximum** | 31.8 | 30.8 | 29.6 | 31.0 | 31.1 | 31.4 | 30.8 | 32.4 | 30.4 | 28.4 | 27.6 | 17.5 | 15.2 | 22.5 | 19.6 | 19.0 | 25.1 | 25.9 | 18.7 | 24.2 | 29.8 | 34.6 | 36.4 | 31.5 | 24 | | | | | |
| **Minimum** | 1.5 | 1.4 | 1.5 | 1.6 | 1.3 | 1.6 | 1.8 | 0.9 | 0.6 | 1.0 | 1.7 | 0.9 | 1.3 | 0.9 | 1.2 | 1.7 | 1.7 | 2.1 | 2.3 | 1.9 | 1.2 | 1.5 | 2.2 | 1.6 | 19 | | | | | |
| **Average** | 9.8 | 10.0 | 9.7 | 10.5 | 10.7 | 10.5 | 10.2 | 10.2 | 9.3 | 8.3 | 7.8 | 5.9 | 5.4 | 5.9 | 6.2 | 6.7 | 8.0 | 8.9 | 8.4 | 8.7 | 10.0 | 9.8 | 10.5 | 9.8 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 2.5 | 3.3 | 4.3 | 5.1 | 6.2 | 8.0 | 9.9 | 12.7 | 19.1 | 25.9 | 31.1 | 36.4 |

| | |
|---|---|
| Maximum Hourly | 36.4 |
| Maximum Daily | 23.7 |
| Monthly Average | 8.8 |

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

# $NO_2$ - COURTICE
## February 2017
## (ppb)

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9.6 | 10.1 | 8.4 | 18.4 | 29.6 | 32.6 | 18.4 | 8.8 | 9.2 | 8.1 | 6.8 | 5.5 | 4.7 | 2.9 | 4.8 | 3.8 | 4.4 | 7.5 | 9.1 | 8.0 | 5.7 | 12.2 | 9.4 | 5.6 | 24 | 32.6 | 2.9 | 10.1 | 0 | 0 |
| 2 | 4.0 | 4.6 | 3.2 | 4.4 | 5.1 | 7.4 | 10.9 | 14.3 | 11.3 | 7.5 | 4.6 | 3.8 | 2.7 | 2.7 | 2.7 | 2.4 | 2.7 | 4.2 | 4.2 | 4.5 | 4.0 | 3.7 | 2.8 | 2.7 | 24 | 14.3 | 2.4 | 5.0 | 0 | 0 |
| 3 | 2.6 | 2.7 | 3.0 | 4.3 | 3.9 | 4.5 | 7.4 | 8.3 | 12.5 | 14.6 | 8.6 | 4.9 | 3.4 | 2.9 | 2.9 | 2.9 | 3.6 | 4.3 | 5.1 | 7.4 | 9.0 | 10.5 | 11.2 | 13.1 | 24 | 14.6 | 2.6 | 6.4 | 0 | 0 |
| 4 | 11.7 | 10.7 | 9.4 | 8.2 | 8.1 | 4.9 | 2.2 | 2.2 | 2.9 | 3.5 | 2.3 | 3.5 | 5.3 | 4.1 | 3.4 | 3.9 | 5.2 | 5.3 | 4.3 | 5.0 | 3.4 | 5.1 | 7.2 | 5.5 | 24 | 11.7 | 2.2 | 5.3 | 0 | 0 |
| 5 | 3.1 | 2.7 | 2.6 | 2.8 | 3.0 | 3.1 | 3.6 | 3.8 | 6.0 | 5.0 | 5.3 | 5.6 | 6.7 | 7.1 | 7.1 | 8.1 | 7.3 | 7.2 | 5.4 | 3.8 | 3.0 | 3.4 | 3.2 | 3.1 | 24 | 8.1 | 2.6 | 4.7 | 0 | 0 |
| 6 | 4.2 | 2.6 | 2.2 | 2.5 | 5.3 | 8.6 | 7.6 | 7.7 | 13.7 | 21.5 | 21.9 | 12.8 | 12.7 | 13.6 | 2.4 | 2.0 | 6.7 | 13.5 | 22.6 | 17.9 | 33.0 | 27.9 | 19.1 | 20.5 | 24 | 33.0 | 2.0 | 12.6 | 0 | 0 |
| 7 | 13.2 | 8.7 | 8.2 | 7.8 | 24.3 | 21.5 | 23.7 | 15.0 | 5.7 | 11.1 | 17.2 | 22.0 | 20.6 | 16.9 | 9.5 | 11.4 | 12.5 | 9.7 | 15.5 | 26.9 | 28.9 | 19.4 | 15.1 | 16.9 | 24 | 28.9 | 5.7 | 15.9 | 0 | 0 |
| 8 | 10.3 | 17.5 | 11.0 | 8.5 | 6.3 | 5.7 | 4.7 | 4.7 | 3.6 | 3.5 | 3.8 | 3.2 | 2.6 | 2.6 | 3.3 | 3.4 | 5.0 | 4.7 | 5.1 | 4.0 | 3.6 | 2.9 | 3.4 | 2.8 | 24 | 17.5 | 2.6 | 5.3 | 0 | 0 |
| 9 | 2.3 | 2.5 | 4.1 | 3.5 | 6.1 | 7.6 | 8.2 | 6.2 | 4.6 | 3.5 | 3.1 | 2.6 | 2.6 | 3.2 | 2.5 | 3.0 | 4.5 | 6.3 | 5.6 | 4.4 | 5.4 | 4.5 | 5.9 | 6.0 | 24 | 8.2 | 2.3 | 4.5 | 0 | 0 |
| 10 | 3.2 | 3.7 | 5.4 | 6.1 | 7.0 | 7.5 | 7.5 | 10.7 | 7.2 | 4.3 | 6.3 | 6.9 | 5.2 | 2.0 | 1.2 | 1.2 | 1.8 | 2.4 | 2.2 | 1.6 | 1.7 | 2.2 | 2.8 | 3.5 | 24 | 10.7 | 1.2 | 4.3 | 0 | 0 |
| 11 | 4.0 | 3.7 | 3.5 | 3.8 | 15.8 | 19.0 | 25.4 | 26.7 | 20.9 | 18.8 | 16.9 | 12.9 | 9.5 | 5.5 | 5.4 | 5.9 | 7.7 | 9.5 | 10.1 | 11.7 | 10.2 | 5.8 | 4.9 | 6.9 | 24 | 26.7 | 3.5 | 11.0 | 0 | 0 |
| 12 | 3.9 | 3.8 | 7.7 | 12.1 | 6.7 | 4.8 | 5.0 | 5.2 | 5.7 | 6.4 | 7.6 | 6.7 | 5.1 | 5.5 | 5.0 | 7.5 | 8.7 | 11.8 | 14.4 | 19.3 | 22.6 | 9.0 | 3.4 | 4.5 | 24 | 22.6 | 3.4 | 8.0 | 0 | 0 |
| 13 | 3.6 | 3.2 | 2.1 | 2.2 | 2.9 | 4.1 | 3.1 | 4.5 | 4.0 | 3.6 | 4.1 | 3.1 | 3.3 | 3.7 | 3.6 | 3.5 | 4.2 | 5.6 | 15.5 | 38.0 | 42.8 | 38.6 | 34.3 | 32.8 | 24 | 42.8 | 2.1 | 11.1 | 0 | 0 |
| 14 | 29.8 | 29.6 | 28.6 | 28.4 | 28.7 | 17.1 | 3.3 | 3.7 | 3.9 | 4.3 | 3.6 | 3.8 | 3.8 | 3.6 | 4.0 | 4.8 | 6.1 | 8.2 | 9.3 | 6.7 | 6.4 | 11.7 | 18.8 | 8.6 | 24 | 29.8 | 3.3 | 11.5 | 0 | 0 |
| 15 | 6.0 | 6.3 | 18.2 | 34.2 | 30.1 | 27.4 | 24.4 | 28.4 | 27.2 | 19.5 | 7.9 | 4.2 | 5.0 | 3.6 | 3.9 | 3.5 | 3.5 | 3.4 | 3.9 | 4.6 | 4.8 | 4.3 | 4.3 | 3.5 | 24 | 34.2 | 3.4 | 11.7 | 0 | 0 |
| 16 | 3.9 | 2.8 | 3.0 | 2.6 | 2.4 | 3.2 | 3.3 | 4.0 | 3.6 | 3.2 | 3.6 | 3.1 | 3.0 | 2.8 | 3.6 | 3.4 | 4.7 | 5.9 | 5.6 | 11.5 | 12.6 | 9.6 | 15.6 | 11.6 | 24 | 15.6 | 2.4 | 5.4 | 0 | 0 |
| 17 | 12.3 | 11.7 | 8.2 | 6.2 | 4.3 | 3.6 | 3.8 | 9.3 | 9.1 | 4.1 | 4.0 | 2.1 | 1.6 | 1.9 | 2.1 | 2.1 | 2.3 | 5.5 | 9.6 | 15.1 | 4.3 | 2.1 | 2.9 | 3.0 | 24 | 15.1 | 1.6 | 5.5 | 0 | 0 |
| 18 | 10.4 | 15.7 | 11.2 | 13.4 | 13.9 | 14.1 | 20.1 | 20.3 | 15.7 | 9.8 | 8.4 | 4.4 | 4.6 | 4.6 | 4.4 | 4.2 | 6.0 | 6.9 | 13.6 | 22.4 | 22.0 | 12.8 | 11.1 | 13.0 | 24 | 22.4 | 4.2 | 11.8 | 0 | 0 |
| 19 | 15.5 | 23.5 | 16.3 | 12.3 | 10.3 | 6.7 | 5.4 | 6.5 | 9.2 | 9.3 | 7.2 | 7.3 | 4.8 | 2.4 | 2.8 | 3.1 | 3.0 | 3.1 | 4.9 | 9.1 | 7.5 | 5.1 | 5.1 | 3.9 | 24 | 23.5 | 2.4 | 7.7 | 0 | 0 |
| 20 | 5.1 | 3.9 | 3.2 | 3.9 | 3.2 | 4.2 | 5.4 | 9.6 | 4.6 | 2.6 | 1.4 | 1.0 | 1.1 | 1.0 | 1.0 | 1.0 | 1.0 | 1.2 | 1.9 | 14.5 | 21.0 | 24.4 | 20.9 | 9.4 | 24 | 24.4 | 1.0 | 6.1 | 0 | 0 |
| 21 | 1.3 | 1.9 | 2.8 | 2.5 | 2.4 | 4.6 | 3.6 | 4.0 | 6.4 | 4.3 | 4.7 | 7.5 | 5.8 | 6.3 | 5.8 | 10.9 | 16.8 | 15.5 | 28.9 | 28.8 | 22.3 | 21.7 | 22.7 | 23.6 | 24 | 28.9 | 1.3 | 10.6 | 0 | 0 |
| 22 | 23.8 | 21.0 | 21.6 | 21.4 | 20.8 | 19.6 | 21.0 | 22.9 | 21.6 | C | C | C | 16.1 | 14.0 | 13.4 | 13.4 | 14.6 | 14.3 | 22.0 | 19.6 | 29.9 | 28.2 | 22.1 | 18.2 | 21 | 29.9 | 13.4 | 20.0 | 0 | 0 |
| 23 | 17.2 | 24.0 | 12.6 | 12.5 | 19.9 | 12.7 | 11.9 | 11.4 | 10.4 | 8.6 | A | 1.4 | 1.6 | 1.7 | 2.0 | 2.8 | 3.3 | 3.9 | 5.6 | 4.8 | 4.8 | 4.6 | 7.7 | 13.7 | 23 | 24.0 | 1.4 | 8.7 | 0 | 0 |
| 24 | 15.7 | 10.5 | 12.0 | 6.8 | 7.0 | 7.1 | 6.5 | 4.0 | 2.6 | 2.4 | 3.9 | 5.5 | 5.2 | 3.7 | 4.1 | 5.3 | 5.4 | 4.2 | 5.0 | 5.1 | 5.3 | 4.2 | 4.3 | 3.1 | 24 | 15.7 | 2.4 | 5.8 | 0 | 0 |
| 25 | 2.7 | 7.1 | 6.6 | 7.1 | 4.5 | 3.7 | 6.4 | 4.6 | 4.3 | 1.8 | 4.4 | 5.8 | 4.3 | 2.5 | 2.0 | 3.1 | 1.8 | 2.4 | 2.4 | 2.1 | 1.8 | 2.3 | 1.4 | 2.3 | 24 | 7.1 | 1.4 | 3.6 | 0 | 0 |
| 26 | 1.5 | 1.8 | 1.2 | 1.1 | 1.4 | 2.1 | 2.8 | 2.3 | 2.5 | 1.6 | 1.7 | 1.5 | 0.7 | 0.9 | 0.7 | 0.8 | 0.4 | 0.3 | 0.3 | 0.4 | 1.0 | 0.7 | 0.7 | 0.8 | 24 | 2.8 | 0.3 | 1.2 | 0 | 0 |
| 27 | 1.0 | 1.1 | 1.1 | 1.2 | 1.7 | 1.9 | 2.2 | 3.8 | 3.8 | 4.7 | 5.2 | 3.9 | 2.8 | 3.0 | 3.0 | 2.7 | 2.9 | 5.5 | 12.9 | 17.1 | 15.1 | 12.9 | 16.3 | 12.1 | 24 | 17.1 | 1.0 | 5.7 | 0 | 0 |
| 28 | 16.2 | 15.7 | 16.4 | 13.2 | 11.1 | 16.7 | 15.6 | 14.6 | 11.7 | 10.0 | 6.5 | 5.6 | 8.5 | 7.6 | 3.9 | 5.5 | 4.5 | 6.7 | 8.7 | 8.0 | 12.2 | 17.2 | 15.1 | 30.0 | 24 | 30.0 | 3.9 | 11.7 | 0 | 0 |
| 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Count** | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 27 | 26 | 27 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 668 | | | | | |
| **Maximum** | 29.8 | 29.6 | 28.6 | 34.2 | 30.1 | 32.6 | 25.4 | 28.4 | 27.2 | 21.5 | 21.9 | 22.0 | 20.6 | 16.9 | 13.4 | 13.4 | 16.8 | 15.5 | 28.9 | 38.0 | 42.8 | 38.6 | 34.3 | 32.8 | 24 | | | | | |
| **Minimum** | 1.0 | 1.1 | 1.1 | 1.1 | 1.4 | 1.9 | 2.2 | 2.2 | 2.5 | 1.6 | 1.4 | 1.0 | 0.7 | 0.9 | 0.7 | 0.8 | 0.4 | 0.3 | 0.3 | 0.4 | 1.0 | 0.7 | 0.7 | 0.8 | 21 | | | | | |
| **Average** | 8.5 | 9.0 | 8.3 | 9.0 | 10.2 | 9.9 | 9.4 | 9.6 | 8.7 | 7.3 | 6.6 | 5.6 | 5.5 | 4.7 | 3.9 | 4.5 | 5.4 | 6.4 | 9.1 | 11.5 | 12.3 | 11.0 | 10.4 | 10.0 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 2.2 | 3.0 | 3.7 | 4.3 | 5.3 | 6.7 | 9.1 | 12.9 | 19.4 | 23.7 | 32.6 | 42.8 |

| | |
|---|---|
| Maximum Hourly | 42.8 |
| Maximum Daily | 20.0 |
| Monthly Average | 8.3 |

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

# $NO_2$ - COURTICE
## March 2017
## (ppb)

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.7 | 3.5 | 6.5 | 5.6 | 2.3 | 3.4 | 6.9 | 1.2 | 1.0 | 2.5 | 3.6 | 2.8 | 0.7 | 1.3 | 1.6 | 2.3 | 1.7 | 1.5 | 1.2 | 1.5 | 2.8 | 1.5 | 2.0 | 2.4 | 24 | 11.7 | 0.7 | 3.0 | 0 | 0 |
| 2 | 1.5 | 1.4 | 1.3 | 1.0 | 1.1 | 1.7 | 1.7 | 2.7 | 2.3 | 2.2 | 2.0 | 2.1 | 1.7 | 1.3 | 1.5 | 2.2 | 2.4 | 3.0 | 3.3 | 3.0 | 3.3 | 2.4 | 3.3 | 4.8 | 24 | 4.8 | 1.0 | 2.2 | 0 | 0 |
| 3 | 5.7 | 3.8 | 3.2 | 4.7 | 10.9 | 12.0 | 14.0 | 9.1 | 8.3 | 2.1 | 1.3 | 1.3 | 1.4 | 1.5 | 1.3 | 2.0 | 1.7 | 2.5 | 4.5 | 3.5 | 3.6 | 3.9 | 5.8 | 2.5 | 24 | 14.0 | 1.3 | 4.6 | 0 | 0 |
| 4 | 1.8 | 3.6 | 3.2 | 3.3 | 2.4 | 1.6 | 1.3 | 1.8 | 1.7 | 1.3 | 1.2 | 1.0 | 1.0 | 0.9 | 1.1 | 1.6 | 1.5 | 1.7 | 3.5 | 6.3 | 6.2 | 5.6 | 4.0 | 2.2 | 24 | 6.3 | 0.9 | 2.5 | 0 | 0 |
| 5 | 2.9 | 3.2 | 4.1 | 4.1 | 4.2 | 4.4 | 3.4 | 2.7 | 1.6 | 1.3 | 0.8 | 0.4 | 0.4 | 0.3 | 0.2 | 0.3 | 0.4 | 1.3 | 2.5 | 1.2 | 0.6 | 0.5 | 0.4 | 0.7 | 24 | 4.4 | 0.2 | 1.7 | 0 | 0 |
| 6 | 1.0 | 1.5 | 1.7 | 2.0 | 2.2 | 2.0 | 2.5 | 2.8 | 3.3 | 2.4 | 2.6 | 2.4 | 2.9 | 3.4 | 4.9 | 4.0 | 5.0 | 4.0 | 5.5 | 6.4 | 5.5 | 6.4 | 4.2 | 4.0 | 24 | 6.4 | 1.0 | 3.4 | 0 | 0 |
| 7 | 7.4 | 2.6 | 3.3 | 2.7 | 2.4 | 4.4 | 6.1 | 4.0 | 3.2 | 8.4 | 17.4 | 2.5 | 1.7 | 1.6 | 1.4 | 1.5 | 1.4 | 1.6 | 1.5 | 1.3 | 7.8 | 4.3 | 6.1 | 9.0 | 24 | 17.4 | 1.3 | 4.3 | 0 | 0 |
| 8 | 5.5 | 3.3 | 2.5 | 2.3 | 2.6 | 1.9 | 1.3 | 1.5 | 1.4 | 1.3 | 1.1 | 0.9 | 0.7 | 0.7 | 0.8 | 2.2 | 2.3 | 3.4 | 2.2 | 4.1 | 4.7 | 6.2 | 2.0 | 1.6 | 24 | 6.2 | 0.7 | 2.4 | 0 | 0 |
| 9 | 2.6 | 1.6 | 1.4 | 1.4 | 1.5 | 2.7 | 5.3 | 4.2 | 2.5 | 1.6 | 1.5 | 1.6 | 1.2 | 1.0 | 1.6 | 2.0 | 2.2 | 4.6 | 4.1 | 11.4 | 9.2 | 12.9 | 21.0 | 28.4 | 24 | 28.4 | 1.0 | 5.3 | 0 | 0 |
| 10 | 12.8 | 5.8 | 2.9 | 1.3 | 2.1 | 2.1 | 2.1 | 2.5 | 2.3 | 1.7 | 2.0 | 1.6 | 1.2 | 1.2 | 1.2 | 1.4 | 1.5 | 2.0 | 2.3 | 2.2 | 3.0 | 3.5 | 2.3 | 2.3 | 24 | 12.8 | 1.2 | 2.6 | 0 | 0 |
| 11 | 1.5 | 3.4 | 4.6 | 5.0 | 12.1 | 7.4 | 4.4 | 2.6 | 1.4 | 1.0 | 1.3 | 0.9 | 1.1 | 1.0 | 1.1 | 1.3 | 1.3 | 1.4 | 1.6 | 2.3 | 1.6 | 1.6 | 1.4 | 1.3 | 24 | 12.1 | 0.9 | 2.6 | 0 | 0 |
| 12 | 2.2 | 1.5 | 1.4 | 0.6 | 2.3 | 3.8 | 5.7 | 4.9 | 2.0 | 1.4 | 1.0 | 0.8 | 0.8 | 1.1 | 1.0 | 0.9 | 1.1 | 1.9 | 3.8 | 2.7 | 5.8 | 2.4 | 2.5 | 8.7 | 24 | 8.7 | 0.6 | 2.5 | 0 | 0 |
| 13 | 7.4 | 6.3 | 2.6 | 5.3 | 11.6 | 7.5 | 8.3 | 6.0 | 4.5 | 6.7 | 5.5 | 1.7 | 2.6 | 4.2 | 3.3 | 2.9 | 4.1 | 5.3 | 5.0 | 5.3 | 6.3 | 6.2 | 4.9 | 4.1 | 24 | 11.6 | 1.7 | 5.3 | 0 | 0 |
| 14 | 2.8 | 2.2 | 1.8 | 1.6 | 3.3 | 2.5 | 3.1 | 3.0 | 2.4 | 1.9 | 1.6 | 1.8 | 1.6 | M | 1.2 | 1.4 | 2.1 | 2.0 | 2.6 | 1.9 | 1.5 | 1.2 | 1.6 | 1.3 | 23 | 3.3 | 1.2 | 2.0 | 0 | 0 |
| 15 | 0.9 | 1.3 | 0.9 | 0.9 | 0.9 | 1.1 | 2.1 | C | C | C | 3.0 | 2.9 | 2.8 | 2.6 | 2.4 | 2.5 | 2.5 | 3.1 | 3.5 | 3.4 | 3.1 | 3.3 | 3.7 | 4.0 | 21 | 4.0 | 0.9 | 2.4 | 0 | 0 |
| 16 | 4.8 | 4.3 | 3.3 | 3.2 | 4.4 | 5.6 | 6.3 | 8.2 | 6.2 | 3.9 | 2.5 | 2.7 | 2.5 | 2.3 | 2.2 | 2.4 | 2.6 | 2.8 | 4.5 | 4.5 | 4.9 | 6.1 | 7.1 | 15.7 | 24 | 15.7 | 2.2 | 4.7 | 0 | 0 |
| 17 | 14.2 | 19.4 | 12.7 | 24.8 | 26.8 | 10.9 | 24.3 | 36.9 | 34.3 | 11.9 | 4.5 | 8.7 | 6.9 | 6.9 | 3.8 | 3.4 | 2.0 | 1.9 | 2.4 | 3.1 | 19.6 | 36.9 | 25.3 | 17.7 | 24 | 36.9 | 1.9 | 15.0 | 0 | 0 |
| 18 | 17.1 | 10.6 | 8.8 | 7.1 | 15.4 | 18.5 | 9.0 | 12.2 | 12.7 | 20.6 | 16.9 | 5.7 | 7.6 | 11.6 | 5.3 | 5.3 | 5.5 | 5.2 | 5.1 | 5.0 | 4.6 | 3.7 | 6.5 | 4.3 | 24 | 20.6 | 3.7 | 9.3 | 0 | 0 |
| 19 | 5.9 | 4.4 | 3.5 | 7.1 | 3.8 | 3.4 | 4.7 | 4.4 | 4.0 | 7.1 | 4.9 | 3.5 | 2.8 | 1.8 | 1.7 | 1.9 | 1.7 | 1.6 | 1.5 | 1.8 | 2.3 | 19.0 | 31.6 | 27.8 | 24 | 31.6 | 1.5 | 6.3 | 0 | 0 |
| 20 | 9.1 | 3.1 | 5.0 | 7.5 | 22.6 | 27.0 | 24.1 | 23.7 | 3.7 | 4.3 | 4.5 | 6.6 | 4.8 | 2.8 | 3.6 | 3.6 | 3.4 | 3.8 | 4.2 | 4.0 | 3.4 | 3.2 | 3.0 | 3.3 | 24 | 27.0 | 2.8 | 7.7 | 0 | 0 |
| 21 | 4.2 | 20.8 | 15.5 | 23.4 | 24.4 | 23.1 | 24.7 | 21.1 | 16.2 | 11.4 | 10.1 | 8.1 | 7.3 | 6.7 | 4.8 | 3.5 | 3.7 | 3.4 | 4.2 | 3.8 | 3.2 | 3.1 | 2.3 | 2.6 | 24 | 24.7 | 2.3 | 10.5 | 0 | 0 |
| 22 | 2.2 | 1.9 | 1.9 | 1.8 | 2.9 | 4.2 | 3.7 | 2.8 | 2.9 | 3.0 | 2.2 | 1.9 | 2.1 | 2.1 | 2.4 | 2.1 | 3.1 | 3.4 | 5.4 | 4.5 | 5.3 | 4.8 | 4.4 | 5.3 | 24 | 5.4 | 1.8 | 3.2 | 0 | 0 |
| 23 | 8.9 | 7.6 | 15.7 | 21.0 | 32.5 | 31.3 | 28.7 | 22.6 | 19.7 | 2.9 | 1.6 | 1.3 | 1.3 | 1.3 | 2.0 | 1.7 | 1.9 | 3.0 | 3.1 | 3.6 | 2.6 | 1.5 | 1.9 | 1.6 | 24 | 32.5 | 1.3 | 9.1 | 0 | 0 |
| 24 | 3.2 | 4.0 | 2.6 | 2.7 | 14.5 | 7.3 | 2.4 | 2.3 | 2.4 | 2.4 | 2.7 | 2.5 | 2.4 | 2.5 | 3.8 | 3.8 | 2.8 | 12.4 | 9.0 | 6.6 | 6.1 | 7.9 | 8.0 | 6.4 | 24 | 14.5 | 2.3 | 5.0 | 0 | 0 |
| 25 | 7.4 | 5.4 | 4.9 | 5.9 | 3.7 | 5.5 | 5.6 | 3.8 | 4.0 | 4.4 | 4.3 | 2.5 | 2.7 | 1.6 | 1.3 | 1.3 | 1.3 | 1.3 | 2.0 | 3.2 | 2.5 | 3.3 | 6.4 | 7.9 | 24 | 7.9 | 1.3 | 3.8 | 0 | 0 |
| 26 | 15.2 | 11.1 | 11.0 | 4.0 | 3.2 | 4.1 | 14.3 | 7.0 | 9.8 | 7.6 | 4.0 | 5.2 | 7.7 | 11.4 | 18.3 | 21.2 | 24.0 | 23.5 | 17.7 | 12.5 | 19.6 | 21.6 | 6.2 | 6.6 | 24 | 24.0 | 3.2 | 11.9 | 0 | 0 |
| 27 | 5.2 | 7.0 | 4.6 | 8.7 | 3.5 | 9.1 | 6.4 | 6.0 | 7.5 | 7.3 | 4.9 | 2.8 | 2.3 | 2.7 | 2.5 | 3.1 | 4.0 | 5.7 | 6.3 | 4.2 | 11.8 | 12.1 | 3.2 | 3.6 | 24 | 12.1 | 2.3 | 5.6 | 0 | 0 |
| 28 | 13.5 | 10.1 | 4.3 | 4.2 | 4.6 | 6.5 | 5.8 | 5.5 | 3.9 | 2.9 | 2.8 | 2.8 | 2.6 | 2.4 | 3.2 | 2.8 | 4.1 | 4.1 | 5.8 | 7.6 | 9.9 | 5.6 | 7.5 | 6.3 | 24 | 13.5 | 2.4 | 5.4 | 0 | 0 |
| 29 | 3.9 | 3.7 | 3.1 | 5.3 | 14.1 | 17.8 | 15.3 | 9.9 | 11.3 | 5.0 | 2.0 | 2.2 | 1.7 | 2.1 | 1.4 | 1.1 | 1.1 | 1.3 | 7.9 | 6.9 | 27.3 | 25.6 | 19.7 | 5.3 | 24 | 27.3 | 1.1 | 8.1 | 0 | 0 |
| 30 | 6.1 | 8.5 | 13.6 | 11.3 | 6.7 | 8.8 | 11.4 | 12.6 | 9.6 | 4.4 | 3.6 | 2.0 | 1.1 | 1.0 | 1.1 | 4.4 | 3.9 | 2.1 | 3.0 | 8.6 | 5.8 | 16.8 | 3.5 | 8.2 | 24 | 16.8 | 1.0 | 6.6 | 0 | 0 |
| 31 | 6.6 | 21.1 | 8.1 | 2.3 | 3.9 | 4.8 | 5.1 | 10.9 | 17.4 | 9.2 | 22.6 | 22.5 | 21.6 | 19.4 | 15.9 | 13.5 | 7.3 | 6.6 | 4.6 | 5.2 | 4.3 | 3.9 | 3.6 | 3.4 | 24 | 22.6 | 2.3 | 10.2 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 30 | 30 | 31 | 31 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 740 | | | | | |
| **Maximum** | 17.1 | 21.1 | 15.7 | 24.8 | 32.5 | 31.3 | 28.7 | 36.9 | 34.3 | 20.6 | 22.6 | 22.5 | 21.6 | 19.4 | 18.3 | 21.2 | 24.0 | 23.5 | 17.7 | 12.5 | 27.3 | 36.9 | 31.6 | 28.4 | 24 | | | | | |
| **Minimum** | 0.9 | 1.3 | 0.9 | 0.6 | 0.9 | 1.1 | 1.3 | 1.2 | 1.0 | 1.0 | 0.8 | 0.4 | 0.4 | 0.3 | 0.2 | 0.3 | 0.4 | 1.3 | 1.2 | 1.2 | 0.6 | 0.5 | 0.4 | 0.7 | 21 | | | | | |
| **Average** | 6.3 | 6.1 | 5.2 | 5.9 | 8.0 | 8.0 | 8.4 | 8.0 | 6.8 | 4.8 | 4.5 | 3.4 | 3.2 | 3.4 | 3.2 | 3.3 | 3.3 | 3.9 | 4.3 | 4.6 | 6.4 | 7.6 | 6.6 | 6.6 | | | | | | |

| Percentiles | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data | 1.3 | 1.7 | 2.3 | 2.7 | 3.4 | 4.2 | 5.3 | 7.3 | 12.6 | 19.8 | 28.2 | 36.9 |

| | |
|---|---|
| Maximum Hourly | 36.9 |
| Maximum Daily | 15.0 |
| Monthly Average | 5.5 |

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

# $NO_2$ - Rundle Road
## January 2017
## (ppb)

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.2 | 4.0 | 5.5 | 3.1 | 3.4 | 4.3 | 4.8 | 8.1 | 8.0 | 5.1 | 5.3 | 4.4 | 4.5 | 3.1 | 2.9 | 4.7 | 4.4 | 5.6 | 6.2 | 7.3 | 3.1 | 5.8 | 5.6 | 6.1 | 24 | 8.1 | 2.9 | 4.9 | 0 | 0 |
| 2 | 6.9 | 7.2 | 8.3 | 9.4 | 10.5 | 7.8 | 6.7 | 6.4 | 5.1 | 4.1 | 4.0 | 3.0 | 2.7 | 3.0 | 4.2 | 8.9 | 5.6 | 5.1 | 5.2 | 4.8 | 4.8 | 12.9 | 4.3 | 3.5 | 24 | 12.9 | 2.7 | 6.0 | 0 | 0 |
| 3 | 3.1 | 2.8 | 2.5 | 3.0 | 3.8 | 5.4 | 3.5 | 4.2 | 2.8 | 3.2 | 3.4 | 2.6 | 3.3 | 4.5 | 4.5 | 6.7 | 6.3 | 5.1 | 4.7 | 4.2 | 8.5 | 3.7 | 2.7 | 2.4 | 24 | 8.5 | 2.4 | 4.0 | 0 | 0 |
| 4 | 2.2 | 2.7 | 4.2 | 7.7 | 17.2 | 17.8 | 13.6 | 9.6 | 10.9 | 10.0 | 7.0 | 6.4 | 5.5 | 5.4 | 5.4 | 4.6 | 4.7 | 5.5 | 4.9 | 4.5 | 5.6 | 5.8 | 5.1 | 4.6 | 24 | 17.8 | 2.2 | 7.1 | 0 | 0 |
| 5 | 4.0 | 3.6 | 3.8 | 3.5 | 3.5 | 3.8 | 4.4 | 7.1 | 9.1 | 8.6 | 8.9 | 8.4 | 6.9 | 7.2 | 5.5 | 4.9 | 3.1 | 3.5 | 3.5 | 3.3 | 3.1 | 5.1 | 5.0 | 6.7 | 24 | 9.1 | 3.1 | 5.3 | 0 | 0 |
| 6 | 7.7 | 10.2 | 8.9 | 10.2 | 6.8 | 7.2 | 11.5 | 23.2 | 22.3 | 13.4 | 8.6 | 8.5 | 8.2 | 8.7 | 9.7 | 10.4 | 7.7 | 5.3 | 5.3 | 6.8 | 5.3 | 11.6 | 11.4 | 7.8 | 24 | 23.2 | 5.3 | 9.9 | 0 | 0 |
| 7 | 6.7 | 7.1 | 8.0 | 7.9 | 9.6 | 8.9 | 6.1 | 6.4 | 6.0 | 3.7 | 6.1 | 13.5 | 12.9 | 6.1 | 5.5 | 6.9 | 8.3 | 5.6 | 4.1 | 6.2 | 11.5 | 10.7 | 10.2 | 11.9 | 24 | 13.5 | 3.7 | 7.9 | 0 | 0 |
| 8 | 12.7 | 10.6 | 9.1 | 8.3 | 3.8 | 3.6 | 2.2 | 1.8 | 1.3 | 0.9 | 0.9 | 0.6 | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 | 1.4 | 2.1 | 3.3 | 5.2 | 14.3 | 8.9 | 11.4 | 24 | 14.3 | 0.6 | 4.4 | 0 | 0 |
| 9 | 14.3 | 13.1 | 12.6 | 12.4 | 12.6 | 9.1 | 9.6 | 4.3 | 5.2 | 3.1 | 4.5 | 4.1 | 4.6 | 4.9 | 6.6 | 9.8 | 9.8 | 10.7 | 18.4 | 17.2 | 14.8 | 14.4 | 18.7 | 8.1 | 24 | 18.7 | 3.1 | 10.1 | 0 | 0 |
| 10 | 6.7 | 8.8 | 7.7 | 7.7 | 7.8 | 7.0 | 7.5 | 6.5 | 6.9 | 7.0 | 6.3 | 4.9 | 5.0 | 4.8 | 5.7 | 6.9 | 6.5 | 6.9 | 7.9 | 9.2 | 9.2 | 9.6 | 9.4 | 4.0 | 24 | 9.6 | 4.0 | 7.1 | 0 | 0 |
| 11 | 3.9 | 3.0 | 4.9 | 5.0 | 4.7 | 5.8 | 7.4 | 10.1 | 10.7 | 9.7 | 6.6 | 4.9 | 6.1 | 5.4 | 7.3 | 9.9 | 15.6 | 18.8 | 21.4 | 9.4 | 22.2 | 16.0 | 9.8 | 10.8 | 24 | 22.2 | 3.0 | 9.6 | 0 | 0 |
| 12 | 11.3 | 7.6 | 14.5 | 4.4 | 9.9 | 9.9 | 10.5 | 7.6 | 6.4 | 4.0 | 3.2 | 3.5 | 3.9 | 3.9 | 4.5 | 4.3 | 2.3 | 2.6 | 2.3 | 2.1 | 2.1 | 7.2 | 7.5 | 4.1 | 24 | 14.5 | 2.1 | 5.8 | 0 | 0 |
| 13 | 3.8 | 7.2 | 1.4 | 1.1 | 1.0 | 1.4 | 1.5 | 1.9 | 4.5 | 3.0 | 2.8 | 1.9 | 1.4 | 1.4 | 0.9 | 1.0 | 1.1 | 0.9 | 0.8 | 0.5 | 0.6 | 0.5 | 0.6 | 0.7 | 24 | 7.2 | 0.5 | 1.8 | 0 | 0 |
| 14 | 0.9 | 1.6 | 3.0 | 3.9 | 1.5 | 1.8 | 2.9 | 3.2 | 3.0 | 3.1 | 3.2 | 4.3 | 2.8 | 4.8 | 2.9 | 3.3 | 2.8 | 4.0 | 3.3 | 6.3 | 13.3 | 20.1 | 24.2 | 32.6 | 24 | 32.6 | 0.9 | 6.4 | 0 | 0 |
| 15 | 33.3 | 30.4 | 31.5 | 32.5 | 23.0 | 21.1 | 26.0 | 21.3 | 22.4 | 12.0 | 2.0 | 1.3 | 1.3 | 1.5 | 1.6 | 2.9 | 3.1 | 6.8 | 11.4 | 9.4 | 6.8 | 8.8 | 11.0 | 11.3 | 24 | 33.3 | 1.3 | 13.9 | 0 | 0 |
| 16 | 5.8 | 15.3 | 12.4 | 11.4 | 18.7 | 20.4 | 18.8 | 23.1 | 22.1 | 28.0 | 22.6 | 15.9 | 17.4 | 22.0 | 19.6 | 23.0 | 27.9 | 27.7 | 28.3 | 26.9 | 21.4 | 25.6 | 25.0 | 22.5 | 24 | 28.3 | 5.8 | 20.9 | 0 | 0 |
| 17 | 20.6 | 23.3 | 22.2 | 17.9 | 25.2 | 20.5 | 20.2 | 18.1 | 17.9 | 12.7 | 11.8 | 9.4 | 9.1 | 8.9 | 6.6 | 7.4 | 7.7 | 8.8 | 5.8 | 5.1 | 8.0 | 5.2 | 5.1 | 4.0 | 24 | 25.2 | 4.0 | 12.6 | 0 | 0 |
| 18 | 3.6 | 6.7 | 8.9 | 9.6 | 8.9 | 10.1 | 11.1 | 15.5 | 16.0 | 11.8 | 6.9 | 4.6 | 4.3 | 5.3 | 4.8 | 5.2 | 7.7 | 11.8 | 18.0 | 16.0 | 11.9 | 11.1 | 12.9 | 14.1 | 24 | 18.0 | 3.6 | 9.9 | 0 | 0 |
| 19 | 13.4 | 11.9 | 4.2 | 10.2 | 13.0 | 7.9 | 14.5 | 26.5 | 29.0 | 25.8 | 12.4 | 6.0 | 8.7 | 14.3 | 14.0 | 14.8 | 22.4 | 17.2 | 14.3 | 21.4 | 15.3 | 12.9 | 13.5 | 13.4 | 24 | 29.0 | 4.2 | 14.9 | 0 | 0 |
| 20 | 7.9 | 7.3 | 6.6 | 7.4 | 7.9 | 10.0 | 7.3 | 8.9 | 6.7 | 3.3 | 3.2 | 4.6 | 4.0 | 3.3 | 3.8 | 4.0 | 5.1 | 6.7 | 9.0 | 6.3 | 5.1 | 6.5 | 6.4 | 7.6 | 24 | 10.0 | 3.2 | 6.2 | 0 | 0 |
| 21 | 9.0 | 10.5 | 8.8 | 13.2 | 15.3 | 13.4 | 15.2 | 12.0 | 11.3 | 10.6 | 7.4 | 10.2 | 10.3 | 9.8 | 10.6 | 10.6 | 9.1 | 10.8 | 11.0 | 9.2 | 8.2 | 7.5 | 6.0 | 5.9 | 24 | 15.3 | 5.9 | 10.2 | 0 | 0 |
| 22 | 5.3 | 6.6 | 6.5 | 5.5 | 6.8 | 4.4 | 4.6 | 3.0 | 4.7 | 3.0 | 11.0 | 4.6 | 4.5 | 6.0 | 4.6 | 7.9 | 2.6 | 2.4 | 2.3 | 1.8 | 1.6 | 1.5 | 1.5 | 2.6 | 24 | 11.0 | 1.5 | 4.4 | 0 | 0 |
| 23 | 2.1 | 3.2 | 1.5 | 3.0 | 1.8 | 1.9 | 1.8 | 5.8 | 2.7 | 2.3 | 3.7 | 3.5 | 2.6 | 2.2 | 2.4 | 2.0 | 1.8 | 2.5 | 2.1 | 2.1 | 2.1 | 3.0 | 2.0 | 1.9 | 24 | 5.8 | 1.5 | 2.5 | 0 | 0 |
| 24 | 2.1 | 2.5 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.9 | 1.7 | 1.9 | 1.7 | 1.4 | 1.4 | 1.6 | 1.7 | 1.8 | 2.5 | 2.6 | 5.5 | 16.3 | 19.2 | 9.4 | 8.2 | 7.4 | 24 | 19.2 | 1.4 | 4.1 | 0 | 0 |
| 25 | 5.2 | 2.1 | 3.7 | 2.5 | 2.3 | 10.1 | 20.7 | 18.8 | 22.2 | 18.2 | 17.3 | 10.4 | 9.3 | 8.0 | C | C | 11.7 | 14.0 | 16.0 | 15.1 | 10.7 | 10.7 | 8.0 | 6.9 | 22 | 22.2 | 2.1 | 11.1 | 0 | 0 |
| 26 | 4.0 | 3.5 | 10.4 | 18.5 | 16.9 | 22.0 | 22.7 | 21.4 | 17.6 | 10.4 | 9.2 | 4.9 | 3.9 | 2.4 | 1.8 | 1.7 | 1.9 | 2.1 | 6.6 | 5.8 | 2.2 | 1.9 | 1.4 | 1.4 | 24 | 22.7 | 1.4 | 8.1 | 0 | 0 |
| 27 | 0.9 | 0.8 | 1.0 | 1.5 | 2.7 | 4.9 | 8.3 | 11.8 | 11.3 | 9.9 | 7.1 | 2.1 | 1.5 | 1.2 | 1.5 | 2.1 | 2.8 | 6.3 | 6.9 | 6.7 | 4.3 | 8.2 | 9.9 | 7.0 | 24 | 11.8 | 0.8 | 5.0 | 0 | 0 |
| 28 | 4.8 | 3.4 | 3.2 | 3.2 | 3.1 | 3.4 | 6.1 | 5.9 | 5.5 | 5.1 | 5.5 | 5.8 | 5.6 | 5.3 | 5.6 | 7.5 | 5.1 | 5.2 | 5.3 | 5.2 | 6.1 | 5.4 | 6.0 | 9.6 | 24 | 9.6 | 3.1 | 5.3 | 0 | 0 |
| 29 | 8.0 | 7.9 | 3.3 | 3.1 | 1.9 | 1.6 | 2.0 | 5.0 | 5.2 | 2.6 | 1.0 | 0.9 | 0.7 | 0.9 | 0.8 | 0.6 | 0.6 | 0.7 | 0.5 | 1.0 | 0.8 | 0.8 | 0.5 | 0.3 | 24 | 8.0 | 0.3 | 2.1 | 0 | 0 |
| 30 | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.6 | 0.7 | 1.6 | 1.2 | 0.6 | 0.4 | 0.4 | 0.7 | 1.4 | 1.8 | 3.9 | 4.1 | 2.2 | 1.4 | 1.9 | 2.4 | 2.4 | 1.6 | 10.2 | 24 | 10.2 | 0.3 | 1.7 | 0 | 0 |
| 31 | 17.5 | 13.7 | 7.7 | 4.5 | 3.8 | 3.2 | 5.4 | 8.3 | 5.5 | 3.0 | 3.5 | 3.9 | 4.8 | 4.3 | 3.6 | 3.8 | 3.8 | 4.2 | 3.6 | 3.0 | 6.1 | 5.9 | 4.8 | 3.2 | 24 | 17.5 | 3.0 | 5.5 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 742 | | | | | |
| **Maximum** | 33.3 | 30.4 | 31.5 | 32.5 | 25.2 | 22.0 | 26.0 | 26.5 | 29.0 | 28.0 | 22.6 | 15.9 | 17.4 | 22.0 | 19.6 | 23.0 | 27.9 | 27.7 | 28.3 | 26.9 | 22.2 | 25.6 | 25.0 | 32.6 | 24 | | | | | |
| **Minimum** | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.6 | 0.7 | 1.6 | 1.2 | 0.6 | 0.4 | 0.4 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.7 | 0.5 | 0.5 | 0.6 | 0.5 | 0.5 | 0.3 | 22 | | | | | |
| **Average** | 7.5 | 7.7 | 7.4 | 7.5 | 8.1 | 8.1 | 9.0 | 10.0 | 9.9 | 7.8 | 6.4 | 5.2 | 5.1 | 5.2 | 5.0 | 6.1 | 6.4 | 6.9 | 7.7 | 7.7 | 7.8 | 8.5 | 8.0 | 7.9 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 1.6 | 2.6 | 3.5 | 4.6 | 5.5 | 6.9 | 8.8 | 10.7 | 16.0 | 21.4 | 27.9 | 33.3 |

| | |
|---|---|
| Maximum Hourly | 33.3 |
| Maximum Daily | 20.9 |
| Monthly Average | 7.4 |

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

# $NO_2$ - February (ppb) Rundle Road 2017

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.1 | 3.2 | 2.0 | 2.8 | 2.8 | 9.9 | 24.9 | 15.6 | 13.9 | 12.6 | 9.0 | 4.2 | 1.7 | 1.1 | 3.6 | 1.4 | 1.7 | 9.7 | 15.8 | 5.9 | 12.6 | 7.4 | 1.9 | 0.9 | 24 | 24.9 | 0.9 | 7.0 | 0 | 0 |
| 2 | 0.8 | 0.9 | 0.9 | 1.3 | 1.2 | 1.7 | 3.1 | 5.4 | 9.9 | 5.1 | 4.1 | 2.9 | 1.6 | 1.6 | 2.1 | 1.8 | 1.7 | 5.5 | 6.6 | 7.2 | 7.4 | 6.7 | 5.3 | 4.9 | 24 | 9.9 | 0.8 | 3.7 | 0 | 0 |
| 3 | 4.4 | 5.3 | 6.0 | 5.4 | 6.6 | 10.6 | 13.6 | 14.6 | 15.2 | 15.3 | 6.6 | 4.0 | 2.0 | 3.0 | 2.0 | 2.6 | 1.8 | 3.2 | 4.0 | 7.3 | 9.2 | 9.8 | 8.0 | 9.2 | 24 | 15.3 | 1.8 | 7.1 | 0 | 0 |
| 4 | 10.0 | 8.3 | 6.3 | 6.6 | 7.1 | 8.1 | 4.9 | 4.0 | 5.3 | 4.6 | 3.1 | 4.1 | 5.4 | 4.5 | 3.3 | 3.8 | 5.4 | 7.0 | 6.4 | 6.7 | 6.2 | 5.8 | 9.5 | 7.9 | 24 | 10.0 | 3.1 | 6.0 | 0 | 0 |
| 5 | 5.9 | 3.2 | 3.0 | 5.3 | 3.2 | 4.8 | 4.2 | 4.1 | 7.2 | 6.1 | 6.6 | 6.8 | 8.0 | 8.2 | 8.2 | 10.0 | 10.7 | 8.5 | 2.2 | 1.5 | 1.4 | 1.4 | 1.1 | 1.0 | 24 | 10.7 | 1.0 | 5.1 | 0 | 0 |
| 6 | 0.6 | 0.4 | 0.5 | 0.5 | 0.5 | 0.8 | 1.3 | 7.1 | 11.9 | 13.3 | 11.5 | 6.0 | 5.6 | 7.7 | 7.5 | 6.6 | 12.2 | 13.0 | 10.5 | 13.9 | 17.0 | 26.2 | 24.4 | 15.5 | 24 | 26.2 | 0.4 | 8.9 | 0 | 0 |
| 7 | 8.2 | 4.6 | 3.4 | 5.1 | 6.8 | 6.7 | 6.1 | 4.8 | 3.1 | 6.3 | 5.0 | 4.3 | 5.6 | 7.0 | 5.2 | 4.9 | 5.1 | 4.8 | 5.6 | 7.8 | 8.9 | 10.9 | 13.9 | 15.8 | 24 | 15.8 | 3.1 | 6.7 | 0 | 0 |
| 8 | 13.8 | 22.9 | 12.3 | 7.4 | 10.9 | 5.7 | 1.7 | 1.9 | 1.6 | 1.3 | 1.2 | 1.3 | 0.8 | 0.8 | 0.9 | 0.9 | 0.8 | 0.6 | 0.7 | 0.6 | 0.6 | 0.3 | 0.3 | 0.4 | 24 | 22.9 | 0.3 | 3.7 | 0 | 0 |
| 9 | 0.5 | 0.5 | 0.3 | 0.6 | 0.4 | 0.5 | 0.8 | 1.2 | 1.8 | 1.1 | 0.6 | 0.6 | 0.7 | 0.5 | 1.0 | 0.6 | 1.4 | 2.3 | 3.2 | 3.6 | 2.2 | 3.2 | 3.3 | 1.7 | 24 | 3.6 | 0.3 | 1.4 | 0 | 0 |
| 10 | 3.5 | 3.4 | 1.6 | 2.8 | 1.3 | 1.3 | 0.7 | 1.5 | 2.0 | 1.6 | 2.7 | 8.3 | 8.8 | 6.6 | 4.2 | 3.8 | 4.9 | 4.1 | 4.3 | 3.2 | 6.7 | 5.0 | 6.0 | 7.2 | 24 | 8.8 | 0.7 | 4.0 | 0 | 0 |
| 11 | 7.4 | 8.2 | 9.8 | 9.3 | 7.6 | 13.2 | 18.0 | 18.1 | 24.3 | 14.3 | 11.5 | 9.8 | 7.6 | 3.6 | 3.4 | 3.3 | 4.4 | 4.1 | 4.3 | 6.0 | 9.9 | 5.2 | 4.9 | 4.3 | 24 | 24.3 | 3.3 | 8.9 | 0 | 0 |
| 12 | 2.8 | 2.8 | 5.8 | 2.9 | 2.2 | 2.4 | 2.5 | 3.7 | 4.7 | 4.9 | 4.3 | 3.5 | 3.4 | 3.1 | 3.5 | 4.3 | 11.5 | 16.0 | 16.7 | 12.9 | 16.1 | 7.6 | 2.3 | 2.0 | 24 | 16.7 | 2.0 | 5.9 | 0 | 0 |
| 13 | 1.6 | 1.5 | 1.2 | 1.0 | 1.2 | 1.2 | 1.1 | 1.2 | 1.2 | 1.4 | 0.9 | 0.9 | 1.0 | 1.5 | 1.1 | 1.5 | 1.3 | 1.3 | 2.4 | 4.4 | 6.3 | 10.4 | 13.8 | 12.9 | 24 | 13.8 | 0.9 | 3.0 | 0 | 0 |
| 14 | 6.5 | 7.1 | 5.5 | 9.0 | 10.8 | 18.2 | 17.2 | 9.4 | 7.1 | 6.9 | 6.2 | 6.5 | 7.0 | 5.4 | 7.7 | 7.9 | 11.3 | 17.9 | 20.6 | 15.6 | 16.4 | 17.9 | 25.9 | 25.0 | 24 | 25.9 | 5.4 | 12.0 | 0 | 0 |
| 15 | 18.1 | 10.7 | 16.3 | 20.5 | 17.0 | 5.6 | 26.0 | 32.3 | 26.1 | 13.4 | 7.0 | 2.5 | 2.0 | 1.5 | 1.4 | 1.4 | 1.4 | 1.2 | 1.2 | 1.4 | 1.4 | 1.3 | 1.3 | 0.8 | 24 | 32.3 | 0.8 | 8.8 | 0 | 0 |
| 16 | 0.7 | 0.6 | 0.8 | 0.8 | 0.7 | 0.6 | 0.8 | 0.9 | 1.0 | 0.9 | 0.8 | 0.9 | 0.6 | 0.7 | 0.9 | 0.9 | 1.7 | 1.9 | 2.8 | 3.1 | 3.1 | 1.7 | 2.0 | 3.5 | 24 | 3.5 | 0.6 | 1.3 | 0 | 0 |
| 17 | 7.5 | 19.4 | 11.7 | 3.5 | 2.2 | 6.1 | 8.1 | 9.5 | 8.4 | 5.1 | 4.7 | 2.4 | 2.1 | 2.0 | 5.8 | 4.0 | 3.6 | 3.6 | 7.0 | 13.9 | 14.6 | 7.4 | 10.7 | 7.2 | 24 | 19.4 | 2.0 | 7.1 | 0 | 0 |
| 18 | 9.2 | 8.3 | 10.7 | 17.5 | 7.0 | 6.2 | 6.5 | 5.1 | 6.5 | 10.2 | 8.2 | 6.0 | 6.0 | 5.8 | 6.3 | 7.6 | 8.5 | 8.7 | 8.1 | 12.4 | 11.7 | 9.6 | 10.3 | 10.5 | 24 | 17.5 | 5.1 | 8.6 | 0 | 0 |
| 19 | 6.5 | 10.4 | 6.1 | 5.0 | 8.3 | 8.6 | 10.2 | 13.8 | 17.6 | 11.4 | 3.7 | 6.4 | 3.3 | 1.3 | 1.3 | 1.0 | 0.9 | 1.2 | 1.6 | 2.4 | 1.8 | 1.2 | 1.2 | 1.3 | 24 | 17.6 | 0.9 | 5.3 | 0 | 0 |
| 20 | 1.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.1 | 1.9 | 3.8 | 2.6 | 1.1 | 1.3 | 1.5 | 1.5 | 2.2 | 1.3 | 1.5 | 1.2 | 4.0 | 7.3 | 4.4 | 10.1 | 7.0 | 8.4 | 9.7 | 24 | 10.1 | 1.0 | 3.2 | 0 | 0 |
| 21 | 4.6 | 2.0 | 1.2 | 3.7 | 4.2 | 3.1 | 5.7 | 4.0 | 4.0 | 4.3 | 3.0 | 4.2 | 6.2 | 6.9 | 7.0 | 9.6 | 21.5 | 19.0 | 12.8 | 10.6 | 12.1 | 8.3 | 6.5 | 6.0 | 24 | 21.5 | 1.2 | 7.1 | 0 | 0 |
| 22 | 9.2 | 6.4 | 5.6 | 4.9 | 7.0 | 8.0 | 9.6 | 16.3 | 15.4 | 15.5 | 15.8 | 13.2 | C | C | C | 6.2 | 6.3 | 8.3 | 12.8 | 12.2 | 12.3 | 14.7 | 18.0 | 14.5 | 21 | 18.0 | 4.9 | 11.1 | 0 | 0 |
| 23 | 14.5 | 14.3 | 14.8 | 14.1 | 16.3 | 9.3 | 14.6 | 22.9 | 8.6 | 4.9 | 6.6 | 5.2 | 4.6 | 4.6 | 6.0 | 4.7 | 1.9 | 1.7 | 1.6 | 1.5 | 1.1 | 0.8 | 1.1 | 3.1 | 24 | 22.9 | 0.8 | 7.5 | 0 | 0 |
| 24 | 1.3 | 1.9 | 1.5 | 3.3 | 1.8 | 2.6 | 1.4 | 5.8 | 5.2 | 3.6 | 3.5 | 4.7 | 2.4 | 1.6 | 1.5 | 1.9 | 1.8 | 1.8 | 1.8 | 6.6 | 5.1 | 4.0 | 3.0 | 3.4 | 24 | 6.6 | 1.3 | 3.0 | 0 | 0 |
| 25 | 4.6 | 7.3 | 2.6 | 5.0 | 7.0 | 5.2 | 4.9 | 5.3 | 6.4 | 3.9 | 5.8 | 5.6 | 6.2 | 5.2 | 4.0 | 2.3 | 1.4 | 1.6 | 1.5 | 1.4 | 1.3 | 1.3 | 0.6 | 1.3 | 24 | 7.3 | 0.6 | 3.8 | 0 | 0 |
| 26 | 1.0 | 0.9 | 0.3 | 0.4 | 0.4 | 1.1 | 4.9 | 4.2 | 4.5 | 2.6 | 2.2 | 1.9 | 1.3 | 1.5 | 1.5 | 1.7 | 2.3 | 1.7 | 1.9 | 2.6 | 2.2 | 1.9 | 2.5 | 3.9 | 24 | 4.9 | 0.3 | 2.1 | 0 | 0 |
| 27 | 2.2 | 2.3 | 2.2 | 4.9 | 4.1 | 5.3 | 5.8 | 8.7 | 8.3 | 7.7 | 7.9 | 6.4 | 4.1 | 5.6 | 5.8 | 5.7 | 6.4 | 1.3 | 1.8 | 3.3 | 5.6 | 3.4 | 4.4 | 8.7 | 24 | 8.7 | 1.3 | 5.1 | 0 | 0 |
| 28 | 12.1 | 7.6 | 6.6 | 6.6 | 7.9 | 20.5 | 18.2 | 14.4 | 10.4 | 11.4 | 8.5 | 5.8 | 7.7 | 6.8 | 5.0 | 4.2 | 7.3 | 9.2 | 9.6 | 9.3 | 11.6 | 16.0 | 7.9 | 14.1 | 24 | 20.5 | 4.2 | 10.0 | 0 | 0 |
| 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Count | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 27 | 27 | 27 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 669 | | | | | |
| Maximum | 18.1 | 22.9 | 16.3 | 20.5 | 17.0 | 20.5 | 26.0 | 32.3 | 26.1 | 15.5 | 15.8 | 13.2 | 8.8 | 8.2 | 8.2 | 10.0 | 21.5 | 19.0 | 20.6 | 15.6 | 17.0 | 26.2 | 25.9 | 25.0 | 24 | | | | | |
| Minimum | 0.5 | 0.4 | 0.3 | 0.4 | 0.4 | 0.5 | 0.7 | 0.9 | 1.0 | 0.9 | 0.6 | 0.6 | 0.6 | 0.5 | 0.9 | 0.6 | 0.8 | 0.6 | 0.7 | 0.6 | 0.6 | 0.3 | 0.3 | 0.4 | 21 | | | | | |
| Average | 5.8 | 5.9 | 5.0 | 5.4 | 5.3 | 6.0 | 7.8 | 8.6 | 8.4 | 6.8 | 5.4 | 4.6 | 4.0 | 3.7 | 3.8 | 3.8 | 5.0 | 5.8 | 6.3 | 6.5 | 7.7 | 7.0 | 7.1 | 7.0 | | | | | | |

| Percentiles | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data | 1.0 | 1.5 | 2.2 | 3.5 | 4.8 | 6.0 | 7.1 | 9.2 | 13.6 | 16.3 | 24.6 | 32.3 |

| | |
|---|---|
| Maximum Hourly | 32.3 |
| Maximum Daily | 12.0 |
| Monthly Average | 6.0 |

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

# $NO_2$ - March (ppb) Rundle Road 2017

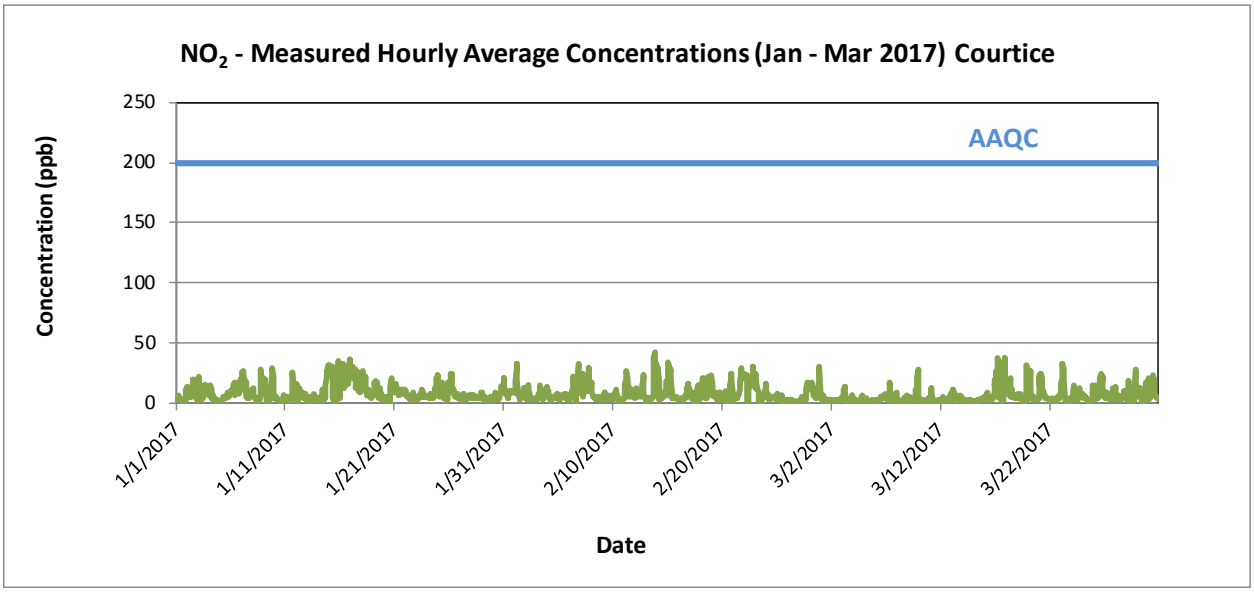
| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18.5 | 15.4 | 13.2 | 5.9 | 9.6 | 8.7 | 8.7 | 3.9 | 4.6 | 6.8 | 10.3 | 7.1 | 3.3 | 5.0 | 6.9 | 8.4 | 7.5 | 4.6 | 5.2 | 5.5 | 4.7 | 3.6 | 2.5 | 0.5 | 24 | 18.5 | 0.5 | 7.1 | 0 | 0 |
| 2 | 0.2 | 0.2 | 0.7 | 0.2 | 0.1 | 0.0 | 0.3 | 0.6 | 0.6 | 0.5 | 0.4 | 0.5 | 0.4 | 0.3 | 0.3 | 0.4 | 0.7 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.2 | 0.4 | 24 | 0.7 | 0.0 | 0.4 | 0 | 0 |
| 3 | 0.4 | 0.2 | 0.1 | 0.4 | 5.1 | 5.6 | 11.2 | 3.5 | 5.7 | 0.5 | 0.2 | A | A | 0.5 | 0.2 | 0.2 | 0.4 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 22 | 11.2 | 0.0 | 1.6 | 0 | 0 |
| 4 | 0.3 | 0.3 | 0.6 | 0.5 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.4 | 0.2 | 0.5 | 0.3 | 0.5 | 24 | 0.6 | 0.0 | 0.2 | 0 | 0 |
| 5 | 0.2 | 1.0 | 1.8 | 1.7 | 1.6 | 4.8 | 6.4 | 2.5 | 0.8 | 0.5 | 0.4 | 0.2 | 0.1 | 0.4 | 1.7 | 0.5 | 0.7 | 0.5 | 1.0 | 1.5 | 1.8 | 3.6 | 1.8 | 1.0 | 24 | 6.4 | 0.1 | 1.5 | 0 | 0 |
| 6 | 1.0 | 1.4 | 1.7 | 1.8 | 1.7 | 1.6 | 1.7 | 2.7 | 3.7 | 5.2 | 2.5 | 2.3 | 2.5 | 2.8 | 7.7 | 4.4 | 4.9 | 6.8 | 7.7 | 14.6 | 17.7 | 9.3 | 13.4 | 14.7 | 24 | 17.7 | 1.0 | 5.6 | 0 | 0 |
| 7 | 7.1 | 5.9 | 8.7 | 13.3 | 7.8 | 5.8 | 7.6 | 16.2 | 7.5 | 15.3 | 21.0 | 17.7 | 6.0 | 6.7 | 7.0 | 10.0 | 8.8 | 8.7 | 6.7 | 6.6 | 10.4 | 17.1 | 18.2 | 12.9 | 24 | 21.0 | 5.8 | 10.5 | 0 | 0 |
| 8 | 15.6 | 11.1 | 9.9 | 10.9 | 10.0 | 10.9 | 11.4 | 6.2 | 3.2 | 2.7 | 5.6 | 2.3 | 2.3 | 2.3 | 2.9 | 4.9 | 2.8 | 1.5 | 1.4 | 1.2 | 1.5 | 1.5 | 1.3 | 1.2 | 24 | 15.6 | 1.2 | 5.2 | 0 | 0 |
| 9 | 1.5 | 1.2 | 0.4 | 0.3 | 0.3 | 0.7 | 0.9 | 1.3 | 1.1 | 0.9 | 0.4 | 0.7 | 0.4 | 0.7 | 0.6 | 0.7 | 0.9 | 1.0 | 1.4 | 1.3 | 0.7 | 1.5 | 2.5 | 5.1 | 24 | 5.1 | 0.3 | 1.1 | 0 | 0 |
| 10 | 3.3 | 1.8 | 0.6 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.2 | 0.2 | 0.3 | 0.3 | 0.6 | 0.4 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.0 | 0.1 | 24 | 3.3 | 0.0 | 0.4 | 0 | 0 |
| 11 | 0.1 | 0.0 | 0.1 | 0.6 | 0.7 | 2.5 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.3 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 2.5 | 0.0 | 0.2 | 0 | 0 |
| 12 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 1.6 | 2.9 | 0.5 | 0.1 | 0.0 | 0.0 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.3 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 24 | 2.9 | 0.0 | 0.3 | 0 | 0 |
| 13 | 0.1 | 0.1 | 0.3 | 0.3 | 0.7 | 3.5 | 6.8 | 2.2 | 1.7 | 1.3 | 1.2 | 0.7 | 0.9 | 0.9 | 2.1 | 1.5 | 1.1 | 0.7 | 0.8 | 0.9 | 4.5 | 0.8 | 0.5 | 0.5 | 24 | 6.8 | 0.1 | 1.4 | 0 | 0 |
| 14 | 0.3 | 0.3 | 0.2 | 0.3 | 0.6 | 0.9 | 1.2 | 1.3 | 1.0 | 0.4 | 0.3 | 0.4 | 0.3 | 0.3 | M | 0.0 | 0.0 | 0.1 | 0.4 | 0.5 | 1.3 | 0.0 | 0.0 | 0.0 | 23 | 1.3 | 0.0 | 0.4 | 0 | 0 |
| 15 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | C | C | 0.6 | 0.8 | 0.4 | 0.3 | 0.5 | 0.2 | 0.0 | 0.1 | 0.1 | 0.0 | 0.2 | 0.3 | 0.2 | 0.2 | 0.1 | 0.2 | 0.0 | 22 | 0.8 | 0.0 | 0.2 | 0 | 0 |
| 16 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.5 | 1.6 | 1.5 | 0.4 | 0.0 | 0.0 | 0.3 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.4 | 1.1 | 3.2 | 24 | 3.2 | 0.0 | 0.4 | 0 | 0 |
| 17 | 5.1 | 4.6 | 1.8 | 2.0 | 8.8 | 1.0 | 9.5 | 27.0 | 29.5 | 20.5 | 5.8 | 0.9 | 9.5 | 6.8 | 7.1 | 3.9 | 5.4 | 2.5 | 2.9 | 6.1 | 12.6 | 7.9 | 11.3 | 12.3 | 24 | 29.5 | 0.9 | 8.5 | 0 | 0 |
| 18 | 17.1 | 13.9 | 11.3 | 11.6 | 8.1 | 7.0 | 4.8 | 2.6 | 1.8 | 1.6 | 2.1 | 2.9 | 1.5 | 1.9 | 3.8 | 2.1 | 4.9 | 2.2 | 7.1 | 2.1 | 1.9 | 2.8 | 2.0 | 3.6 | 24 | 17.1 | 1.5 | 5.0 | 0 | 0 |
| 19 | 1.9 | 3.0 | 1.7 | 1.5 | 4.4 | 1.5 | 1.7 | 1.1 | 1.0 | 1.4 | 1.8 | 1.7 | 1.7 | 9.9 | 5.6 | 1.2 | 1.6 | 1.5 | 2.3 | 3.8 | 7.3 | 11.6 | 9.1 | 6.7 | 24 | 11.6 | 1.0 | 3.5 | 0 | 0 |
| 20 | 7.5 | 13.2 | 9.2 | 8.2 | 7.1 | 14.0 | 10.6 | 7.0 | 9.1 | 8.3 | 7.2 | 9.4 | 7.4 | 5.4 | 4.4 | 5.4 | 6.1 | 7.0 | 11.2 | 15.1 | 19.0 | 16.1 | 15.3 | 9.1 | 24 | 19.0 | 4.4 | 9.7 | 0 | 0 |
| 21 | 8.0 | 6.6 | 8.1 | 15.0 | 18.3 | 16.2 | 15.2 | 25.9 | 15.7 | 6.6 | 12.8 | 11.0 | 9.6 | 7.4 | 6.9 | 1.4 | 1.2 | 1.1 | 0.8 | 0.9 | 0.7 | 0.8 | 0.2 | 0.0 | 24 | 25.9 | 0.0 | 7.9 | 0 | 0 |
| 22 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.4 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 0.7 | 0.0 | 0.1 | 0 | 0 |
| 23 | 0.0 | 18.4 | 7.3 | 18.5 | 8.1 | 9.9 | 11.7 | 15.3 | 12.3 | 4.8 | 2.7 | 1.4 | 1.9 | 1.3 | 2.4 | 2.1 | 4.8 | 6.6 | 8.8 | 10.7 | 9.8 | 6.4 | 5.2 | 3.1 | 24 | 18.5 | 0.0 | 7.2 | 0 | 0 |
| 24 | 5.4 | 2.0 | 5.5 | 2.6 | 14.3 | 15.4 | 8.6 | 6.1 | 7.6 | 8.8 | 8.2 | 8.2 | 8.2 | 8.2 | 12.5 | 14.7 | 19.3 | 13.9 | 4.4 | 3.2 | 3.1 | 2.0 | 2.4 | 2.3 | 24 | 19.3 | 2.0 | 7.8 | 0 | 0 |
| 25 | 2.1 | 1.9 | 2.8 | 2.7 | 0.9 | 2.5 | 1.1 | 0.9 | 1.1 | 2.7 | 1.2 | 0.5 | 0.5 | 1.1 | 1.6 | 2.2 | 0.8 | 3.1 | 1.0 | 0.8 | 1.1 | 2.0 | 3.0 | 2.3 | 24 | 3.1 | 0.5 | 1.7 | 0 | 0 |
| 26 | 2.2 | 3.5 | 2.1 | 1.9 | 2.4 | 0.9 | 1.3 | 1.5 | 1.6 | 2.0 | 1.6 | 1.4 | 1.3 | 2.3 | 1.5 | 1.7 | 2.2 | 2.2 | 4.0 | 5.4 | 4.5 | 3.0 | 5.3 | 2.9 | 24 | 5.4 | 0.9 | 2.4 | 0 | 0 |
| 27 | 3.4 | 3.2 | 3.9 | 3.4 | 4.1 | 4.8 | 7.0 | 18.8 | 16.3 | 12.7 | 11.6 | 6.5 | 10.3 | 12.6 | 12.3 | 11.9 | 14.4 | 13.0 | 8.1 | 22.7 | 14.7 | 14.2 | 24.9 | 13.6 | 24 | 24.9 | 3.2 | 11.2 | 0 | 0 |
| 28 | 11.6 | 6.5 | 1.4 | 1.3 | 1.0 | 0.9 | 0.8 | 1.1 | 0.7 | 0.5 | 0.5 | 0.6 | 0.3 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.5 | 0.4 | 0.3 | 0.3 | 0.4 | 0.3 | 24 | 11.6 | 0.1 | 1.3 | 0 | 0 |
| 29 | 0.1 | 0.0 | 0.0 | 0.0 | 1.5 | 2.0 | 2.1 | 3.5 | 4.3 | 4.3 | 1.8 | 2.1 | 2.8 | 2.1 | 2.1 | 1.7 | 1.9 | 4.4 | 8.1 | 6.6 | 3.9 | 4.8 | 3.0 | 3.4 | 24 | 8.1 | 0.0 | 2.8 | 0 | 0 |
| 30 | 0.9 | 0.6 | 3.1 | 1.4 | 1.8 | 1.7 | 2.3 | 2.4 | 4.3 | 3.1 | 1.8 | 2.1 | 5.3 | 11.0 | 2.1 | 0.9 | 1.0 | 2.6 | 2.5 | 3.4 | 1.3 | 3.0 | 2.1 | 4.0 | 24 | 11.0 | 0.6 | 2.7 | 0 | 0 |
| 31 | 2.1 | 4.2 | 0.8 | 1.3 | 1.1 | 1.3 | 1.6 | 2.7 | 2.0 | 2.3 | 4.2 | 3.1 | 4.4 | 5.2 | 5.6 | 5.4 | 3.5 | 2.4 | 1.4 | 1.8 | 1.4 | 1.2 | 0.7 | 0.7 | 24 | 5.6 | 0.7 | 2.5 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 30 | 30 | 31 | 31 | 31 | 31 | 30 | 30 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 739 | | | | | |
| **Maximum** | 18.5 | 18.4 | 13.2 | 18.5 | 18.3 | 16.2 | 15.2 | 27.0 | 29.5 | 20.5 | 21.0 | 17.7 | 10.3 | 12.6 | 12.5 | 14.7 | 19.3 | 13.9 | 11.2 | 22.7 | 19.0 | 17.1 | 24.9 | 14.7 | 24 | | | | | |
| **Minimum** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22 | | | | | |
| **Average** | 3.7 | 3.9 | 3.1 | 3.5 | 3.9 | 4.2 | 4.6 | 5.2 | 4.5 | 3.7 | 3.4 | 2.8 | 2.7 | 3.1 | 3.3 | 2.8 | 3.1 | 2.8 | 2.9 | 3.8 | 4.1 | 3.7 | 4.1 | 3.4 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 0.0 | 0.2 | 0.5 | 0.9 | 1.6 | 2.3 | 3.9 | 6.7 | 10.7 | 14.4 | 19.2 | 29.5 |

| | |
|---|---|
| Maximum Hourly | 29.5 |
| Maximum Daily | 11.2 |
| Monthly Average | 3.6 |

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

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



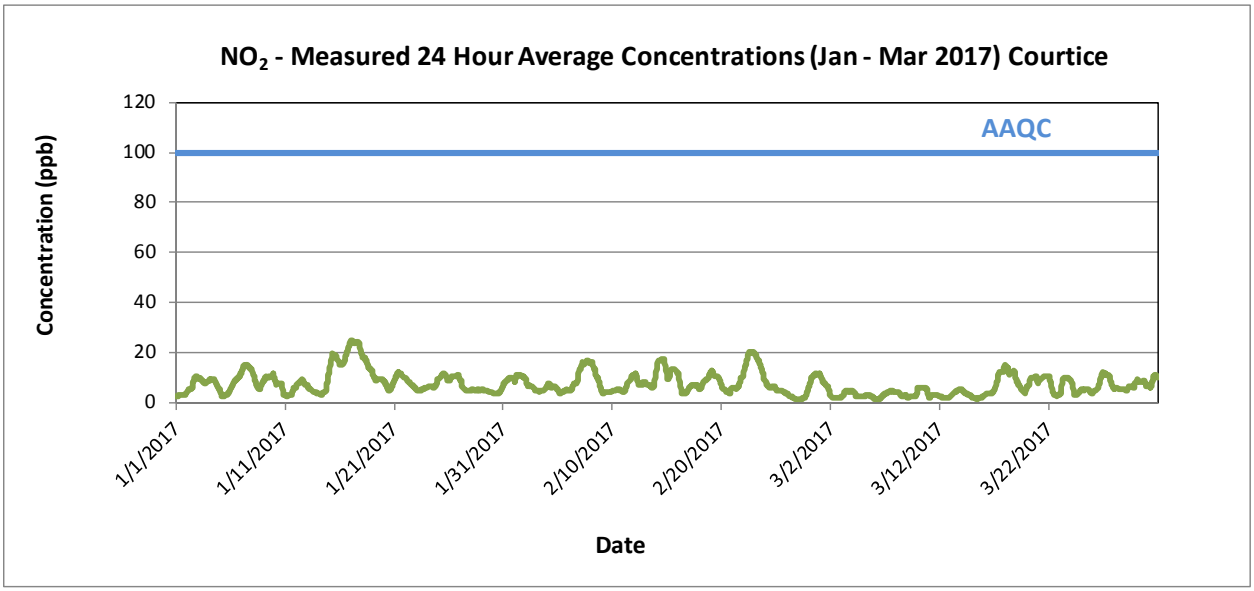
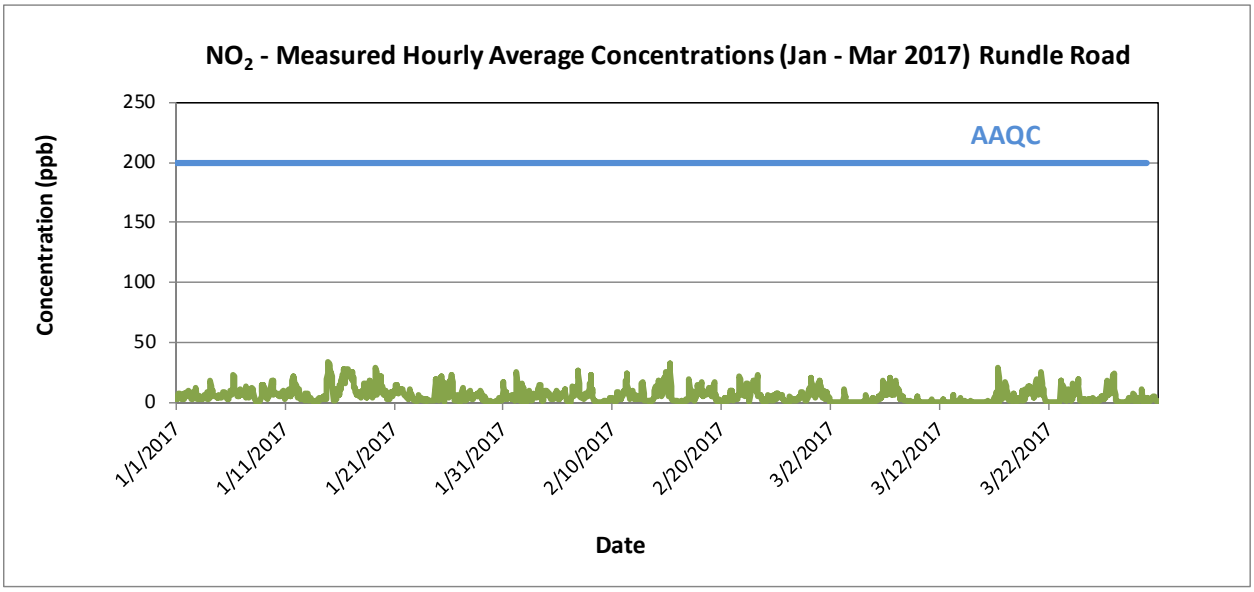
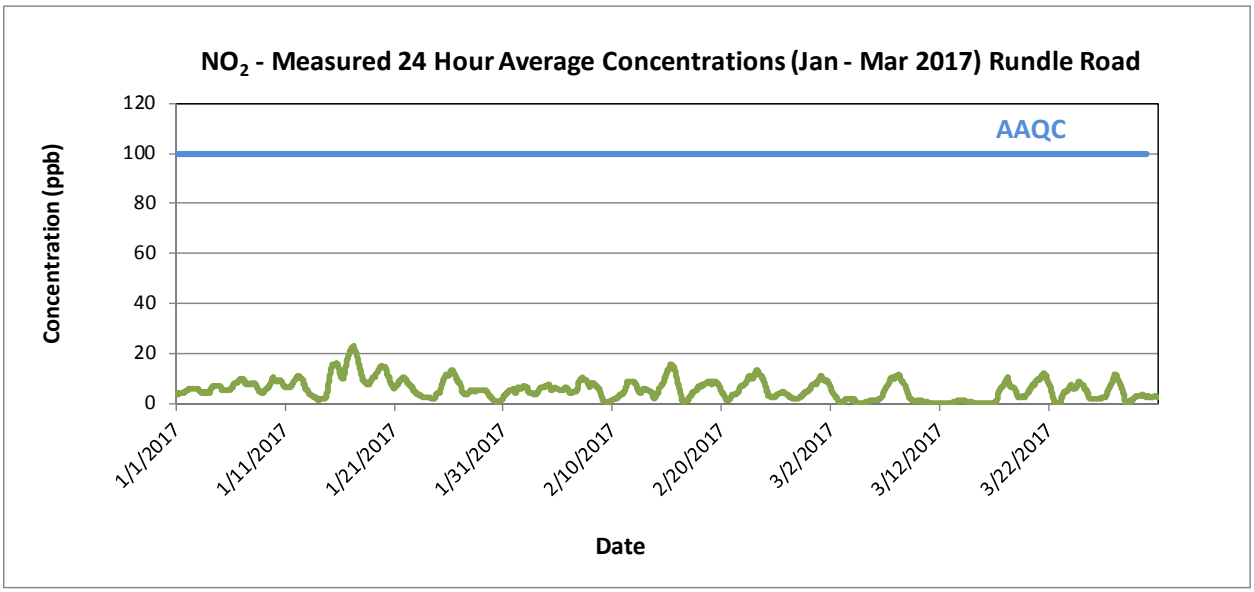



**Figure C-2 Time History Plots of Measured Hourly Average and 24 Hour Average $NO_2$ Concentrations – Rundle Road Station**



# Appendix D $NO_X$ DATA SUMMARIES AND TIME HISTORY PLOTS

**NOx COURTICE**
**January 2017**
**(ppb)**

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.7 | 4.7 | 3.0 | 3.8 | 5.5 | 6.7 | 6.4 | 5.4 | 5.2 | 5.0 | 6.3 | 5.0 | 3.0 | 2.3 | 2.6 | 3.0 | 2.8 | 3.5 | 3.4 | 2.3 | 1.7 | 2.0 | 5.1 | 12.0 | 24 | 12.0 | 1.7 | 4.4 | 0 | 0 |
| 2 | 18.4 | 10.5 | 10.9 | 11.3 | 11.4 | 8.9 | 9.9 | 10.8 | 6.8 | 8.8 | 22.1 | 10.3 | 7.1 | 29.3 | 27.3 | 21.5 | 26.5 | 21.2 | 14.3 | 7.2 | 7.3 | 5.0 | 5.0 | 3.7 | 24 | 29.3 | 3.7 | 13.1 | 0 | 0 |
| 3 | 7.9 | 3.6 | 3.1 | 14.9 | 31.8 | 12.3 | 8.7 | 5.4 | 3.8 | 4.5 | 6.6 | 6.1 | 8.6 | 7.9 | 15.0 | 16.8 | 15.4 | 14.1 | 17.6 | 10.8 | 10.3 | 11.6 | 8.5 | 9.6 | 24 | 31.8 | 3.1 | 10.6 | 0 | 0 |
| 4 | 6.9 | 10.6 | 11.2 | 11.2 | 15.9 | 15.5 | 12.0 | 4.5 | 7.0 | 7.8 | 4.5 | 3.7 | 3.6 | 4.4 | 3.9 | 2.8 | 3.5 | 3.5 | 3.0 | 3.2 | 3.1 | 3.0 | 2.8 | 2.2 | 24 | 15.9 | 2.2 | 6.2 | 0 | 0 |
| 5 | 2.4 | 2.1 | 2.0 | 2.1 | 1.8 | 1.9 | 2.2 | 4.5 | 6.0 | 6.4 | 6.6 | 7.9 | 6.1 | 5.4 | 6.4 | 6.2 | 5.4 | 8.5 | 9.9 | 9.6 | 8.5 | 8.6 | 6.0 | 11.0 | 24 | 11.0 | 1.8 | 5.7 | 0 | 0 |
| 6 | 11.2 | 9.2 | 9.2 | 8.9 | 11.4 | 11.2 | 13.4 | 15.8 | 20.0 | 21.8 | 14.5 | 11.1 | 14.5 | 13.1 | 11.3 | 11.9 | 12.4 | 12.3 | 8.8 | 10.4 | 12.9 | 13.6 | 20.8 | 19.6 | 24 | 21.8 | 8.8 | 13.3 | 0 | 0 |
| 7 | 17.6 | 27.9 | 23.2 | 31.0 | 29.6 | 30.5 | 24.8 | 25.8 | 15.7 | 14.8 | 19.4 | 21.3 | 6.3 | 6.7 | 5.1 | 7.9 | 10.2 | 6.4 | 5.1 | 6.9 | 10.1 | 7.8 | 7.3 | 10.0 | 24 | 31.0 | 5.1 | 15.5 | 0 | 0 |
| 8 | 12.4 | 12.3 | 13.2 | 11.4 | 6.5 | 4.6 | 4.7 | 6.2 | 4.8 | 2.7 | 3.3 | 2.0 | 2.5 | 1.8 | 2.0 | 2.5 | 2.2 | 7.2 | 12.3 | 22.1 | 39.6 | 16.7 | 14.9 | 19.6 | 24 | 39.6 | 1.8 | 9.5 | 0 | 0 |
| 9 | 22.5 | 17.2 | 16.8 | 18.4 | 19.9 | 17.7 | 12.6 | 1.4 | 1.2 | 1.6 | 2.4 | 2.5 | 2.7 | 2.3 | 3.6 | 5.4 | 5.7 | 6.5 | 13.4 | 26.0 | 29.5 | 33.8 | 27.8 | 4.3 | 24 | 33.8 | 1.2 | 12.3 | 0 | 0 |
| 10 | 4.3 | 4.9 | 5.8 | 5.8 | 5.9 | 4.3 | 3.8 | 3.5 | 3.8 | 3.9 | 3.3 | 3.0 | 3.1 | 2.6 | 3.1 | 2.6 | 2.6 | 2.7 | 2.9 | 3.6 | 3.3 | 9.1 | 3.9 | 2.1 | 24 | 9.1 | 2.1 | 3.9 | 0 | 0 |
| 11 | 1.8 | 1.9 | 3.2 | 2.9 | 3.1 | 3.5 | 3.7 | 5.5 | 6.7 | 6.1 | 4.6 | 3.1 | 2.7 | 2.7 | 2.6 | 3.3 | 21.4 | 35.0 | 15.6 | 19.7 | 13.8 | 7.0 | 4.4 | 10.2 | 24 | 35.0 | 1.8 | 7.7 | 0 | 0 |
| 12 | 5.2 | 12.4 | 13.0 | 17.6 | 4.3 | 2.5 | 10.3 | 14.3 | 9.4 | 10.2 | 8.0 | 7.7 | 9.4 | 9.7 | 11.7 | 8.2 | 6.4 | 5.3 | 6.9 | 5.5 | 7.4 | 7.9 | 7.5 | 5.3 | 24 | 17.6 | 2.5 | 8.6 | 0 | 0 |
| 13 | 3.9 | 5.7 | 1.8 | 2.3 | 2.3 | 6.0 | 5.7 | 5.6 | 6.1 | 5.9 | 4.2 | 3.7 | 3.0 | 3.6 | 3.1 | 3.3 | 4.1 | 10.6 | 8.2 | 4.6 | 5.6 | 3.2 | 3.2 | 3.0 | 24 | 10.6 | 1.8 | 4.5 | 0 | 0 |
| 14 | 5.2 | 3.6 | 2.9 | 3.2 | 5.5 | 4.0 | 4.3 | 6.7 | 4.7 | 6.7 | 16.8 | 10.3 | 8.8 | 4.4 | 8.6 | 3.6 | 5.3 | 10.3 | 16.6 | 28.1 | 29.3 | 31.7 | 37.5 | 45.3 | 24 | 45.3 | 2.9 | 12.6 | 0 | 0 |
| 15 | 45.7 | 26.2 | 32.4 | 41.0 | 37.6 | 33.7 | 38.3 | 34.2 | 33.1 | 26.8 | 4.6 | 2.6 | 3.4 | 1.9 | 2.7 | 4.6 | 4.0 | 4.0 | 4.6 | 5.5 | 18.7 | 18.8 | 52.5 | 14.7 | 24 | 52.5 | 1.9 | 20.5 | 0 | 0 |
| 16 | 4.1 | 31.8 | 45.4 | 41.1 | 41.0 | 51.7 | 54.8 | 75.2 | 54.6 | 54.1 | 31.1 | 18.4 | 23.7 | 23.7 | 20.6 | 21.3 | 23.0 | 17.8 | 17.1 | 18.2 | 54.5 | 75.5 | 104.0 | 82.5 | 24 | 104.0 | 4.1 | 41.1 | 0 | 0 |
| 17 | 65.4 | 50.5 | 47.5 | 52.6 | 41.8 | 21.8 | 23.0 | 32.2 | 29.4 | 37.7 | 46.3 | 23.4 | 15.5 | 29.2 | 23.9 | 24.9 | 35.5 | 19.5 | 12.3 | 10.9 | 10.1 | 9.7 | 12.6 | 11.1 | 24 | 65.4 | 9.7 | 28.6 | 0 | 0 |
| 18 | 20.5 | 18.3 | 31.5 | 20.5 | 23.6 | 23.7 | 19.7 | 22.1 | 28.2 | 24.5 | 17.3 | 8.6 | 8.2 | 9.1 | 7.2 | 8.0 | 8.3 | 12.3 | 6.3 | 6.7 | 6.1 | 4.9 | 6.1 | 8.0 | 24 | 31.5 | 4.9 | 14.6 | 0 | 0 |
| 19 | 6.8 | 9.5 | 7.3 | 9.8 | 12.1 | 17.8 | 14.7 | 12.9 | 12.4 | 21.0 | 22.6 | 16.2 | 11.0 | 5.5 | 6.0 | 8.7 | 12.8 | 9.1 | 11.0 | 7.8 | 4.2 | 3.9 | 3.9 | 3.5 | 24 | 22.6 | 3.5 | 10.4 | 0 | 0 |
| 20 | 3.0 | 3.9 | 3.8 | 3.1 | 5.6 | 5.0 | 3.2 | 5.1 | 4.1 | 6.8 | 6.1 | C | C | C | C | C | 18.7 | 32.7 | 30.4 | 16.0 | 16.3 | 17.2 | 16.0 | 14.5 | 19 | 32.7 | 3.0 | 11.1 | 0 | 0 |
| 21 | 13.5 | 10.6 | 15.2 | 18.5 | 13.5 | 11.6 | 15.1 | 12.6 | 12.4 | 10.5 | 10.2 | 15.9 | 19.4 | 19.9 | 13.2 | 12.3 | 12.3 | 16.0 | 16.6 | 11.2 | 12.4 | 10.3 | 10.1 | 17.9 | 24 | 19.9 | 10.1 | 13.8 | 0 | 0 |
| 22 | 15.3 | 18.7 | 8.1 | 9.0 | 7.7 | 9.6 | 9.9 | 5.9 | 8.0 | 8.4 | 11.5 | 8.0 | 6.1 | 7.2 | 9.3 | 10.0 | 7.8 | 12.5 | 7.8 | 6.1 | 6.3 | 5.5 | 8.1 | 5.9 | 24 | 18.7 | 5.5 | 8.9 | 0 | 0 |
| 23 | 6.4 | 6.2 | 5.7 | 5.6 | 7.5 | 7.5 | 6.5 | 9.5 | 8.0 | 10.1 | 10.2 | 14.7 | 17.2 | 18.9 | 21.5 | 18.0 | 8.9 | 11.8 | 9.8 | 8.5 | 9.5 | 9.7 | 9.1 | 7.5 | 24 | 21.5 | 5.6 | 10.3 | 0 | 0 |
| 24 | 8.0 | 8.0 | 7.7 | 7.1 | 8.5 | 9.5 | 9.5 | 10.4 | 10.0 | 9.0 | 11.4 | 8.6 | 8.0 | 7.4 | 7.4 | 7.3 | 10.2 | 11.6 | 12.4 | 10.1 | 14.7 | 21.8 | 20.3 | 26.4 | 24 | 26.4 | 7.1 | 11.1 | 0 | 0 |
| 25 | 20.6 | 6.9 | 5.4 | 8.7 | 10.3 | 12.0 | 10.0 | 13.7 | 21.0 | 13.1 | 27.9 | 13.6 | 9.8 | 6.0 | 4.7 | 6.3 | 5.2 | 4.3 | 4.1 | 3.5 | 2.9 | 3.1 | 13.5 | 18.5 | 24 | 27.9 | 2.9 | 10.2 | 0 | 0 |
| 26 | 20.5 | 12.7 | 10.3 | 9.9 | 15.3 | 33.4 | 32.0 | 27.8 | 18.2 | 9.6 | 13.9 | 10.9 | 9.9 | 8.4 | 5.8 | 5.6 | 6.3 | 8.6 | 7.6 | 7.8 | 7.0 | 4.7 | 4.0 | 4.5 | 24 | 33.4 | 4.0 | 12.3 | 0 | 0 |
| 27 | 4.3 | 3.3 | 3.8 | 4.1 | 5.6 | 5.8 | 6.7 | 7.0 | 9.0 | 9.7 | 7.9 | 3.9 | 4.5 | 3.7 | 3.9 | 3.7 | 4.4 | 5.4 | 5.7 | 6.4 | 6.5 | 7.0 | 6.6 | 4.8 | 24 | 9.7 | 3.3 | 5.6 | 0 | 0 |
| 28 | 6.5 | 5.6 | 5.9 | 6.6 | 5.4 | 5.9 | 6.5 | 6.7 | 4.1 | 4.7 | 4.8 | 6.0 | 5.5 | 5.0 | 5.6 | 6.9 | 4.7 | 4.8 | 4.8 | 4.9 | 5.2 | 4.7 | 5.8 | 8.9 | 24 | 8.9 | 4.1 | 5.7 | 0 | 0 |
| 29 | 9.7 | 9.0 | 6.4 | 5.8 | 4.4 | 3.9 | 5.3 | 5.7 | 6.1 | 3.9 | 3.8 | 3.4 | 3.5 | 3.0 | 2.9 | 3.9 | 4.1 | 4.8 | 5.0 | 7.0 | 5.3 | 5.3 | 6.4 | 4.4 | 24 | 9.7 | 2.9 | 5.1 | 0 | 0 |
| 30 | 6.1 | 3.2 | 3.9 | 4.2 | 3.9 | 5.1 | 6.7 | 13.0 | 7.2 | 4.1 | 4.1 | 3.8 | 4.2 | 5.0 | 5.6 | 8.7 | 9.5 | 9.1 | 11.0 | 15.3 | 15.6 | 17.0 | 16.3 | 14.8 | 24 | 17.0 | 3.2 | 8.2 | 0 | 0 |
| 31 | 18.3 | 22.4 | 14.2 | 13.1 | 9.7 | 10.7 | 8.7 | 9.7 | 9.9 | 10.1 | 9.4 | 4.7 | 8.6 | 12.1 | 11.0 | 9.6 | 10.4 | 10.8 | 11.2 | 10.7 | 9.5 | 10.6 | 11.4 | 9.9 | 24 | 22.4 | 4.7 | 11.1 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 30 | 30 | 30 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 739 | | | | | |
| **Maximum** | 65.4 | 50.5 | 47.5 | 52.6 | 41.8 | 51.7 | 54.8 | 75.2 | 54.6 | 54.1 | 46.3 | 23.4 | 23.7 | 29.3 | 27.3 | 24.9 | 35.5 | 35.0 | 30.4 | 28.1 | 54.5 | 75.5 | 104.0 | 82.5 | 24 | | | | | |
| **Minimum** | 1.8 | 1.9 | 1.8 | 2.1 | 1.8 | 1.9 | 2.2 | 1.4 | 1.2 | 1.6 | 2.4 | 2.0 | 2.5 | 1.8 | 2.0 | 2.5 | 2.2 | 2.7 | 2.9 | 2.3 | 1.7 | 2.0 | 2.8 | 2.1 | 19 | | | | | |
| **Average** | 12.9 | 12.0 | 12.1 | 13.1 | 13.2 | 12.9 | 12.7 | 13.5 | 12.2 | 11.9 | 11.8 | 8.7 | 8.0 | 8.7 | 8.6 | 8.6 | 10.0 | 11.0 | 10.2 | 10.2 | 12.5 | 12.6 | 14.9 | 13.4 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 3.2 | 4.3 | 5.4 | 6.5 | 8.1 | 9.9 | 12.1 | 16.1 | 23.2 | 32.0 | 54.3 | 104.0 |

| | |
|---|---|
| Maximum Hourly | 104.0 |
| Maximum Daily | 41.1 |
| Monthly Average | 11.5 |

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

**NOx COURTICE**
**February 2017**
**(ppb)**

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.5 | 11.4 | 9.5 | 20.1 | 34.2 | 48.6 | 22.7 | 9.9 | 11.5 | 12.3 | 11.1 | 7.7 | 6.6 | 4.3 | 6.8 | 5.3 | 5.7 | 8.9 | 10.2 | 9.1 | 6.5 | 13.3 | 10.4 | 6.8 | 24 | 48.6 | 4.3 | 12.7 | 0 | 0 |
| 2 | 5.1 | 6.0 | 4.2 | 5.4 | 6.3 | 8.6 | 12.3 | 16.1 | 13.9 | 10.0 | 7.0 | 5.7 | 4.0 | 4.1 | 4.4 | 3.7 | 3.9 | 5.3 | 5.5 | 5.8 | 5.1 | 4.8 | 3.8 | 3.6 | 24 | 16.1 | 3.6 | 6.4 | 0 | 0 |
| 3 | 3.7 | 3.7 | 4.1 | 5.2 | 5.0 | 5.6 | 8.5 | 9.5 | 15.5 | 20.7 | 13.0 | 7.9 | 5.3 | 4.3 | 4.3 | 4.5 | 5.0 | 5.4 | 6.1 | 8.8 | 10.4 | 11.8 | 12.5 | 14.5 | 24 | 20.7 | 3.7 | 8.1 | 0 | 0 |
| 4 | 13.1 | 12.1 | 10.7 | 9.4 | 9.4 | 6.1 | 3.2 | 3.3 | 4.1 | 5.0 | 3.9 | 5.7 | 8.1 | 6.2 | 5.0 | 5.6 | 6.7 | 6.4 | 5.3 | 6.2 | 4.8 | 6.2 | 8.4 | 6.5 | 24 | 13.1 | 3.2 | 6.7 | 0 | 0 |
| 5 | 4.2 | 3.7 | 3.5 | 3.9 | 4.0 | 4.1 | 4.5 | 4.7 | 7.1 | 6.1 | 7.1 | 7.6 | 9.1 | 9.7 | 9.9 | 10.0 | 9.0 | 8.8 | 7.2 | 5.6 | 4.7 | 5.6 | 5.1 | 4.9 | 24 | 10.0 | 3.5 | 6.2 | 0 | 0 |
| 6 | 6.8 | 4.4 | 4.0 | 4.5 | 8.4 | 10.6 | 9.8 | 9.9 | 18.2 | 29.9 | 32.1 | 20.2 | 18.9 | 20.0 | 4.6 | 4.0 | 9.1 | 16.9 | 26.1 | 23.3 | 43.6 | 32.1 | 26.7 | 23.7 | 24 | 43.6 | 4.0 | 17.0 | 0 | 0 |
| 7 | 16.2 | 10.9 | 10.2 | 9.9 | 32.6 | 27.3 | 31.1 | 19.5 | 8.6 | 15.6 | 25.2 | 34.4 | 30.8 | 24.1 | 13.7 | 16.3 | 17.5 | 13.6 | 23.0 | 42.0 | 43.1 | 23.9 | 19.0 | 22.6 | 24 | 43.1 | 8.6 | 22.1 | 0 | 0 |
| 8 | 12.5 | 19.7 | 13.1 | 10.6 | 8.2 | 7.8 | 7.1 | 6.8 | 5.6 | 5.7 | 6.5 | 5.7 | 5.2 | 5.2 | 6.1 | 5.8 | 8.4 | 7.8 | 8.7 | 7.3 | 6.2 | 5.2 | 5.9 | 5.1 | 24 | 19.7 | 5.1 | 7.8 | 0 | 0 |
| 9 | 4.5 | 4.7 | 7.1 | 5.6 | 8.4 | 10.3 | 10.7 | 9.9 | 7.4 | 6.6 | 6.2 | 5.4 | 5.5 | 6.6 | 4.9 | 5.5 | 7.2 | 8.5 | 7.7 | 6.4 | 7.4 | 6.6 | 7.9 | 8.1 | 24 | 10.7 | 4.5 | 7.0 | 0 | 0 |
| 10 | 5.2 | 6.0 | 7.6 | 8.2 | 9.1 | 9.8 | 10.1 | 14.6 | 11.9 | 7.6 | 11.5 | 12.7 | 9.0 | 4.3 | 3.2 | 2.9 | 3.7 | 4.4 | 4.3 | 3.5 | 3.7 | 4.1 | 4.9 | 5.5 | 24 | 14.6 | 2.9 | 7.0 | 0 | 0 |
| 11 | 5.9 | 5.8 | 5.8 | 6.0 | 19.9 | 22.1 | 28.2 | 34.2 | 27.2 | 26.9 | 26.4 | 19.8 | 16.7 | 8.4 | 8.3 | 8.4 | 10.6 | 11.9 | 12.4 | 14.5 | 13.3 | 8.1 | 7.4 | 11.7 | 24 | 34.2 | 5.8 | 15.0 | 0 | 0 |
| 12 | 6.3 | 6.7 | 10.6 | 17.4 | 9.7 | 7.4 | 8.2 | 7.9 | 8.4 | 9.0 | 12.3 | 11.1 | 7.9 | 8.8 | 8.3 | 11.0 | 11.5 | 14.6 | 17.5 | 29.1 | 26.0 | 11.6 | 5.6 | 6.6 | 24 | 29.1 | 5.6 | 11.4 | 0 | 0 |
| 13 | 5.7 | 5.4 | 4.1 | 4.4 | 5.5 | 6.5 | 5.2 | 7.5 | 6.9 | 6.6 | 7.5 | 5.8 | 6.0 | 6.5 | 6.5 | 6.3 | 6.9 | 8.0 | 19.3 | 64.9 | 106.9 | 72.6 | 47.8 | 52.5 | 24 | 106.9 | 4.1 | 19.8 | 0 | 0 |
| 14 | 47.3 | 50.3 | 41.0 | 42.3 | 39.4 | 24.4 | 5.4 | 5.9 | 6.5 | 7.2 | 6.9 | 7.6 | 7.7 | 7.0 | 7.0 | 7.6 | 8.7 | 10.5 | 11.5 | 8.9 | 8.6 | 14.2 | 22.2 | 10.9 | 24 | 50.3 | 5.4 | 17.0 | 0 | 0 |
| 15 | 7.9 | 8.2 | 20.8 | 49.5 | 40.2 | 37.3 | 27.6 | 37.1 | 45.7 | 32.9 | 13.9 | 7.1 | 8.1 | 6.5 | 6.7 | 6.4 | 6.1 | 5.9 | 6.5 | 7.0 | 7.0 | 6.6 | 6.6 | 5.8 | 24 | 49.5 | 5.8 | 17.0 | 0 | 0 |
| 16 | 7.3 | 5.0 | 5.2 | 4.7 | 4.7 | 5.5 | 5.6 | 7.2 | 7.0 | 7.0 | 7.7 | 6.7 | 6.4 | 5.8 | 7.4 | 6.6 | 7.8 | 8.3 | 7.9 | 14.0 | 15.0 | 12.0 | 18.7 | 14.0 | 24 | 18.7 | 4.7 | 8.2 | 0 | 0 |
| 17 | 14.5 | 14.1 | 10.3 | 8.4 | 6.5 | 5.7 | 5.8 | 12.0 | 12.7 | 7.0 | 7.1 | 4.6 | 4.0 | 4.4 | 4.7 | 4.5 | 4.5 | 8.3 | 13.2 | 19.1 | 6.4 | 4.1 | 5.0 | 5.1 | 24 | 19.1 | 4.0 | 8.0 | 0 | 0 |
| 18 | 12.8 | 18.2 | 13.6 | 17.1 | 17.4 | 16.6 | 24.3 | 29.6 | 31.6 | 18.4 | 16.2 | 8.4 | 8.3 | 8.0 | 7.5 | 6.9 | 8.5 | 9.0 | 16.0 | 24.7 | 24.5 | 15.0 | 13.3 | 15.6 | 24 | 31.6 | 6.9 | 15.9 | 0 | 0 |
| 19 | 18.0 | 36.5 | 18.8 | 14.6 | 12.5 | 9.0 | 7.5 | 8.8 | 13.1 | 14.6 | 12.9 | 13.4 | 8.8 | 4.7 | 5.2 | 5.4 | 5.3 | 5.2 | 7.2 | 11.4 | 9.8 | 7.3 | 7.3 | 6.0 | 24 | 36.5 | 4.7 | 11.0 | 0 | 0 |
| 20 | 7.8 | 6.7 | 5.7 | 6.3 | 5.3 | 6.4 | 7.6 | 14.2 | 7.2 | 5.3 | 3.5 | 3.3 | 3.2 | 2.8 | 2.8 | 2.8 | 2.9 | 3.1 | 3.9 | 22.2 | 26.4 | 27.5 | 23.9 | 12.4 | 24 | 27.5 | 2.8 | 8.9 | 0 | 0 |
| 21 | 3.2 | 4.3 | 5.1 | 4.6 | 4.5 | 7.2 | 6.0 | 6.6 | 10.2 | 7.3 | 8.4 | 11.4 | 9.3 | 9.7 | 8.6 | 13.8 | 20.7 | 18.4 | 38.2 | 45.0 | 30.0 | 28.5 | 29.6 | 41.9 | 24 | 45.0 | 3.2 | 15.5 | 0 | 0 |
| 22 | 40.7 | 33.8 | 37.6 | 40.1 | 33.1 | 33.1 | 35.1 | 46.4 | 37.9 | C | C | C | 17.4 | 15.3 | 14.3 | 14.2 | 15.3 | 15.1 | 23.7 | 20.5 | 31.9 | 30.2 | 23.6 | 19.1 | 21 | 46.4 | 14.2 | 27.5 | 0 | 0 |
| 23 | 18.1 | 25.5 | 13.2 | 13.1 | 21.3 | 13.3 | 12.6 | 12.0 | 11.0 | 9.1 | A | 1.7 | 1.9 | 2.2 | 2.6 | 3.3 | 3.8 | 4.6 | 6.5 | 5.8 | 6.9 | 5.2 | 9.8 | 22.4 | 23 | 25.5 | 1.7 | 9.8 | 0 | 0 |
| 24 | 51.5 | 14.9 | 16.9 | 8.5 | 11.7 | 9.1 | 7.9 | 5.6 | 3.2 | 2.7 | 4.7 | 6.9 | 6.9 | 5.6 | 5.1 | 8.2 | 6.9 | 5.4 | 5.8 | 5.5 | 5.8 | 5.6 | 6.4 | 3.8 | 24 | 51.5 | 2.7 | 8.9 | 0 | 0 |
| 25 | 3.0 | 8.2 | 7.2 | 7.7 | 5.9 | 4.1 | 9.3 | 6.2 | 5.2 | 2.0 | 5.0 | 6.6 | 5.2 | 3.3 | 2.2 | 3.6 | 2.1 | 2.7 | 2.7 | 2.4 | 1.9 | 2.6 | 1.5 | 2.2 | 24 | 9.3 | 1.5 | 4.3 | 0 | 0 |
| 26 | 1.6 | 2.0 | 1.4 | 1.2 | 1.5 | 2.2 | 2.9 | 2.6 | 3.0 | 2.3 | 2.9 | 2.3 | 1.1 | 1.5 | 1.2 | 1.2 | 0.5 | 0.4 | 0.5 | 0.4 | 1.0 | 0.8 | 0.8 | 0.8 | 24 | 3.0 | 0.4 | 1.5 | 0 | 0 |
| 27 | 1.1 | 1.1 | 1.3 | 1.2 | 1.7 | 2.0 | 2.3 | 4.2 | 5.0 | 7.3 | 8.6 | 6.4 | 4.4 | 4.5 | 4.4 | 3.5 | 3.5 | 6.2 | 14.3 | 19.0 | 15.9 | 15.2 | 17.7 | 13.0 | 24 | 19.0 | 1.1 | 6.8 | 0 | 0 |
| 28 | 17.4 | 17.9 | 16.9 | 14.1 | 12.0 | 19.4 | 18.0 | 17.4 | 14.5 | 12.8 | 8.8 | 7.0 | 11.0 | 9.6 | 5.0 | 6.7 | 5.3 | 8.0 | 10.7 | 9.3 | 13.4 | 18.1 | 17.1 | 35.7 | 24 | 35.7 | 5.0 | 13.6 | 0 | 0 |
| 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Count** | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 27 | 26 | 27 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 668 | | | | | |
| **Maximum** | 51.5 | 50.3 | 41.0 | 49.5 | 40.2 | 48.6 | 35.1 | 46.4 | 45.7 | 32.9 | 32.1 | 34.4 | 30.8 | 24.1 | 14.3 | 16.3 | 20.7 | 18.4 | 38.2 | 64.9 | 106.9 | 72.6 | 47.8 | 52.5 | 24 | | | | | |
| **Minimum** | 1.1 | 1.1 | 1.3 | 1.2 | 1.5 | 2.0 | 2.3 | 2.6 | 3.0 | 2.0 | 2.9 | 1.7 | 1.1 | 1.5 | 1.2 | 1.2 | 0.5 | 0.4 | 0.5 | 0.4 | 1.0 | 0.8 | 0.8 | 0.8 | 21 | | | | | |
| **Average** | 12.6 | 12.4 | 11.1 | 12.3 | 13.5 | 13.2 | 12.1 | 13.2 | 12.9 | 11.0 | 10.6 | 9.0 | 8.5 | 7.3 | 6.1 | 6.6 | 7.4 | 8.3 | 11.5 | 15.8 | 17.4 | 14.2 | 13.2 | 13.6 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 3.5 | 4.9 | 5.7 | 6.6 | 7.6 | 9.0 | 11.9 | 15.8 | 24.4 | 34.1 | 48.9 | 106.9 |

| | |
|---|---|
| Maximum Hourly | 106.9 |
| Maximum Daily | 27.5 |
| Monthly Average | 11.5 |

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

**NOx COURTICE**
**March 2017**
**(ppb)**

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13.9 | 3.6 | 7.1 | 5.9 | 2.5 | 3.7 | 7.1 | 1.3 | 1.0 | 2.8 | 4.7 | 3.5 | 1.0 | 1.5 | 1.7 | 2.6 | 2.0 | 1.6 | 1.3 | 1.6 | 3.1 | 1.5 | 2.2 | 2.6 | 24 | 13.9 | 1.0 | 3.3 | 0 | 0 |
| 2 | 1.6 | 1.6 | 1.5 | 1.2 | 1.4 | 2.0 | 2.1 | 3.3 | 2.9 | 2.6 | 2.7 | 2.9 | 2.4 | 1.8 | 2.1 | 2.7 | 2.8 | 3.3 | 3.8 | 3.4 | 3.6 | 2.9 | 3.7 | 5.6 | 24 | 5.6 | 1.2 | 2.7 | 0 | 0 |
| 3 | 7.0 | 4.6 | 3.6 | 5.1 | 11.4 | 12.7 | 15.7 | 12.0 | 10.2 | 2.9 | 2.1 | 1.9 | 2.1 | 2.5 | 1.9 | 2.7 | 2.1 | 3.0 | 5.6 | 4.0 | 3.8 | 4.6 | 7.7 | 2.7 | 24 | 15.7 | 1.9 | 5.5 | 0 | 0 |
| 4 | 2.1 | 4.6 | 3.4 | 3.5 | 2.7 | 1.7 | 1.4 | 2.5 | 2.6 | 2.0 | 2.0 | 1.4 | 1.3 | 1.1 | 1.4 | 2.0 | 1.8 | 1.9 | 4.6 | 10.3 | 7.0 | 6.3 | 5.0 | 2.6 | 24 | 10.3 | 1.1 | 3.1 | 0 | 0 |
| 5 | 3.7 | 3.6 | 4.5 | 4.5 | 5.7 | 5.4 | 3.6 | 3.3 | 2.1 | 2.0 | 1.2 | 0.8 | 0.7 | 0.5 | 0.3 | 0.4 | 0.8 | 1.7 | 3.2 | 1.5 | 0.8 | 0.6 | 0.5 | 0.7 | 24 | 5.7 | 0.3 | 2.2 | 0 | 0 |
| 6 | 1.3 | 1.8 | 2.1 | 2.3 | 2.7 | 2.4 | 3.1 | 3.6 | 4.3 | 2.9 | 3.5 | 3.3 | 4.4 | 4.6 | 6.5 | 5.0 | 6.1 | 4.7 | 6.6 | 7.3 | 6.2 | 7.5 | 4.5 | 4.2 | 24 | 7.5 | 1.3 | 4.2 | 0 | 0 |
| 7 | 9.3 | 3.1 | 3.8 | 3.0 | 2.7 | 5.2 | 7.8 | 5.1 | 3.6 | 10.2 | 25.0 | 2.9 | 1.9 | 1.6 | 1.6 | 1.6 | 1.5 | 1.7 | 1.5 | 1.4 | 8.0 | 4.4 | 6.2 | 9.3 | 24 | 25.0 | 1.4 | 5.1 | 0 | 0 |
| 8 | 5.8 | 3.4 | 2.9 | 2.5 | 2.8 | 2.0 | 1.4 | 1.7 | 1.8 | 2.0 | 1.7 | 1.3 | 1.1 | 1.0 | 1.1 | 2.5 | 2.7 | 3.6 | 2.3 | 4.4 | 5.0 | 6.4 | 2.1 | 1.7 | 24 | 6.4 | 1.0 | 2.6 | 0 | 0 |
| 9 | 2.7 | 1.8 | 1.5 | 1.7 | 1.7 | 3.1 | 5.6 | 4.9 | 3.1 | 2.0 | 1.8 | 2.0 | 1.7 | 1.4 | 2.1 | 2.5 | 2.5 | 5.3 | 4.3 | 14.4 | 9.8 | 13.6 | 22.3 | 31.7 | 24 | 31.7 | 1.4 | 6.0 | 0 | 0 |
| 10 | 14.4 | 6.2 | 3.4 | 1.6 | 2.5 | 2.5 | 2.5 | 3.2 | 3.4 | 2.4 | 2.9 | 2.1 | 1.7 | 1.8 | 1.7 | 1.9 | 2.0 | 2.6 | 2.8 | 2.5 | 3.4 | 4.1 | 2.9 | 2.9 | 24 | 14.4 | 1.6 | 3.2 | 0 | 0 |
| 11 | 1.6 | 4.5 | 5.1 | 5.4 | 13.0 | 8.3 | 5.2 | 3.4 | 2.0 | 1.5 | 2.0 | 1.3 | 1.6 | 1.4 | 1.4 | 1.9 | 1.6 | 1.9 | 1.8 | 2.6 | 1.8 | 1.9 | 1.8 | 1.4 | 24 | 13.0 | 1.3 | 3.1 | 0 | 0 |
| 12 | 3.3 | 2.1 | 2.1 | 0.9 | 3.2 | 4.2 | 6.3 | 6.2 | 2.9 | 2.2 | 1.4 | 1.2 | 1.0 | 1.5 | 1.4 | 1.3 | 1.5 | 2.3 | 4.9 | 3.0 | 7.5 | 2.9 | 2.7 | 10.1 | 24 | 10.1 | 0.9 | 3.2 | 0 | 0 |
| 13 | 8.0 | 6.7 | 3.2 | 6.9 | 13.3 | 8.1 | 10.3 | 6.9 | 5.5 | 10.0 | 8.8 | 2.5 | 4.1 | 6.5 | 4.6 | 3.7 | 5.3 | 6.5 | 5.7 | 6.6 | 7.4 | 7.4 | 6.4 | 5.4 | 24 | 13.3 | 2.5 | 6.7 | 0 | 0 |
| 14 | 3.3 | 2.6 | 2.4 | 1.9 | 4.5 | 2.9 | 3.9 | 4.3 | 3.4 | 2.6 | 2.6 | 2.8 | 2.3 | M | 0.0 | 10.5 | 12.8 | 12.2 | 13.0 | 11.7 | 11.3 | 11.0 | 11.5 | 11.3 | 23 | 13.0 | 0.0 | 6.3 | 0 | 0 |
| 15 | 10.5 | 11.4 | 10.7 | 10.5 | 10.4 | 10.7 | 12.3 | C | C | C | 4.1 | 3.8 | 3.9 | 3.5 | 3.0 | 3.0 | 3.0 | 3.6 | 4.1 | 3.7 | 3.4 | 3.5 | 3.9 | 4.3 | 21 | 12.3 | 3.0 | 6.1 | 0 | 0 |
| 16 | 5.1 | 4.6 | 3.4 | 3.1 | 4.6 | 6.0 | 6.6 | 8.8 | 6.9 | 4.7 | 3.3 | 3.4 | 3.1 | 2.8 | 2.6 | 2.8 | 3.1 | 3.0 | 5.2 | 4.8 | 5.2 | 6.2 | 7.2 | 15.9 | 24 | 15.9 | 2.6 | 5.1 | 0 | 0 |
| 17 | 14.5 | 21.0 | 13.1 | 27.7 | 30.5 | 11.3 | 36.9 | 100.5 | 86.6 | 17.7 | 6.2 | 14.1 | 10.9 | 10.7 | 5.4 | 4.5 | 2.4 | 2.1 | 2.6 | 3.3 | 21.9 | 43.7 | 27.8 | 18.3 | 24 | 100.5 | 2.1 | 22.2 | 0 | 0 |
| 18 | 19.6 | 10.9 | 9.3 | 7.3 | 16.1 | 19.6 | 10.0 | 14.7 | 14.3 | 26.0 | 20.8 | 6.9 | 10.2 | 14.3 | 7.0 | 6.2 | 6.8 | 5.8 | 5.6 | 5.8 | 4.7 | 3.7 | 6.7 | 4.3 | 24 | 26.0 | 3.7 | 10.7 | 0 | 0 |
| 19 | 6.3 | 5.4 | 3.6 | 7.3 | 3.9 | 3.4 | 5.4 | 4.5 | 4.2 | 9.2 | 5.9 | 4.0 | 3.3 | 2.0 | 1.8 | 2.0 | 1.8 | 1.7 | 1.5 | 1.9 | 2.5 | 20.3 | 33.2 | 30.2 | 24 | 33.2 | 1.5 | 6.9 | 0 | 0 |
| 20 | 9.5 | 3.2 | 5.0 | 7.6 | 31.3 | 48.2 | 57.4 | 59.6 | 4.0 | 4.6 | 4.8 | 7.6 | 5.3 | 3.5 | 4.3 | 4.0 | 3.6 | 4.0 | 4.5 | 4.3 | 3.8 | 3.3 | 3.2 | 3.8 | 24 | 59.6 | 3.2 | 12.1 | 0 | 0 |
| 21 | 4.8 | 26.5 | 17.3 | 35.6 | 40.8 | 31.1 | 32.0 | 33.9 | 26.7 | 18.5 | 16.4 | 12.7 | 10.8 | 9.2 | 6.4 | 3.8 | 4.2 | 3.7 | 4.4 | 4.1 | 3.5 | 3.4 | 2.5 | 3.0 | 24 | 40.8 | 2.5 | 14.8 | 0 | 0 |
| 22 | 2.4 | 2.0 | 2.2 | 1.9 | 3.3 | 4.9 | 4.6 | 3.3 | 3.7 | 4.2 | 3.0 | 2.3 | 2.8 | 2.8 | 3.1 | 2.8 | 4.2 | 4.0 | 6.3 | 4.9 | 5.8 | 5.3 | 4.9 | 5.7 | 24 | 6.3 | 1.9 | 3.8 | 0 | 0 |
| 23 | 9.4 | 7.9 | 16.5 | 25.4 | 51.6 | 57.6 | 66.1 | 41.0 | 37.5 | 4.3 | 2.2 | 1.6 | 1.6 | 1.5 | 2.7 | 2.1 | 2.4 | 3.2 | 3.3 | 3.9 | 2.7 | 1.7 | 1.8 | 1.6 | 24 | 66.1 | 1.5 | 14.6 | 0 | 0 |
| 24 | 3.3 | 4.4 | 2.7 | 2.9 | 18.2 | 7.8 | 2.5 | 2.3 | 2.4 | 2.5 | 3.0 | 2.8 | 2.8 | 3.1 | 4.2 | 4.1 | 3.0 | 13.6 | 10.2 | 7.3 | 6.2 | 8.7 | 8.1 | 6.9 | 24 | 18.2 | 2.3 | 5.5 | 0 | 0 |
| 25 | 7.8 | 5.5 | 5.1 | 6.0 | 4.1 | 5.7 | 7.1 | 4.0 | 4.9 | 5.3 | 5.3 | 2.9 | 3.2 | 1.7 | 1.3 | 1.3 | 1.4 | 1.3 | 2.5 | 3.3 | 2.8 | 3.9 | 7.2 | 8.6 | 24 | 8.6 | 1.3 | 4.3 | 0 | 0 |
| 26 | 16.6 | 12.6 | 12.3 | 4.3 | 3.5 | 4.7 | 18.1 | 9.2 | 14.2 | 12.3 | 6.1 | 7.6 | 11.2 | 20.4 | 31.0 | 33.6 | 35.5 | 33.2 | 23.6 | 15.0 | 24.6 | 25.3 | 7.2 | 7.9 | 24 | 35.5 | 3.5 | 16.3 | 0 | 0 |
| 27 | 6.2 | 9.7 | 4.8 | 9.2 | 3.8 | 11.8 | 7.3 | 6.7 | 8.8 | 8.6 | 5.8 | 3.5 | 2.7 | 3.7 | 2.8 | 3.6 | 4.4 | 6.2 | 6.6 | 4.4 | 16.6 | 17.7 | 3.5 | 3.7 | 24 | 17.7 | 2.7 | 6.7 | 0 | 0 |
| 28 | 14.9 | 11.8 | 4.6 | 4.5 | 5.1 | 7.7 | 7.0 | 6.3 | 5.1 | 3.8 | 4.1 | 4.2 | 3.6 | 3.1 | 4.3 | 3.5 | 5.3 | 5.0 | 7.2 | 7.9 | 10.4 | 6.2 | 8.0 | 7.4 | 24 | 14.9 | 3.1 | 6.3 | 0 | 0 |
| 29 | 4.2 | 4.3 | 3.3 | 5.9 | 15.1 | 19.2 | 19.0 | 11.7 | 15.6 | 6.3 | 2.7 | 3.2 | 2.3 | 2.7 | 1.7 | 1.3 | 1.1 | 1.3 | 11.1 | 7.4 | 36.9 | 28.0 | 22.4 | 5.9 | 24 | 36.9 | 1.1 | 9.7 | 0 | 0 |
| 30 | 6.5 | 9.0 | 14.4 | 12.2 | 7.0 | 9.8 | 12.7 | 15.3 | 12.6 | 5.8 | 4.7 | 2.4 | 1.2 | 1.1 | 1.2 | 5.4 | 4.7 | 2.2 | 3.3 | 8.8 | 6.0 | 22.4 | 4.0 | 9.5 | 24 | 22.4 | 1.1 | 7.6 | 0 | 0 |
| 31 | 8.1 | 27.5 | 9.2 | 2.5 | 4.3 | 5.7 | 5.8 | 12.6 | 22.9 | 11.6 | 32.0 | 33.6 | 31.5 | 27.5 | 21.5 | 17.2 | 8.9 | 7.2 | 5.7 | 5.5 | 4.7 | 4.0 | 3.7 | 3.5 | 24 | 33.6 | 2.5 | 13.2 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 30 | 30 | 31 | 31 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 740 | | | | | |
| **Maximum** | 19.6 | 27.5 | 17.3 | 35.6 | 51.6 | 57.6 | 66.1 | 100.5 | 86.6 | 26.0 | 32.0 | 33.6 | 31.5 | 27.5 | 31.0 | 33.6 | 35.5 | 33.2 | 23.6 | 15.0 | 36.9 | 43.7 | 33.2 | 31.7 | 24 | | | | | |
| **Minimum** | 1.3 | 1.6 | 1.5 | 0.9 | 1.4 | 1.7 | 1.4 | 1.3 | 1.0 | 1.5 | 1.2 | 0.8 | 0.7 | 0.5 | 0.0 | 0.4 | 0.8 | 1.3 | 1.3 | 1.4 | 0.8 | 0.6 | 0.5 | 0.7 | 21 | | | | | |
| **Average** | 7.4 | 7.4 | 5.9 | 7.1 | 10.4 | 10.6 | 12.5 | 13.2 | 10.6 | 6.4 | 6.2 | 4.7 | 4.5 | 4.7 | 4.3 | 4.6 | 4.6 | 5.0 | 5.5 | 5.5 | 7.8 | 9.1 | 7.6 | 7.5 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 1.6 | 2.2 | 2.8 | 3.4 | 4.1 | 5.0 | 6.5 | 9.3 | 15.1 | 26.0 | 46.4 | 100.5 | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | Maximum Hourly | | 100.5 |
| | | | Maximum Daily | | 22.2 |
| | | | Monthly Average | | 7.2 |

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

**NOx January (ppb) Rundle Road 2017**

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.7 | 4.4 | 6.0 | 3.4 | 3.6 | 4.7 | 5.3 | 8.4 | 8.8 | 6.2 | 7.8 | 7.1 | 7.8 | 5.1 | 4.0 | 6.4 | 5.0 | 6.1 | 7.1 | 9.7 | 3.5 | 6.3 | 6.0 | 6.7 | 24 | 9.7 | 3.4 | 6.0 | 0 | 0 |
| 2 | 7.4 | 7.6 | 8.7 | 9.9 | 10.9 | 8.2 | 7.2 | 7.5 | 5.8 | 5.2 | 5.6 | 4.1 | 3.4 | 3.6 | 4.9 | 12.3 | 6.1 | 5.6 | 5.5 | 5.1 | 5.1 | 21.9 | 5.1 | 3.9 | 24 | 21.9 | 3.4 | 7.1 | 0 | 0 |
| 3 | 3.5 | 3.2 | 2.7 | 3.3 | 4.1 | 6.4 | 3.8 | 5.7 | 3.1 | 3.7 | 3.9 | 3.1 | 4.0 | 5.0 | 5.2 | 7.6 | 6.9 | 5.6 | 5.2 | 4.7 | 10.6 | 4.3 | 3.1 | 2.9 | 24 | 10.6 | 2.7 | 4.7 | 0 | 0 |
| 4 | 2.5 | 3.0 | 4.6 | 8.3 | 18.5 | 19.1 | 14.4 | 12.0 | 13.9 | 12.9 | 9.6 | 8.5 | 6.6 | 7.1 | 7.2 | 6.0 | 5.7 | 6.4 | 5.7 | 4.9 | 6.6 | 6.7 | 6.2 | 5.5 | 24 | 19.1 | 2.5 | 8.4 | 0 | 0 |
| 5 | 4.9 | 4.6 | 4.6 | 4.2 | 4.2 | 4.6 | 5.2 | 8.5 | 11.2 | 11.3 | 13.6 | 11.9 | 9.9 | 9.8 | 7.2 | 6.5 | 3.8 | 4.1 | 4.2 | 4.0 | 3.8 | 5.6 | 5.7 | 7.1 | 24 | 13.6 | 3.8 | 6.7 | 0 | 0 |
| 6 | 8.2 | 11.3 | 9.5 | 10.9 | 7.5 | 7.9 | 12.3 | 25.4 | 28.6 | 19.5 | 13.7 | 14.1 | 13.3 | 13.6 | 13.8 | 12.4 | 8.7 | 6.2 | 6.3 | 7.5 | 5.9 | 12.3 | 11.9 | 8.3 | 24 | 28.6 | 5.9 | 12.0 | 0 | 0 |
| 7 | 7.1 | 7.8 | 8.5 | 8.2 | 10.5 | 9.5 | 6.9 | 7.2 | 7.0 | 4.9 | 8.2 | 16.1 | 15.0 | 8.0 | 7.2 | 8.4 | 9.5 | 6.5 | 4.6 | 6.8 | 12.1 | 11.3 | 11.1 | 12.6 | 24 | 16.1 | 4.6 | 8.9 | 0 | 0 |
| 8 | 13.4 | 11.4 | 9.8 | 8.9 | 4.1 | 4.1 | 2.8 | 2.1 | 1.8 | 1.5 | 1.5 | 1.2 | 1.4 | 1.1 | 1.3 | 1.4 | 1.0 | 1.9 | 2.8 | 3.9 | 5.7 | 14.9 | 9.6 | 12.1 | 24 | 14.9 | 1.0 | 5.0 | 0 | 0 |
| 9 | 15.0 | 13.5 | 13.2 | 13.0 | 13.3 | 9.9 | 10.8 | 5.6 | 9.7 | 4.0 | 5.8 | 5.6 | 6.1 | 7.0 | 8.7 | 12.3 | 11.8 | 11.6 | 19.5 | 18.0 | 15.5 | 15.0 | 19.4 | 9.2 | 24 | 19.5 | 4.0 | 11.4 | 0 | 0 |
| 10 | 7.6 | 11.4 | 10.5 | 8.6 | 8.8 | 8.0 | 8.5 | 7.5 | 8.2 | 8.4 | 9.0 | 6.1 | 6.2 | 5.9 | 8.1 | 8.1 | 7.6 | 7.8 | 9.1 | 10.5 | 10.7 | 10.3 | 10.5 | 5.5 | 24 | 11.4 | 5.5 | 8.4 | 0 | 0 |
| 11 | 5.5 | 3.6 | 5.5 | 5.8 | 5.3 | 6.6 | 8.4 | 11.8 | 13.3 | 13.3 | 9.6 | 7.5 | 9.2 | 8.4 | 9.6 | 11.9 | 20.5 | 20.3 | 22.7 | 10.0 | 24.0 | 18.7 | 10.3 | 11.6 | 24 | 24.0 | 3.6 | 11.4 | 0 | 0 |
| 12 | 12.0 | 8.1 | 21.2 | 4.9 | 11.2 | 10.9 | 11.6 | 8.0 | 7.7 | 5.0 | 4.3 | 5.0 | 4.8 | 5.0 | 5.9 | 5.6 | 3.2 | 2.9 | 2.6 | 2.6 | 2.6 | 8.0 | 8.3 | 4.8 | 24 | 21.2 | 2.6 | 6.9 | 0 | 0 |
| 13 | 4.5 | 7.9 | 1.9 | 1.5 | 1.4 | 1.8 | 2.2 | 2.4 | 5.7 | 4.1 | 3.9 | 2.8 | 2.1 | 2.0 | 1.5 | 1.6 | 1.7 | 1.3 | 1.2 | 1.1 | 0.8 | 0.8 | 1.0 | 1.1 | 24 | 7.9 | 0.8 | 2.4 | 0 | 0 |
| 14 | 1.3 | 2.0 | 3.3 | 6.1 | 1.9 | 2.3 | 3.3 | 3.7 | 3.7 | 4.1 | 6.4 | 6.8 | 4.0 | 8.0 | 3.9 | 4.1 | 3.1 | 5.0 | 3.9 | 6.9 | 14.2 | 20.8 | 25.2 | 41.4 | 24 | 41.4 | 1.3 | 7.7 | 0 | 0 |
| 15 | 52.2 | 38.4 | 34.5 | 37.6 | 24.3 | 22.5 | 29.6 | 22.5 | 25.7 | 15.1 | 2.7 | 1.8 | 1.8 | 2.2 | 2.0 | 3.6 | 3.8 | 7.2 | 12.4 | 10.3 | 7.5 | 9.8 | 12.2 | 12.1 | 24 | 52.2 | 1.8 | 16.3 | 0 | 0 |
| 16 | 6.5 | 15.8 | 13.2 | 12.1 | 19.7 | 21.8 | 22.3 | 33.4 | 35.3 | 52.1 | 42.2 | 24.8 | 26.9 | 34.2 | 26.9 | 30.8 | 35.3 | 32.1 | 32.1 | 29.3 | 23.9 | 31.7 | 39.1 | 34.5 | 24 | 52.1 | 6.5 | 28.2 | 0 | 0 |
| 17 | 27.6 | 26.9 | 25.2 | 19.2 | 27.8 | 23.5 | 21.0 | 22.6 | 21.5 | 13.7 | 12.8 | 10.4 | 13.1 | 9.7 | 7.3 | 7.9 | 8.2 | 9.4 | 6.3 | 5.5 | 11.3 | 5.8 | 5.6 | 4.7 | 24 | 27.8 | 4.7 | 14.5 | 0 | 0 |
| 18 | 4.1 | 7.8 | 9.5 | 10.4 | 9.8 | 11.0 | 11.7 | 18.3 | 19.1 | 14.1 | 8.6 | 5.7 | 5.3 | 6.6 | 5.9 | 6.0 | 8.9 | 12.9 | 19.8 | 16.9 | 12.9 | 12.7 | 14.2 | 15.8 | 24 | 19.8 | 4.1 | 11.2 | 0 | 0 |
| 19 | 15.3 | 12.8 | 4.9 | 11.0 | 13.8 | 8.6 | 15.7 | 32.4 | 38.0 | 34.5 | 15.8 | 7.6 | 11.3 | 17.8 | 16.4 | 16.7 | 30.7 | 19.4 | 16.2 | 24.5 | 16.6 | 14.6 | 15.0 | 14.8 | 24 | 38.0 | 4.9 | 17.7 | 0 | 0 |
| 20 | 9.0 | 9.4 | 7.7 | 8.4 | 9.1 | 15.2 | 8.2 | 10.0 | 7.8 | 3.8 | 4.0 | 7.7 | 6.2 | 4.3 | 4.9 | 5.0 | 5.7 | 7.4 | 9.6 | 7.0 | 5.6 | 10.1 | 7.2 | 9.3 | 24 | 15.2 | 3.8 | 7.6 | 0 | 0 |
| 21 | 9.7 | 11.2 | 9.8 | 14.3 | 21.0 | 15.6 | 16.8 | 12.9 | 14.1 | 15.6 | 10.0 | 14.8 | 15.2 | 15.3 | 15.7 | 13.1 | 10.2 | 11.5 | 11.7 | 9.7 | 8.6 | 9.6 | 6.8 | 6.5 | 24 | 21.0 | 6.5 | 12.5 | 0 | 0 |
| 22 | 5.7 | 12.6 | 9.6 | 6.3 | 10.7 | 4.9 | 9.4 | 3.3 | 11.3 | 3.6 | 21.1 | 7.1 | 6.8 | 8.3 | 5.8 | 9.5 | 3.1 | 2.9 | 2.7 | 2.3 | 2.0 | 1.8 | 1.9 | 5.2 | 24 | 21.1 | 1.8 | 6.6 | 0 | 0 |
| 23 | 3.1 | 4.8 | 1.9 | 5.0 | 2.3 | 2.3 | 2.4 | 12.1 | 3.7 | 3.1 | 6.3 | 8.2 | 3.7 | 3.5 | 3.7 | 2.9 | 2.6 | 3.1 | 2.6 | 2.5 | 2.5 | 4.0 | 2.5 | 2.2 | 24 | 12.1 | 1.9 | 3.8 | 0 | 0 |
| 24 | 2.4 | 3.0 | 1.9 | 2.1 | 2.1 | 2.2 | 2.1 | 2.9 | 2.3 | 2.6 | 2.6 | 2.2 | 2.4 | 2.3 | 2.4 | 2.8 | 3.5 | 3.3 | 6.3 | 17.5 | 20.8 | 10.2 | 9.0 | 8.1 | 24 | 20.8 | 1.9 | 4.9 | 0 | 0 |
| 25 | 5.5 | 2.4 | 4.1 | 2.9 | 2.7 | 11.5 | 23.4 | 22.7 | 38.2 | 35.5 | 39.0 | 20.7 | 16.8 | 13.5 | C | C | 14.5 | 16.2 | 18.3 | 16.9 | 18.5 | 11.3 | 7.9 | 6.5 | 22 | 39.0 | 2.4 | 15.9 | 0 | 0 |
| 26 | 3.9 | 3.2 | 11.9 | 27.6 | 18.0 | 24.2 | 34.6 | 32.0 | 33.4 | 13.9 | 11.5 | 6.7 | 5.5 | 3.2 | 2.0 | 2.0 | 2.1 | 2.2 | 6.6 | 5.5 | 2.0 | 1.6 | 1.0 | 0.9 | 24 | 34.6 | 0.9 | 10.6 | 0 | 0 |
| 27 | 0.6 | 0.6 | 0.4 | 1.0 | 2.5 | 4.8 | 7.9 | 12.5 | 13.4 | 13.6 | 9.2 | 2.8 | 1.8 | 1.5 | 1.6 | 2.5 | 3.0 | 6.5 | 7.0 | 6.6 | 4.1 | 8.1 | 9.8 | 6.8 | 24 | 13.6 | 0.4 | 5.4 | 0 | 0 |
| 28 | 4.5 | 3.3 | 3.0 | 2.8 | 2.8 | 3.2 | 5.9 | 5.9 | 5.8 | 5.5 | 6.3 | 6.9 | 6.4 | 6.0 | 6.2 | 8.3 | 5.4 | 5.2 | 5.1 | 5.1 | 6.2 | 6.5 | 5.9 | 9.6 | 24 | 9.6 | 2.8 | 5.5 | 0 | 0 |
| 29 | 8.1 | 7.7 | 3.1 | 2.8 | 1.6 | 1.4 | 1.5 | 5.0 | 5.9 | 3.3 | 0.9 | 0.8 | 0.5 | 0.8 | 0.5 | 0.4 | 0.5 | 0.5 | 0.2 | 0.7 | 0.7 | 0.5 | 0.3 | 0.0 | 24 | 8.1 | 0.0 | 2.0 | 0 | 0 |
| 30 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 1.8 | 1.5 | 0.5 | 0.4 | 0.5 | 0.9 | 1.7 | 2.5 | 5.2 | 5.2 | 2.0 | 1.3 | 1.7 | 2.4 | 2.1 | 1.3 | 11.1 | 24 | 11.1 | 0.0 | 1.8 | 0 | 0 |
| 31 | 18.9 | 13.6 | 11.8 | 4.6 | 3.6 | 3.0 | 8.8 | 12.6 | 7.1 | 3.3 | 4.2 | 4.3 | 5.2 | 4.5 | 3.7 | 4.3 | 3.9 | 4.1 | 3.3 | 2.8 | 8.2 | 8.9 | 5.2 | 3.0 | 24 | 18.9 | 2.8 | 6.4 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 742 | | | | | |
| **Maximum** | 52.2 | 38.4 | 34.5 | 37.6 | 27.8 | 24.2 | 34.6 | 33.4 | 38.2 | 52.1 | 42.2 | 24.8 | 26.9 | 34.2 | 26.9 | 30.8 | 35.3 | 32.1 | 32.1 | 29.3 | 24.0 | 31.7 | 39.1 | 41.4 | 24 | | | | | |
| **Minimum** | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 1.8 | 1.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.8 | 0.5 | 0.4 | 0.5 | 0.5 | 0.2 | 0.7 | 0.7 | 0.5 | 0.3 | 0.0 | 22 | | | | | |
| **Average** | 8.8 | 8.8 | 8.5 | 8.5 | 8.9 | 9.0 | 10.5 | 12.2 | 13.3 | 10.9 | 9.7 | 7.5 | 7.2 | 7.3 | 6.5 | 7.5 | 7.8 | 7.6 | 8.4 | 8.4 | 8.9 | 9.9 | 9.0 | 9.1 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 1.9 | 3.0 | 4.1 | 5.6 | 6.6 | 8.2 | 10.0 | 12.9 | 19.1 | 25.4 | 38.1 | 52.2 |

| | |
|---|---|
| Maximum Hourly | 52.2 |
| Maximum Daily | 28.2 |
| Monthly Average | 9.0 |

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

**NOx Rundle Road**
**February 2017**
**(ppb)**

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.7 | 2.9 | 1.7 | 3.0 | 2.7 | 12.5 | 26.5 | 17.1 | 18.2 | 19.7 | 15.2 | 6.0 | 2.0 | 1.3 | 5.0 | 1.6 | 2.1 | 9.9 | 16.1 | 5.6 | 12.8 | 7.6 | 1.4 | 0.6 | 24 | 26.5 | 0.6 | 8.1 | 0 | 0 |
| 2 | 0.4 | 0.5 | 0.6 | 1.1 | 0.9 | 1.4 | 3.0 | 5.5 | 11.7 | 6.4 | 5.9 | 4.1 | 1.7 | 1.7 | 2.8 | 1.9 | 1.8 | 5.8 | 6.6 | 7.0 | 7.4 | 6.9 | 5.2 | 4.9 | 24 | 11.7 | 0.4 | 4.0 | 0 | 0 |
| 3 | 4.6 | 5.3 | 6.1 | 5.7 | 6.6 | 10.7 | 13.9 | 15.3 | 18.2 | 22.1 | 9.7 | 6.1 | 2.5 | 4.1 | 2.4 | 3.3 | 1.9 | 3.3 | 4.1 | 7.2 | 9.2 | 10.0 | 8.0 | 9.0 | 24 | 22.1 | 1.9 | 7.9 | 0 | 0 |
| 4 | 9.8 | 8.2 | 6.3 | 6.5 | 6.9 | 8.0 | 4.7 | 4.3 | 6.0 | 5.2 | 4.1 | 5.9 | 7.5 | 5.9 | 3.9 | 4.4 | 6.0 | 7.2 | 7.0 | 6.5 | 6.1 | 5.8 | 9.5 | 7.7 | 24 | 9.8 | 3.9 | 6.4 | 0 | 0 |
| 5 | 6.2 | 3.0 | 3.1 | 7.1 | 3.1 | 6.1 | 4.5 | 4.1 | 7.5 | 6.5 | 8.0 | 8.4 | 9.9 | 10.8 | 10.2 | 11.0 | 11.2 | 8.6 | 1.8 | 1.3 | 1.0 | 1.1 | 0.9 | 0.7 | 24 | 11.2 | 0.7 | 5.7 | 0 | 0 |
| 6 | 0.3 | 0.0 | 0.2 | 0.0 | 0.3 | 0.5 | 1.1 | 7.7 | 12.7 | 16.4 | 14.6 | 8.4 | 7.2 | 10.1 | 9.8 | 7.8 | 13.6 | 13.5 | 10.4 | 13.8 | 16.9 | 32.4 | 28.1 | 15.6 | 24 | 32.4 | 0.0 | 10.1 | 0 | 0 |
| 7 | 8.9 | 4.5 | 3.4 | 9.0 | 6.7 | 6.5 | 6.0 | 4.6 | 3.1 | 8.2 | 7.7 | 4.6 | 5.7 | 11.5 | 7.3 | 4.9 | 4.9 | 4.7 | 5.4 | 11.5 | 8.6 | 10.7 | 17.4 | 16.8 | 24 | 17.4 | 3.1 | 7.6 | 0 | 0 |
| 8 | 14.4 | 24.5 | 12.3 | 7.4 | 11.1 | 5.5 | 1.4 | 1.7 | 1.6 | 1.2 | 1.1 | 1.3 | 0.8 | 0.8 | 0.8 | 1.0 | 0.6 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 | 0.1 | 0.0 | 24 | 24.5 | 0.0 | 3.7 | 0 | 0 |
| 9 | 0.2 | 0.0 | 0.0 | 0.2 | 0.2 | 0.3 | 0.5 | 1.2 | 2.3 | 1.3 | 0.8 | 0.9 | 0.6 | 0.6 | 1.6 | 0.6 | 1.6 | 2.0 | 3.1 | 3.3 | 1.9 | 3.0 | 3.2 | 1.4 | 24 | 3.3 | 0.0 | 1.3 | 0 | 0 |
| 10 | 3.7 | 3.2 | 1.3 | 2.6 | 1.1 | 1.2 | 0.4 | 1.9 | 2.3 | 1.9 | 4.2 | 13.1 | 13.4 | 10.6 | 5.7 | 4.2 | 6.4 | 4.1 | 4.3 | 3.1 | 8.4 | 11.5 | 6.1 | 7.2 | 24 | 13.4 | 0.4 | 5.1 | 0 | 0 |
| 11 | 7.3 | 8.2 | 12.0 | 9.2 | 7.8 | 13.5 | 18.5 | 20.3 | 33.2 | 18.5 | 16.2 | 14.2 | 11.4 | 4.0 | 3.5 | 3.3 | 4.4 | 4.2 | 3.9 | 5.9 | 14.3 | 4.8 | 4.7 | 4.2 | 24 | 33.2 | 3.3 | 10.3 | 0 | 0 |
| 12 | 2.6 | 2.5 | 9.1 | 2.8 | 2.1 | 2.2 | 2.4 | 5.0 | 7.6 | 5.8 | 5.0 | 3.8 | 3.8 | 3.6 | 4.2 | 4.7 | 13.4 | 16.8 | 16.9 | 13.7 | 16.4 | 7.6 | 2.1 | 1.7 | 24 | 16.9 | 1.7 | 6.5 | 0 | 0 |
| 13 | 1.3 | 1.2 | 0.8 | 0.8 | 1.0 | 0.9 | 1.0 | 1.1 | 1.6 | 1.5 | 0.9 | 0.8 | 1.0 | 1.5 | 1.1 | 1.7 | 1.4 | 1.2 | 2.3 | 4.6 | 6.7 | 10.7 | 14.2 | 13.8 | 24 | 14.2 | 0.8 | 3.0 | 0 | 0 |
| 14 | 6.4 | 8.0 | 5.3 | 9.0 | 11.1 | 33.8 | 17.7 | 9.6 | 8.2 | 8.8 | 8.8 | 10.3 | 11.4 | 8.1 | 12.3 | 10.0 | 13.4 | 19.6 | 22.4 | 16.9 | 18.2 | 19.0 | 31.7 | 33.6 | 24 | 33.8 | 5.3 | 14.7 | 0 | 0 |
| 15 | 21.9 | 11.1 | 16.1 | 20.5 | 17.1 | 5.5 | 31.8 | 46.6 | 40.3 | 20.0 | 11.1 | 3.2 | 2.2 | 1.5 | 1.4 | 1.7 | 1.4 | 1.1 | 0.9 | 1.3 | 1.1 | 1.3 | 1.1 | 0.4 | 24 | 46.6 | 0.4 | 10.9 | 0 | 0 |
| 16 | 0.4 | 0.1 | 0.4 | 0.5 | 0.5 | 0.3 | 0.9 | 0.9 | 1.0 | 1.3 | 1.1 | 1.6 | 0.6 | 1.0 | 1.1 | 1.0 | 2.3 | 1.9 | 2.7 | 3.0 | 3.1 | 1.4 | 1.8 | 3.0 | 24 | 3.1 | 0.1 | 1.3 | 0 | 0 |
| 17 | 7.7 | 19.6 | 11.7 | 3.3 | 2.0 | 5.6 | 8.0 | 10.3 | 10.2 | 6.3 | 6.4 | 3.0 | 3.0 | 2.8 | 8.5 | 5.1 | 4.1 | 3.6 | 6.8 | 16.7 | 14.6 | 8.8 | 12.8 | 7.3 | 24 | 19.6 | 2.0 | 7.8 | 0 | 0 |
| 18 | 9.1 | 8.1 | 12.9 | 27.1 | 6.6 | 6.2 | 6.4 | 5.4 | 10.3 | 17.3 | 13.0 | 8.9 | 8.4 | 7.7 | 8.1 | 9.1 | 9.1 | 8.7 | 8.0 | 12.4 | 11.8 | 9.4 | 10.2 | 10.4 | 24 | 27.1 | 5.4 | 10.2 | 0 | 0 |
| 19 | 6.5 | 10.3 | 5.8 | 4.8 | 8.3 | 8.7 | 10.3 | 15.0 | 23.4 | 16.3 | 4.8 | 9.5 | 4.4 | 1.3 | 1.1 | 0.9 | 0.7 | 1.0 | 1.2 | 2.2 | 1.5 | 1.0 | 1.1 | 0.8 | 24 | 23.4 | 0.7 | 5.9 | 0 | 0 |
| 20 | 0.9 | 0.4 | 0.7 | 0.6 | 0.6 | 0.9 | 1.6 | 3.7 | 2.7 | 1.0 | 1.1 | 1.7 | 1.6 | 3.4 | 1.3 | 1.6 | 0.8 | 3.8 | 7.4 | 4.4 | 11.1 | 6.7 | 8.2 | 9.8 | 24 | 11.1 | 0.4 | 3.2 | 0 | 0 |
| 21 | 6.8 | 2.3 | 0.9 | 4.6 | 5.9 | 2.7 | 8.2 | 5.2 | 4.0 | 6.9 | 3.2 | 4.8 | 7.1 | 8.0 | 8.4 | 10.4 | 23.5 | 20.0 | 12.9 | 10.6 | 15.3 | 8.7 | 6.3 | 7.5 | 24 | 23.5 | 0.9 | 8.1 | 0 | 0 |
| 22 | 10.9 | 6.2 | 5.5 | 4.4 | 7.2 | 9.1 | 11.3 | 19.9 | 20.9 | 28.8 | 24.9 | 18.8 | C | C | C | 7.4 | 6.9 | 8.5 | 13.1 | 12.4 | 13.4 | 15.6 | 20.8 | 17.2 | 21 | 28.8 | 4.4 | 13.5 | 0 | 0 |
| 23 | 14.8 | 14.1 | 17.0 | 15.3 | 25.3 | 9.5 | 17.3 | 30.2 | 10.7 | 5.8 | 8.4 | 7.6 | 6.6 | 6.8 | 8.5 | 6.1 | 2.2 | 1.7 | 1.6 | 1.3 | 0.9 | 0.9 | 0.8 | 8.4 | 24 | 30.2 | 0.8 | 9.3 | 0 | 0 |
| 24 | 1.9 | 1.8 | 1.3 | 3.1 | 1.9 | 3.0 | 1.4 | 6.2 | 8.1 | 3.7 | 3.9 | 10.1 | 5.2 | 2.0 | 1.9 | 2.5 | 2.0 | 1.8 | 1.7 | 6.3 | 5.2 | 4.7 | 2.7 | 3.3 | 24 | 10.1 | 1.3 | 3.6 | 0 | 0 |
| 25 | 6.9 | 10.9 | 2.5 | 5.1 | 8.9 | 8.7 | 5.0 | 5.4 | 6.8 | 3.9 | 6.4 | 6.4 | 7.7 | 6.6 | 4.5 | 2.6 | 1.5 | 1.5 | 1.4 | 1.2 | 1.2 | 1.1 | 0.4 | 1.0 | 24 | 10.9 | 0.4 | 4.5 | 0 | 0 |
| 26 | 0.8 | 0.8 | 0.0 | 0.1 | 0.3 | 0.9 | 4.7 | 4.2 | 5.1 | 3.3 | 3.3 | 2.1 | 1.6 | 2.1 | 1.9 | 1.7 | 4.5 | 1.8 | 2.0 | 3.3 | 2.1 | 1.9 | 2.4 | 5.2 | 24 | 5.2 | 0.0 | 2.3 | 0 | 0 |
| 27 | 2.1 | 2.2 | 2.1 | 7.6 | 4.2 | 5.4 | 6.4 | 10.8 | 11.8 | 12.1 | 12.8 | 10.5 | 6.0 | 8.5 | 8.1 | 7.3 | 7.8 | 1.4 | 1.7 | 3.4 | 5.7 | 3.6 | 4.7 | 18.8 | 24 | 18.8 | 1.4 | 6.9 | 0 | 0 |
| 28 | 17.9 | 7.4 | 6.4 | 6.4 | 10.6 | 36.1 | 25.8 | 17.2 | 12.7 | 14.1 | 12.5 | 7.0 | 9.0 | 8.0 | 9.2 | 4.5 | 7.5 | 11.5 | 13.8 | 9.5 | 11.7 | 19.7 | 7.9 | 16.4 | 24 | 36.1 | 4.5 | 12.6 | 0 | 0 |
| 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Count** | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 27 | 27 | 27 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 669 | | | | | |
| **Maximum** | 21.9 | 24.5 | 17.0 | 27.1 | 25.3 | 36.1 | 31.8 | 46.6 | 40.3 | 28.8 | 24.9 | 18.8 | 13.4 | 11.5 | 12.3 | 11.0 | 23.5 | 20.0 | 22.4 | 16.9 | 18.2 | 32.4 | 31.7 | 33.6 | 24 | | | | | |
| **Minimum** | 0.2 | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.4 | 0.9 | 1.0 | 1.0 | 0.8 | 0.8 | 0.6 | 0.6 | 0.8 | 0.6 | 0.6 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 | 0.1 | 0.0 | 21 | | | | | |
| **Average** | 6.3 | 6.0 | 5.2 | 6.0 | 5.7 | 7.4 | 8.6 | 10.0 | 10.8 | 9.4 | 7.7 | 6.5 | 5.3 | 5.0 | 5.0 | 4.4 | 5.6 | 6.1 | 6.4 | 6.7 | 8.1 | 7.7 | 7.6 | 8.1 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 0.9 | 1.5 | 2.3 | 3.9 | 5.4 | 6.8 | 8.4 | 10.7 | 15.4 | 19.3 | 32.0 | 46.6 |

| | |
|---|---|
| Maximum Hourly | 46.6 |
| Maximum Daily | 14.7 |
| Monthly Average | 6.9 |

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

**NOx March (ppb) Rundle Road 2017**

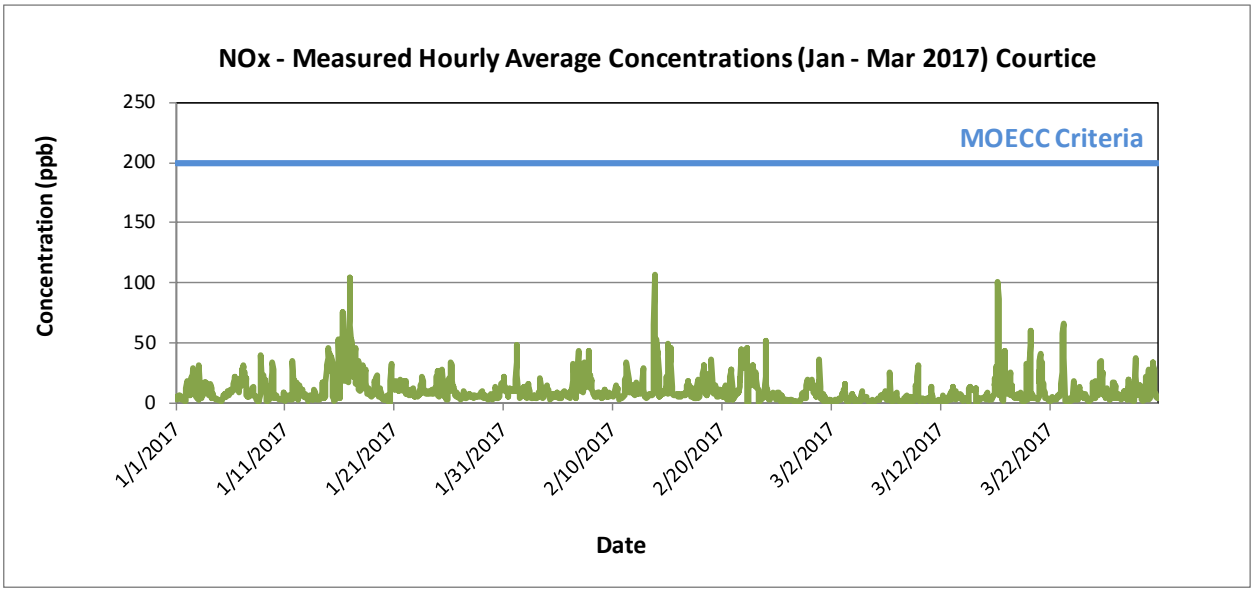
| Day \ Hour | 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average | Hrs>200 | Days>100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19.1 | 16.8 | 14.3 | 6.1 | 12.7 | 8.9 | 9.6 | 4.2 | 5.3 | 8.5 | 15.7 | 8.5 | 4.0 | 6.1 | 8.8 | 9.9 | 8.5 | 4.8 | 5.5 | 5.9 | 5.0 | 4.0 | 2.5 | 0.4 | 24 | 19.1 | 0.4 | 8.1 | 0 | 0 |
| 2 | 0.0 | 0.1 | 0.7 | 0.1 | 0.0 | 0.0 | 0.1 | 0.7 | 0.6 | 0.7 | 0.6 | 0.8 | 0.7 | 0.4 | 0.5 | 0.5 | 0.7 | 0.5 | 0.4 | 0.4 | 0.5 | 0.4 | 0.1 | 0.2 | 24 | 0.8 | 0.0 | 0.4 | 0 | 0 |
| 3 | 0.2 | 0.0 | 0.0 | 0.4 | 4.8 | 5.6 | 11.7 | 5.8 | 8.0 | 0.8 | 0.2 | A | A | 0.9 | 0.2 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.4 | 22 | 11.7 | 0.0 | 1.8 | 0 | 0 |
| 4 | 0.0 | 0.0 | 0.4 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.2 | 0.1 | 0.2 | 24 | 0.4 | 0.0 | 0.1 | 0 | 0 |
| 5 | 0.0 | 0.9 | 1.7 | 1.4 | 1.6 | 6.8 | 11.0 | 3.6 | 0.9 | 0.6 | 0.1 | 0.0 | 0.1 | 0.8 | 3.2 | 0.5 | 0.6 | 0.5 | 0.8 | 1.3 | 1.7 | 5.1 | 1.8 | 1.0 | 24 | 11.0 | 0.0 | 1.9 | 0 | 0 |
| 6 | 0.7 | 1.2 | 2.3 | 1.7 | 1.6 | 1.4 | 1.5 | 4.4 | 3.7 | 7.4 | 2.8 | 2.8 | 3.1 | 3.3 | 11.5 | 4.7 | 5.2 | 9.1 | 7.3 | 14.4 | 19.0 | 9.4 | 13.4 | 17.6 | 24 | 19.0 | 0.7 | 6.2 | 0 | 0 |
| 7 | 7.2 | 7.4 | 10.6 | 13.7 | 7.8 | 5.7 | 7.5 | 20.0 | 7.6 | 18.2 | 25.1 | 22.5 | 6.5 | 8.7 | 7.6 | 11.2 | 10.0 | 9.2 | 6.8 | 7.2 | 10.6 | 21.4 | 20.3 | 13.0 | 24 | 25.1 | 5.7 | 11.9 | 0 | 0 |
| 8 | 16.2 | 11.7 | 11.6 | 13.1 | 10.1 | 11.4 | 13.0 | 7.2 | 4.1 | 3.7 | 11.5 | 3.1 | 3.1 | 2.7 | 3.4 | 5.8 | 3.4 | 1.4 | 1.4 | 1.0 | 1.3 | 1.3 | 1.4 | 1.0 | 24 | 16.2 | 1.0 | 6.0 | 0 | 0 |
| 9 | 1.2 | 0.9 | 0.2 | 0.0 | 0.0 | 0.7 | 0.9 | 1.4 | 1.3 | 1.0 | 0.5 | 1.0 | 0.3 | 0.8 | 1.1 | 0.8 | 0.9 | 0.9 | 1.4 | 1.2 | 0.7 | 1.6 | 2.4 | 5.2 | 24 | 5.2 | 0.0 | 1.1 | 0 | 0 |
| 10 | 3.2 | 1.6 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.3 | 0.2 | 0.3 | 0.2 | 0.7 | 0.4 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 24 | 3.2 | 0.0 | 0.3 | 0 | 0 |
| 11 | 0.0 | 0.0 | 0.0 | 0.7 | 0.3 | 2.4 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 2.4 | 0.0 | 0.2 | 0 | 0 |
| 12 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 1.6 | 3.4 | 0.6 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 24 | 3.4 | 0.0 | 0.3 | 0 | 0 |
| 13 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 3.6 | 8.4 | 2.3 | 2.0 | 1.6 | 1.6 | 1.0 | 1.4 | 0.9 | 3.3 | 1.6 | 1.0 | 0.5 | 0.5 | 0.9 | 5.2 | 0.6 | 0.3 | 0.2 | 24 | 8.4 | 0.0 | 1.5 | 0 | 0 |
| 14 | 0.1 | 0.2 | 0.0 | 0.1 | 0.6 | 0.9 | 1.1 | 1.3 | 1.0 | 0.4 | 0.4 | 0.6 | 0.3 | 0.4 | M | 0.0 | 0.0 | 1.4 | 2.3 | 3.4 | 5.1 | 1.4 | 1.2 | 1.3 | 23 | 5.1 | 0.0 | 1.0 | 0 | 0 |
| 15 | 1.3 | 1.2 | 1.1 | 1.0 | 1.1 | C | C | 54.7 | 89.3 | 0.6 | 0.5 | 1.5 | 0.5 | 0.0 | 0.1 | 0.5 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.0 | 22 | 89.3 | 0.0 | 7.0 | 0 | 0 |
| 16 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.6 | 1.6 | 1.7 | 0.7 | 0.0 | 0.3 | 0.5 | 0.4 | 0.6 | 0.2 | 0.3 | 0.2 | 0.1 | 0.2 | 0.3 | 1.1 | 3.4 | 24 | 3.4 | 0.0 | 0.5 | 0 | 0 |
| 17 | 5.8 | 4.8 | 1.8 | 2.0 | 9.0 | 0.9 | 10.4 | 32.5 | 42.3 | 32.2 | 8.2 | 1.9 | 15.3 | 10.6 | 10.9 | 5.9 | 7.8 | 3.2 | 3.3 | 6.4 | 15.2 | 8.9 | 11.6 | 12.4 | 24 | 42.3 | 0.9 | 11.0 | 0 | 0 |
| 18 | 30.1 | 15.5 | 11.6 | 16.7 | 9.2 | 7.7 | 11.1 | 2.5 | 1.5 | 1.7 | 3.6 | 3.1 | 1.7 | 1.9 | 5.9 | 2.5 | 7.5 | 2.5 | 10.6 | 2.1 | 1.8 | 6.3 | 2.0 | 5.7 | 24 | 30.1 | 1.5 | 6.9 | 0 | 0 |
| 19 | 2.0 | 2.9 | 1.8 | 1.4 | 4.2 | 1.6 | 1.5 | 1.1 | 1.0 | 1.4 | 2.2 | 2.0 | 2.2 | 16.8 | 8.0 | 1.1 | 1.7 | 1.6 | 2.7 | 4.3 | 7.4 | 11.9 | 9.5 | 7.0 | 24 | 16.8 | 1.0 | 4.1 | 0 | 0 |
| 20 | 11.8 | 13.3 | 9.3 | 8.2 | 7.2 | 14.6 | 11.5 | 7.7 | 12.4 | 9.6 | 8.8 | 11.7 | 8.9 | 7.2 | 5.5 | 6.2 | 6.8 | 7.4 | 11.6 | 16.0 | 20.2 | 16.7 | 16.8 | 9.3 | 24 | 20.2 | 5.5 | 10.8 | 0 | 0 |
| 21 | 8.5 | 6.5 | 8.6 | 15.3 | 22.3 | 19.2 | 19.6 | 50.4 | 27.3 | 9.2 | 20.5 | 17.6 | 15.3 | 10.8 | 10.3 | 1.7 | 1.4 | 1.2 | 1.0 | 1.0 | 0.8 | 1.0 | 0.2 | 0.0 | 24 | 50.4 | 0.0 | 11.2 | 0 | 0 |
| 22 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.7 | 0.2 | 0.4 | 0.3 | 0.1 | 0.1 | 0.0 | 0.4 | 0.4 | 0.2 | 0.2 | 0.8 | 0.9 | 0.1 | 0.0 | 0.0 | 0.0 | 24 | 0.9 | 0.0 | 0.2 | 0 | 0 |
| 23 | 0.1 | 20.0 | 7.5 | 21.4 | 8.4 | 11.0 | 19.9 | 23.0 | 19.4 | 7.8 | 6.3 | 2.3 | 3.2 | 1.9 | 3.8 | 3.2 | 7.2 | 7.3 | 9.7 | 10.9 | 11.5 | 6.6 | 5.5 | 3.4 | 24 | 23.0 | 0.1 | 9.2 | 0 | 0 |
| 24 | 8.0 | 2.2 | 10.2 | 2.8 | 20.5 | 16.1 | 8.8 | 6.7 | 8.2 | 9.8 | 10.0 | 10.6 | 10.4 | 10.5 | 15.2 | 17.0 | 22.7 | 17.4 | 4.6 | 3.4 | 3.3 | 2.3 | 2.7 | 2.4 | 24 | 22.7 | 2.2 | 9.4 | 0 | 0 |
| 25 | 2.2 | 2.1 | 3.1 | 2.9 | 0.9 | 2.4 | 1.2 | 0.9 | 1.3 | 3.3 | 1.4 | 0.7 | 0.7 | 1.4 | 2.3 | 3.0 | 0.9 | 3.8 | 1.3 | 1.0 | 1.2 | 6.4 | 3.1 | 2.5 | 24 | 6.4 | 0.7 | 2.1 | 0 | 0 |
| 26 | 3.2 | 8.4 | 5.2 | 3.7 | 3.9 | 1.0 | 1.4 | 1.7 | 2.0 | 2.5 | 1.8 | 1.7 | 1.6 | 3.7 | 1.8 | 1.9 | 2.5 | 2.7 | 4.2 | 8.2 | 5.3 | 3.1 | 9.2 | 3.0 | 24 | 9.2 | 1.0 | 3.5 | 0 | 0 |
| 27 | 3.5 | 3.4 | 7.0 | 3.6 | 4.3 | 5.0 | 7.1 | 26.5 | 20.5 | 17.0 | 16.0 | 8.9 | 16.6 | 20.7 | 17.8 | 14.4 | 15.8 | 13.8 | 8.4 | 27.0 | 16.7 | 25.9 | 37.3 | 16.7 | 24 | 37.3 | 3.4 | 14.7 | 0 | 0 |
| 28 | 11.8 | 6.8 | 1.6 | 1.2 | 1.3 | 1.2 | 0.9 | 1.7 | 1.3 | 1.2 | 1.2 | 1.3 | 0.7 | 0.3 | 0.6 | 0.2 | 0.3 | 0.3 | 0.8 | 0.6 | 0.5 | 0.3 | 0.7 | 0.3 | 24 | 11.8 | 0.2 | 1.5 | 0 | 0 |
| 29 | 0.1 | 0.0 | 0.0 | 0.2 | 1.7 | 2.4 | 2.6 | 4.5 | 5.6 | 6.4 | 2.6 | 3.2 | 5.2 | 2.7 | 5.6 | 2.2 | 2.5 | 4.7 | 8.3 | 6.9 | 4.5 | 5.0 | 3.2 | 4.8 | 24 | 8.3 | 0.0 | 3.5 | 0 | 0 |
| 30 | 1.0 | 0.5 | 4.5 | 1.5 | 1.9 | 1.9 | 2.5 | 3.1 | 7.9 | 4.8 | 2.4 | 2.8 | 12.6 | 17.8 | 2.6 | 1.4 | 1.2 | 2.9 | 2.7 | 6.6 | 1.3 | 2.9 | 2.4 | 5.9 | 24 | 17.8 | 0.5 | 4.0 | 0 | 0 |
| 31 | 3.1 | 7.5 | 0.8 | 5.9 | 1.2 | 1.5 | 1.7 | 5.2 | 2.2 | 2.5 | 6.3 | 3.5 | 4.9 | 10.6 | 7.0 | 5.9 | 3.6 | 2.6 | 1.5 | 1.8 | 1.4 | 1.1 | 0.8 | 0.7 | 24 | 10.6 | 0.7 | 3.5 | 0 | 0 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 30 | 30 | 31 | 31 | 31 | 31 | 30 | 30 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 739 | | | | | |
| **Maximum** | 30.1 | 20.0 | 14.3 | 21.4 | 22.3 | 19.2 | 19.9 | 54.7 | 89.3 | 32.2 | 25.1 | 22.5 | 16.6 | 20.7 | 17.8 | 17.0 | 22.7 | 17.4 | 11.6 | 27.0 | 20.2 | 25.9 | 37.3 | 17.6 | 24 | | | | | |
| **Minimum** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22 | | | | | |
| **Average** | 4.5 | 4.4 | 3.8 | 4.0 | 4.4 | 4.5 | 5.6 | 9.0 | 9.0 | 5.0 | 4.9 | 3.8 | 4.0 | 4.6 | 4.6 | 3.4 | 3.7 | 3.3 | 3.2 | 4.3 | 4.5 | 4.7 | 4.8 | 3.8 | | | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 0.0 | 0.2 | 0.6 | 1.1 | 1.7 | 3.0 | 5.2 | 8.2 | 12.4 | 17.6 | 29.0 | 89.3 |

| | |
|---|---|
| Maximum Hourly | 89.3 |
| Maximum Daily | 14.7 |
| Monthly Average | 4.6 |

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

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



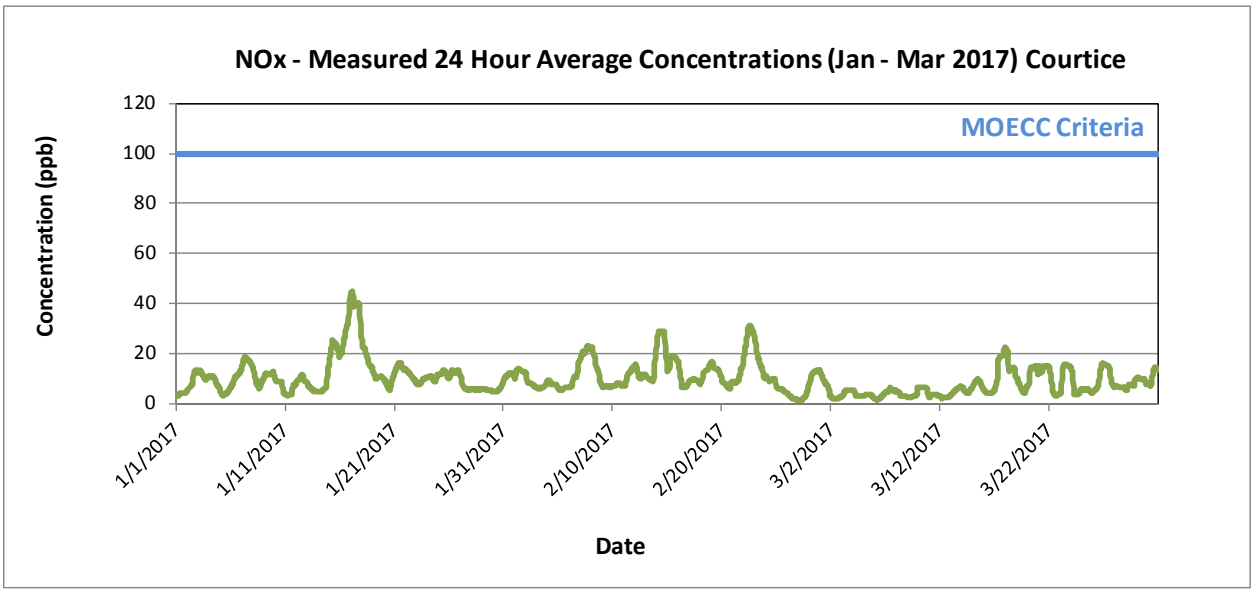
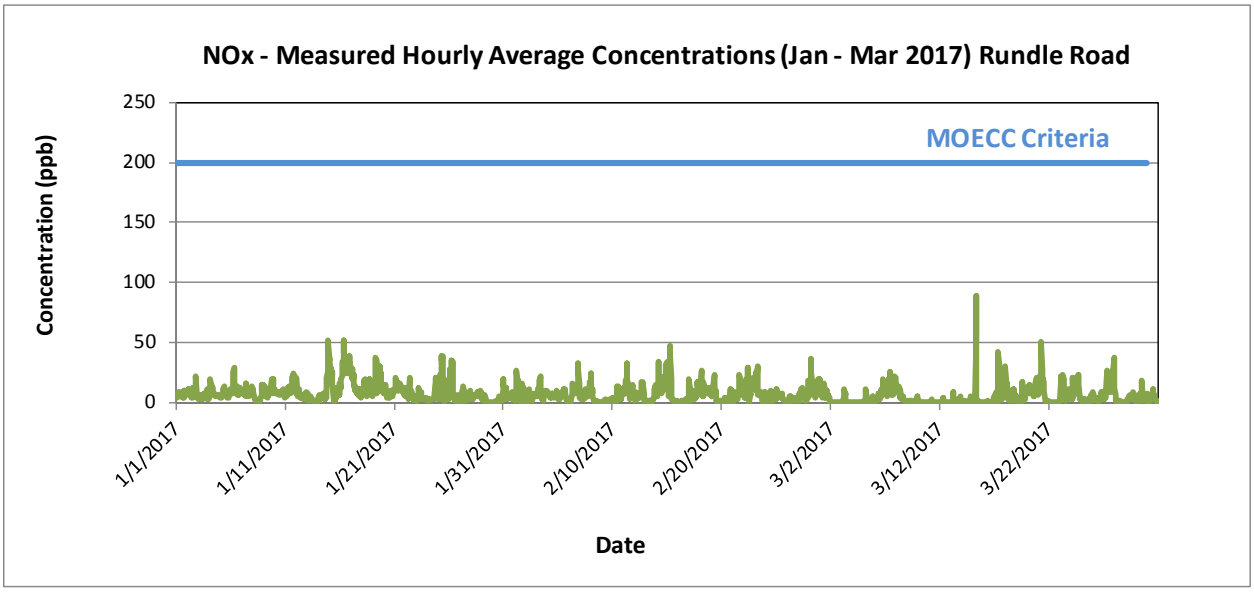
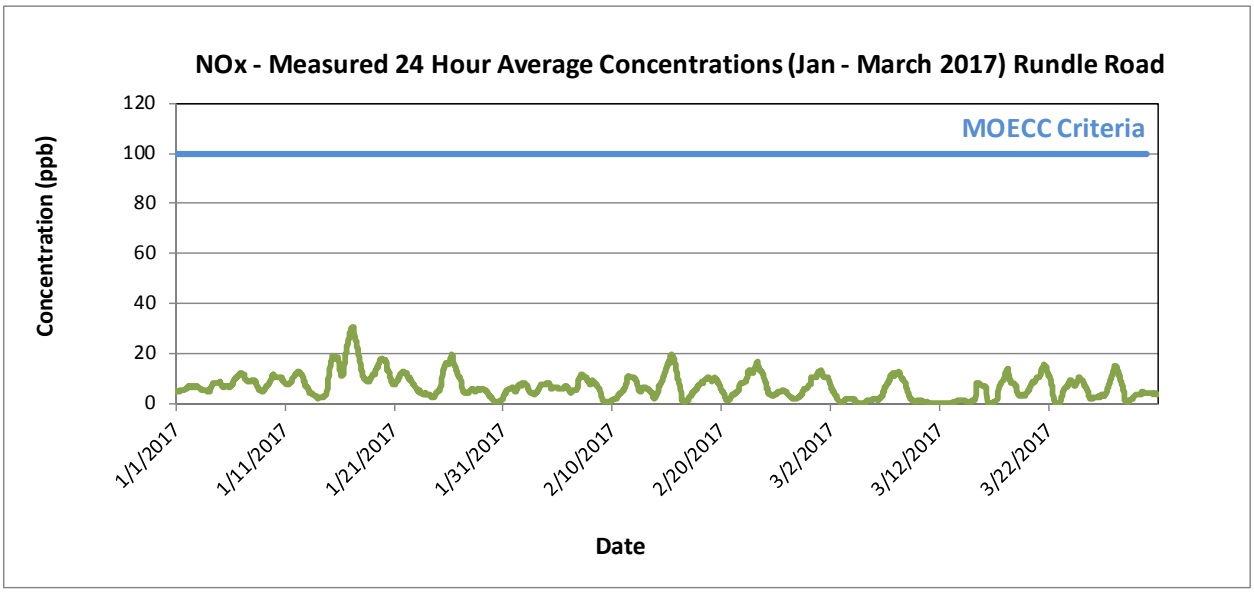



**Figure D-2 Time History Plots of Measured Hourly Average and 24 Hour Average $NO_x$ Concentrations – Rundle Road Station**



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

# $PM_{2.5}$ - January ($\mu g/m^3$) COURTICE 2017

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.9 | 6.5 | 4.7 | 3.6 | 4.0 | 4.0 | 3.8 | 2.7 | 1.6 | 1.1 | 0.9 | 0.7 | 0.7 | 1.1 | 2.8 | 3.7 | 5.0 | 7.2 | 7.5 | 7.4 | 10.2 | 11.4 | 15.8 | 17.5 | 24 | 17.5 | 0.7 | 5.4 |
| 2 | 21.1 | 20.0 | 20.9 | 20.0 | 17.8 | 14.9 | 14.9 | 14.9 | 11.1 | 8.9 | 9.2 | 7.7 | 7.0 | 19.0 | 8.4 | 7.9 | 8.7 | 6.9 | 6.2 | 7.0 | 8.1 | 8.1 | 8.0 | 8.1 | 24 | 21.1 | 6.2 | 11.9 |
| 3 | 7.0 | 8.2 | 7.7 | 24.5 | 27.9 | 10.0 | 6.8 | 3.4 | 3.5 | 3.2 | 2.4 | 2.1 | 2.0 | 1.6 | 9.0 | 8.5 | 7.1 | 2.2 | 3.6 | 2.4 | 2.0 | 1.6 | 1.1 | 1.3 | 24 | 27.9 | 1.1 | 6.2 |
| 4 | 1.5 | 3.6 | 6.4 | 6.5 | 8.6 | 6.1 | 1.5 | 0.3 | 0.7 | 1.8 | 3.9 | 5.7 | 4.2 | 3.3 | 2.6 | 2.1 | 1.9 | 1.7 | 1.9 | 2.2 | 2.3 | 2.1 | 1.8 | 1.8 | 24 | 8.6 | 0.3 | 3.1 |
| 5 | 1.7 | 1.7 | 1.6 | 1.9 | 1.7 | 1.4 | 1.5 | 1.8 | 2.2 | 2.9 | 3.0 | 3.3 | 3.1 | 3.2 | 3.8 | 3.5 | 3.3 | 4.0 | 4.5 | 4.4 | 4.1 | 4.4 | 4.2 | 4.5 | 24 | 4.5 | 1.4 | 3.0 |
| 6 | 4.1 | 4.5 | 4.8 | 5.1 | 5.0 | 5.0 | 5.9 | 6.6 | 8.0 | 7.6 | 6.8 | 5.1 | 4.7 | 5.0 | 5.1 | 5.3 | 5.2 | 5.7 | 5.2 | 5.4 | 5.7 | 6.7 | 7.5 | 8.1 | 24 | 8.1 | 4.1 | 5.8 |
| 7 | 9.8 | 10.3 | 10.1 | 10.4 | 10.6 | 10.8 | 11.2 | 10.7 | 9.5 | 7.6 | 7.6 | 7.5 | 4.1 | 4.2 | 3.9 | 5.2 | 7.6 | 7.5 | 8.6 | 10.2 | 11.0 | 9.6 | 9.9 | 9.6 | 24 | 11.2 | 3.9 | 8.6 |
| 8 | 8.4 | 7.3 | 5.6 | 5.1 | 4.5 | 3.6 | 2.7 | 2.6 | 2.6 | 2.3 | 2.9 | 2.7 | 2.8 | 2.8 | 2.5 | 2.6 | 2.8 | 4.3 | 4.9 | 7.2 | 7.0 | 5.5 | 5.2 | 5.0 | 24 | 8.4 | 2.3 | 4.3 |
| 9 | 5.8 | 5.5 | 5.3 | 4.9 | 3.8 | 2.8 | 3.1 | 3.5 | 3.2 | 4.5 | 6.5 | 5.6 | 4.7 | 3.5 | 4.1 | 5.7 | 7.2 | 8.6 | 10.4 | 12.6 | 13.5 | 14.6 | 14.7 | 9.7 | 24 | 14.7 | 2.8 | 6.8 |
| 10 | 7.9 | 6.3 | 5.1 | 5.2 | 5.1 | 5.9 | 5.3 | 5.2 | 4.7 | 4.5 | 4.3 | 4.7 | 5.6 | 5.5 | 5.1 | 5.3 | 5.4 | 5.1 | 4.5 | 4.3 | 3.8 | 3.0 | 2.7 | 3.3 | 24 | 7.9 | 2.7 | 4.9 |
| 11 | 2.8 | 2.4 | 3.9 | 9.2 | 12.3 | 12.5 | 9.8 | 9.3 | 8.4 | 7.9 | 10.1 | 10.3 | 9.8 | 8.8 | 7.5 | 6.7 | 8.1 | 11.6 | 9.9 | 9.0 | 4.2 | 2.5 | 2.5 | 2.9 | 24 | 12.5 | 2.4 | 7.6 |
| 12 | 3.7 | 5.2 | 6.6 | 5.8 | 4.3 | 1.6 | 5.1 | 3.3 | 6.1 | 6.0 | 5.1 | 3.9 | 3.7 | 4.9 | 4.3 | 2.4 | 1.5 | 1.6 | 2.2 | 2.7 | 2.8 | 3.2 | 2.8 | 1.8 | 24 | 6.6 | 1.5 | 3.8 |
| 13 | 1.3 | 1.4 | 1.4 | 1.1 | 1.4 | 1.8 | 1.9 | 2.1 | 2.0 | 1.8 | 1.8 | 1.7 | 1.3 | 1.3 | 1.6 | 1.8 | 2.9 | 3.7 | 3.5 | 3.1 | 2.9 | 2.8 | 2.8 | 3.3 | 24 | 3.7 | 1.1 | 2.1 |
| 14 | 2.8 | 2.1 | 2.2 | 2.2 | 2.1 | 1.9 | 1.9 | 2.0 | 2.6 | 4.8 | 7.9 | 6.6 | 4.2 | 3.5 | 5.5 | 2.8 | 4.3 | 6.3 | 7.8 | 15.7 | 19.9 | 19.3 | 19.1 | 16.4 | 24 | 19.9 | 1.9 | 6.8 |
| 15 | 16.0 | 13.7 | 13.6 | 13.7 | 13.8 | 12.9 | 13.1 | 11.5 | 10.0 | 9.7 | 3.6 | 3.1 | 2.4 | 2.3 | 2.7 | 3.2 | 2.8 | 2.6 | 4.0 | 5.6 | 7.4 | 8.7 | 10.5 | 8.3 | 24 | 16.0 | 2.3 | 8.1 |
| 16 | 12.3 | 19.0 | 22.1 | 23.6 | 26.4 | 28.9 | 30.9 | 31.7 | 33.2 | 32.0 | 30.2 | 25.0 | 25.9 | 27.2 | 27.5 | 26.5 | 25.9 | 24.8 | 25.4 | 25.0 | 27.7 | 29.2 | 28.2 | 28.0 | 24 | 33.2 | 12.3 | 26.5 |
| 17 | 25.5 | 27.5 | 26.7 | 24.5 | 21.6 | 17.4 | 22.8 | 25.0 | 25.6 | 28.3 | 27.7 | 14.7 | 8.2 | 14.8 | 16.1 | 16.7 | 18.7 | 13.2 | 6.3 | 4.9 | 5.5 | 5.7 | 4.7 | 4.2 | 24 | 28.3 | 4.2 | 16.9 |
| 18 | 5.8 | 8.0 | 8.0 | 7.9 | 8.8 | 10.2 | 11.1 | 11.5 | 13.2 | 13.2 | 9.6 | 3.2 | 2.9 | 2.7 | 2.0 | 1.8 | 3.6 | 5.1 | 4.2 | 6.2 | 10.7 | 12.8 | 13.5 | 14.3 | 24 | 14.3 | 1.8 | 7.9 |
| 19 | 13.8 | 15.1 | 10.4 | 12.0 | 12.3 | 11.5 | 10.7 | 10.3 | 11.1 | 15.2 | 13.8 | 11.6 | 7.1 | 4.0 | 4.0 | 6.0 | 10.7 | 13.6 | 15.0 | 11.8 | 7.3 | 7.2 | 7.1 | 6.0 | 24 | 15.2 | 4.0 | 10.3 |
| 20 | 5.8 | 5.3 | 3.8 | 4.6 | 6.5 | 5.7 | 3.8 | 4.6 | 3.5 | 4.0 | 4.4 | C | 5.4 | 7.0 | 9.0 | 7.4 | 13.5 | 17.7 | 10.7 | 9.7 | 11.8 | 13.9 | 16.2 | 17.0 | 23 | 17.7 | 3.5 | 8.3 |
| 21 | 18.3 | 14.7 | 12.1 | 11.3 | 6.1 | 10.3 | 14.8 | 13.2 | 12.5 | 11.5 | 10.1 | 15.9 | 21.4 | 20.0 | 15.2 | 11.9 | 7.8 | 12.8 | 11.8 | 11.3 | 13.3 | 13.5 | 13.3 | 13.2 | 24 | 21.4 | 6.1 | 13.2 |
| 22 | 12.4 | 11.8 | 11.8 | 12.2 | 15.6 | 16.7 | 12.4 | 10.5 | 7.5 | 8.1 | 8.7 | 6.0 | 2.7 | 2.1 | 2.8 | 3.9 | 3.8 | 4.1 | 3.5 | 2.5 | 2.2 | 2.0 | 2.1 | 3.5 | 24 | 16.7 | 2.0 | 7.0 |
| 23 | 4.5 | 6.3 | 6.3 | 6.3 | 5.9 | 4.9 | 4.2 | 4.0 | 2.7 | 3.0 | 3.0 | 3.0 | 3.9 | 3.5 | 2.1 | 2.2 | 2.8 | 4.2 | 4.2 | 3.9 | 3.9 | 5.0 | 5.4 | 4.7 | 24 | 6.3 | 2.1 | 4.2 |
| 24 | 4.2 | 3.8 | 3.7 | 3.5 | 3.0 | 2.5 | 2.7 | 3.1 | 4.0 | 4.6 | 4.5 | 3.8 | 3.7 | 5.4 | 3.7 | 3.2 | 2.9 | 3.6 | 5.4 | 7.3 | 8.4 | 8.0 | 6.2 | 5.4 | 24 | 8.4 | 2.5 | 4.4 |
| 25 | 4.7 | 3.6 | 3.4 | 3.8 | 4.4 | 5.9 | 5.7 | 7.4 | 8.2 | 9.7 | 6.4 | 2.1 | 3.1 | 2.2 | 2.5 | 3.7 | 5.5 | 5.8 | 5.0 | 5.4 | 5.7 | 6.1 | 8.8 | 11.9 | 24 | 11.9 | 2.1 | 5.5 |
| 26 | 10.9 | 11.9 | 13.3 | 15.1 | 19.3 | 21.3 | 17.5 | 15.1 | 8.7 | 4.3 | 4.1 | 1.8 | 1.0 | 1.1 | 1.3 | 1.5 | 0.8 | 1.3 | 2.6 | 1.8 | 1.0 | 1.1 | 1.1 | 0.9 | 24 | 21.3 | 0.8 | 6.6 |
| 27 | 0.8 | 0.9 | 0.9 | 1.2 | 1.4 | 1.7 | 1.3 | 1.1 | 1.3 | 1.6 | 1.2 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 | 1.3 | 2.0 | 2.6 | 3.3 | 2.6 | 3.8 | 4.7 | 3.6 | 24 | 4.7 | 0.6 | 1.7 |
| 28 | 3.7 | 4.6 | 4.8 | 4.2 | 3.4 | 4.0 | 4.2 | 4.4 | 8.7 | 14.4 | 12.9 | 13.7 | 12.0 | 10.4 | 9.4 | 9.3 | 7.1 | 7.4 | 9.1 | 10.5 | 10.6 | 11.9 | 12.7 | 10.5 | 24 | 14.4 | 3.4 | 8.5 |
| 29 | 6.4 | 2.5 | 1.3 | 1.1 | 1.1 | 0.9 | 1.0 | 1.2 | 1.2 | 0.9 | 1.1 | 1.0 | 1.0 | 0.9 | 0.9 | 1.0 | 1.1 | 1.3 | 1.4 | 1.8 | 1.4 | 1.7 | 2.0 | 2.0 | 24 | 6.4 | 0.9 | 1.5 |
| 30 | 1.7 | 1.7 | 1.7 | 2.0 | 2.3 | 2.5 | 2.3 | 2.0 | 3.0 | 3.0 | 3.0 | 2.2 | 2.2 | 2.6 | 2.9 | 3.8 | 4.0 | 5.2 | 6.6 | 7.5 | 7.8 | 7.9 | 6.8 | 6.0 | 24 | 7.9 | 1.7 | 3.8 |
| 31 | 6.9 | 7.6 | 8.3 | 9.8 | 4.1 | 4.5 | 3.0 | 3.0 | 3.6 | 3.6 | 4.9 | 3.9 | 4.5 | 5.3 | 5.7 | 5.2 | 6.2 | 7.7 | 7.7 | 7.8 | 8.9 | 8.8 | 8.7 | 8.4 | 24 | 9.8 | 3.0 | 6.2 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 743 | | | |
| **Maximum** | 25.5 | 27.5 | 26.7 | 24.5 | 27.9 | 28.9 | 30.9 | 31.7 | 33.2 | 32.0 | 30.2 | 25.0 | 25.9 | 27.2 | 27.5 | 26.5 | 25.9 | 24.8 | 25.4 | 25.0 | 27.7 | 29.2 | 28.2 | 28.0 | 24 | | | |
| **Minimum** | 0.8 | 0.9 | 0.9 | 1.1 | 1.1 | 0.9 | 1.0 | 0.3 | 0.7 | 0.9 | 0.9 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 | 0.8 | 1.3 | 1.4 | 1.8 | 1.0 | 1.1 | 1.1 | 0.9 | 23 | | | |
| **Average** | 7.7 | 7.8 | 7.7 | 8.5 | 8.6 | 7.9 | 7.6 | 7.4 | 7.2 | 7.5 | 7.1 | 6.0 | 5.4 | 5.8 | 5.6 | 5.5 | 6.1 | 6.7 | 6.6 | 7.1 | 7.5 | 7.8 | 8.1 | 7.8 | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 1.7 | 2.5 | 3.3 | 4.1 | 5.1 | 6.4 | 8.1 | 10.7 | 14.8 | 20.8 | 28.3 | 33.2 |

| | |
|---|---|
| Maximum Hourly | 33.2 |
| Maximum Daily | 26.5 |
| Monthly Average | 7.1 |

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

# $PM_{2.5}$ - February ($\mu g/m^3$) COURTICE 2017

| 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 | 7.4 | 7.3 | 7.8 | 8.8 | 11.0 | 14.8 | 8.3 | 5.2 | 4.1 | 3.3 | 2.6 | 1.7 | 1.4 | 1.0 | 1.4 | 1.1 | 1.2 | 1.9 | 2.9 | 2.7 | 2.2 | 2.6 | 1.7 | 1.3 | 24 | 14.8 | 1.0 | 4.3 |
| 2 | 1.9 | 2.5 | 2.4 | 2.4 | 2.4 | 2.6 | 2.8 | 3.5 | 2.6 | 2.5 | 2.4 | 2.3 | 2.3 | 2.5 | 2.1 | 1.7 | 2.3 | 3.4 | 3.6 | 3.9 | 3.7 | 3.9 | 4.0 | 4.0 | 24 | 4.0 | 1.7 | 2.8 |
| 3 | 3.4 | 2.8 | 3.3 | 3.4 | 3.3 | 3.6 | 4.4 | 4.7 | 4.5 | 3.4 | 2.6 | 2.5 | 2.4 | 2.4 | 2.5 | 2.2 | 2.8 | 3.6 | 3.8 | 4.4 | 5.0 | 5.2 | 4.9 | 4.9 | 24 | 5.2 | 2.2 | 3.6 |
| 4 | 4.7 | 4.4 | 3.6 | 3.6 | 3.2 | 2.5 | 2.5 | 2.8 | 2.8 | 3.3 | 3.5 | 3.6 | 4.8 | 5.2 | 5.1 | 5.9 | 6.5 | 6.8 | 6.4 | 6.0 | 4.5 | 4.7 | 5.6 | 5.5 | 24 | 6.8 | 2.5 | 4.5 |
| 5 | 5.5 | 6.0 | 5.8 | 5.9 | 5.9 | 6.2 | 7.2 | 8.4 | 12.1 | 14.2 | 14.8 | 15.3 | 16.1 | 16.1 | 15.5 | 17.2 | 17.1 | 13.6 | 5.8 | 2.2 | 1.8 | 1.8 | 2.0 | 2.5 | 24 | 17.2 | 1.8 | 9.1 |
| 6 | 2.5 | 2.7 | 2.8 | 2.9 | 3.0 | 3.9 | 4.2 | 3.8 | 7.4 | 9.1 | 6.9 | 6.8 | 5.8 | 5.0 | 2.9 | 3.4 | 5.2 | 6.0 | 8.2 | 9.8 | 15.0 | 12.6 | 12.1 | 11.9 | 24 | 15.0 | 2.5 | 6.4 |
| 7 | 10.5 | 9.3 | 9.3 | 9.4 | 10.5 | 8.3 | 8.0 | 9.5 | 8.9 | 8.0 | 9.4 | 12.7 | 14.0 | 12.2 | 8.2 | 6.9 | 4.6 | 3.0 | 3.5 | 3.5 | 4.0 | 4.6 | 6.6 | 6.9 | 24 | 14.0 | 3.0 | 8.0 |
| 8 | 8.8 | 14.4 | 7.5 | 7.4 | 5.5 | 1.9 | 2.0 | 2.5 | 1.8 | 1.7 | 1.8 | 1.8 | 1.6 | 1.2 | 1.6 | 1.7 | 2.5 | 2.7 | 2.5 | 2.4 | 2.5 | 2.3 | 2.5 | 3.0 | 24 | 14.4 | 1.2 | 3.5 |
| 9 | 2.7 | 2.5 | 2.8 | 2.7 | 3.4 | 3.8 | 3.7 | 3.4 | 2.5 | 1.9 | 1.7 | 1.6 | 1.3 | 1.1 | 1.0 | 0.9 | 1.4 | 2.7 | 2.9 | 3.0 | 3.0 | 2.7 | 2.5 | 2.5 | 24 | 3.8 | 0.9 | 2.4 |
| 10 | 2.7 | 2.6 | 2.5 | 2.8 | 2.8 | 2.9 | 2.6 | 2.3 | 2.3 | 2.8 | 2.5 | 3.1 | 3.9 | 3.7 | 3.4 | 3.2 | 4.5 | 4.6 | 4.0 | 3.7 | 3.9 | 3.6 | 3.8 | 4.1 | 24 | 4.6 | 2.3 | 3.3 |
| 11 | 5.4 | 6.0 | 6.0 | 6.4 | 8.1 | 9.7 | 12.0 | 13.4 | 16.4 | 20.1 | 22.8 | 24.8 | 24.2 | 21.5 | 21.3 | 18.3 | 18.0 | 20.1 | 17.5 | 15.9 | 14.7 | 13.6 | 11.5 | 12.1 | 24 | 24.8 | 5.4 | 15.0 |
| 12 | 8.4 | 7.0 | 9.2 | 9.4 | 7.8 | 6.7 | 6.6 | 7.9 | 10.0 | 11.3 | 12.2 | 12.1 | 11.7 | 11.7 | 10.8 | 11.5 | 13.7 | 14.6 | 12.1 | 11.3 | 17.8 | 4.1 | 1.3 | 1.7 | 24 | 17.8 | 1.3 | 9.6 |
| 13 | 1.7 | 1.9 | 2.5 | 2.7 | 2.8 | 2.3 | 1.8 | 1.9 | 2.2 | 2.5 | 2.3 | 1.9 | 2.2 | 2.2 | 2.1 | 2.2 | 1.8 | 1.8 | 2.7 | 4.1 | 6.4 | 8.4 | 7.2 | 7.0 | 24 | 8.4 | 1.7 | 3.1 |
| 14 | 9.3 | 9.3 | 9.3 | 10.8 | 11.6 | 9.6 | 6.0 | 6.1 | 5.4 | 4.8 | 4.5 | 4.0 | 4.7 | 4.6 | 5.3 | 6.3 | 9.3 | 14.8 | 18.6 | 16.0 | 15.5 | 17.6 | 19.9 | 18.3 | 24 | 19.9 | 4.0 | 10.1 |
| 15 | 10.7 | 11.6 | 14.0 | 14.4 | 20.2 | 12.9 | 10.2 | 7.3 | 5.2 | 3.0 | 1.4 | 1.0 | 1.6 | 2.2 | 1.9 | 2.4 | 3.8 | 4.2 | 4.8 | 4.9 | 5.0 | 4.8 | 4.7 | 4.0 | 24 | 20.2 | 1.0 | 6.5 |
| 16 | 3.7 | 3.8 | 3.8 | 3.6 | 3.6 | 3.6 | 3.6 | 3.7 | 3.9 | 3.7 | 4.1 | 3.5 | 3.2 | 3.2 | 3.5 | 3.9 | 3.8 | 4.4 | 5.0 | 6.2 | 7.2 | 6.2 | 6.4 | 7.1 | 24 | 7.2 | 3.2 | 4.4 |
| 17 | 7.2 | 6.9 | 5.6 | 4.7 | 4.3 | 4.1 | 4.0 | 4.5 | 3.2 | 1.7 | 1.7 | 1.7 | 1.7 | 2.0 | 2.4 | 3.3 | 4.2 | 7.0 | 8.8 | 11.1 | 8.0 | 6.6 | 7.4 | 8.8 | 24 | 11.1 | 1.7 | 5.0 |
| 18 | 13.0 | 15.1 | 16.2 | 16.0 | 16.6 | 16.8 | 16.9 | 17.2 | 15.0 | 13.0 | 11.5 | 5.9 | 5.3 | 5.3 | 6.3 | 7.7 | 8.9 | 9.7 | 10.8 | 11.7 | 12.3 | 11.5 | 12.0 | 11.4 | 24 | 17.2 | 5.3 | 11.9 |
| 19 | 9.1 | 8.6 | 8.4 | 6.4 | 6.2 | 5.6 | 4.6 | 4.0 | 4.2 | 3.7 | 3.4 | 5.8 | 3.9 | 1.5 | 1.4 | 1.4 | 1.4 | 2.1 | 2.7 | 3.7 | 3.5 | 3.5 | 3.6 | 2.9 | 24 | 9.1 | 1.4 | 4.2 |
| 20 | 3.9 | 4.5 | 4.5 | 5.9 | 6.9 | 6.6 | 6.0 | 5.3 | 2.7 | 1.6 | 2.1 | 2.4 | 2.4 | 2.5 | 2.6 | 2.8 | 2.8 | 2.9 | 3.7 | 4.7 | 7.7 | 7.2 | 6.5 | 3.9 | 24 | 7.7 | 1.6 | 4.3 |
| 21 | 2.0 | 2.9 | 3.1 | 3.7 | 4.3 | 4.5 | 3.9 | 3.9 | 4.2 | 3.7 | 3.1 | 3.3 | 3.1 | 3.1 | 3.4 | 4.8 | 7.6 | 8.0 | 10.0 | 12.1 | 14.1 | 13.4 | 12.3 | 13.4 | 24 | 14.1 | 2.0 | 6.2 |
| 22 | 12.7 | 11.7 | 14.3 | 21.4 | 31.6 | 36.0 | 37.6 | 38.3 | 38.7 | C | 36.6 | 33.1 | 27.0 | 20.1 | 24.7 | 23.1 | 21.9 | 24.4 | 22.7 | 18.7 | 21.8 | 20.9 | 19.4 | 19.5 | 23 | 38.7 | 11.7 | 25.1 |
| 23 | 24.3 | 29.0 | 29.2 | 23.9 | 21.1 | 17.8 | 16.0 | 14.6 | 11.8 | 12.6 | A | A | A | A | 21.4 | 14.4 | 6.6 | 1.9 | 2.4 | 2.0 | 2.8 | 2.6 | 2.9 | 4.1 | 20 | 29.2 | 1.9 | 13.1 |
| 24 | 6.4 | 6.5 | 6.6 | 8.0 | 6.9 | 4.6 | 4.8 | 3.7 | 2.3 | 2.8 | 3.8 | 3.5 | 3.2 | 4.1 | 5.7 | 6.9 | 6.3 | 5.0 | 6.8 | 6.5 | 5.0 | 5.0 | 6.1 | 7.5 | 24 | 8.0 | 2.3 | 5.3 |
| 25 | 7.2 | 7.3 | 6.5 | 7.7 | 8.0 | 8.2 | 9.7 | 10.5 | 8.3 | 4.5 | 11.4 | 5.6 | 5.0 | 1.8 | 1.8 | 1.2 | 0.7 | 0.8 | 1.3 | 1.6 | 1.9 | 1.7 | 1.4 | 1.7 | 24 | 11.4 | 0.7 | 4.8 |
| 26 | 1.9 | 2.4 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.0 | 2.1 | 1.7 | 1.9 | 2.2 | 1.8 | 2.7 | 3.8 | 4.2 | 3.8 | 5.0 | 5.6 | 5.5 | 5.8 | 5.4 | 5.7 | 5.4 | 24 | 5.8 | 1.7 | 3.3 |
| 27 | 4.2 | 3.5 | 3.5 | 3.7 | 4.1 | 4.2 | 4.9 | 5.0 | 5.0 | 6.3 | 7.6 | 8.4 | 8.3 | 9.1 | 9.8 | 9.6 | 9.2 | 5.1 | 5.9 | 9.1 | 10.2 | 10.0 | 10.0 | 8.0 | 24 | 10.2 | 3.5 | 6.9 |
| 28 | 8.3 | 8.9 | 9.2 | 9.5 | 9.7 | 11.2 | 12.4 | 12.9 | 11.6 | 10.2 | 8.7 | 8.8 | 7.8 | 6.8 | 8.2 | 8.9 | 8.0 | 7.9 | 7.5 | 7.7 | 7.1 | 8.4 | 10.3 | 12.6 | 24 | 12.9 | 6.8 | 9.3 |
| 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Count | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 27 | 27 | 27 | 27 | 27 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 667 | | | |
| Maximum | 24.3 | 29.0 | 29.2 | 23.9 | 31.6 | 36.0 | 37.6 | 38.3 | 38.7 | 20.1 | 36.6 | 33.1 | 27.0 | 21.5 | 24.7 | 23.1 | 21.9 | 24.4 | 22.7 | 18.7 | 21.8 | 20.9 | 19.9 | 19.5 | 24 | | | |
| Minimum | 1.7 | 1.9 | 2.0 | 2.0 | 2.0 | 1.9 | 1.8 | 1.9 | 1.8 | 1.6 | 1.4 | 1.0 | 1.3 | 1.0 | 1.0 | 0.9 | 0.7 | 0.8 | 1.3 | 1.6 | 1.8 | 1.7 | 1.3 | 1.3 | 20 | | | |
| Average | 6.8 | 7.2 | 7.2 | 7.5 | 8.1 | 7.7 | 7.4 | 7.4 | 7.2 | 5.8 | 6.9 | 6.6 | 6.3 | 5.7 | 6.4 | 6.3 | 6.4 | 6.7 | 6.9 | 6.9 | 7.6 | 7.0 | 6.9 | 7.0 | | | | |

| Percentiles | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data | 1.9 | 2.5 | 3.2 | 3.9 | 4.8 | 6.2 | 8.0 | 10.2 | 14.7 | 19.2 | 30.0 | 38.7 |

| | |
|---|---|
| Maximum Hourly | 38.7 |
| Maximum Daily | 25.1 |
| Monthly Average | 7.0 |

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

## $PM_{2.5}$ - March (µg/m³) COURTICE 2017

| 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 | 14.0 | 9.8 | 12.6 | 10.7 | 4.1 | 3.7 | 2.5 | 1.7 | 3.8 | 4.8 | 5.0 | 2.4 | 1.0 | 1.0 | 1.2 | 2.3 | 2.1 | 2.7 | 3.5 | 4.6 | 1.8 | 0.7 | 1.3 | 1.8 | 24 | 14.0 | 0.7 | 4.1 |
| 2 | 2.0 | 2.0 | 2.2 | 2.7 | 2.9 | 2.9 | 2.9 | 2.5 | 2.8 | 3.1 | 2.5 | 2.3 | 1.7 | 1.7 | 2.0 | 2.8 | 2.0 | 1.8 | 1.9 | 1.9 | 2.4 | 2.2 | 2.3 | 2.5 | 24 | 3.1 | 1.7 | 2.3 |
| 3 | 2.3 | 2.0 | 1.9 | 1.9 | 2.0 | 2.3 | 2.2 | 2.2 | 2.6 | 1.8 | 1.8 | 1.8 | 1.7 | 1.8 | 1.8 | 2.0 | 2.2 | 2.4 | 2.7 | 3.1 | 2.9 | 2.6 | 2.7 | 2.9 | 24 | 3.1 | 1.7 | 2.2 |
| 4 | 2.7 | 3.5 | 3.4 | 3.5 | 2.7 | 2.5 | 2.5 | 2.3 | 2.2 | 2.6 | 2.2 | 2.4 | 2.3 | 2.1 | 2.1 | 2.3 | 2.1 | 2.1 | 2.6 | 3.1 | 3.3 | 3.8 | 3.5 | 3.8 | 24 | 3.8 | 2.1 | 2.7 |
| 5 | 2.9 | 2.2 | 2.4 | 2.4 | 2.5 | 2.2 | 2.2 | 2.4 | 1.8 | 2.0 | 1.8 | 1.7 | 1.6 | 1.5 | 1.8 | 1.9 | 1.9 | 2.0 | 2.2 | 2.1 | 2.0 | 1.8 | 1.7 | 1.8 | 24 | 2.9 | 1.5 | 2.0 |
| 6 | 2.7 | 4.1 | 4.2 | 4.3 | 4.2 | 4.1 | 3.7 | 3.5 | 3.3 | 3.0 | 3.2 | 3.2 | 3.5 | 3.7 | 4.3 | 5.0 | 5.6 | 6.3 | 7.2 | 6.9 | 6.5 | 6.7 | 6.9 | 7.9 | 24 | 7.9 | 2.7 | 4.8 |
| 7 | 10.7 | 15.0 | 14.2 | 8.0 | 5.3 | 4.7 | 4.1 | 5.7 | 9.4 | 9.2 | 8.3 | 7.5 | 8.1 | 7.9 | 8.2 | 7.5 | 6.6 | 6.0 | 5.6 | 6.5 | 5.8 | 6.0 | 5.3 | 4.5 | 24 | 15.0 | 4.1 | 7.5 |
| 8 | 3.6 | 3.8 | 3.4 | 3.4 | 3.8 | 3.8 | 3.2 | 2.1 | 1.7 | 1.7 | 1.7 | 1.5 | 1.4 | 1.5 | 2.0 | 1.9 | 2.2 | 2.9 | 3.2 | 3.6 | 4.2 | 5.6 | 5.6 | 5.4 | 24 | 5.6 | 1.4 | 3.1 |
| 9 | 6.1 | 5.6 | 5.0 | 4.7 | 4.7 | 4.6 | 4.4 | 4.1 | 3.0 | 2.4 | 2.3 | 2.4 | 2.1 | 1.7 | 1.6 | 1.8 | 2.8 | 4.9 | 5.2 | 5.9 | 5.5 | 5.4 | 6.3 | 6.4 | 24 | 6.4 | 1.6 | 4.1 |
| 10 | 5.1 | 4.1 | 3.3 | 2.6 | 2.7 | 2.7 | 2.9 | 2.8 | 2.7 | 2.4 | 2.6 | 2.8 | 2.7 | 2.7 | 2.9 | 3.3 | 3.7 | 4.2 | 4.3 | 4.4 | 4.3 | 4.1 | 3.5 | 3.3 | 24 | 5.1 | 2.4 | 3.3 |
| 11 | 3.8 | 4.2 | 4.5 | 4.5 | 4.8 | 4.1 | 3.9 | 3.3 | 2.4 | 1.9 | 2.0 | 2.3 | 2.3 | 2.4 | 2.2 | 2.1 | 2.7 | 3.8 | 4.4 | 5.0 | 5.0 | 5.0 | 5.1 | 5.2 | 24 | 5.2 | 1.9 | 3.6 |
| 12 | 4.4 | 3.8 | 4.2 | 4.6 | 5.1 | 5.4 | 5.8 | 4.9 | 3.8 | 2.7 | 2.2 | 1.9 | 2.1 | 2.2 | 2.0 | 2.0 | 2.3 | 2.4 | 3.3 | 3.5 | 3.7 | 3.2 | 3.3 | 3.3 | 24 | 5.8 | 1.9 | 3.4 |
| 13 | 4.4 | 5.1 | 5.1 | 4.9 | 4.2 | 3.9 | 3.8 | 3.5 | 4.7 | 8.0 | 7.9 | 4.8 | 4.9 | 4.3 | 3.9 | 4.2 | 4.5 | 4.9 | 4.7 | 4.8 | 4.6 | 4.5 | 3.9 | 3.4 | 24 | 8.0 | 3.4 | 4.7 |
| 14 | 3.2 | 3.2 | 2.9 | 2.7 | 2.7 | 2.6 | 2.6 | 2.4 | 2.8 | 3.1 | 2.8 | 2.7 | 2.5 | 2.1 | 1.9 | 1.8 | 1.5 | 1.4 | 1.3 | 1.4 | 1.4 | 1.4 | 1.4 | 1.7 | 24 | 3.2 | 1.3 | 2.2 |
| 15 | 2.1 | 2.5 | 2.6 | 2.8 | 2.6 | 2.2 | 2.3 | 2.3 | 1.5 | 2.1 | 2.2 | 1.9 | 1.5 | 1.1 | 1.4 | 1.9 | 1.8 | 1.9 | 2.3 | 2.2 | 1.9 | 1.8 | 2.0 | 2.0 | 24 | 2.8 | 1.1 | 2.0 |
| 16 | 2.5 | 2.6 | 2.3 | 2.2 | 2.4 | 2.7 | 3.2 | 3.0 | 1.9 | 1.3 | 1.7 | 2.0 | 1.9 | 1.8 | 1.7 | 1.8 | 2.5 | 3.7 | 4.4 | 4.1 | 4.2 | 5.3 | 7.9 | 7.1 | 24 | 7.9 | 1.3 | 3.1 |
| 17 | 5.8 | 4.9 | 5.4 | 5.3 | 3.9 | 7.5 | 10.0 | 8.1 | 2.8 | 1.4 | 3.2 | 4.0 | 4.9 | 4.0 | 3.6 | 3.0 | 3.8 | 5.4 | 7.5 | 11.0 | 13.9 | 14.5 | 12.8 | 12.6 | 24 | 14.5 | 1.4 | 6.6 |
| 18 | 10.5 | 10.1 | 6.4 | 17.0 | 18.5 | 9.6 | 13.6 | 16.3 | 18.7 | 3.1 | 2.3 | 9.7 | 12.8 | 5.0 | 4.6 | 5.2 | 6.0 | 5.9 | 6.2 | 6.0 | 5.7 | 8.0 | 4.1 | 3.7 | 24 | 18.7 | 2.3 | 8.7 |
| 19 | 2.9 | 2.6 | 2.9 | 2.7 | 2.9 | 3.2 | 3.1 | 2.8 | 3.5 | 4.6 | 4.1 | 4.0 | 4.1 | 4.3 | 5.1 | 5.7 | 6.1 | 6.7 | 8.2 | 9.7 | 14.9 | 21.1 | 22.0 | 23.1 | 24 | 23.1 | 2.6 | 7.1 |
| 20 | 19.6 | 19.6 | 22.8 | 27.5 | 29.8 | 31.7 | 29.9 | 17.3 | 12.7 | 12.2 | 14.5 | 16.0 | 16.1 | 13.5 | 9.1 | 10.1 | 11.1 | 11.0 | 12.3 | 14.0 | 16.1 | 16.3 | 17.3 | 18.2 | 24 | 31.7 | 9.1 | 17.4 |
| 21 | 18.7 | 23.3 | 28.9 | 32.0 | 33.7 | 29.9 | 28.4 | 28.2 | 21.2 | 14.6 | 15.9 | 14.6 | 10.0 | 5.0 | 2.7 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.4 | 24 | 33.7 | 0.2 | 12.9 |
| 22 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 1.3 | 1.6 | 2.1 | 2.1 | 2.2 | 2.7 | 2.9 | 2.7 | 24 | 2.9 | 0.2 | 1.1 |
| 23 | 3.0 | 3.3 | 3.7 | 4.4 | 5.8 | 6.8 | 7.6 | 5.1 | 4.9 | 2.5 | 1.9 | 1.6 | 1.8 | 1.7 | 3.1 | 2.1 | 3.8 | 5.4 | 7.4 | 7.6 | 6.7 | 3.2 | 2.9 | 3.1 | 24 | 7.6 | 1.6 | 4.1 |
| 24 | 3.8 | 3.8 | 4.5 | 5.2 | 6.9 | 8.2 | 8.6 | 8.3 | 8.0 | 7.6 | 7.6 | 6.3 | 6.3 | 6.3 | 7.5 | 7.3 | 8.0 | 12.1 | 24.2 | 21.5 | 9.6 | 5.4 | 3.9 | 1.4 | 24 | 24.2 | 1.4 | 8.0 |
| 25 | 1.8 | 2.4 | 2.1 | 1.4 | 1.3 | 2.4 | 4.7 | 6.6 | 6.9 | 7.0 | 6.1 | 3.9 | 3.3 | 3.2 | 3.3 | 2.7 | 1.8 | 1.3 | 0.9 | 1.5 | 1.9 | 1.9 | 4.5 | 4.0 | 24 | 7.0 | 0.9 | 3.2 |
| 26 | 3.0 | 4.1 | 4.3 | 4.2 | 4.1 | 4.0 | 8.2 | 5.8 | 6.8 | 5.8 | 4.9 | 5.0 | 5.3 | 6.4 | 9.4 | 8.2 | 11.0 | 14.4 | 11.5 | 10.4 | 13.0 | 14.0 | 13.4 | 13.5 | 24 | 14.4 | 3.0 | 7.9 |
| 27 | 14.0 | 14.4 | 18.9 | 22.4 | 11.3 | 7.7 | 5.6 | 3.5 | 3.2 | 4.0 | 5.2 | 5.2 | 4.2 | 8.4 | 10.9 | 12.5 | 10.1 | 8.9 | 10.7 | 5.2 | 10.7 | 9.5 | 11.5 | 14.1 | 24 | 22.4 | 3.2 | 9.7 |
| 28 | 17.2 | 5.4 | 0.2 | 0.8 | 2.7 | 0.8 | 0.9 | 1.5 | 1.1 | 1.4 | 1.0 | 0.5 | 0.2 | 0.6 | 0.2 | 0.2 | 0.4 | 2.0 | 4.8 | 6.8 | 8.3 | 6.2 | 3.9 | 3.2 | 24 | 17.2 | 0.2 | 2.9 |
| 29 | 3.2 | 4.4 | 4.8 | 3.8 | 3.7 | 3.5 | 3.0 | 2.3 | 3.3 | 2.3 | C | 2.4 | 2.1 | 3.0 | 2.8 | 2.6 | 2.7 | 3.0 | 4.1 | 4.7 | 8.3 | 9.3 | 12.8 | 4.4 | 23 | 12.8 | 2.1 | 4.2 |
| 30 | 3.5 | 3.4 | 3.3 | 2.9 | 2.4 | 2.8 | 5.0 | 4.1 | 2.5 | 2.9 | 3.3 | 3.4 | 2.2 | 2.0 | 2.1 | 3.0 | 2.9 | 3.2 | 3.5 | 5.6 | 4.1 | 19.3 | 6.9 | 7.5 | 24 | 19.3 | 2.0 | 4.2 |
| 31 | 8.1 | 18.7 | 5.3 | 2.3 | 3.0 | 4.0 | 4.0 | 9.9 | 12.7 | 5.5 | 12.4 | 10.5 | 22.8 | 31.3 | 16.1 | 4.8 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 24 | 31.3 | 0.2 | 7.2 |
| Count | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 743 | | | |
| Maximum | 19.6 | 23.3 | 28.9 | 32.0 | 33.7 | 31.7 | 29.9 | 28.2 | 21.2 | 14.6 | 15.9 | 16.0 | 22.8 | 31.3 | 16.1 | 12.5 | 11.1 | 14.4 | 24.2 | 21.5 | 16.1 | 21.1 | 22.0 | 23.1 | 24 | | | |
| Minimum | 0.2 | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 | 0.7 | 0.5 | 0.2 | 0.6 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 23 | | | |
| Average | 6.1 | 6.3 | 6.1 | 6.4 | 6.0 | 5.7 | 6.0 | 5.5 | 5.1 | 4.1 | 4.4 | 4.2 | 4.4 | 4.4 | 3.9 | 3.6 | 3.7 | 4.3 | 5.2 | 5.5 | 5.7 | 6.2 | 5.9 | 5.6 | | | | |

| Percentiles | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data | 1.5 | 2.0 | 2.4 | 2.9 | 3.5 | 4.2 | 5.1 | 6.9 | 11.4 | 16.1 | 28.7 | 33.7 |

| | |
|---|---|
| Maximum Hourly | 33.7 |
| Maximum Daily | 17.4 |
| Monthly Average | 5.2 |

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

## $PM_{2.5}$ - January ($\mu g/m^3$) Rundle Road 2017

| Day | Hour 0 | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | Count | Maximum | Minimum | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.2 | 2.6 | 2.2 | 1.7 | 1.5 | 1.6 | 1.4 | 1.4 | 1.1 | 0.7 | 0.8 | 2.8 | 5.1 | 7.1 | 15.3 | 19.6 | 13.3 | 4.3 | 3.2 | 3.3 | 4.6 | 4.3 | 4.7 | 6.5 | 24 | 19.6 | 0.7 | 4.8 |
| 2 | 7.6 | 7.6 | 8.3 | 8.0 | 7.9 | 5.0 | 3.8 | 3.0 | 1.6 | 1.3 | 4.6 | 11.9 | 13.6 | 13.6 | 14.2 | 16.8 | 13.8 | 9.2 | 8.9 | 10.3 | 13.3 | 13.3 | 13.1 | 10.2 | 24 | 16.8 | 1.3 | 9.2 |
| 3 | 10.3 | 11.1 | 11.5 | 10.1 | 8.7 | 5.7 | 5.0 | 5.7 | 5.4 | 6.6 | 7.2 | 7.0 | 5.8 | 4.3 | 3.4 | 5.6 | 6.5 | 2.6 | 2.0 | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 | 24 | 11.5 | 1.0 | 5.4 |
| 4 | 3.2 | 6.3 | 8.7 | 3.3 | 5.1 | 8.9 | 4.1 | 1.1 | 2.8 | 6.7 | 13.7 | 15.8 | 6.3 | 1.2 | 0.7 | 0.5 | 0.6 | 0.5 | 0.4 | 0.6 | 0.6 | 0.5 | 0.4 | 0.4 | 24 | 15.8 | 0.4 | 3.9 |
| 5 | 0.6 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 3.3 | 6.5 | 8.3 | 7.1 | 11.6 | 14.2 | 15.1 | 13.9 | 9.8 | 4.4 | 1.8 | 3.1 | 5.7 | 3.2 | 1.9 | 2.0 | 5.1 | 24 | 15.1 | 0.4 | 5.0 |
| 6 | 2.7 | 2.6 | 2.9 | 3.5 | 3.5 | 3.8 | 6.4 | 7.0 | 6.5 | 5.7 | 4.8 | 4.3 | 4.1 | 4.4 | 4.0 | 3.7 | 3.2 | 3.3 | 2.9 | 3.0 | 3.2 | 33.1 | 33.9 | 15.5 | 24 | 33.9 | 2.6 | 7.0 |
| 7 | 9.3 | 3.6 | 3.9 | 3.1 | 11.9 | 10.0 | 2.9 | 3.1 | 2.9 | 3.7 | 25.0 | 53.6 | 49.1 | 37.8 | 36.4 | 46.0 | 51.8 | 38.5 | 38.8 | 26.9 | 14.1 | 9.8 | 3.1 | 2.4 | 24 | 53.6 | 2.4 | 20.3 |
| 8 | 6.9 | 10.9 | 5.8 | 6.2 | 8.9 | 5.5 | 2.0 | 2.4 | 3.1 | 3.9 | 5.3 | 4.5 | 2.3 | 4.4 | 5.2 | 5.2 | 7.2 | 8.6 | 7.0 | 7.5 | 8.7 | 3.4 | 5.4 | 7.2 | 24 | 10.9 | 2.0 | 5.7 |
| 9 | 14.5 | 4.8 | 14.5 | 14.2 | 9.9 | 6.6 | 9.6 | 17.0 | 16.5 | 21.4 | 30.1 | 24.4 | 19.3 | 17.6 | 23.5 | 32.9 | 36.5 | 41.3 | 45.4 | 39.7 | 32.0 | 31.7 | 32.6 | 20.1 | 24 | 45.4 | 4.8 | 23.2 |
| 10 | 19.4 | 18.6 | 14.2 | 12.4 | 11.8 | 13.1 | 12.5 | 12.0 | 10.0 | 8.9 | 8.7 | 10.8 | 14.1 | 12.8 | 13.7 | 14.6 | 19.8 | 23.2 | 19.4 | 19.7 | 19.1 | 19.9 | 19.1 | 20.8 | 24 | 23.2 | 8.7 | 15.4 |
| 11 | 17.9 | 12.4 | 12.0 | 24.2 | 24.7 | 18.5 | 13.2 | 8.9 | 7.4 | 7.3 | 11.1 | 13.2 | 12.4 | 11.3 | 10.3 | 11.5 | 13.8 | 15.7 | 11.2 | 4.5 | 2.5 | 3.1 | 4.0 | 4.5 | 24 | 24.7 | 2.5 | 11.5 |
| 12 | 6.7 | 8.8 | 9.4 | 8.5 | 10.8 | 10.5 | 15.6 | 9.2 | 11.2 | 7.9 | 3.9 | 3.4 | 3.9 | 2.7 | 1.6 | 1.6 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 1.3 | 1.0 | 0.5 | 24 | 15.6 | 0.5 | 5.1 |
| 13 | 0.3 | 0.4 | 0.4 | 0.3 | 0.3 | 0.4 | 0.4 | 0.6 | 0.7 | 0.6 | 0.6 | 0.6 | 0.4 | 0.9 | 0.8 | 0.9 | 0.8 | 0.8 | 0.8 | 0.6 | 0.6 | 0.8 | 1.0 | 1.5 | 24 | 1.5 | 0.3 | 0.7 |
| 14 | 1.8 | 1.6 | 1.9 | 1.9 | 1.8 | 1.6 | 1.8 | 2.0 | 2.7 | 4.0 | 7.5 | 16.8 | 23.9 | 36.0 | 34.6 | 41.1 | 81.2 | 42.5 | 26.8 | 23.8 | 12.3 | 8.1 | 15.9 | 17.6 | 24 | 81.2 | 1.6 | 17.0 |
| 15 | 18.9 | 20.9 | 26.2 | 30.2 | 29.5 | 26.4 | 23.0 | 19.6 | 20.5 | 21.3 | 7.8 | 8.1 | 8.0 | 8.2 | 8.4 | 11.0 | 8.6 | 7.9 | 7.3 | 9.2 | 8.6 | 3.5 | 3.2 | 5.0 | 24 | 30.2 | 3.2 | 14.2 |
| 16 | 4.0 | 6.4 | 4.5 | 3.6 | 4.5 | 5.0 | 5.2 | 6.1 | 7.2 | 13.1 | 43.1 | 55.1 | 62.2 | 68.5 | 64.9 | 60.0 | 56.5 | 51.8 | 45.9 | 39.5 | 36.2 | 29.9 | 22.8 | 16.2 | 24 | 68.5 | 3.6 | 29.7 |
| 17 | 17.9 | 19.5 | 19.7 | 20.4 | 17.1 | 12.9 | 20.4 | 26.1 | 26.3 | 26.1 | 19.9 | 15.1 | 10.3 | 8.3 | 9.7 | 10.7 | 13.4 | 14.1 | 8.9 | 7.4 | 8.3 | 9.0 | 8.9 | 6.7 | 24 | 26.3 | 6.7 | 14.9 |
| 18 | 7.1 | 8.9 | 14.1 | 11.7 | 10.9 | 12.0 | 14.7 | 15.6 | 17.6 | 19.3 | 12.8 | 6.7 | 7.0 | 8.2 | 5.9 | 4.4 | 5.5 | 5.1 | 4.2 | 4.7 | 7.5 | 11.5 | 12.8 | 12.9 | 24 | 19.3 | 4.2 | 10.1 |
| 19 | 15.2 | 18.2 | 14.1 | 16.0 | 18.7 | 16.5 | 14.0 | 11.2 | 8.9 | 8.1 | 11.1 | 6.9 | 6.3 | 7.4 | 5.3 | 6.2 | 9.3 | 15.0 | 14.5 | 8.5 | 5.3 | 5.6 | 5.3 | 5.5 | 24 | 18.7 | 5.3 | 10.5 |
| 20 | 5.9 | 6.0 | 4.4 | 4.4 | 5.5 | 6.5 | 6.1 | 7.1 | 7.0 | 6.3 | 7.3 | 10.0 | 8.5 | 10.4 | 10.2 | 8.3 | 7.7 | 5.9 | 4.9 | 6.3 | 6.2 | 6.0 | 5.1 | 6.7 | 24 | 10.4 | 4.4 | 6.8 |
| 21 | 11.2 | 10.2 | 10.7 | 11.8 | 6.3 | 11.6 | 15.8 | 16.4 | 12.9 | 13.2 | 12.4 | 22.4 | 24.5 | 21.4 | 24.0 | 13.4 | 9.3 | 11.7 | 13.5 | 11.7 | 12.5 | 11.2 | 11.2 | 8.5 | 24 | 24.5 | 6.3 | 13.7 |
| 22 | 5.8 | 5.9 | 8.9 | 12.1 | 13.9 | 12.7 | 12.0 | 8.6 | 6.8 | 7.1 | 8.8 | 8.6 | 5.9 | 5.3 | 5.6 | 6.3 | 5.7 | 5.2 | 3.8 | 2.2 | 1.1 | 0.6 | 0.6 | 0.8 | 24 | 13.9 | 0.6 | 6.4 |
| 23 | 1.1 | 1.4 | 1.4 | 1.5 | 1.4 | 1.2 | 0.9 | 0.9 | 1.1 | 1.9 | 3.0 | 5.5 | 8.8 | 10.4 | 9.8 | 10.6 | 13.7 | 15.8 | 8.1 | 4.6 | 2.8 | 1.9 | 1.9 | 1.7 | 24 | 15.8 | 0.9 | 4.6 |
| 24 | 1.5 | 1.5 | 1.3 | 1.2 | 1.1 | 1.0 | 0.9 | 1.2 | 1.3 | 1.8 | 2.4 | 5.8 | 8.4 | 12.4 | 11.5 | 7.8 | 11.0 | 9.3 | 9.1 | 11.5 | 11.4 | 10.8 | 7.7 | 5.7 | 24 | 12.4 | 0.9 | 5.7 |
| 25 | 2.7 | 2.5 | 4.2 | 7.8 | 11.8 | 13.7 | 18.4 | 20.2 | 25.6 | 35.3 | 29.7 | 14.5 | 19.7 | 15.5 | C | 15.3 | 21.9 | 22.8 | 18.0 | 14.8 | 15.4 | 17.6 | 20.2 | 22.6 | 23 | 35.3 | 2.5 | 17.0 |
| 26 | 17.4 | 19.6 | 18.6 | 21.6 | 29.0 | 29.8 | 23.8 | 18.3 | 12.5 | 6.7 | 4.7 | 2.4 | 1.2 | 1.1 | 1.1 | 1.3 | 0.4 | 0.6 | 1.2 | 0.6 | 0.2 | 0.2 | 0.2 | 0.2 | 24 | 29.8 | 0.2 | 8.9 |
| 27 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.4 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.7 | 1.2 | 0.7 | 24 | 1.2 | 0.2 | 0.3 |
| 28 | 0.6 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.5 | 1.7 | 3.7 | 3.6 | 6.0 | 12.5 | 10.1 | 7.9 | 9.5 | 9.0 | 8.2 | 9.8 | 9.9 | 7.8 | 10.7 | 18.1 | 16.2 | 24 | 18.1 | 0.3 | 6.2 |
| 29 | 4.6 | 0.8 | 0.5 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 24 | 4.6 | 0.2 | 0.4 |
| 30 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 1.9 | 2.8 | 3.7 | 2.1 | 1.7 | 1.8 | 1.4 | 1.4 | 2.2 | 2.6 | 4.0 | 5.0 | 5.0 | 2.3 | 1.3 | 1.5 | 1.6 | 1.0 | 1.7 | 24 | 5.0 | 0.2 | 1.9 |
| 31 | 9.4 | 24.7 | 22.3 | 19.5 | 12.8 | 8.7 | 8.8 | 9.2 | 11.3 | 13.6 | 24.4 | 34.4 | 41.2 | 36.4 | 33.2 | 27.4 | 25.4 | 26.0 | 22.0 | 17.8 | 12.3 | 9.5 | 9.6 | 9.2 | 24 | 41.2 | 8.7 | 19.5 |
| Count | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 743 | | | |
| Maximum | 19.4 | 24.7 | 26.2 | 30.2 | 29.5 | 29.8 | 23.8 | 26.1 | 26.3 | 35.3 | 43.1 | 55.1 | 62.2 | 68.5 | 64.9 | 60.0 | 81.2 | 51.8 | 45.9 | 39.7 | 36.2 | 33.1 | 33.9 | 22.6 | 24 | | | |
| Minimum | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 23 | | | |
| Average | 7.4 | 7.7 | 8.0 | 8.4 | 8.7 | 8.1 | 8.0 | 7.8 | 7.8 | 8.6 | 10.5 | 12.4 | 12.9 | 12.8 | 12.6 | 13.1 | 14.7 | 12.8 | 11.1 | 9.6 | 8.2 | 8.5 | 8.6 | 7.5 | | | | |

| Percentiles | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data | 0.5 | 1.4 | 3.1 | 5.0 | 7.0 | 8.9 | 11.7 | 15.1 | 22.4 | 32.0 | 52.8 | 81.2 |

| | |
|---|---|
| Maximum Hourly | 81.2 |
| Maximum Daily | 29.7 |
| Monthly Average | 9.8 |

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

| $PM_{2.5}$ - February ($\mu g/m^3$) | Rundle Road 2017 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 10.8 | 15.1 | 13.5 | 11.4 | 6.5 | 3.0 | 4.3 | 9.2 | 15.6 | 19.6 | 15.8 | 5.9 | 2.1 | 0.2 | 1.8 | 0.4 | 0.6 | 5.6 | 7.9 | 3.6 | 5.1 | 2.6 | 0.3 | 0.2 | 24 | 19.6 | 0.2 | 6.7 | | |
| 2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.5 | 1.0 | 2.0 | 2.5 | 2.4 | 2.1 | 2.0 | 1.4 | 2.4 | 1.4 | 0.8 | 1.5 | 2.6 | 3.6 | 4.9 | 5.1 | 4.8 | 5.2 | 5.1 | 24 | 5.2 | 0.2 | 2.2 | | |
| 3 | 3.6 | 1.2 | 1.2 | 0.8 | 0.9 | 1.6 | 2.6 | 2.3 | 2.5 | 2.7 | 2.1 | 10.3 | 12.8 | 15.4 | 11.9 | 14.6 | 13.1 | 14.8 | 11.5 | 5.0 | 2.7 | 1.5 | 1.5 | 1.5 | 24 | 15.4 | 0.8 | 5.7 | | |
| 4 | 1.3 | 1.0 | 0.8 | 0.6 | 0.5 | 0.5 | 0.5 | 0.8 | 2.7 | 12.5 | 19.7 | 31.0 | 41.8 | 31.4 | 25.9 | 27.9 | 25.4 | 19.6 | 11.3 | 8.3 | 5.1 | 5.2 | 9.6 | 11.4 | 24 | 41.8 | 0.5 | 12.3 | | |
| 5 | 13.6 | 17.5 | 18.2 | 19.2 | 17.1 | 18.1 | 21.1 | 23.6 | 26.8 | 19.2 | 20.1 | 22.8 | 25.3 | 26.7 | 28.2 | 33.1 | 27.8 | 22.0 | 8.3 | 0.6 | 0.2 | 2.4 | 3.3 | 0.2 | 24 | 33.1 | 0.2 | 17.3 | | |
| 6 | 0.2 | 0.2 | 0.2 | 0.2 | 0.4 | 1.4 | 0.5 | 0.4 | 1.8 | 1.5 | 2.0 | 11.4 | 12.2 | 20.5 | 15.1 | 12.0 | 24.7 | 25.8 | 27.3 | 31.4 | 27.1 | 23.6 | 19.0 | 18.7 | 24 | 31.4 | 0.2 | 11.6 | | |
| 7 | 16.4 | 15.1 | 15.2 | 13.9 | 16.2 | 11.8 | 10.6 | 12.3 | 10.4 | 9.0 | 8.2 | 7.3 | 6.8 | 7.1 | 6.9 | 6.3 | 5.3 | 2.9 | 2.2 | 2.4 | 3.2 | 6.5 | 12.9 | 25.0 | 24 | 25.0 | 2.2 | 9.7 | | |
| 8 | 19.0 | 31.1 | 15.1 | 12.6 | 11.7 | 2.5 | 1.2 | 1.6 | 0.6 | 1.1 | 0.6 | 0.6 | 0.5 | 0.2 | 0.2 | 0.5 | 0.7 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.8 | 0.9 | 24 | 31.1 | 0.2 | 4.3 | | |
| 9 | 0.8 | 0.7 | 1.1 | 1.1 | 1.3 | 1.9 | 0.4 | 0.6 | 0.6 | 0.6 | 0.4 | 0.4 | 0.2 | 0.2 | 0.5 | 0.2 | 0.3 | 0.6 | 0.4 | 0.5 | 0.6 | 0.6 | 0.3 | 0.4 | 24 | 1.9 | 0.2 | 0.6 | | |
| 10 | 0.5 | 0.4 | 0.2 | 0.3 | 0.2 | 1.4 | 0.2 | 0.6 | 0.4 | 0.6 | 0.9 | 13.6 | 22.2 | 11.4 | 7.8 | 7.3 | 13.3 | 15.7 | 12.5 | 10.5 | 13.6 | 15.2 | 15.9 | 35.3 | 24 | 35.3 | 0.2 | 8.3 | | |
| 11 | 20.5 | 22.9 | 21.3 | 24.0 | 27.5 | 24.6 | 22.8 | 23.0 | 27.8 | 35.1 | 43.6 | 47.8 | 51.7 | 48.6 | 46.1 | 40.8 | 35.2 | 29.2 | 22.6 | 17.5 | 13.6 | 11.4 | 9.3 | 6.6 | 24 | 51.7 | 6.6 | 28.1 | | |
| 12 | 2.2 | 0.9 | 0.8 | 0.7 | 0.7 | 0.6 | 0.7 | 1.0 | 1.5 | 1.8 | 1.9 | 5.2 | 11.4 | 12.5 | 15.3 | 22.2 | 24.3 | 16.0 | 14.0 | 12.6 | 13.7 | 4.2 | 0.3 | 0.6 | 24 | 24.3 | 0.3 | 6.9 | | |
| 13 | 0.7 | 1.2 | 2.0 | 1.9 | 1.6 | 0.6 | 0.3 | 0.4 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.4 | 1.2 | 0.4 | 0.7 | 1.4 | 1.5 | 24 | 2.0 | 0.2 | 0.7 | | |
| 14 | 1.8 | 2.3 | 1.9 | 1.9 | 2.0 | 2.3 | 8.4 | 16.6 | 34.5 | 41.5 | 43.0 | 43.1 | 43.1 | 38.5 | 39.2 | 40.4 | 43.1 | 52.7 | 50.2 | 40.3 | 36.4 | 35.2 | 37.0 | 31.8 | 24 | 52.7 | 1.8 | 28.6 | | |
| 15 | 20.0 | 19.7 | 19.6 | 19.2 | 13.9 | 1.7 | 1.9 | 1.9 | 1.9 | 2.1 | 0.9 | 0.3 | 0.6 | 0.7 | 0.2 | 0.5 | 1.1 | 0.9 | 0.8 | 0.9 | 0.8 | 0.4 | 0.4 | 0.3 | 24 | 20.0 | 0.2 | 4.6 | | |
| 16 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.6 | 0.4 | 0.4 | 0.4 | 2.2 | 12.3 | C | C | C | C | 4.0 | 4.8 | 4.2 | 15.4 | 11.5 | 4.1 | 30.1 | 58.2 | 20 | 58.2 | 0.3 | 7.5 | | |
| 17 | 9.4 | 2.0 | 1.6 | 1.3 | 1.2 | 1.2 | 1.3 | 1.7 | 1.5 | 1.1 | 1.0 | 0.8 | 0.8 | 0.9 | 1.1 | 1.5 | 2.1 | 3.3 | 4.7 | 8.2 | 8.2 | 6.2 | 5.5 | 6.5 | 24 | 9.4 | 0.8 | 3.1 | | |
| 18 | 7.4 | 7.9 | 9.7 | 10.9 | 11.3 | 11.4 | 11.4 | 12.2 | 14.8 | 14.9 | 10.3 | 7.2 | 6.8 | 6.3 | 7.1 | 8.1 | 8.4 | 9.5 | 11.6 | 13.0 | 14.7 | 13.0 | 10.1 | 9.2 | 24 | 14.9 | 6.3 | 10.3 | | |
| 19 | 10.0 | 10.4 | 9.8 | 7.4 | 5.8 | 6.3 | 5.8 | 6.0 | 6.3 | 5.4 | 3.4 | 5.0 | 3.3 | 2.2 | 2.1 | 1.8 | 1.9 | 3.3 | 4.3 | 5.4 | 4.9 | 4.2 | 4.3 | 4.5 | 24 | 10.4 | 1.8 | 5.2 | | |
| 20 | 4.4 | 4.9 | 5.7 | 6.7 | 6.8 | 6.7 | 6.5 | 6.4 | 4.1 | 2.9 | 2.6 | 3.5 | 3.3 | 3.3 | 2.7 | 2.8 | 3.2 | 3.9 | 6.0 | 7.1 | 14.1 | 9.6 | 8.0 | 6.4 | 24 | 14.1 | 2.6 | 5.5 | | |
| 21 | 2.3 | 2.3 | 2.6 | 3.8 | 4.4 | 4.4 | 4.2 | 4.5 | 4.9 | 4.8 | 4.2 | 4.1 | 4.3 | 4.5 | 6.2 | 11.9 | 11.8 | 11.9 | 14.8 | 14.9 | 15.1 | 18.3 | 17.6 | 16.4 | 24 | 18.3 | 2.3 | 8.1 | | |
| 22 | 17.5 | 17.2 | 18.6 | 20.9 | 32.9 | 38.2 | 35.5 | 31.6 | 29.2 | 27.1 | 21.7 | 13.4 | C | C | C | 20.6 | 19.0 | 22.2 | 23.2 | 17.0 | 17.9 | 19.4 | 17.2 | 17.1 | 21 | 38.2 | 13.4 | 22.7 | | |
| 23 | 18.7 | 23.3 | 27.1 | 30.8 | 29.1 | 23.4 | 21.5 | 23.7 | 16.1 | 14.9 | 16.7 | 16.8 | 17.7 | 19.6 | 19.7 | 11.5 | 4.9 | 1.0 | 0.8 | 0.8 | 1.5 | 1.5 | 1.2 | 3.1 | 24 | 30.8 | 0.8 | 14.4 | | |
| 24 | 2.6 | 5.0 | 4.2 | 4.1 | 3.9 | 2.7 | 2.9 | 3.5 | 1.8 | 2.6 | 3.6 | 3.3 | 3.1 | 4.1 | 6.7 | 8.0 | 7.4 | 7.4 | 9.7 | 9.1 | 7.4 | 6.6 | 7.0 | 8.1 | 24 | 9.7 | 1.8 | 5.2 | | |
| 25 | 7.7 | 5.5 | 5.2 | 6.1 | 7.1 | 7.9 | 8.1 | 9.2 | 9.1 | 3.3 | 12.3 | 8.7 | 5.5 | 1.8 | 1.6 | 0.8 | 0.2 | 0.5 | 0.9 | 0.4 | 0.3 | 0.5 | 3.4 | 0.2 | 24 | 12.3 | 0.2 | 4.4 | | |
| 26 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.6 | 0.5 | 0.4 | 1.1 | 2.2 | 3.1 | 3.6 | 3.9 | 5.2 | 5.0 | 6.2 | 6.0 | 6.3 | 6.0 | 24 | 6.3 | 0.2 | 2.2 | | |
| 27 | 5.8 | 5.7 | 5.6 | 6.1 | 6.3 | 6.2 | 7.0 | 8.3 | 7.7 | 8.1 | 9.6 | 10.5 | 10.8 | 11.5 | 11.1 | 10.2 | 7.9 | 4.3 | 13.3 | 15.1 | 21.8 | 11.5 | 8.9 | 10.3 | 24 | 21.8 | 4.3 | 9.3 | | |
| 28 | 12.4 | 8.2 | 8.0 | 8.4 | 9.4 | 12.0 | 11.9 | 14.5 | 14.1 | 12.4 | 10.2 | 9.6 | 8.9 | 7.3 | 9.1 | 9.6 | 10.1 | 7.8 | 7.7 | 8.3 | 7.6 | 10.7 | 10.4 | 12.9 | 24 | 14.5 | 7.3 | 10.1 | | |
| 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Count | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 26 | 26 | 26 | 27 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 665 | | | | | |
| Maximum | 20.5 | 31.1 | 27.1 | 30.8 | 32.9 | 38.2 | 35.5 | 31.6 | 34.5 | 41.5 | 43.6 | 47.8 | 51.7 | 48.6 | 46.1 | 40.8 | 43.1 | 52.7 | 50.2 | 40.3 | 36.4 | 35.2 | 37.0 | 58.2 | 24 | | | | | |
| Minimum | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.2 | 20 | | | | | |
| Average | 7.5 | 7.9 | 7.5 | 7.7 | 7.8 | 6.9 | 6.9 | 7.8 | 8.6 | 8.9 | 9.3 | 10.6 | 11.4 | 10.7 | 10.4 | 11.0 | 10.8 | 10.5 | 10.0 | 9.3 | 9.2 | 8.1 | 8.8 | 10.6 | | | | | | |

| Percentiles | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Data | 0.4 | 0.8 | 1.8 | 3.3 | 5.5 | 7.9 | 11.4 | 15.2 | 23.1 | 31.3 | 44.5 | 58.2 |

| | |
|---|---|
| Maximum Hourly | 58.2 |
| Maximum Daily | 28.6 |
| Monthly Average | 9.1 |

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

**$PM_{2.5}$ - March ($\mu g/m^3$) Rundle Road 2017**

| 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 | 16.5 | 13.8 | 12.6 | 10.4 | 5.6 | 3.3 | 5.3 | 4.6 | 7.3 | 10.4 | 9.9 | 4.6 | 2.6 | 2.5 | 2.8 | 3.6 | 3.6 | 5.0 | 5.8 | 6.6 | 2.5 | 0.6 | 0.4 | 0.4 | 24 | 16.5 | 0.4 | 5.9 |
| 2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.4 | 0.7 | 0.9 | 0.8 | 0.5 | 0.6 | 0.4 | 0.5 | 0.2 | 0.2 | 0.2 | 0.7 | 0.7 | 0.7 | 3.4 | 1.0 | 1.5 | 1.1 | 1.1 | 1.3 | 24 | 3.4 | 0.2 | 0.7 |
| 3 | 2.2 | 2.1 | 1.6 | 1.8 | 2.1 | 1.9 | 2.8 | 3.1 | 2.5 | 0.9 | 1.1 | A | A | 4.0 | 3.1 | 3.1 | 3.3 | 3.6 | 3.6 | 3.9 | 4.2 | 4.8 | 10.2 | 6.2 | 22 | 10.2 | 0.9 | 3.3 |
| 4 | 7.4 | 6.5 | 7.7 | 5.4 | 3.0 | 2.8 | 2.4 | 2.6 | 2.1 | 1.6 | 1.5 | 1.9 | 1.8 | 1.8 | 2.0 | 1.9 | 1.8 | 2.7 | 3.9 | 3.9 | 4.5 | 5.2 | 5.7 | 6.5 | 24 | 7.7 | 1.5 | 3.6 |
| 5 | 6.7 | 8.4 | 7.6 | 5.8 | 5.5 | 4.7 | 4.0 | 4.1 | 4.0 | 3.8 | 3.1 | 2.6 | 2.0 | 1.9 | 2.5 | 3.0 | 2.7 | 2.3 | 2.2 | 2.8 | 5.0 | 5.4 | 4.3 | 4.4 | 24 | 8.4 | 1.9 | 4.1 |
| 6 | 3.9 | 3.8 | 3.1 | 3.2 | 3.5 | 3.6 | 3.6 | 3.7 | 3.3 | 3.4 | 3.5 | 4.1 | 4.2 | 4.4 | 5.9 | 5.8 | 4.7 | 4.0 | 5.3 | 6.5 | 6.3 | 6.2 | 6.8 | 7.8 | 24 | 7.8 | 3.1 | 4.6 |
| 7 | 11.5 | 15.6 | 14.0 | 8.3 | 4.6 | 4.3 | 3.1 | 4.1 | 4.8 | 6.9 | 8.3 | 8.5 | 10.4 | 9.5 | 9.9 | 9.3 | 9.9 | 9.7 | 8.9 | 10.3 | 11.8 | 8.7 | 8.5 | 4.1 | 24 | 15.6 | 3.1 | 8.5 |
| 8 | 3.1 | 3.1 | 3.4 | 2.9 | 2.8 | 2.8 | 2.5 | 2.3 | 2.0 | 1.9 | 1.9 | 1.9 | 1.4 | 1.0 | 3.2 | 10.9 | 14.4 | 8.5 | 8.5 | 10.8 | 13.4 | 12.5 | 12.9 | 12.0 | 24 | 14.4 | 1.0 | 5.8 |
| 9 | 14.3 | 10.1 | 8.3 | 6.9 | 7.4 | 7.7 | 7.2 | 6.8 | 7.5 | 3.7 | 3.8 | 4.0 | 3.3 | 4.1 | 4.9 | 4.4 | 5.6 | 4.8 | 5.9 | 6.2 | 5.8 | 12.8 | 38.0 | 6.8 | 24 | 38.0 | 3.3 | 7.9 |
| 10 | 6.2 | 5.0 | 2.1 | 1.7 | 1.8 | 1.8 | 1.9 | 2.0 | 1.5 | 1.2 | 1.6 | 1.5 | 1.6 | 1.8 | 1.9 | 2.2 | 2.6 | 2.8 | 2.8 | 3.3 | 3.5 | 3.5 | 6.5 | 2.8 | 24 | 6.5 | 1.2 | 2.6 |
| 11 | 2.2 | 1.4 | 1.7 | 2.2 | 2.5 | 2.5 | 2.2 | 2.0 | 1.8 | 1.9 | 1.8 | 1.9 | 1.5 | 1.3 | 1.1 | 1.2 | 1.3 | 2.0 | 3.5 | 4.3 | 4.9 | 5.2 | 5.4 | 5.4 | 24 | 5.4 | 1.1 | 2.5 |
| 12 | 5.1 | 5.6 | 6.8 | 7.0 | 7.2 | 7.2 | 7.2 | 6.7 | 4.0 | 1.9 | 1.3 | 1.2 | 2.2 | 1.9 | 1.4 | 1.5 | 2.1 | 1.5 | 1.9 | 2.5 | 3.0 | 3.4 | 4.5 | 7.0 | 24 | 7.2 | 1.2 | 3.9 |
| 13 | 3.9 | 3.9 | 3.9 | 3.6 | 3.8 | 4.1 | 2.6 | 2.8 | 2.5 | 2.1 | 1.6 | 1.2 | 1.2 | 1.3 | 1.4 | 2.1 | 3.0 | 3.7 | 4.1 | 4.6 | 4.7 | 4.4 | 3.6 | 2.8 | 24 | 4.7 | 1.2 | 3.0 |
| 14 | 3.1 | 3.6 | 3.3 | 2.8 | 3.1 | 3.2 | 3.2 | 2.7 | 2.4 | 2.4 | 2.3 | 2.2 | 2.0 | 1.6 | 1.4 | 3.0 | 2.4 | 2.7 | 2.7 | 2.6 | 2.2 | 2.2 | 2.3 | 2.9 | 24 | 3.6 | 1.4 | 2.6 |
| 15 | 3.4 | 3.1 | 3.6 | 3.9 | 3.9 | C | 5.8 | 7.8 | 7.8 | 6.9 | 6.0 | 5.6 | 4.0 | 2.9 | 2.9 | 3.8 | 3.8 | 3.4 | 3.0 | 2.7 | 2.7 | 2.7 | 2.8 | 2.8 | 23 | 7.8 | 2.7 | 4.1 |
| 16 | 3.4 | 2.6 | 2.5 | 2.6 | 2.8 | 2.8 | 3.2 | 3.2 | 2.0 | 1.4 | 1.6 | 1.7 | 1.7 | 1.8 | 1.7 | 1.5 | 2.4 | 3.6 | 4.7 | 7.8 | 29.0 | 7.4 | 4.1 | 5.3 | 24 | 29.0 | 1.4 | 4.2 |
| 17 | 7.6 | 3.4 | 2.6 | 2.2 | 3.3 | 16.7 | 33.8 | 10.6 | 1.5 | 0.8 | 1.4 | 1.9 | 2.3 | 2.2 | 2.0 | 1.8 | 2.5 | 4.1 | 6.5 | 10.4 | 16.5 | 15.8 | 14.7 | 12.4 | 24 | 33.8 | 0.8 | 7.4 |
| 18 | 12.7 | 10.9 | 7.9 | 6.8 | 5.4 | 3.9 | 3.3 | 3.2 | 3.5 | 4.2 | 4.5 | 6.5 | 9.2 | 8.9 | 8.6 | 8.9 | 8.3 | 8.4 | 7.7 | 8.0 | 8.2 | 7.0 | 5.6 | 5.0 | 24 | 12.7 | 3.2 | 6.9 |
| 19 | 4.9 | 5.2 | 5.5 | 5.5 | 5.4 | 5.1 | 5.1 | 4.7 | 4.7 | 5.2 | 5.1 | 5.6 | 5.6 | 5.2 | 5.4 | 5.8 | 6.6 | 8.1 | 10.2 | 12.6 | 15.0 | 21.4 | 34.1 | 23.3 | 24 | 34.1 | 4.7 | 9.0 |
| 20 | 24.8 | 30.5 | 26.1 | 32.7 | 28.2 | 27.1 | 29.5 | C | 16.1 | 15.9 | 18.1 | 18.6 | 18.4 | 16.5 | 10.8 | 12.5 | 13.2 | 11.9 | 13.8 | 16.2 | 17.0 | 17.4 | 17.3 | 18.2 | 23 | 32.7 | 10.8 | 19.6 |
| 21 | 20.0 | 21.0 | 27.3 | 31.9 | 31.3 | 29.6 | 26.6 | 29.4 | 22.7 | 14.4 | 15.6 | 16.1 | 9.4 | 3.9 | 3.2 | 0.8 | 0.4 | 0.2 | 0.2 | 0.3 | 0.5 | 0.7 | 0.7 | 0.9 | 24 | 31.9 | 0.2 | 12.8 |
| 22 | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 1.0 | 1.2 | 1.4 | 1.6 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.6 | 3.3 | 4.2 | 7.0 | 4.6 | 5.2 | 5.3 | 4.4 | 24 | 7.0 | 0.8 | 2.5 |
| 23 | 4.9 | 6.6 | 6.7 | 7.7 | 8.1 | 7.6 | 8.9 | 7.6 | 4.6 | 3.9 | 2.7 | 2.3 | 2.3 | 2.0 | 2.5 | 2.1 | 4.4 | 5.7 | 6.7 | 7.3 | 7.3 | 4.2 | 3.7 | 3.3 | 24 | 8.9 | 2.0 | 5.1 |
| 24 | 5.1 | 6.1 | 6.7 | 6.8 | 8.0 | 11.4 | 12.3 | 11.5 | 12.5 | 13.0 | 13.5 | 12.6 | 11.8 | 12.5 | 17.7 | 19.8 | 13.5 | 12.5 | 21.2 | 18.9 | 10.5 | 6.0 | 5.8 | 2.9 | 24 | 21.2 | 2.9 | 11.4 |
| 25 | 3.1 | 3.7 | 3.6 | 2.8 | 2.7 | 3.6 | 5.4 | 6.5 | 7.5 | 8.1 | 7.2 | 5.3 | 4.2 | 4.4 | 4.7 | 4.8 | 3.1 | 3.5 | 2.9 | 3.4 | 4.2 | 4.2 | 4.8 | 4.1 | 24 | 8.1 | 2.7 | 4.5 |
| 26 | 3.1 | 4.5 | 4.9 | 5.3 | 5.9 | 5.4 | 5.5 | 6.2 | 4.3 | 2.6 | 2.4 | 2.7 | 3.3 | 3.4 | 3.8 | 4.1 | 6.0 | 7.9 | 8.6 | 8.8 | 9.3 | 10.9 | 12.2 | 14.0 | 24 | 14.0 | 2.4 | 6.0 |
| 27 | 15.9 | 16.1 | 14.8 | 13.0 | 11.2 | 9.1 | 7.2 | 6.8 | 5.4 | 4.9 | 5.9 | 8.1 | 10.9 | 16.1 | 12.2 | 12.3 | 12.0 | 13.9 | 15.2 | 12.8 | 10.4 | 14.6 | 17.1 | 17.0 | 24 | 17.1 | 4.9 | 11.8 |
| 28 | 17.3 | 6.4 | 2.0 | 2.8 | 2.6 | 2.5 | 2.8 | 2.7 | 2.8 | 3.2 | 2.4 | 2.1 | 1.7 | 1.6 | 1.3 | 1.4 | 1.9 | 3.8 | 6.7 | 8.3 | 8.7 | 7.9 | 5.7 | 4.3 | 24 | 17.3 | 1.3 | 4.3 |
| 29 | 4.1 | 4.5 | 4.4 | 4.2 | 4.6 | 4.2 | 4.1 | 6.3 | 2.9 | 2.2 | 1.9 | 1.3 | 1.2 | 1.5 | C | 2.7 | 3.1 | 3.4 | 10.6 | 8.2 | 10.6 | 18.3 | 11.3 | 4.6 | 23 | 18.3 | 1.2 | 5.2 |
| 30 | 3.7 | 3.5 | 5.5 | 4.2 | 3.3 | 3.1 | 3.4 | 3.3 | 3.4 | 3.9 | 4.4 | 5.6 | 4.9 | 5.4 | 3.8 | 4.5 | 5.2 | 6.3 | 6.4 | 8.1 | 7.0 | 6.4 | 5.4 | 5.4 | 24 | 8.1 | 3.1 | 4.8 |
| 31 | 4.8 | 4.0 | 4.4 | 5.1 | 5.0 | 4.5 | 4.4 | 3.7 | 3.7 | 4.4 | 3.5 | 3.0 | 2.4 | 2.3 | 2.7 | 2.7 | 2.0 | 2.0 | 1.8 | 1.9 | 1.7 | 1.5 | 1.4 | 1.2 | 24 | 5.1 | 1.2 | 3.1 |
| **Count** | 31 | 31 | 31 | 31 | 31 | 30 | 31 | 30 | 31 | 31 | 31 | 30 | 30 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 739 | | | |
| **Maximum** | 24.8 | 30.5 | 27.3 | 32.7 | 31.3 | 29.6 | 33.8 | 29.4 | 22.7 | 15.9 | 18.1 | 18.6 | 18.4 | 16.5 | 17.7 | 19.8 | 14.4 | 13.9 | 21.2 | 18.9 | 29.0 | 21.4 | 38.0 | 23.3 | 24 | | | |
| **Minimum** | 0.3 | 0.2 | 0.2 | 0.3 | 0.4 | 0.7 | 0.9 | 0.8 | 0.5 | 0.6 | 0.4 | 0.5 | 0.2 | 0.2 | 0.2 | 0.7 | 0.4 | 0.2 | 0.2 | 0.3 | 0.5 | 0.6 | 0.4 | 0.4 | 22 | | | |
| **Average** | 7.3 | 7.0 | 6.6 | 6.5 | 6.0 | 6.3 | 6.8 | 5.4 | 4.9 | 4.5 | 4.5 | 4.6 | 4.3 | 4.2 | 4.2 | 4.6 | 4.8 | 5.0 | 6.2 | 6.8 | 7.6 | 7.3 | 8.5 | 6.4 | | | | |

| **Percentiles** | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 95 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Data** | 1.5 | 2.1 | 2.7 | 3.3 | 4.1 | 4.9 | 6.2 | 8.2 | 12.6 | 16.8 | 29.5 | 38.0 |

| | |
|---|---|
| Maximum Hourly | 38.0 |
| Maximum Daily | 19.6 |
| Monthly Average | 5.9 |

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

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

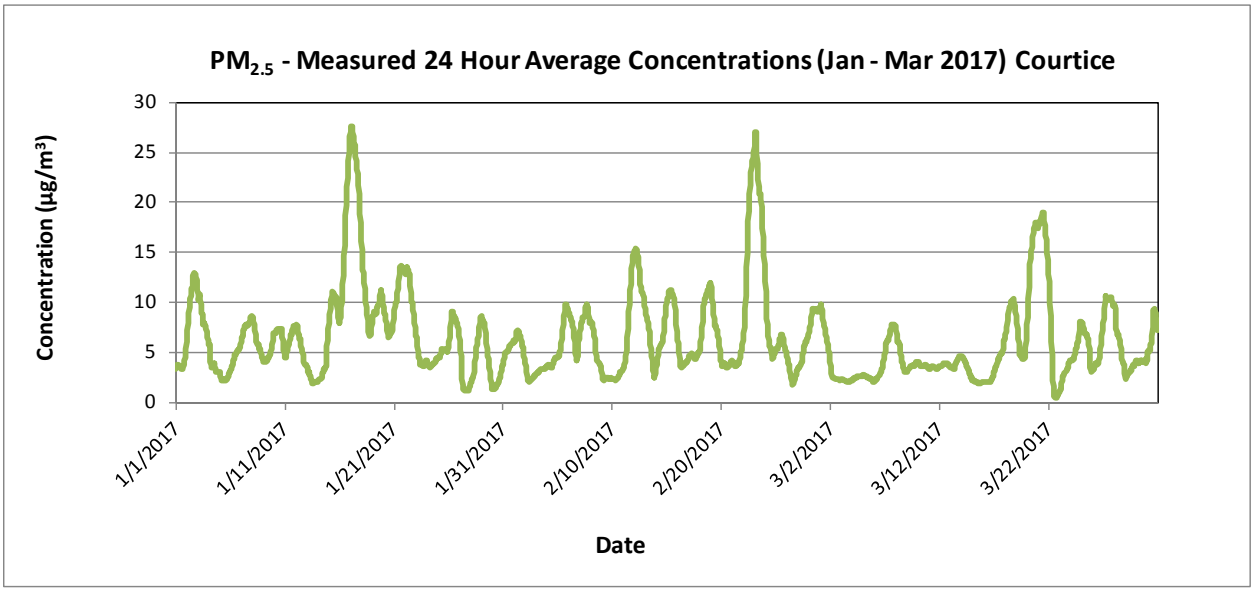
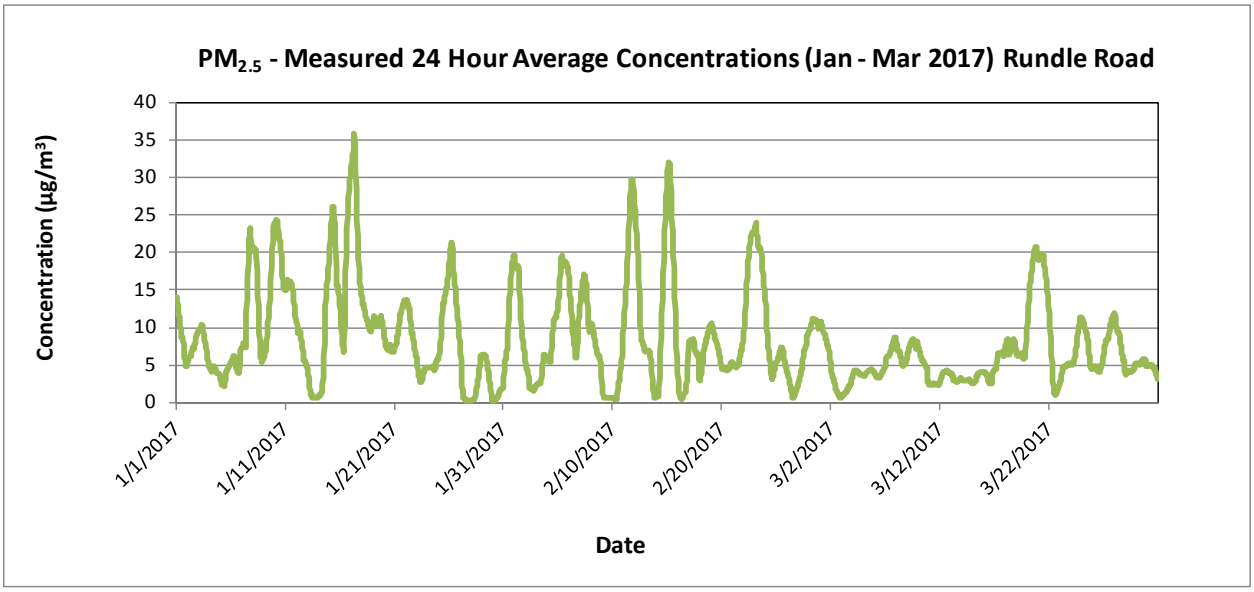


**Figure E-2** **Time History Plot of Measured 24 Hour Average $PM_{2.5}$ Concentrations – Rundle Road Station**



# Appendix F CONTINUOUS PARAMETER EDIT LOGS

**EDIT LOG TABLE**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | |
| **Station number:** | **N/A** | | **Station Name:** | **Courtice WPCP Station (Upwind)** | | | |
| **Station address:** | **Courtice Water Pollution Control Plant** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | |
| **Pollutant or parameter:** | **$SO_2$** | **Instrument make & model:** | | **Teledyne Monitor Labs Sulphur Dioxide Analyzer Model T100** | | **Serial Number:** | **565** |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | | **Time Zone : EST** | |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | **Reason** |
| | | | | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** |
| 1 | 1-Feb-17 | TH | Invalidate | 20-Jan-17 | 11:00 | 20-Jan-17 | 14:00 | Monthly calibration. Adjusted UV lamp and recalibrated after adjustment. |
| 2 | 21-Feb-17 | TH | Data Review | 18-Jan-17 | 16:00 | 18-Jan-17 | 22:00 | Instances of repeating 0.3ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.3ppb |
| 3 | 21-Feb-17 | TH | Data Review | 19-Jan-17 | 11:00 | 20-Jan-17 | 00:00 | |
| 4 | 21-Feb-17 | TH | Data Review | 29-Jan-17 | 08:00 | 29-Jan-17 | 20:00 | |
| 5 | 21-Feb-17 | TH | Data Review | 28-Jan-17 | 13:00 | 28-Jan-17 | 18:00 | Instances of repeating 0.6ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.6ppb |
| 6 | 24-Feb-17 | TH | Data Review | 1-Jan-17 | 23:00 | 2-Jan-17 | 02:00 | An elevated $SO_2$ level of 12.5 ppb was measured at the Courtice WPCP station on January 2 at 00:00 without a corresponding trend at the Rundle Road Station. Slightly elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the north - potential emission sources in this direction include Highway 401, local roads and CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 7 | 24-Feb-17 | TH | Data Review | 2-Jan-17 | 10:00 | 2-Jan-17 | 18:00 | An elevated $SO_2$ level of 11.3 ppb was measured at the Courtice WPCP station on January 2 at 16:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the east - potential emission sources in this direction include Courtice WPCP, a CN railroad and St Marys Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 8 | 24-Feb-17 | TH | Data Review | 3-Jan-17 | 03:00 | 3-Jan-17 | 06:00 | An elevated $SO_2$ level of 7.1 ppb was measured at the Courtice WPCP station on January 3 at 4:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the east - potential emission sources in this direction include Courtice WPCP, a CN railroad and St Marys Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 9 | 24-Feb-17 | TH | Data Review | 3-Jan-17 | 23:00 | 3-Jan-17 | 23:00 | An elevated $SO_2$ level of 8.4 ppb was measured at the Courtice WPCP station on January 3 at 23:00 without a corresponding trend at the Rundle Road Station. Winds were from the north - potential emission sources in this direction include Highway 401, local roads and CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 10 | 24-Feb-17 | TH | Data Review | 14-Jan-17 | 10:00 | 14-Jan-17 | 14:00 | An elevated $SO_2$ level of 7.1 ppb was measured at the Courtice WPCP station on January 14 at 11:00 without a corresponding trend at the Rundle Road Station. Slightly elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the east - potential emission sources in this direction include Courtice WPCP, a CN railroad and St Marys Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 11 | 24-Feb-17 | TH | Data Review | 15-Jan-17 | 22:00 | 16-Jan-17 | 07:00 | An elevated $SO_2$ level of 19.4 ppb was measured at the Courtice WPCP station on January 16 at 2:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the north - potential emission sources in this direction include Highway 401, local roads and CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 12 | 24-Feb-17 | TH | Data Review | 16-Jan-17 | 22:00 | 17-Jan-17 | 16:00 | An elevated $SO_2$ level of 16.6 ppb was measured at the Courtice WPCP station on January 17 at 10:00 without a corresponding trend at the Rundle Road Station. Slightly elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the north and east - potential emission sources in this direction include Courtice WPCP, a CN railroad, St Marys Cement, and Highway 401. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 13 | 24-Feb-17 | TH | Data Review | 20-Jan-17 | 16:00 | 20-Jan-17 | 19:00 | An elevated $SO_2$ level of 13 ppb was measured at the Courtice WPCP station on January 20 at 17:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the east - potential emission sources in this direction include Courtice WPCP, a CN railroad and St Marys Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |

| Project Name | Durham York Energy Centre Ambient Air Monitoring Program | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Contact | Greg Crooks / Connie Lim / Tim Hung | | Phone: | 905-944-7777 | E-mail: | greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com | | |
| Station number: | N/A | | Station Name: | Courtice WPCP Station (Upwind) | | | | |
| Station address: | Courtice Water Pollution Control Plant | | Emitter Address: | The Region of Durham, 605 Rossland Rd, Whitby, ON | | | | |
| Pollutant or parameter: | $SO_2$ | Instrument make & model: | | Teledyne Monitor Labs Sulphur Dioxide Analyzer Model T100 | | Serial Number: | 565 | |
| Data edit period | Start date: | 1-Jan-17 | End date: | 31-Mar-17 | | Time Zone : EST | | |
| Edit # | Edit date | Editor's Name | Edit Action | Starting | | Ending | | Reason |
| | | | | Date (dd/mm/yyyy) | Hour (xx:xx) | Date (dd/mm/yyyy) | Hour (xx:xx) | |
| 14 | 24-Feb-17 | TH | Data Review | 23-Jan-17 | 12:00 | 23-Jan-17 | 16:00 | An elevated $SO_2$ level of 8.2 ppb was measured at the Courtice WPCP station on January 23 at 14:00 without a corresponding trend at the Rundle Road Station. Winds were from the east-northeast for which the Courtice WPCP, the DYEC, a CN railroad and St Marys Cement were upwind. The DYEC continuous emissions monitoring system showed $SO_2$ Concentrations from both boilers on January 23, 2017 from 12:00 to 16:00 to be 0 mg/Rm$^3$. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 15 | 10-Mar-17 | TH | Invalidate | 1-Feb-17 | 12:00 | 1-Feb-17 | 13:00 | Check lamp stability, zero and span |
| 16 | 10-Mar-17 | TH | Invalidate | 22-Feb-17 | 09:00 | 22-Feb-17 | 10:00 | Monthly calibration |
| 17 | 10-Mar-17 | TH | Invalidate | 23-Feb-17 | 10:00 | 23-Feb-17 | 13:00 | MOECC audit |
| 18 | 10-Mar-17 | TH | Data Review | 9-Feb-17 | 19:00 | 10-Feb-17 | 00:00 | Instances of repeating 0.4ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.4ppb |
| 19 | 10-Mar-17 | TH | Data Review | 17-Feb-17 | 15:00 | 17-Feb-17 | 21:00 | Instances of repeating 1.3ppb measurements. Data was reviewed - measurements were varying but were rounded to 1.3ppb |
| 20 | 13-Mar-17 | TH | Data Review | 7-Feb-17 | 04:00 | 7-Feb-17 | 20:00 | An elevated $SO_2$ level of 39.4 ppb was measured at the Courtice WPCP station on February 7 at 11:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the east - potential emission sources in this direction include Courtice WPCP, agricultural fields and CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 21 | 13-Mar-17 | TH | Data Review | 13-Feb-17 | 19:00 | 14-Feb-17 | 04:00 | An elevated $SO_2$ level of 14.5 ppb was measured at the Courtice WPCP station on February 13 at 20:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the northwest - potential emission sources in this direction include Highway 401, local roads or the CN railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 22 | 2-Apr-17 | TH/GJC | Slope Correction | 22-Feb-17 | 11:00 | 3-Mar-17 | 06:00 | MOECC audited VES' $SO_2$ calibration bottle on March 2, 2017 and found the bottle's concentration read approximately 5% high. The February 22, 2017 calibration levels were adjusted by 5% to account for this. For the January 20, 2017 calibration, the bottle concentration was assumed to have drifted by 2.5% (bottled was previously calibrated in Dec 2016). Based on these adjustments to the calibration gas concentrations, a span adjustment was required for this time period. A correction factor varying linearly from 0.95 on 22-Feb-17 at 11:00 to 1.127 on 3-Mar-17 6:00 was applied. |
| 23 | 2-Apr-17 | TH | Invalidate | 3-Mar-17 | 07:00 | 3-Mar-17 | 08:00 | Recalibration with re-certified cal gas bottle. |
| 24 | 2-Apr-17 | TH | Invalidate | 3-Mar-17 | 10:00 | 3-Mar-17 | 10:00 | MOECC SO2 monitor re-audit. |
| 25 | 2-Apr-17 | TH | invalidate | 14-Mar-17 | 12:00 | 14-Mar-17 | 13:00 | Instrument down during power cable change. Monitor down between 12:47 - 13:10. Invalidated these minute data. Data recovery for both hours is still acceptable. |
| 26 | 2-Apr-17 | TH | Invalidate | 15-Mar-17 | 07:00 | 15-Mar-17 | 07:00 | Monthly calibration occurred from 7:45 - 8:35. Invalidated 7:45 - 7:59. Data recovery for 7:00 is still acceptable. |
| 27 | 2-Apr-17 | TH | Invalidate | 15-Mar-17 | 08:00 | 15-Mar-17 | 08:00 | Monthly calibration |
| 28 | 5-Apr-17 | TH | Data Review | 5-Mar-17 | 18:00 | 5-Mar-17 | 23:00 | Instances of repeating 0.7ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.7ppb |
| 29 | 5-Apr-17 | TH | Data Review | 6-Mar-17 | 19:00 | 7-Mar-17 | 06:00 | Instances of repeating 1.1ppb measurements. Data was reviewed - measurements were varying but were rounded to 1.1ppb |
| 30 | 5-Apr-17 | TH | Data Review | 9-Mar-17 | 23:00 | 10-Mar-17 | 22:00 | Instances of repeating 0.8ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.8ppb |
| 31 | 5-Apr-17 | TH | Data Review | 14-Mar-17 | 18:00 | 14-Mar-17 | 23:00 | Instances of repeating 0ppb measurements. Data was reviewed - measurements were varying but were rounded to 0 ppb |
| 32 | 5-Apr-17 | TH | Data Review | 15-Mar-17 | 10:00 | 15-Mar-17 | 15:00 | Instances of repeating 1ppb measurements. Data was reviewed - measurements were varying but were rounded to 1ppb |
| 33 | 5-Apr-17 | TH | Data Review | 16-Mar-17 | 18:00 | 17-Mar-17 | 00:00 | Instances of repeating 0.8ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.8ppb |
| 34 | 5-Apr-17 | TH | Data Review | 19-Mar-17 | 10:00 | 19-Mar-17 | 18:00 | Instances of repeating 0.8ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.8ppb |
| 35 | 5-Apr-17 | TH | Data Review | 21-Mar-17 | 22:00 | 23-Mar-17 | 01:00 | Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb or rounded to 0 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied. |

| Project Name | Durham York Energy Centre Ambient Air Monitoring Program | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Contact | Greg Crooks / Connie Lim / Tim Hung | | Phone: | 905-944-7777 | E-mail: | greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com | | |
| Station number: | N/A | | Station Name: | Courtice WPCP Station (Upwind) | | | | |
| Station address: | Courtice Water Pollution Control Plant | | Emitter Address: | The Region of Durham, 605 Rossland Rd, Whitby, ON | | | | |
| Pollutant or parameter: | $SO_2$ | Instrument make & model: | | Teledyne Monitor Labs Sulphur Dioxide Analyzer Model T100 | | Serial Number: | 565 | |
| Data edit period | Start date: | 1-Jan-17 | End date: | 31-Mar-17 | | Time Zone : EST | | |
| Edit # | Edit date | Editor's Name | Edit Action | Starting | | Ending | | Reason |
| | | | | Date (dd/mm/yyyy) | Hour (xx:xx) | Date (dd/mm/yyyy) | Hour (xx:xx) | |
| 36 | 5-Apr-17 | TH | Data Review | 25-Mar-17 | 10:00 | 25-Mar-17 | 21:00 | Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb or rounded to 0 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied. |
| 37 | 5-Apr-17 | TH | Data Review | 29-Mar-17 | 10:00 | 29-Mar-17 | 17:00 | Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb or rounded to 0 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied. |
| 38 | 5-Apr-17 | TH | Data Review | 18-Mar-17 | 08:00 | 18-Mar-17 | 08:00 | An elevated $SO_2$ level of 19 ppb was measured at the Courtice WPCP station on March 18 at 8:00 without a corresponding trend at the Rundle Road Station. Slightly elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the east - potential emission sources in this direction include Courtice WPCP, a CN railroad and St. Mary's Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 39 | 5-Apr-17 | TH | Data Review | 26-Mar-17 | 06:00 | 26-Mar-17 | 20:00 | An elevated $SO_2$ level of 25.1 ppb was measured at the Courtice WPCP station on March 26 at 14:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the east - potential emission sources in this direction include Courtice WPCP, a CN railroad and St. Mary's Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 40 | 5-Apr-17 | TH | Data Review | 31-Mar-17 | 07:00 | 31-Mar-17 | 15:00 | An elevated $SO_2$ level of 13.3 ppb was measured at the Courtice WPCP station on March 31 at 13:00 without a corresponding trend at the Rundle Road Station. Elevated NOx levels were also measured, suggesting a local combustion source. Winds were from the east - potential emission sources in this direction include Courtice WPCP, a CN railroad and St. Mary's Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

**EDIT LOG TABLE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **N/A** | | **Station Name:** | **Courtice WPCP Station** | | | | |
| **Station address:** | **Courtice Water Pollution Control Plant** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **NOx** | **Instrument make & model:** | | **API Model 200E Chemiluminescence Analyzer** | | **Serial Number:** | **675** | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | | |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | |
| 1 | 1-Feb-17 | TH | Invalidate | 20-Jan-17 | 11:00 | 20-Jan-17 | 15:00 | Removed spare unit and reinstalled original unit after annual maintenance completed. Calibrated original unit. |
| 2 | 21-Feb-17 | TH | Data review | 4-Jan-17 | 17:00 | 5-Jan-17 | 00:00 | Instances of repeating 0.4ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.4ppb |
| 3 | 24-Feb-17 | TH | Data review | 6-Jan-17 | 22:00 | 7-Jan-17 | 09:00 | An elevated NOx level of 31 ppb was measured at the Courtice WPCP station on January 7 at 3:00 without a corresponding trend at the Rundle Road Station. Slightly elevated $SO_2$ concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north - the elevated measurement may have been due to the CN railroad or Highway 401. The data was deemed valid. |
| 4 | 24-Feb-17 | TH | Data review | 16-Jan-17 | 20:00 | 17-Jan-17 | 03:00 | An elevated NOx level of 104 ppb was measured at the Courtice WPCP station on January 16 at 22:00 without a corresponding trend at the Rundle Road Station. Elevated $SO_2$ concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north -the elevated measurement may have been due to the CN railroad or Highway 401. The data was deemed valid. |
| 5 | 10-Mar-17 | TH | Invalidate | 22-Feb-17 | 09:00 | 22-Feb-17 | 11:00 | Monthly calibration. |
| 6 | 10-Mar-17 | TH | Invalidate | 23-Feb-17 | 10:00 | 23-Feb-17 | 10:00 | MOECC audit |
| 7 | 10-Mar-17 | TH | Data review | 3-Feb-17 | 19:00 | 4-Feb-17 | 02:00 | Instances of repeating 1.6ppb NO measurements. Data was reviewed - measurements were varying but were rounded to 1.6ppb |
| 8 | 10-Mar-17 | TH | Data review | 10-Feb-17 | 17:00 | 11-Feb-17 | 00:00 | Instances of repeating 2.2ppb NO measurements. Data was reviewed - measurements were varying but were rounded to 2.2ppb |
| 9 | 13-Mar-17 | TH | Data review | 13-Feb-17 | 20:00 | 13-Feb-17 | 20:00 | An elevated NOx level of 107 ppb was measured at the Courtice WPCP station on February 13 at 20:00 without a corresponding trend at the Rundle Road Station. Elevated $SO_2$ concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the northwest -the elevated measurement may have been due to Highway 401, local roads or the CN railroad. The data was deemed valid. |
| 10 | 13-Mar-17 | TH | Data review | 21-Feb-17 | 18:00 | 22-Feb-17 | 07:00 | An elevated NOx level of 46.4 ppb was measured at the Courtice WPCP station on February 22 at 7:00 without a corresponding trend at the Rundle Road Station. For this hour, the measured NO concentration was smaller than NO$_2$ which suggests an emission source located relatively far away. Slightly elevated $SO_2$ concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the north -the elevated measurement may have been due to the CN railroad or Highway 401. The data was deemed valid. |
| 11 | 13-Mar-17 | TH | Data review | 24-Feb-17 | 00:00 | 24-Feb-17 | 00:00 | An elevated NOx level of 51.6 ppb was measured at the Courtice WPCP station on February 24 at 0:00 without a corresponding trend at the Rundle Road Station. Slightly elevated $SO_2$ concentrations at the Courtice WPCP station were also noted in this time period suggesting a combustion source. Winds were blowing from the north -the elevated measurement may have been due to the CN railroad or Highway 401. The data was deemed valid. |
| 12 | 2-Apr-17 | TH | Invalidate | 14-Mar-17 | 13:00 | 14-Mar-17 | 13:00 | Instrument down during power cable change. |
| 13 | 2-Apr-17 | TH | Replace | 14-Mar-17 | 14:00 | 20-Mar-17 | 06:00 | Analogue outputs drifted after power cable replacement. Datalogger data replaced with data downloaded directly from the monitor memory. |
| 14 | 2-Apr-17 | TH | Replace | 20-Mar-17 | 07:00 | 20-Mar-17 | 07:00 | Adjusted NO, NOx analogue outputs. Datalogger data replaced with data downloaded directly from the monitor memory. |

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|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **N/A** | | **Station Name:** | **Courtice WPCP Station (Upwind)** | | | | |
| **Station address:** | **Courtice Water Pollution Control Plant** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **$SO_2$** | **Instrument make & model:** | | **Teledyne Monitor Labs Sulphur Dioxide Analyzer Model T100** | | | **Serial Number:** | **565** |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | | | | **Time Zone : EST** |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | |
| 15 | 2-Apr-17 | TH | Invalidate | 15-Mar-17 | 07:00 | 15-Mar-17 | 09:00 | Monthly calibration |
| 16 | 5-Apr-17 | TH | Data review | 17-Mar-17 | 07:00 | 17-Mar-17 | 07:00 | An elevated NOx level of 100.5 ppb was measured at the Courtice WPCP station on March 17 at 7:00 without a corresponding trend at the Rundle Road Station. Winds were blowing from the west -the elevated measurement may have been due to agricultural activities or local roads. The data was deemed valid. |
| 17 | 5-Apr-17 | TH | Data review | 20-Mar-17 | 05:00 | 20-Mar-17 | 07:00 | An elevated NOx level of 60 ppb was measured at the Courtice WPCP station on March 20 at 7:00 without a corresponding trend at the Rundle Road Station. Slightly elevated $SO_2$ concentrations at the Courtice WPCP station were also noted in this time period. Winds were blowing from the northwest -the elevated measurement may have been due to Highway 401, local roads or the CN railroad. The data was deemed valid. |
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Examples of Acceptable Edit Actions:

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

**EDIT LOG TABLE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **N/A** | | **Station Name:** | **Courtice WPCP Station** | | | | |
| **Station address:** | **Courtice Water Pollution Control** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **$PM_{2.5}$** | **Instrument make & model:** | | **Thermo Sharp 5030 Synchronized Hybrid Ambient Real-time Particulate Monitor** | | **Serial Number:** | **E-1569** | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | | |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | |
| 1 | 1-Feb-17 | TH | Invalidate | 20-Jan-17 | 11:00 | 20-Jan-17 | 11:00 | Monthly calibration |
| 2 | 1-Feb-17 | TH | Invalidate | 20-Jan-17 | 12:00 | 20-Jan-17 | 12:00 | Monthly calibration occurred for 3 minutes in this hour. These 3 minutes were invalidated. The hour still has an acceptable rate of recovery |
| 3 | 10-Mar-17 | TH | Invalidate | 22-Feb-17 | 09:00 | 22-Feb-17 | 09:00 | Monthly calibration |
| 4 | 10-Mar-17 | TH | Invalidate | 23-Feb-17 | 10:00 | 23-Feb-17 | 13:00 | MOECC audit |
| 5 | 2-Apr-17 | TH | Invalidate | 29-Mar-17 | 10:00 | 29-Mar-17 | 10:00 | Zero check |
| 6 | 2-Apr-17 | TH | Invalidate | 15-Mar-17 | 07:00 | 15-Mar-17 | 08:00 | Calibration from 7:50 - 8:13. Invalidate minute data. Data recovery is still acceptable. |
| 7 | 5-Apr-17 | TH | Data review | 21-Mar-17 | 15:00 | 21-Mar-17 | 21:00 | Instances of repeating 0.2µg/$m^3$ measurements. Data was reviewed - measurements were varying but were rounded to 0.2µg/m3 |
| 8 | 5-Apr-17 | TH | Data review | 31-Mar-17 | 18:00 | 31-Mar-17 | 23:00 | Instances of repeating 0.2µg/$m^3$ measurements. Data was reviewed - measurements were varying but were rounded to 0.2µg/m3 |
| 9 | 5-Apr-17 | TH | Data review | 31-Mar-17 | 11:00 | 31-Mar-17 | 13:00 | Elevated levels of up to 31.3 µg/$m^3$ were measured on March 31 at 13:00 without a corresponding trend at the Rundle o Oshawa Stations. Winds were from the east - potential emission sources in this direction include Courtice WPCP, a CN railroad and St. Mary's Cement. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |

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

**EDIT LOG TABLE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **N/A** | | **Station Name:** | **Courtice WPCP Station** | | | | |
| **Station address:** | **Courtice Water Pollution Control** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **Temperature** | **Instrument make & model:** | | **Campbell Scientific Model HMP60** | | | **Serial Number:** | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | | | | **Time Zone : EST** |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | |
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**EDIT LOG TABLE**

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|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **N/A** | | **Station Name:** | **Courtice WPCP Station** | | | | |
| **Station address:** | **Courtice Water Pollution Control** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **Rainfall** | **Instrument make & model:** | | **Texas Electronic TE525M** | | | **Serial Number:** | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | | | | **Time Zone : EST** |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
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Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range

**EDIT LOG TABLE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **N/A** | | **Station Name:** | **Courtice WPCP Station** | | | | |
| **Station address:** | **Courtice Water Pollution Control** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **Relative Humidity** | **Instrument make & model:** | | **Campbell Scientific Model HMP60** | | | **Serial Number:** | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | | |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | |
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**EDIT LOG TABLE**

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| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **N/A** | | **Station Name:** | **Courtice WPCP Station** | | | | |
| **Station address:** | **Courtice Water Pollution Control** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **Atmospheric Pressure** | **Instrument make & model:** | | **Campbell Scientific Model CS106** | | | **Serial Number:** | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | | |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | |
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Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range

**EDIT LOG TABLE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Lisa Heatherington** | | **Phone:** | **N/A** | **E-mail:** | **Lisa.Hetherington@Durham.ca** | | |
| **Station number:** | **N/A** | | **Station Name:** | **Courtice WPCP Station** | | | | |
| **Station address:** | **Courtice Water Pollution Control** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **Wind Speed/Wind direction** | **Instrument make & model:** | | **N/A** | | | **Serial Number:** | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | | |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | **Date (dd/mm/yyyy)** | **Hour (xx:xx)** | |
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Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range

**EDIT LOG TABLE**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **45200** | **Station Name:** | **Rundle Road Station** | | | | |
| **Station address:** | **Rundle Road / Baseline Road** | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **$SO_2$** | **Instrument make & model:** | **Teledyne Monitor Labs Sulphur Dioxide** | | **Serial Number:** | **565** | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | |

| Edit # | Edit date | Editor's Name | Edit Action | Starting | | Ending | | Reason |
|---|---|---|---|---|---|---|---|---|
| | | | | Date (dd-mm-yy) | Hour (xx:xx) | Date (dd-mm-yy) | Hour (xx:xx) | |
| 1 | 1-Feb-17 | TH | Invalidate | 25-Jan-17 | 14:00 | 25-Jan-17 | 16:00 | Monthly calibration |
| 2 | 21-Feb-17 | TH | Data review | 2-Jan-17 | 12:00 | 2-Jan-17 | 21:00 | Instances of repeating 0.5ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.5 ppb |
| | | | | 17-Jan-17 | 22:00 | 18-Jan-17 | 03:00 | |
| | | | | 18-Jan-17 | 17:00 | 18-Jan-17 | 22:00 | |
| | | | | 23-Jan-17 | 20:00 | 24-Jan-17 | 01:00 | |
| 3 | 21-Feb-17 | TH | Data review | 4-Jan-17 | 07:00 | 4-Jan-17 | 12:00 | Instances of repeating 0.8ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.8 ppb |
| 4 | 21-Feb-17 | TH | Data review | 12-Jan-17 | 19:00 | 13-Jan-17 | 00:00 | Instances of repeating 0.4ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.4 ppb |
| 5 | 21-Feb-17 | TH | Data review | 22-Jan-17 | 09:00 | 22-Jan-17 | 23:00 | Instances of repeating 0.6ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.6ppb |
| 6 | 21-Feb-17 | TH | Data review | 26-Jan-17 | 19:00 | 1-Feb-17 | 13:00 | Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied |
| 7 | 10-Mar-17 | TH | Invalidate | 1-Feb-17 | 14:00 | 1-Feb-17 | 14:00 | Check lamp stability, zero and span |
| 8 | 10-Mar-17 | TH | Invalidate | 22-Feb-17 | 13:00 | 22-Feb-17 | 14:00 | Monthly calibration |
| 9 | 10-Mar-17 | TH | Data review | 2-Feb-17 | 04:00 | 2-Feb-17 | 14:00 | Instances of repeating 0.2ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.2 ppb |
| | | | | 12-Feb-17 | 10:00 | 12-Feb-17 | 15:00 | |
| 10 | 10-Mar-17 | TH | Data review | 2-Feb-17 | 16:00 | 2-Feb-17 | 23:00 | Instances of repeating 0.1ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.1ppb |
| | | | | 8-Feb-17 | 11:00 | 9-Feb-17 | 00:00 | |
| 11 | 10-Mar-17 | TH | Data review | 3-Feb-17 | 18:00 | 4-Feb-17 | 11:00 | Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied |
| | | | | 9-Feb-17 | 21:00 | 10-Feb-17 | 10:00 | |
| | | | | 25-Feb-17 | 23:00 | 27-Feb-17 | 03:00 | |
| 12 | 10-Mar-17 | TH | Data review | 15-Feb-17 | 09:00 | 15-Feb-17 | 14:00 | Instances of repeating 0.5ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.5ppb |
| 13 | 10-Mar-17 | TH | Data review | 22-Feb-17 | 00:00 | 22-Feb-17 | 07:00 | Instances of repeating 1.3ppb measurements. Data was reviewed - measurements were varying but were rounded to 1.3ppb |
| 14 | 2-Apr-17 | TH | Invalidate | 3-Mar-17 | 06:00 | 3-Mar-17 | 06:00 | SO2 re-calibration |
| 15 | 2-Apr-17 | TH | Slope Correction | 22-Feb-17 | 15:00 | 3-Mar-17 | 05:00 | MOECC audited VES' $SO_2$ calibration bottle on March 2, 2017 and found the bottle's concentration read approximately 5% high. The February 22, 2017 calibration levels were adjusted by 5% to account for this. For the January 22, 2017 calibration, the bottle concentration was assumed to have drifted by 2.5% (bottled was previously calibrated in Dec 2016). Based on these adjustments to the calibration gas concentrations, a span adjustment was required for this time period. A correction factor varying linearly from 0.95 on 22-Jan-17 at 15:00 to 1.129 on 3-Mar-17 5:00 was applied. |
| | | | | 1-Jan-17 | 00:00 | 25-Jan-17 | 13:00 | Based in the calibration adjustments noted above, a span adjustment was required for Jan 1, 2017 and Jan 25, 2017. A correction factor varying linearly from 1.04 on 1-Jan-17 at 0:00 to 1.104 on 25-Jan-17 13:00 was applied. |
| 16 | 2-Apr-17 | TH | Invalidate | 3-Mar-17 | 11:00 | 3-Mar-17 | 12:00 | MOECC audit |
| 17 | 2-Apr-17 | TH | Invalidate | 14-Mar-17 | 13:00 | 14-Mar-17 | 13:00 | SO2 monitor down during power cable replacement. |
| 18 | 2-Apr-17 | TH | Adjust | 15-Mar-17 | 07:00 | 15-Mar-17 | 07:00 | Invalidate minute data 7:00-7:09 during monthly calibration. Data recovery for this hour is still acceptable. |
| 19 | 2-Apr-17 | TH | Invalidate | 15-Mar-17 | 05:00 | 15-Mar-17 | 06:00 | Monthly calibration |
| 20 | 5-Apr-17 | TH | Data review | 2-Mar-17 | 19:00 | 14-Mar-17 | 12:00 | Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied |
| 21 | 5-Apr-17 | TH | Data review | 15-Mar-17 | 13:00 | 20-Mar-17 | 07:00 | |
| 22 | 5-Apr-17 | TH | Data review | 22-Mar-17 | 02:00 | 22-Mar-17 | 17:00 | Instances of repeating 0.1ppb measurements. Data was reviewed - measurements were varying but were rounded to 0.1ppb |

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

**EDIT LOG TABLE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | | |
| **Station number:** | **45200** | **Station Name:** | **Rundle Road Station** | | | | | |
| **Station address:** | **Rundle Road / Baseline Road** | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | | |
| **Pollutant or parameter:** | **NOx** | **Instrument make & model:** | **API Model 200E Chemiluminescence Analyzer** | | **Serial Number:** | **675** | | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | | |

| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
|---|---|---|---|---|---|---|---|---|
| | | | | **Date (dd-mm-yy)** | **Hour (xx:xx)** | **Date (dd-mm-yy)** | **Hour (xx:xx)** | |
| 1 | 17-Jan-17 | TH | Invalidate | 6-Jan-17 | 00:00 | 6-Jan-17 | 00:00 | Suspected power trip - "system reset" error was observed during the 9-Jan-17 site visit. Invalidated 1 minute of data. Data recovery for this hour was still acceptable. |
| 2 | 17-Jan-17 | TH | Invalidate | 6-Jan-17 | 02:00 | 6-Jan-17 | 02:00 | Suspected power trip - "system reset" error was observed during the 9-Jan-17 site visit. Invalidated 1 minute of data. Data recovery for this hour was still acceptable. |
| 3 | 1-Feb-17 | TH | Invalidate | 25-Jan-17 | 14:00 | 25-Jan-17 | 15:00 | Monthly calibration |
| 4 | 21-Feb-17 | TH | Data review | 26-Jan-17 | 19:00 | 27-Jan-17 | 06:00 | Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied |
| 5 | 21-Feb-17 | TH | Data review | 27-Jan-17 | 19:00 | 28-Jan-17 | 07:00 | |
| 6 | 21-Feb-17 | TH | Data review | 29-Jan-17 | 01:00 | 30-Jan-17 | 06:00 | |
| 7 | 10-Mar-17 | TH | Invalidate | 22-Feb-17 | 12:00 | 22-Feb-17 | 14:00 | Monthly calibration |
| 8 | 10-Mar-17 | TH | Data review | 1-Feb-17 | 22:00 | 2-Feb-17 | 06:00 | Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied |
| | | | | 5-Feb-17 | 18:00 | 6-Feb-17 | 06:00 | |
| | | | | 8-Feb-17 | 16:00 | 9-Feb-17 | 06:00 | |
| | | | | 10-Feb-17 | 01:00 | 10-Feb-17 | 06:00 | |
| | | | | 12-Feb-17 | 22:00 | 13-Feb-17 | 06:00 | |
| | | | | 15-Feb-17 | 22:00 | 16-Feb-17 | 05:00 | |
| | | | | 19-Feb-17 | 16:00 | 20-Feb-17 | 06:00 | |
| 9 | 2-Apr-17 | TH | Invalidate | 3-Mar-17 | 11:00 | 3-Mar-17 | 12:00 | MOECC audit |
| 10 | 2-Apr-17 | TH | Invalidate | 14-Mar-17 | 14:00 | 14-Mar-17 | 14:00 | NOx monitor down during power cable replacement. |
| 11 | 2-Apr-17 | TH | Invalidate | 15-Mar-17 | 05:00 | 15-Mar-17 | 06:00 | Monthly calibration |
| 12 | 2-Apr-17 | TH | Replace | 14-Mar-17 | 15:00 | 20-Mar-17 | 06:00 | Analogue outputs drifted after power cable replacement. Datalogger data replaced with data downloaded directly from the monitor memory. |
| 13 | 2-Apr-17 | TH | Replace | 20-Mar-17 | 07:00 | 20-Mar-17 | 07:00 | Adjusted NO, NOx analogue outputs. Datalogger data replaced with data downloaded directly from the monitor memory. |
| 14 | 5-Apr-17 | TH | Data review | 4-Mar-17 | 05:00 | 4-Mar-17 | 18:00 | Instances of repeating zero values in these timeframes were due to negative instrument zero drift less than -5 ppb. As per the MOECC Ambient Monitoring Guideline, no drift correction was applied |
| | | | | 10-Mar-17 | 21:00 | 11-Mar-17 | 02:00 | |
| | | | | 11-Mar-17 | 16:00 | 12-Mar-17 | 04:00 | |
| | | | | 14-Mar-17 | 21:00 | 15-Mar-17 | 04:00 | |
| | | | | 19-Mar-17 | 03:00 | 19-Mar-17 | 09:00 | |
| | | | | 21-Mar-17 | 23:00 | 22-Mar-17 | 05:00 | |
| 15 | 5-Apr-17 | TH | Data review | 15-Mar-17 | 08:00 | 15-Mar-17 | 08:00 | An elevated NOx level of 89.3ppb was measured on March 15 at 8:00 without a corresponding trend at the Courtice station. For this hour, the measured NO concentration was greater than $NO_2$ which suggests a nearby emission source. Winds were blowing from the north-northwest - potential emission sources in this direction include local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| | | | | | | | | |

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 |
| Manual data entry for missing, but collected data | Test |

**EDIT LOG TABLE**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | |
| **Station number:** | **45200** | | **Station Name:** | **Rundle Road Station** | | | |
| **Station address:** | **Rundle Road / Baseline Road** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | |
| **Pollutant or parameter:** | **$PM_{2.5}$** | **Instrument make & model:** | | **Thermo Sharp 5030 Synchronized Hybrid Ambient Real-time** | | **Serial Number:** | **E-1569** |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | |

| Edit # | Edit date | Editor's Name | Edit Action | Starting | | Ending | | Reason |
|---|---|---|---|---|---|---|---|---|
| | | | | Date (dd-mm-yy) | Hour (xx:xx) | Date (dd-mm-yy) | Hour (xx:xx) | |
| 1 | 1-Feb-17 | TH | Invalidate | 25-Jan-17 | 14:00 | 25-Jan-17 | 14:00 | Monthly calibration |
| 2 | 17-Jan-17 | TH | Invalidate | 25-Jan-17 | 15:00 | 25-Jan-17 | 15:00 | Monthly calibration ended at 15:14. Minute data from 15:00-15:14 were invalidated resulting in 75% data recovery. Hour is still valid. |
| 3 | 21-Feb-17 | TH | Data review | 5-Jan-17 | 01:00 | 5-Jan-17 | 06:00 | Instances of repeating 0.4 µg/m3 measurements. Data was reviewed - measurements were varying but were rounded to 0.4 µg/m3 |
| 4 | 21-Feb-17 | TH | Data review | 26-Jan-17 | 20:00 | 27-Jan-17 | 07:00 | Instances of repeating 0.17 µg/m³ measurements in this timeframe was noted. During these periods, low ambient $PM_{2.5}$ levels were also measured at the Courtice and Oshawa Stations. This period is likely due to very low ambient $PM_{2.5}$ concentrations being measured. |
| 5 | 21-Feb-17 | TH | Data review | 29-Jan-17 | 03:00 | 30-Jan-17 | 03:00 | |
| 6 | 24-Feb-17 | TH | Data review | 6-Jan-17 | 21:00 | 6-Jan-17 | 23:00 | Elevated levels of up to 34 µg/m³ were measured on January 6 at 22:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the north - potential emission sources in this direction include local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 7 | 24-Feb-17 | TH | Data review | 7-Jan-17 | 10:00 | 7-Jan-17 | 20:00 | Elevated levels of up to 53.6 µg/m³ were measured on January 7 at 10:00 without a corresponding trend at the Courtice or Oshawa Stations. Winds were blowing from the west - potential emission sources in this direction include local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 8 | 24-Feb-17 | TH | Data review | 9-Jan-17 | 07:00 | 9-Jan-17 | 22:00 | Elevated levels of up to 45.4 µg/m³ were measured on January 9 at 18:00 without a corresponding trend at the Courtice or Oshawa Stations. Winds were blowing from the west - potential emission sources in this direction include local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 9 | 24-Feb-17 | TH | Data review | 14-Jan-17 | 12:00 | 14-Jan-17 | 18:00 | Elevated levels of 81.2 µg/m³ were measured on January 14 at 16:00 without a corresponding trend at the Oshawa or Courtice stations. Winds were generally blowing from the east - potential emission sources in this direction include local roads or the CP railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 10 | 24-Feb-17 | TH | Data review | 16-Jan-17 | 10:00 | 16-Jan-17 | 19:00 | Elevated levels of 68.5 µg/m³ were measured on January 16 at 13:00 without a corresponding trend at the Courtice station. Elevated concentrations were measured at the Oshawa stations a few hours before these elevated readings. Winds were generally blowing from the east - potential emission sources in this direction include local roads or the CP railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 11 | 24-Feb-17 | TH | Data review | 31-Jan-17 | 09:00 | 31-Jan-17 | 19:00 | Elevated levels of 41.2 µg/m³ were measured on January 31 at 12:00 without a corresponding trend at the Oshawa or Courtice stations. Winds were generally blowing from the east-northeast - potential emission sources in this direction include local roads or the CP railroad. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 12 | 10-Mar-17 | TH | Invalidate | 16-Feb-17 | 12:00 | 16-Feb-17 | 15:00 | Sharp calibrated, replaced detector and full recalibration done. |
| 13 | 10-Mar-17 | TH | Invalidate | 22-Feb-17 | 15:00 | 22-Feb-17 | 15:00 | Monthly calibration ended at 15:14. Minute data from 15:00-15:14 were invalidated resulting in 75% data recovery. Hour is still valid. |
| 14 | 10-Mar-17 | TH | Invalidate | 22-Feb-17 | 12:00 | 22-Feb-17 | 14:00 | Monthly calibration. |
| 15 | 10-Mar-17 | TH | Data review | 1-Feb-17 | 23:00 | 2-Feb-17 | 04:00 | Instances of repeating 0.2 µg/m³ measurements in this timeframe was noted. Data was reviewed - measurements were varying but were rounded to 0.2 µg/m³ |
| | | | | 13-Feb-17 | 11:00 | 13-Feb-17 | 17:00 | |
| | | | | 25-Feb-17 | 23:00 | 26-Feb-17 | 09:00 | |
| 16 | 10-Mar-17 | TH | Data review | 15-Feb-17 | 23:00 | 16-Feb-17 | 05:00 | Instances of repeating 0.3 µg/m³ measurements in this timeframe was noted. Data was reviewed - measurements were varying but were rounded to 0.3 µg/m³ |
| 17 | 13-Mar-17 | TH | Data review | 4-Feb-17 | 10:00 | 4-Feb-17 | 17:00 | Elevated levels of up to 41.8 µg/m³ were measured on February 4 at 12:00 without a corresponding trend at the Courtice or Oshawa Stations. Winds were blowing from the west-southwest - potential emission sources in this direction include Highway 418 construction activities, local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 18 | 13-Mar-17 | TH | Data review | 5-Feb-17 | 12:00 | 5-Feb-17 | 15:00 | Elevated levels of up to 33.1 µg/m³ were measured on February 5 at 15:00 without a corresponding trend at the Courtice or Oshawa Stations. Winds were blowing from the west-southwest - potential emission sources in this direction include Highway 418 construction activities, local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 19 | 13-Mar-17 | TH | Data review | 6-Feb-17 | 16:00 | 6-Feb-17 | 22:00 | Elevated levels of up to 31.4 µg/m³ were measured on February 6 at 19:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the north - potential emission sources in this direction include local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 20 | 13-Mar-17 | TH | Data review | 11-Feb-17 | 09:00 | 11-Feb-17 | 17:00 | Elevated levels of up to 51.7 µg/m³ were measured on February 11 at 12:00 without a corresponding trend at the Courtice or Oshawa Stations. Winds were blowing from the west-southwest - potential emission sources in this direction include Highway 418 construction activities, local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |

| Project Name | Durham York Energy Centre Ambient Air Monitoring Program | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Contact | Greg Crooks / Connie Lim / Tim Hung | | Phone: | 905-944-7777 | E-mail: | greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com | | |
| Station number: | 45200 | | Station Name: | Rundle Road Station | | | | |
| Station address: | Rundle Road / Baseline Road | | Emitter Address: | The Region of Durham, 605 Rossland Rd, Whitby, ON | | | | |
| Pollutant or parameter: | $PM_{2.5}$ | Instrument make & model: | | Thermo Sharp 5030 Synchronized Hybrid Ambient Real-time | | Serial Number: | E-1569 | |
| Data edit period | Start date: | 1-Jan-17 | End date: | 31-Mar-17 | Time Zone : EST | | | |

| Edit # | Edit date | Editor's Name | Edit Action | Starting | | Ending | | Reason |
|---|---|---|---|---|---|---|---|---|
| | | | | Date (dd-mm-yy) | Hour (xx:xx) | Date (dd-mm-yy) | Hour (xx:xx) | |
| 21 | 13-Mar-17 | TH | Data review | 14-Feb-17 | 08:00 | 14-Feb-17 | 23:00 | Elevated levels of up to 52.7 µg/m³ were measured on February 14 at 17:00 without a corresponding trend at the Courtice or Oshawa Stations. Winds were blowing from the west-southwest - potential emission sources in this direction include Highway 418 construction activities, local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 22 | 13-Mar-17 | TH | Data review | 16-Feb-17 | 23:00 | 16-Feb-17 | 23:00 | Elevated levels of up to 58.2 µg/m³ were measured on February 16 at 23:00 without a corresponding trend at the Courtice or Oshawa stations. Winds were blowing from the west-northwest - potential emission sources in this direction include local roads. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 23 | 2-Apr-17 | TH | Invalidate | 3-Mar-17 | 11:00 | 3-Mar-17 | 12:00 | MOECC audit |
| 24 | 2-Apr-17 | TH | Invalidate | 15-Mar-17 | 05:00 | 15-Mar-17 | 05:00 | Monthly calibration |
| 25 | 2-Apr-17 | TH | Adjust | 15-Mar-17 | 06:00 | 15-Mar-17 | 06:00 | Invalidate minute 6:00 for monthly calibration. Data recovery for this hour is still acceptable. |
| 26 | 2-Apr-17 | TH | Invalidate | 20-Mar-17 | 07:00 | 20-Mar-17 | 07:00 | Calibrate unit's internal relative humidity sensor |
| 27 | 2-Apr-17 | TH | Invalidate | 29-Mar-17 | 15:00 | 29-Mar-17 | 15:00 | Zero check from 15:00-15:11. Invalidate minute data, data recovery for this hour is still acceptable. |
| 28 | 2-Apr-17 | TH | Invalidate | 29-Mar-17 | 14:00 | 29-Mar-17 | 14:00 | Zero check |
| 29 | 5-Apr-17 | TH | Data review | 22-Mar-17 | 09:00 | 22-Mar-17 | 15:00 | Instances of repeating 2 µg/m³ measurements in this timeframe was noted. Data was reviewed - measurements were varying but were rounded to 2 µg/m³ |
| 30 | 5-Apr-17 | TH | Data review | 9-Mar-17 | 22:00 | 9-Mar-17 | 22:00 | Elevated levels of up to 38 µg/m³ were measured on March 9 at 22:00 without a corresponding trend at the Courtice or Oshawa Stations. Winds were blowing from the west-northwest - potential emission sources in this direction include Highway 418 construction activities, local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 31 | 5-Apr-17 | TH | Data review | 16-Mar-17 | 20:00 | 16-Mar-17 | 20:00 | Elevated levels of up to 29 µg/m³ were measured on March 16 at 20:00 without a corresponding trend at the Courtice or Oshawa Stations. Winds were blowing from the west-northwest - potential emission sources in this direction include Highway 418 construction activities, local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
| 32 | 5-Apr-17 | TH | Data review | 17-Mar-17 | 06:00 | 17-Mar-17 | 06:00 | Elevated levels of up to 34 µg/m³ were measured on March 17 at 6:00 without a corresponding trend at the Courtice or Oshawa Stations. Winds were blowing from the west - potential emission sources in this direction include Highway 418 construction, local roads and businesses. Minute data was reviewed and measurements were reasonably consistent throughout this time period. Therefore, the data was deemed valid. |
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Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range
Test

**EDIT LOG TABLE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **45200** | | **Station Name:** | **Rundle Road Station** | | | | |
| **Station address:** | **Rundle Road / Baseline Road** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **Temperature** | **Instrument make & model:** | | **Campbell Scientific Model HMP60** | | **Serial Number:** | | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | | |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd-mm-yy)** | **Hour (xx:xx)** | **Date (dd-mm-yy)** | **Hour (xx:xx)** | |
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**EDIT LOG TABLE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **45200** | | **Station Name:** | **Rundle Road Station** | | | | |
| **Station address:** | **Rundle Road / Baseline Road** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **Rainfall** | **Instrument make & model:** | | **Texas Electronic TE525M** | | **Serial Number:** | | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | | |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd-mm-yy)** | **Hour (xx:xx)** | **Date (dd-mm-yy)** | **Hour (xx:xx)** | |
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Examples of Acceptable Edit Actions:
Add offset of
Delete hours
Zero Correction
Slope Correction
Manual data entry for missing, but collected data
Invalidating span & zero check data
Invalidating data due to equipment malfunctions and power failures.
Invalidating data when instrumentation off-line
Marking data as out-of-range

**EDIT LOG TABLE**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **45200** | | **Station Name:** | **Rundle Road Station** | | | | |
| **Station address:** | **Rundle Road / Baseline Road** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **Relative Humidity** | **Instrument make & model:** | | **Campbell Scientific Model HMP60** | | **Serial Number:** | | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | | |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd-mm-yy)** | **Hour (xx:xx)** | **Date (dd-mm-yy)** | **Hour (xx:xx)** | |
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**EDIT LOG TABLE**

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|---|---|---|---|---|---|---|---|---|
| **Project Name** | **Durham York Energy Centre Ambient Air Monitoring Program** | | | | | | | |
| **Contact** | **Greg Crooks / Connie Lim / Tim Hung** | | **Phone:** | **905-944-7777** | **E-mail:** | **greg.crooks@stantec.com, connie.lim@stantec.com, tim.hung@stantec.com** | | |
| **Station number:** | **45200** | | **Station Name:** | **Rundle Road Station** | | | | |
| **Station address:** | **Rundle Road / Baseline Road** | | **Emitter Address:** | **The Region of Durham, 605 Rossland Rd, Whitby, ON** | | | | |
| **Pollutant or parameter:** | **Wind Speed/Wind Direction** | **Instrument make & model:** | | **Met One Instruments Inc. Model 034B** | | **Serial Number:** | | |
| **Data edit period** | **Start date:** | **1-Jan-17** | **End date:** | **31-Mar-17** | **Time Zone : EST** | | | |
| **Edit #** | **Edit date** | **Editor's Name** | **Edit Action** | **Starting** | | **Ending** | | **Reason** |
| | | | | **Date (dd-mm-yy)** | **Hour (xx:xx)** | **Date (dd-mm-yy)** | **Hour (xx:xx)** | |
| 1 | 13-Mar-17 | TH | Invalidate | 7-Feb-17 | 13:00 | 8-Feb-17 | 00:00 | Wind sensor frozen due to freezing rain. |

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

# Appendix G METALS DATA SUMMARY

| Metals and Total Particulates | Courtice WPCP Station | Courtice | | Courtice | | Courtice | | Courtice | | Courtice | | Courtice[A] | | Courtice | | Courtice | | Courtice | | Courtice | | Courtice | | Courtice | | Courtice | | Courtice | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | 01/01/2017 | | 07/01/2017 | | 13/01/2017 | | 19/01/2017 | | 25/01/2017 | | 31/01/2017 | | 06/02/2017 | | 12/02/2017 | | 18/02/2017 | | 24/02/2017 | | 02/03/2017 | | 08/03/2017 | | 14/03/2017 | | 20/03/2017 | | 26/03/2017 | |
| Date | dd/mm/yyyy | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Start Time | hh:mm | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | |
| Sample Duration | Hours | 23.39 | | 24.03 | | 23.38 | | 24.53 | | 23.85 | | 23.28 | | 23.38 | | 23.23 | | 24.16 | | 23.39 | | 23.68 | | 23.49 | | 22.91 | | 23.65 | | 23.23 | |
| Technician | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | |
| Filter Number | | 16120599 | | 16120894 | | 16120999 | | 16122890 | | 16122894 | | 17011070 | | 17011073 | | 17011824 | | 17011828 | | 17011842 | | 17011846 | | 17012350 | | 17012354 | | 17012368 | | 17012372 | |
| Analytical Report # | | B703339 | | B706279 | | B712111 | | B714323 | | B718943 | | B724014 | | B728799 | | DXM432 | | B739014 | | B740572 | | B747020 | | B749352 | | B754125 | | B758468 | | B763335 | |
| Total Volumetric Flow | $Am^3$/sample | 1476.87 | | 1458.39 | | 1404.96 | | 1543.29 | | 1524.70 | | 1455.66 | | 1466.82 | | 1402.28 | | 1448.85 | | 1495.64 | | 1433.95 | | 1462.93 | | 1417.18 | | 1492.18 | | 1405.39 | |
| **Analytical Results** | **Units** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** |
| Particulate | mg | 19.2 | 5 | 64.7 | 5 | 34.9 | 5 | 25.3 | 5 | 23.1 | 5 | 25.3 | 5 | 52.5 | 5 | 19.6 | 5 | 40.6 | 5 | 14.8 | 5 | 40.4 | 5 | 33.5 | 5 | 63.1 | 5 | 39.3 | 5 | 27.2 | 5 |
| Total Mercury (Hg) | µg | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 |
| Aluminum (Al) | µg | <50 | 50 | 152 | 50 | 109 | 50 | 97 | 50 | 146 | 50 | 84 | 50 | 176 | 50 | 50 | 50 | 125 | 50 | 54 | 50 | 222 | 50 | 310 | 50 | 451 | 50 | 75 | 50 | 125 | 50 |
| Antimony (Sb) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Arsenic (As) | µg | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 |
| Barium (Ba) | µg | 7.0 | 1.0 | 15.7 | 1.0 | 12.0 | 1.0 | 11.9 | 1.0 | 9.5 | 1.0 | 6.1 | 1.0 | 15.3 | 1.0 | 4.9 | 1.0 | 20.4 | 1.0 | 6.3 | 1.0 | 7.9 | 1.0 | 9.6 | 1.0 | 7.3 | 1.0 | 10.7 | 1.0 | 5.4 | 1.0 |
| Beryllium (Be) | µg | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 |
| Bismuth (Bi) | µg | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 |
| Boron (B) | µg | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 |
| Cadmium (Cd) | µg | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 |
| Chromium (Cr) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | 6.8 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Cobalt (Co) | µg | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 |
| Copper (Cu) | µg | 19.1 | 5.0 | 46.9 | 5.0 | 28.6 | 5.0 | 51.7 | 5.0 | 54.8 | 5.0 | 19.1 | 5.0 | 43.7 | 5.0 | 48.5 | 5.0 | 56.6 | 5.0 | 34.3 | 5.0 | 33.9 | 5.0 | 31.3 | 5.0 | 17.0 | 5.0 | 55.9 | 5.0 | 20.9 | 5.0 |
| Iron (Fe) | µg | 213 | 50 | 567 | 50 | 397 | 50 | 302 | 50 | 319 | 50 | 259 | 50 | 811 | 50 | 165 | 50 | 808 | 50 | 235 | 50 | 603 | 50 | 608 | 50 | 833 | 50 | 439 | 50 | 304 | 50 |
| Lead (Pb) | µg | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 3.3 | 3.0 | <3.0 | 3.0 | 4.1 | 3.0 | 4.1 | 3.0 | 5.4 | 3.0 | <3.0 | 3.0 | 3.6 | 3.0 | <3.0 | 3.0 | 3.3 | 3.0 | 6.0 | 3.0 | <3.0 | 3.0 |
| Magnesium (Mg) | µg | 129 | 50 | 456 | 50 | 235 | 50 | 89 | 50 | 149 | 50 | 113 | 50 | 310 | 50 | 54 | 50 | 263 | 50 | 81 | 50 | 319 | 50 | 346 | 50 | 316 | 50 | 149 | 50 | 146 | 50 |
| Manganese (Mn) | µg | 10.1 | 1.0 | 21.9 | 1.0 | 11.4 | 1.0 | 8.6 | 1.0 | 11.5 | 1.0 | 8.0 | 1.0 | 19.3 | 1.0 | 4.4 | 1.0 | 18.9 | 1.0 | 5.7 | 1.0 | 21.2 | 1.0 | 23.9 | 1.0 | 26.8 | 1.0 | 12.4 | 1.0 | 6.9 | 1.0 |
| Molybdenum (Mo) | µg | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 |
| Nickel (Ni) | µg | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 5.8 | 3.0 | 3.6 | 3.0 | 5.7 | 3.0 | 4.1 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 |
| Phosphorus (P) | µg | <25 | 25 | <25 | 25 | <25 | 25 | <25 | 25 | <25 | 25 | <25 | 25 | 28 | 25 | <25 | 25 | 32 | 25 | <25 | 25 | 42 | 25 | 50 | 25 | 47 | 25 | <25 | 25 | 32 | 25 |
| Selenium (Se) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Silver (Ag) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Strontium (Sr) | µg | 3.0 | 1.0 | 18.2 | 1.0 | 8.6 | 1.0 | 3.1 | 1.0 | 5.1 | 1.0 | 3.1 | 1.0 | 9.8 | 1.0 | 1.7 | 1.0 | 6.6 | 1.0 | 2.6 | 1.0 | 9.1 | 1.0 | 4.3 | 1.0 | 7.5 | 1.0 | 2.7 | 1.0 | 6.5 | 1.0 |
| Thallium (Tl) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Tin (Sn) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Titanium (Ti) | µg | <10 | 10 | 11 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | 11 | 10 | <10 | 10 | 11 | 10 | <10 | 10 | 15 | 10 | 14 | 10 | 26 | 10 | <10 | 10 | <10 | 10 |
| Vanadium (V) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Zinc (Zn) | µg | 36.5 | 5.0 | 41.9 | 5.0 | 49.1 | 5.0 | 31.9 | 5.0 | 40.9 | 5.0 | 73.2 | 5.0 | 48.1 | 5.0 | 52.5 | 5.0 | 41.6 | 5.0 | 13.8 | 5.0 | 28.0 | 5.0 | 30.3 | 5.0 | 47.6 | 5.0 | 67.3 | 5.0 | 19.7 | 5.0 |
| Zirconium (Zr) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Total Uranium (U) | µg | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 |

| Calculated Concentrations | Units | Quarter 1 Maximum | Quarter 1 Minimum | Courtice 1 | Courtice 2 | Courtice 3 | Courtice 4 | Courtice 5 | CourticeA 6 | Courtice 7 | Courtice 8 | Courtice 9 | Courtice 10 | Courtice 11 | Courtice 12 | Courtice 13 | Courtice 14 | Courtice 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1/1/2017 | 1/7/2017 | 1/13/2017 | 1/19/2017 | 1/25/2017 | 1/31/2017 | 2/6/2017 | 2/12/2017 | 2/18/2017 | 2/24/2017 | 3/2/2017 | 3/8/2017 | 3/14/2017 | 3/20/2017 | 3/26/2017 |
| Particulate | $\mu g/m^3$ | 44.53 | 9.90 | 13.00 | 44.36 | 24.84 | 16.39 | 15.15 | 17.38 | 35.79 | 13.98 | 28.02 | 9.90 | 28.17 | 22.90 | 44.53 | 26.34 | 19.35 |
| Total Mercury (Hg) | $\mu g/m^3$ | 1.41E-05 | 6.48E-06 | 6.77E-06 | 6.86E-06 | 7.12E-06 | 6.48E-06 | 6.56E-06 | 6.87E-06 | 6.82E-06 | 7.13E-06 | 6.90E-06 | 6.69E-06 | 6.97E-06 | 1.37E-05 | 1.41E-05 | 6.70E-06 | 7.12E-06 |
| Aluminum (Al) | $\mu g/m^3$ | 3.18E-01 | 1.69E-02 | 1.69E-02 | 1.04E-01 | 7.76E-02 | 6.29E-02 | 9.58E-02 | 5.77E-02 | 1.20E-01 | 3.57E-02 | 8.63E-02 | 3.61E-02 | 1.55E-01 | 2.12E-01 | 3.18E-01 | 5.03E-02 | 8.89E-02 |
| Antimony (Sb) | $\mu g/m^3$ | 3.57E-03 | 3.24E-03 | 3.39E-03 | 3.43E-03 | 3.56E-03 | 3.24E-03 | 3.28E-03 | 3.43E-03 | 3.41E-03 | 3.57E-03 | 3.45E-03 | 3.34E-03 | 3.49E-03 | 3.42E-03 | 3.53E-03 | 3.35E-03 | 3.56E-03 |
| Arsenic (As) | $\mu g/m^3$ | 2.14E-03 | 1.94E-03 | 2.03E-03 | 2.06E-03 | 2.14E-03 | 1.94E-03 | 1.97E-03 | 2.06E-03 | 2.05E-03 | 2.14E-03 | 2.07E-03 | 2.01E-03 | 2.09E-03 | 2.05E-03 | 2.12E-03 | 2.01E-03 | 2.13E-03 |
| Barium (Ba) | $\mu g/m^3$ | 1.41E-02 | 3.49E-03 | 4.74E-03 | 1.08E-02 | 8.54E-03 | 7.71E-03 | 6.23E-03 | 4.19E-03 | 1.04E-02 | 3.49E-03 | 1.41E-02 | 4.21E-03 | 5.51E-03 | 6.56E-03 | 5.15E-03 | 7.17E-03 | 3.84E-03 |
| Beryllium (Be) | $\mu g/m^3$ | 3.57E-04 | 3.24E-04 | 3.39E-04 | 3.43E-04 | 3.56E-04 | 3.24E-04 | 3.28E-04 | 3.43E-04 | 3.41E-04 | 3.57E-04 | 3.45E-04 | 3.34E-04 | 3.49E-04 | 3.42E-04 | 3.53E-04 | 3.35E-04 | 3.56E-04 |
| Bismuth (Bi) | $\mu g/m^3$ | 2.14E-03 | 1.94E-03 | 2.03E-03 | 2.06E-03 | 2.14E-03 | 1.94E-03 | 1.97E-03 | 2.06E-03 | 2.05E-03 | 2.14E-03 | 2.07E-03 | 2.01E-03 | 2.09E-03 | 2.05E-03 | 2.12E-03 | 2.01E-03 | 2.13E-03 |
| Boron (B) | $\mu g/m^3$ | 2.14E-03 | 1.94E-03 | 2.03E-03 | 2.06E-03 | 2.14E-03 | 1.94E-03 | 1.97E-03 | 2.06E-03 | 2.05E-03 | 2.14E-03 | 2.07E-03 | 2.01E-03 | 2.09E-03 | 2.05E-03 | 2.12E-03 | 2.01E-03 | 2.13E-03 |
| Cadmium (Cd) | $\mu g/m^3$ | 7.13E-04 | 6.48E-04 | 6.77E-04 | 6.86E-04 | 7.12E-04 | 6.48E-04 | 6.56E-04 | 6.87E-04 | 6.82E-04 | 7.13E-04 | 6.90E-04 | 6.69E-04 | 6.97E-04 | 6.84E-04 | 7.06E-04 | 6.70E-04 | 7.12E-04 |
| Chromium (Cr) | $\mu g/m^3$ | 4.64E-03 | 1.62E-03 | 1.69E-03 | 1.71E-03 | 1.78E-03 | 1.62E-03 | 1.64E-03 | 1.72E-03 | 4.64E-03 | 1.78E-03 | 1.73E-03 | 1.67E-03 | 1.74E-03 | 1.71E-03 | 1.76E-03 | 1.68E-03 | 1.78E-03 |
| Cobalt (Co) | $\mu g/m^3$ | 7.13E-04 | 6.48E-04 | 6.77E-04 | 6.86E-04 | 7.12E-04 | 6.48E-04 | 6.56E-04 | 6.87E-04 | 6.82E-04 | 7.13E-04 | 6.90E-04 | 6.69E-04 | 6.97E-04 | 6.84E-04 | 7.06E-04 | 6.70E-04 | 7.12E-04 |
| Copper (Cu) | $\mu g/m^3$ | 3.91E-02 | 1.20E-02 | 1.29E-02 | 3.22E-02 | 2.04E-02 | 3.35E-02 | 3.59E-02 | 1.31E-02 | 2.98E-02 | 3.46E-02 | 3.91E-02 | 2.29E-02 | 2.36E-02 | 2.14E-02 | 1.20E-02 | 3.75E-02 | 1.49E-02 |
| Iron (Fe) | $\mu g/m^3$ | 5.88E-01 | 1.18E-01 | 1.44E-01 | 3.89E-01 | 2.83E-01 | 1.96E-01 | 2.09E-01 | 1.78E-01 | 5.53E-01 | 1.18E-01 | 5.58E-01 | 1.57E-01 | 4.21E-01 | 4.16E-01 | 5.88E-01 | 2.94E-01 | 2.16E-01 |
| Lead (Pb) | $\mu g/m^3$ | 4.02E-03 | 9.72E-04 | 1.02E-03 | 1.03E-03 | 1.07E-03 | 9.72E-04 | 2.16E-03 | 1.03E-03 | 2.80E-03 | 2.92E-03 | 3.73E-03 | 1.00E-03 | 2.51E-03 | 1.03E-03 | 2.33E-03 | 4.02E-03 | 1.07E-03 |
| Magnesium (Mg) | $\mu g/m^3$ | 3.13E-01 | 3.85E-02 | 8.73E-02 | 3.13E-01 | 1.67E-01 | 5.77E-02 | 9.77E-02 | 7.76E-02 | 2.11E-01 | 3.85E-02 | 1.82E-01 | 5.42E-02 | 2.22E-01 | 2.37E-01 | 2.23E-01 | 9.99E-02 | 1.04E-01 |
| Manganese (Mn) | $\mu g/m^3$ | 1.89E-02 | 3.14E-03 | 6.84E-03 | 1.50E-02 | 8.11E-03 | 5.57E-03 | 7.54E-03 | 5.50E-03 | 1.32E-02 | 3.14E-03 | 1.30E-02 | 3.81E-03 | 1.48E-02 | 1.63E-02 | 1.89E-02 | 8.31E-03 | 4.91E-03 |
| Molybdenum (Mo) | $\mu g/m^3$ | 1.07E-03 | 9.72E-04 | 1.02E-03 | 1.03E-03 | 1.07E-03 | 9.72E-04 | 9.84E-04 | 1.03E-03 | 1.02E-03 | 1.07E-03 | 1.04E-03 | 1.00E-03 | 1.05E-03 | 1.03E-03 | 1.06E-03 | 1.01E-03 | 1.07E-03 |
| Nickel (Ni) | $\mu g/m^3$ | 3.95E-03 | 9.72E-04 | 1.02E-03 | 1.03E-03 | 1.07E-03 | 9.72E-04 | 9.84E-04 | 1.03E-03 | 3.95E-03 | 2.57E-03 | 3.93E-03 | 2.74E-03 | 1.05E-03 | 1.03E-03 | 1.06E-03 | 1.01E-03 | 1.07E-03 |
| Phosphorus (P) | $\mu g/m^3$ | 3.42E-02 | 8.10E-03 | 8.46E-03 | 8.57E-03 | 8.90E-03 | 8.10E-03 | 8.20E-03 | 8.59E-03 | 1.91E-02 | 8.91E-03 | 2.21E-02 | 8.36E-03 | 2.93E-02 | 3.42E-02 | 3.32E-02 | 8.38E-03 | 2.28E-02 |
| Selenium (Se) | $\mu g/m^3$ | 3.57E-03 | 3.24E-03 | 3.39E-03 | 3.43E-03 | 3.56E-03 | 3.24E-03 | 3.28E-03 | 3.43E-03 | 3.41E-03 | 3.57E-03 | 3.45E-03 | 3.34E-03 | 3.49E-03 | 3.42E-03 | 3.53E-03 | 3.35E-03 | 3.56E-03 |
| Silver (Ag) | $\mu g/m^3$ | 1.78E-03 | 1.62E-03 | 1.69E-03 | 1.71E-03 | 1.78E-03 | 1.62E-03 | 1.64E-03 | 1.72E-03 | 1.70E-03 | 1.78E-03 | 1.73E-03 | 1.67E-03 | 1.74E-03 | 1.71E-03 | 1.76E-03 | 1.68E-03 | 1.78E-03 |
| Strontium (Sr) | $\mu g/m^3$ | 1.25E-02 | 1.21E-03 | 2.03E-03 | 1.25E-02 | 6.12E-03 | 2.01E-03 | 3.34E-03 | 2.13E-03 | 6.68E-03 | 1.21E-03 | 4.56E-03 | 1.74E-03 | 6.35E-03 | 2.94E-03 | 5.29E-03 | 1.81E-03 | 4.63E-03 |
| Thallium (Tl) | $\mu g/m^3$ | 3.57E-03 | 3.24E-03 | 3.39E-03 | 3.43E-03 | 3.56E-03 | 3.24E-03 | 3.28E-03 | 3.43E-03 | 3.41E-03 | 3.57E-03 | 3.45E-03 | 3.34E-03 | 3.49E-03 | 3.42E-03 | 3.53E-03 | 3.35E-03 | 3.56E-03 |
| Tin (Sn) | $\mu g/m^3$ | 3.57E-03 | 3.24E-03 | 3.39E-03 | 3.43E-03 | 3.56E-03 | 3.24E-03 | 3.28E-03 | 3.43E-03 | 3.41E-03 | 3.57E-03 | 3.45E-03 | 3.34E-03 | 3.49E-03 | 3.42E-03 | 3.53E-03 | 3.35E-03 | 3.56E-03 |
| Titanium (Ti) | $\mu g/m^3$ | 1.83E-02 | 3.24E-03 | 3.39E-03 | 7.54E-03 | 3.56E-03 | 3.24E-03 | 3.28E-03 | 3.43E-03 | 7.50E-03 | 3.57E-03 | 7.59E-03 | 3.34E-03 | 1.05E-02 | 9.57E-03 | 1.83E-02 | 3.35E-03 | 3.56E-03 |
| Vanadium (V) | $\mu g/m^3$ | 1.78E-03 | 1.62E-03 | 1.69E-03 | 1.71E-03 | 1.78E-03 | 1.62E-03 | 1.64E-03 | 1.72E-03 | 1.70E-03 | 1.78E-03 | 1.73E-03 | 1.67E-03 | 1.74E-03 | 1.71E-03 | 1.76E-03 | 1.68E-03 | 1.78E-03 |
| Zinc (Zn) | $\mu g/m^3$ | 5.03E-02 | 9.23E-03 | 2.47E-02 | 2.87E-02 | 3.49E-02 | 2.07E-02 | 2.68E-02 | 5.03E-02 | 3.28E-02 | 3.74E-02 | 2.87E-02 | 9.23E-03 | 1.95E-02 | 2.07E-02 | 3.36E-02 | 4.51E-02 | 1.40E-02 |
| Zirconium (Zr) | $\mu g/m^3$ | 1.78E-03 | 1.62E-03 | 1.69E-03 | 1.71E-03 | 1.78E-03 | 1.62E-03 | 1.64E-03 | 1.72E-03 | 1.70E-03 | 1.78E-03 | 1.73E-03 | 1.67E-03 | 1.74E-03 | 1.71E-03 | 1.76E-03 | 1.68E-03 | 1.78E-03 |
| Total Uranium (U) | $\mu g/m^3$ | 1.60E-04 | 1.46E-04 | 1.52E-04 | 1.54E-04 | 1.60E-04 | 1.46E-04 | 1.48E-04 | 1.55E-04 | 1.53E-04 | 1.60E-04 | 1.55E-04 | 1.50E-04 | 1.57E-04 | 1.54E-04 | 1.59E-04 | 1.51E-04 | 1.60E-04 |

Notes:

A - Mass flow controller was unable to maintain a consistent flow during filter retrieval. However, the chart recorder indicated consistent flow ~40cfm over the sample run. Also, the sample results were comparable to the other stations, therefore the results were considered valid.

| Metals and Total Particulates | Rundle Road Station | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | 01/01/2017 | | 07/01/2017 | | 13/01/2017 | | 19/01/2017 | | 25/01/2017 | | 31/01/2017 | | 06/02/2017 | | 12/02/2017 | | 18/02/2017 | | 24/02/2017 | | 02/03/2017 | | 08/03/2017 | | 14/03/2017 | | 20/03/2017 | | 26/03/2017 | |
| Date | dd/mm/yyyy | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Start Time | hh:mm | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | |
| Sample Duration | Hours | 23.44 | | 23.68 | | 23.36 | | 23.82 | | 24.08 | | 23.33 | | 23.23 | | 23.49 | | 23.42 | | 23.19 | | 23.86 | | 23.99 | | 23.77 | | 23.43 | | 23.61 | |
| Technician | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | |
| Filter Number | | 16120840 | | 16120895 | | 16121500 | | 16122891 | | 16122895 | | 17011071 | | 17011074 | | 17011825 | | 17011829 | | 17011843 | | 17011847 | | 17012351 | | 17012355 | | 17012369 | | 17012373 | |
| Analytical Report # | | B703339 | | B706279 | | B712111 | | DUI754 | | B718943 | | B724014 | | B728799 | | B731642 | | B739014 | | B740572 | | B747020 | | B749352 | | B754125 | | B758468 | | B763335 | |
| Total Volumetric Flow | $Am^3$/sample | 1450.57 | | 1419.51 | | 1407.11 | | 1503.61 | | 1532.31 | | 1493.13 | | 1402.44 | | 1418.54 | | 1419.04 | | 1469.00 | | 1521.27 | | 1545.75 | | 1429.85 | | 1461.92 | | 1461.68 | |
| **Analytical Results** | **Units** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** |
| Particulate | mg | 27.6 | 5 | 65.2 | 5 | 37.6 | 5 | 28.6 | 5 | 24 | 5 | 25.5 | 5 | 86.5 | 5 | 23 | 5 | 48 | 5 | 16.3 | 5 | 57.1 | 5 | 52 | 5 | 48 | 5 | 49.3 | 5 | 20.2 | 5 |
| Total Mercury (Hg) | µg | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | 0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 |
| Aluminum (Al) | µg | 111 | 50 | 204 | 50 | 130 | 50 | <50 | 50 | 93 | 50 | 94 | 50 | 164 | 50 | 53 | 50 | 133 | 50 | <50 | 50 | 361 | 50 | 411 | 50 | 353 | 50 | 99 | 50 | <50 | 50 |
| Antimony (Sb) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Arsenic (As) | µg | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 |
| Barium (Ba) | µg | 8.9 | 1.0 | 16.7 | 1.0 | 7.8 | 1.0 | 15.5 | 1.0 | 16.7 | 1.0 | 5.9 | 1.0 | 14.4 | 1.0 | 4.9 | 1.0 | 17.0 | 1.0 | 7.1 | 1.0 | 8.8 | 1.0 | 13.3 | 1.0 | 6.5 | 1.0 | 11.6 | 1.0 | 5.9 | 1.0 |
| Beryllium (Be) | µg | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 |
| Bismuth (Bi) | µg | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 |
| Boron (B) | µg | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 |
| Cadmium (Cd) | µg | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 |
| Chromium (Cr) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | 5.4 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Cobalt (Co) | µg | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 |
| Copper (Cu) | µg | 37.4 | 5.0 | 103 | 5.0 | 28.1 | 5.0 | 146 | 5.0 | 56.3 | 5.0 | 33.5 | 5.0 | 61.1 | 5.0 | 83.5 | 5.0 | 58.6 | 5.0 | 27.0 | 5.0 | 38.1 | 5.0 | 108 | 5.0 | 43.0 | 5.0 | 187 | 5.0 | 26.5 | 5.0 |
| Iron (Fe) | µg | 492 | 50 | 651 | 50 | 385 | 50 | 485 | 50 | 373 | 50 | 429 | 50 | 732 | 50 | 183 | 50 | 841 | 50 | 230 | 50 | 707 | 50 | 938 | 50 | 596 | 50 | 515 | 50 | 296 | 50 |
| Lead (Pb) | µg | <3.0 | 3.0 | 3.1 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 4.5 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 3.6 | 3.0 | 5.1 | 3.0 | <3.0 | 3.0 | 4.1 | 3.0 | 3.8 | 3.0 | 3.2 | 3.0 | 6.7 | 3.0 | <3.0 | 3.0 |
| Magnesium (Mg) | µg | 251 | 50 | 543 | 50 | 298 | 50 | 79 | 50 | 136 | 50 | 143 | 50 | 360 | 50 | 73 | 50 | 293 | 50 | 102 | 50 | 391 | 50 | 572 | 50 | 251 | 50 | 197 | 50 | 80 | 50 |
| Manganese (Mn) | µg | 18.7 | 1.0 | 24.9 | 1.0 | 14.9 | 1.0 | 8.1 | 1.0 | 10.8 | 1.0 | 10.9 | 1.0 | 21.4 | 1.0 | 4.7 | 1.0 | 18.7 | 1.0 | 6.1 | 1.0 | 22.9 | 1.0 | 34.2 | 1.0 | 20.3 | 1.0 | 13.0 | 1.0 | 6.0 | 1.0 |
| Molybdenum (Mo) | µg | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 6.8 | 3.0 | <3.0 | 3.0 | 6.7 | 3.0 | <3.0 | 3.0 |
| Nickel (Ni) | µg | <3.0 | 3.0 | <3.0 | 3.0 | 3.1 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 5.6 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 |
| Phosphorus (P) | µg | <25 | 25 | 26 | 25 | <25 | 25 | <25 | 25 | <25 | 25 | <25 | 25 | 25 | 25 | <25 | 25 | 38 | 25 | <25 | 25 | 67 | 25 | 66 | 25 | 42 | 25 | <25 | 25 | <25 | 25 |
| Selenium (Se) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Silver (Ag) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Strontium (Sr) | µg | 6.7 | 1.0 | 14.8 | 1.0 | 11.0 | 1.0 | 2.4 | 1.0 | 3.5 | 1.0 | 4.7 | 1.0 | 12.5 | 1.0 | 1.9 | 1.0 | 7.8 | 1.0 | 3.4 | 1.0 | 12.1 | 1.0 | 10.7 | 1.0 | 5.4 | 1.0 | 4.9 | 1.0 | 2.5 | 1.0 |
| Thallium (Tl) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Tin (Sn) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Titanium (Ti) | µg | <10 | 10 | 13 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | 12 | 10 | <10 | 10 | 10 | 10 | <10 | 10 | 24 | 10 | 18 | 10 | 22 | 10 | <10 | 10 | <10 | 10 |
| Vanadium (V) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Zinc (Zn) | µg | 33.2 | 5.0 | 31.9 | 5.0 | 28.7 | 5.0 | 31.3 | 5.0 | 47.7 | 5.0 | 26.1 | 5.0 | 36.8 | 5.0 | 27.6 | 5.0 | 47.9 | 5.0 | 16.0 | 5.0 | 89.3 | 5.0 | 51.6 | 5.0 | 23.9 | 5.0 | 124 | 5.0 | 19.6 | 5.0 |
| Zirconium (Zr) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Total Uranium (U) | µg | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 |

| Calculated Concentrations | Units | Quarter 1 Maximum | Quarter 1 Minimum | Rundle 1 | Rundle 2 | Rundle 3 | Rundle 4 | Rundle 5 | Rundle 6 | Rundle 7 | Rundle 8 | Rundle 9 | Rundle 10 | Rundle 11 | Rundle 12 | Rundle 13 | Rundle 14 | Rundle 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1/1/2017 | 1/7/2017 | 1/13/2017 | 1/19/2017 | 1/25/2017 | 1/31/2017 | 2/6/2017 | 2/12/2017 | 2/18/2017 | 2/24/2017 | 3/2/2017 | 3/8/2017 | 3/14/2017 | 3/20/2017 | 3/26/2017 |
| Particulate | $\mu g/m^3$ | 61.68 | 11.10 | 19.03 | 45.93 | 26.72 | 19.02 | 15.66 | 17.08 | 61.68 | 16.21 | 33.83 | 11.10 | 37.53 | 33.64 | 33.57 | 33.72 | 13.82 |
| Total Mercury (Hg) | $\mu g/m^3$ | 1.29E-05 | 6.53E-06 | 6.89E-06 | 7.04E-06 | 7.11E-06 | 6.65E-06 | 6.53E-06 | 6.70E-06 | 7.13E-06 | 7.05E-06 | 7.05E-06 | 6.81E-06 | 6.57E-06 | 1.29E-05 | 6.99E-06 | 6.84E-06 | 6.84E-06 |
| Aluminum (Al) | $\mu g/m^3$ | 2.66E-01 | 1.66E-02 | 7.65E-02 | 1.44E-01 | 9.24E-02 | 1.66E-02 | 6.07E-02 | 6.30E-02 | 1.17E-01 | 3.74E-02 | 9.37E-02 | 1.70E-02 | 2.37E-01 | 2.66E-01 | 2.47E-01 | 6.77E-02 | 1.71E-02 |
| Antimony (Sb) | $\mu g/m^3$ | 3.57E-03 | 3.23E-03 | 3.45E-03 | 3.52E-03 | 3.55E-03 | 3.33E-03 | 3.26E-03 | 3.35E-03 | 3.57E-03 | 3.52E-03 | 3.52E-03 | 3.40E-03 | 3.29E-03 | 3.23E-03 | 3.50E-03 | 3.42E-03 | 3.42E-03 |
| Arsenic (As) | $\mu g/m^3$ | 2.14E-03 | 1.94E-03 | 2.07E-03 | 2.11E-03 | 2.13E-03 | 2.00E-03 | 1.96E-03 | 2.01E-03 | 2.14E-03 | 2.11E-03 | 2.11E-03 | 2.04E-03 | 1.97E-03 | 1.94E-03 | 2.10E-03 | 2.05E-03 | 2.05E-03 |
| Barium (Ba) | $\mu g/m^3$ | 1.20E-02 | 3.45E-03 | 6.14E-03 | 1.18E-02 | 5.54E-03 | 1.03E-02 | 1.09E-02 | 3.95E-03 | 1.03E-02 | 3.45E-03 | 1.20E-02 | 4.83E-03 | 5.78E-03 | 8.60E-03 | 4.55E-03 | 7.93E-03 | 4.04E-03 |
| Beryllium (Be) | $\mu g/m^3$ | 3.57E-04 | 3.23E-04 | 3.45E-04 | 3.52E-04 | 3.55E-04 | 3.33E-04 | 3.26E-04 | 3.35E-04 | 3.57E-04 | 3.52E-04 | 3.52E-04 | 3.40E-04 | 3.29E-04 | 3.23E-04 | 3.50E-04 | 3.42E-04 | 3.42E-04 |
| Bismuth (Bi) | $\mu g/m^3$ | 2.14E-03 | 1.94E-03 | 2.07E-03 | 2.11E-03 | 2.13E-03 | 2.00E-03 | 1.96E-03 | 2.01E-03 | 2.14E-03 | 2.11E-03 | 2.11E-03 | 2.04E-03 | 1.97E-03 | 1.94E-03 | 2.10E-03 | 2.05E-03 | 2.05E-03 |
| Boron (B) | $\mu g/m^3$ | 2.14E-03 | 1.94E-03 | 2.07E-03 | 2.11E-03 | 2.13E-03 | 2.00E-03 | 1.96E-03 | 2.01E-03 | 2.14E-03 | 2.11E-03 | 2.11E-03 | 2.04E-03 | 1.97E-03 | 1.94E-03 | 2.10E-03 | 2.05E-03 | 2.05E-03 |
| Cadmium (Cd) | $\mu g/m^3$ | 7.13E-04 | 6.47E-04 | 6.89E-04 | 7.04E-04 | 7.11E-04 | 6.65E-04 | 6.53E-04 | 6.70E-04 | 7.13E-04 | 7.05E-04 | 7.05E-04 | 6.81E-04 | 6.57E-04 | 6.47E-04 | 6.99E-04 | 6.84E-04 | 6.84E-04 |
| Chromium (Cr) | $\mu g/m^3$ | 3.49E-03 | 1.63E-03 | 1.72E-03 | 1.76E-03 | 1.78E-03 | 1.66E-03 | 1.63E-03 | 1.67E-03 | 1.78E-03 | 1.76E-03 | 1.76E-03 | 1.70E-03 | 1.64E-03 | 3.49E-03 | 1.75E-03 | 1.71E-03 | 1.71E-03 |
| Cobalt (Co) | $\mu g/m^3$ | 7.13E-04 | 6.47E-04 | 6.89E-04 | 7.04E-04 | 7.11E-04 | 6.65E-04 | 6.53E-04 | 6.70E-04 | 7.13E-04 | 7.05E-04 | 7.05E-04 | 6.81E-04 | 6.57E-04 | 6.47E-04 | 6.99E-04 | 6.84E-04 | 6.84E-04 |
| Copper (Cu) | $\mu g/m^3$ | 1.28E-01 | 1.81E-02 | 2.58E-02 | 7.26E-02 | 2.00E-02 | 9.71E-02 | 3.67E-02 | 2.24E-02 | 4.36E-02 | 5.89E-02 | 4.13E-02 | 1.84E-02 | 2.50E-02 | 6.99E-02 | 3.01E-02 | 1.28E-01 | 1.81E-02 |
| Iron (Fe) | $\mu g/m^3$ | 6.07E-01 | 1.29E-01 | 3.39E-01 | 4.59E-01 | 2.74E-01 | 3.23E-01 | 2.43E-01 | 2.87E-01 | 5.22E-01 | 1.29E-01 | 5.93E-01 | 1.57E-01 | 4.65E-01 | 6.07E-01 | 4.17E-01 | 3.52E-01 | 2.03E-01 |
| Lead (Pb) | $\mu g/m^3$ | 4.58E-03 | 9.98E-04 | 1.03E-03 | 2.18E-03 | 1.07E-03 | 9.98E-04 | 2.94E-03 | 1.00E-03 | 1.07E-03 | 2.54E-03 | 3.59E-03 | 1.02E-03 | 2.70E-03 | 2.46E-03 | 2.24E-03 | 4.58E-03 | 1.03E-03 |
| Magnesium (Mg) | $\mu g/m^3$ | 3.83E-01 | 5.15E-02 | 1.73E-01 | 3.83E-01 | 2.12E-01 | 5.25E-02 | 8.88E-02 | 9.58E-02 | 2.57E-01 | 5.15E-02 | 2.06E-01 | 6.94E-02 | 2.57E-01 | 3.70E-01 | 1.76E-01 | 1.35E-01 | 5.47E-02 |
| Manganese (Mn) | $\mu g/m^3$ | 2.21E-02 | 3.31E-03 | 1.29E-02 | 1.75E-02 | 1.06E-02 | 5.39E-03 | 7.05E-03 | 7.30E-03 | 1.53E-02 | 3.31E-03 | 1.32E-02 | 4.15E-03 | 1.51E-02 | 2.21E-02 | 1.42E-02 | 8.89E-03 | 4.10E-03 |
| Molybdenum (Mo) | $\mu g/m^3$ | 4.58E-03 | 9.79E-04 | 1.03E-03 | 1.06E-03 | 1.07E-03 | 9.98E-04 | 9.79E-04 | 1.00E-03 | 1.07E-03 | 1.06E-03 | 1.06E-03 | 1.02E-03 | 9.86E-04 | 4.40E-03 | 1.05E-03 | 4.58E-03 | 1.03E-03 |
| Nickel (Ni) | $\mu g/m^3$ | 3.62E-03 | 9.79E-04 | 1.03E-03 | 1.06E-03 | 2.20E-03 | 9.98E-04 | 9.79E-04 | 1.00E-03 | 2.14E-03 | 1.06E-03 | 1.06E-03 | 1.02E-03 | 9.86E-04 | 3.62E-03 | 1.05E-03 | 1.03E-03 | 1.03E-03 |
| Phosphorus (P) | $\mu g/m^3$ | 4.40E-02 | 8.16E-03 | 8.62E-03 | 1.83E-02 | 8.88E-03 | 8.31E-03 | 8.16E-03 | 8.37E-03 | 1.78E-02 | 8.81E-03 | 2.68E-02 | 8.51E-03 | 4.40E-02 | 4.27E-02 | 2.94E-02 | 8.55E-03 | 8.55E-03 |
| Selenium (Se) | $\mu g/m^3$ | 3.57E-03 | 3.23E-03 | 3.45E-03 | 3.52E-03 | 3.55E-03 | 3.33E-03 | 3.26E-03 | 3.35E-03 | 3.57E-03 | 3.52E-03 | 3.52E-03 | 3.40E-03 | 3.29E-03 | 3.23E-03 | 3.50E-03 | 3.42E-03 | 3.42E-03 |
| Silver (Ag) | $\mu g/m^3$ | 1.78E-03 | 1.62E-03 | 1.72E-03 | 1.76E-03 | 1.78E-03 | 1.66E-03 | 1.63E-03 | 1.67E-03 | 1.78E-03 | 1.76E-03 | 1.76E-03 | 1.70E-03 | 1.64E-03 | 1.62E-03 | 1.75E-03 | 1.71E-03 | 1.71E-03 |
| Strontium (Sr) | $\mu g/m^3$ | 1.04E-02 | 1.34E-03 | 4.62E-03 | 1.04E-02 | 7.82E-03 | 1.60E-03 | 2.28E-03 | 3.15E-03 | 8.91E-03 | 1.34E-03 | 5.50E-03 | 2.31E-03 | 7.95E-03 | 6.92E-03 | 3.78E-03 | 3.35E-03 | 1.71E-03 |
| Thallium (Tl) | $\mu g/m^3$ | 3.57E-03 | 3.23E-03 | 3.45E-03 | 3.52E-03 | 3.55E-03 | 3.33E-03 | 3.26E-03 | 3.35E-03 | 3.57E-03 | 3.52E-03 | 3.52E-03 | 3.40E-03 | 3.29E-03 | 3.23E-03 | 3.50E-03 | 3.42E-03 | 3.42E-03 |
| Tin (Sn) | $\mu g/m^3$ | 3.57E-03 | 3.23E-03 | 3.45E-03 | 3.52E-03 | 3.55E-03 | 3.33E-03 | 3.26E-03 | 3.35E-03 | 3.57E-03 | 3.52E-03 | 3.52E-03 | 3.40E-03 | 3.29E-03 | 3.23E-03 | 3.50E-03 | 3.42E-03 | 3.42E-03 |
| Titanium (Ti) | $\mu g/m^3$ | 1.58E-02 | 3.26E-03 | 3.45E-03 | 9.16E-03 | 3.55E-03 | 3.33E-03 | 3.26E-03 | 3.35E-03 | 8.56E-03 | 3.52E-03 | 7.05E-03 | 3.40E-03 | 1.58E-02 | 1.16E-02 | 1.54E-02 | 3.42E-03 | 3.42E-03 |
| Vanadium (V) | $\mu g/m^3$ | 1.78E-03 | 1.62E-03 | 1.72E-03 | 1.76E-03 | 1.78E-03 | 1.66E-03 | 1.63E-03 | 1.67E-03 | 1.78E-03 | 1.76E-03 | 1.76E-03 | 1.70E-03 | 1.64E-03 | 1.62E-03 | 1.75E-03 | 1.71E-03 | 1.71E-03 |
| Zinc (Zn) | $\mu g/m^3$ | 8.48E-02 | 1.09E-02 | 2.29E-02 | 2.25E-02 | 2.04E-02 | 2.08E-02 | 3.11E-02 | 1.75E-02 | 2.62E-02 | 1.95E-02 | 3.38E-02 | 1.09E-02 | 5.87E-02 | 3.34E-02 | 1.67E-02 | 8.48E-02 | 1.34E-02 |
| Zirconium (Zr) | $\mu g/m^3$ | 1.78E-03 | 1.62E-03 | 1.72E-03 | 1.76E-03 | 1.78E-03 | 1.66E-03 | 1.63E-03 | 1.67E-03 | 1.78E-03 | 1.76E-03 | 1.76E-03 | 1.70E-03 | 1.64E-03 | 1.62E-03 | 1.75E-03 | 1.71E-03 | 1.71E-03 |
| Total Uranium (U) | $\mu g/m^3$ | 1.60E-04 | 1.46E-04 | 1.55E-04 | 1.59E-04 | 1.60E-04 | 1.50E-04 | 1.47E-04 | 1.51E-04 | 1.60E-04 | 1.59E-04 | 1.59E-04 | 1.53E-04 | 1.48E-04 | 1.46E-04 | 1.57E-04 | 1.54E-04 | 1.54E-04 |

| Metals and Total Particulates | Fenceline Station | Fenceline | | Fenceline | | Fenceline | | Fenceline | | Fenceline | | Fenceline | | Fenceline | | Fenceline | | Fenceline | | Fenceline | | Fenceline | | Fenceline[1] | | Fenceline | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | 01/01/2017 | | 07/01/2017 | | 13/01/2017 | | 19/01/2017 | | 25/01/2017 | | 31/01/2017 | | 06/02/2017 | | 12/02/2017 | | 18/02/2017 | | 24/02/2017 | | 02/03/2017 | | 08/03/2017 | | 14/03/2017 | | 20/03/2017 | | 26/03/2017 | |
| Date | dd/mm/yyyy | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Start Time | hh:mm | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | |
| Sample Duration | Hours | 24.99 | | 23.31 | | 23.86 | | 23.94 | | 23.14 | | 23.54 | | 23.11 | | 24.76 | | 23.26 | | 24.11 | | 23.61 | | 23.52 | | 23.76 | | 23.4 | | 24.69 | |
| Technician | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | | TH | |
| Filter Number | | 16120841 | | 16120896 | | 16121501 | | 16122892 | | 16122896 | | 17011072 | | 17011300 | | 17011826 | | 17011830 | | 17011844 | | 17011848 | | 17012352 | | 17012356 | | 17012370 | | 17012374 | |
| Analytical Report # | | B703339 | | B706279 | | B712111 | | B714323 | | B718943 | | B724014 | | B728799 | | DXM434 | | B739014 | | B740572 | | B747020 | | B749352 | | B754125 | | B758468 | | B763335 | |
| Total Volumetric Flow | $Am^3$/sample | 1566.01 | | 1435.08 | | 1480.43 | | 1504.18 | | 1477.33 | | 1480.49 | | 1440.70 | | 1553.24 | | 1467.48 | | 1532.35 | | 1447.76 | | 1483.21 | | 1470.61 | | 1473.78 | | 1557.49 | |
| **Analytical Results** | **Units** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** |
| Particulate | mg | 23.7 | 5 | 43.1 | 5 | 46.1 | 5 | 22.5 | 5 | 24.4 | 5 | 37.2 | 5 | 104 | 5 | 35.4 | 5 | 51.1 | 5 | 24.5 | 5 | 68.6 | 5.0 | 42.2 | 5 | 85.9 | 5 | 52 | 5 | 36.4 | 5 |
| Total Mercury (Hg) | µg | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 | 0.02 | 0.02 | <0.02 | 0.02 | <0.02 | 0.02 |
| Aluminum (Al) | µg | 76 | 50 | 115 | 50 | 166 | 50 | <50 | 50 | 114 | 50 | 103 | 50 | 198 | 50 | 101 | 50 | 123 | 50 | 93 | 50 | 342 | 50 | 323 | 50 | 450 | 50 | 153 | 50 | 184 | 50 |
| Antimony (Sb) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Arsenic (As) | µg | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 |
| Barium (Ba) | µg | 7.6 | 1.0 | 15.5 | 1.0 | 14.0 | 1.0 | 13.3 | 1.0 | 9.0 | 1.0 | 7.2 | 1.0 | 19.1 | 1.0 | 5.4 | 1.0 | 17.6 | 1.0 | 8.3 | 1.0 | 11.2 | 1.0 | 11.2 | 1.0 | 8.3 | 1.0 | 15.7 | 1.0 | 7.4 | 1.0 |
| Beryllium (Be) | µg | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 | <1.0 | 1.0 |
| Bismuth (Bi) | µg | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 |
| Boron (B) | µg | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 | <6.0 | 6.0 |
| Cadmium (Cd) | µg | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | 3.9 | 2.0 | <2.0 | 2.0 | 2.1 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 |
| Chromium (Cr) | µg | <5.0 | 5.0 | <5.0 | 5.0 | 5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | 5.6 | 5.0 | <5.0 | 5.0 | 7.4 | 5.0 | <5.0 | 5.0 | 8.8 | 5.0 | 9.1 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Cobalt (Co) | µg | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 | <2.0 | 2.0 |
| Copper (Cu) | µg | 41.1 | 5.0 | 33.8 | 5.0 | 26.6 | 5.0 | 53.8 | 5.0 | 35.8 | 5.0 | 45.8 | 5.0 | 41.0 | 5.0 | 53.4 | 5.0 | 55.7 | 5.0 | 57.7 | 5.0 | 22.5 | 5.0 | 32.3 | 5.0 | 23.3 | 5.0 | 56.1 | 5.0 | 55.6 | 5.0 |
| Iron (Fe) | µg | 313 | 50 | 513 | 50 | 611 | 50 | 379 | 50 | 277 | 50 | 302 | 50 | 764 | 50 | 188 | 50 | 794 | 50 | 345 | 50 | 883 | 50 | 697 | 50 | 758 | 50 | 665 | 50 | 385 | 50 |
| Lead (Pb) | µg | 3.2 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 4.2 | 3.0 | 4.1 | 3.0 | 4.9 | 3.0 | 3.0 | 3.0 | 5.5 | 3.0 | 5.8 | 3.0 | 3.3 | 3.0 | 15.3 | 3.0 | <3.0 | 3.0 |
| Magnesium (Mg) | µg | 210 | 50 | 381 | 50 | 545 | 50 | 60 | 50 | 127 | 50 | 179 | 50 | 557 | 50 | 105 | 50 | 287 | 50 | 207 | 50 | 601 | 50 | 450 | 50 | 319 | 50 | 274 | 50 | 235 | 50 |
| Manganese (Mn) | µg | 14.5 | 1.0 | 15.3 | 1.0 | 21.5 | 1.0 | 7.8 | 1.0 | 10.2 | 1.0 | 10.8 | 1.0 | 23.7 | 1.0 | 5.5 | 1.0 | 20.7 | 1.0 | 12.8 | 1.0 | 46.5 | 1.0 | 26.9 | 1.0 | 25.6 | 1.0 | 18.1 | 1.0 | 11.9 | 1.0 |
| Molybdenum (Mo) | µg | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 4.5 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 4.7 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 |
| Nickel (Ni) | µg | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 4.1 | 3.0 | 17.4 | 3.0 | <3.0 | 3.0 | <3.0 | 3.0 | 18.4 | 3.0 | <3.0 | 3.0 | 3.4 | 3.0 | <3.0 | 3.0 |
| Phosphorus (P) | µg | <25 | 25 | <25 | 25 | <25 | 25 | <25 | 25 | <25 | 25 | <25 | 25 | 26 | 25 | <25 | 25 | 26 | 25 | <25 | 25 | 56 | 25 | 57 | 25 | 47 | 25 | 43 | 25 | 53 | 25 |
| Selenium (Se) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Silver (Ag) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Strontium (Sr) | µg | 5.9 | 1.0 | 8.2 | 1.0 | 15.4 | 1.0 | 1.5 | 1.0 | 4.1 | 1.0 | 5.3 | 1.0 | 19.1 | 1.0 | 4.7 | 1.0 | 7.8 | 1.0 | 7.8 | 1.0 | 16.9 | 1.0 | 7.2 | 1.0 | 7.6 | 1.0 | 7.9 | 1.0 | 9.9 | 1.0 |
| Thallium (Tl) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Tin (Sn) | µg | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | <10 | 10 |
| Titanium (Ti) | µg | <10 | 10 | <10 | 10 | 13 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | 14 | 10 | <10 | 10 | <10 | 10 | <10 | 10 | 21 | 10 | 16 | 10 | 26 | 10 | 12 | 10 | 12 | 10 |
| Vanadium (V) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Zinc (Zn) | µg | 36.1 | 5.0 | 35.4 | 5.0 | 50.9 | 5.0 | 30.1 | 5.0 | 39.3 | 5.0 | 20.3 | 5.0 | 46.3 | 5.0 | 33.1 | 5.0 | 45.7 | 5.0 | 21.0 | 5.0 | 33.6 | 5.0 | 36.0 | 5.0 | 22.7 | 5.0 | 92.0 | 5.0 | 26.8 | 5.0 |
| Zirconium (Zr) | µg | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 | <5.0 | 5.0 |
| Total Uranium (U) | µg | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 | <0.45 | 0.45 |

Notes:

1. Tear in filter during retreival. Concentrations comparable to other stations on the same day. Data considered valid.

| Calculated Concentrations | Quarter 1 | | | Fenceline 1 | Fenceline 2 | Fenceline 3 | Fenceline 4 | Fenceline 5 | Fenceline 6 | Fenceline 7 | Fenceline 8 | Fenceline 9 | Fenceline 10 | Fenceline 11 | Fenceline 12 | Fenceline 13 | Fenceline1 14 | Fenceline 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Units | Maximum | Minimum | 1/1/2017 | 1/7/2017 | 1/13/2017 | 1/19/2017 | 1/25/2017 | 1/31/2017 | 2/6/2017 | 2/12/2017 | 2/18/2017 | 2/24/2017 | 3/2/2017 | 3/8/2017 | 3/14/2017 | 3/20/2017 | 3/26/2017 |
| Particulate | $\mu g/m^3$ | 72.19 | 14.96 | 15.13 | 30.03 | 31.14 | 14.96 | 16.52 | 25.13 | 72.19 | 22.79 | 34.82 | 15.99 | 47.38 | 28.45 | 58.41 | 35.28 | 23.37 |
| Total Mercury (Hg) | $\mu g/m^3$ | 1.36E-05 | 6.39E-06 | 6.39E-06 | 6.97E-06 | 6.75E-06 | 6.65E-06 | 6.77E-06 | 6.75E-06 | 6.94E-06 | 6.44E-06 | 6.81E-06 | 6.53E-06 | 6.91E-06 | 6.74E-06 | 1.36E-05 | 6.79E-06 | 6.42E-06 |
| Aluminum (Al) | $\mu g/m^3$ | 3.06E-01 | 1.66E-02 | 4.85E-02 | 8.01E-02 | 1.12E-01 | 1.66E-02 | 7.72E-02 | 6.96E-02 | 1.37E-01 | 6.50E-02 | 8.38E-02 | 6.07E-02 | 2.36E-01 | 2.18E-01 | 3.06E-01 | 1.04E-01 | 1.18E-01 |
| Antimony (Sb) | $\mu g/m^3$ | 3.48E-03 | 3.19E-03 | 3.19E-03 | 3.48E-03 | 3.38E-03 | 3.32E-03 | 3.38E-03 | 3.38E-03 | 3.47E-03 | 3.22E-03 | 3.41E-03 | 3.26E-03 | 3.45E-03 | 3.37E-03 | 3.40E-03 | 3.39E-03 | 3.21E-03 |
| Arsenic (As) | $\mu g/m^3$ | 2.09E-03 | 1.92E-03 | 1.92E-03 | 2.09E-03 | 2.03E-03 | 1.99E-03 | 2.03E-03 | 2.03E-03 | 2.08E-03 | 1.93E-03 | 2.04E-03 | 1.96E-03 | 2.07E-03 | 2.02E-03 | 2.04E-03 | 2.04E-03 | 1.93E-03 |
| Barium (Ba) | $\mu g/m^3$ | 1.33E-02 | 3.48E-03 | 4.85E-03 | 1.08E-02 | 9.46E-03 | 8.84E-03 | 6.09E-03 | 4.86E-03 | 1.33E-02 | 3.48E-03 | 1.20E-02 | 5.42E-03 | 7.74E-03 | 7.55E-03 | 5.64E-03 | 1.07E-02 | 4.75E-03 |
| Beryllium (Be) | $\mu g/m^3$ | 3.48E-04 | 3.19E-04 | 3.19E-04 | 3.48E-04 | 3.38E-04 | 3.32E-04 | 3.38E-04 | 3.38E-04 | 3.47E-04 | 3.22E-04 | 3.41E-04 | 3.26E-04 | 3.45E-04 | 3.37E-04 | 3.40E-04 | 3.39E-04 | 3.21E-04 |
| Bismuth (Bi) | $\mu g/m^3$ | 2.09E-03 | 1.92E-03 | 1.92E-03 | 2.09E-03 | 2.03E-03 | 1.99E-03 | 2.03E-03 | 2.03E-03 | 2.08E-03 | 1.93E-03 | 2.04E-03 | 1.96E-03 | 2.07E-03 | 2.02E-03 | 2.04E-03 | 2.04E-03 | 1.93E-03 |
| Boron (B) | $\mu g/m^3$ | 2.09E-03 | 1.92E-03 | 1.92E-03 | 2.09E-03 | 2.03E-03 | 1.99E-03 | 2.03E-03 | 2.03E-03 | 2.08E-03 | 1.93E-03 | 2.04E-03 | 1.96E-03 | 2.07E-03 | 2.02E-03 | 2.04E-03 | 2.04E-03 | 1.93E-03 |
| Cadmium (Cd) | $\mu g/m^3$ | 2.69E-03 | 6.39E-04 | 6.39E-04 | 6.97E-04 | 6.75E-04 | 6.65E-04 | 6.77E-04 | 6.75E-04 | 6.94E-04 | 6.44E-04 | 6.81E-04 | 6.53E-04 | 2.69E-03 | 6.74E-04 | 1.43E-03 | 6.79E-04 | 6.42E-04 |
| Chromium (Cr) | $\mu g/m^3$ | 6.14E-03 | 1.60E-03 | 1.60E-03 | 1.74E-03 | 3.38E-03 | 1.66E-03 | 1.69E-03 | 1.69E-03 | 3.89E-03 | 1.61E-03 | 5.04E-03 | 1.63E-03 | 6.08E-03 | 6.14E-03 | 1.70E-03 | 1.70E-03 | 1.61E-03 |
| Cobalt (Co) | $\mu g/m^3$ | 6.97E-04 | 6.39E-04 | 6.39E-04 | 6.97E-04 | 6.75E-04 | 6.65E-04 | 6.77E-04 | 6.75E-04 | 6.94E-04 | 6.44E-04 | 6.81E-04 | 6.53E-04 | 6.91E-04 | 6.74E-04 | 6.80E-04 | 6.79E-04 | 6.42E-04 |
| Copper (Cu) | $\mu g/m^3$ | 3.81E-02 | 1.55E-02 | 2.62E-02 | 2.36E-02 | 1.80E-02 | 3.58E-02 | 2.42E-02 | 3.09E-02 | 2.85E-02 | 3.44E-02 | 3.80E-02 | 3.77E-02 | 1.55E-02 | 2.18E-02 | 1.58E-02 | 3.81E-02 | 3.57E-02 |
| Iron (Fe) | $\mu g/m^3$ | 6.10E-01 | 1.21E-01 | 2.00E-01 | 3.57E-01 | 4.13E-01 | 2.52E-01 | 1.88E-01 | 2.04E-01 | 5.30E-01 | 1.21E-01 | 5.41E-01 | 2.25E-01 | 6.10E-01 | 4.70E-01 | 5.15E-01 | 4.51E-01 | 2.47E-01 |
| Lead (Pb) | $\mu g/m^3$ | 1.04E-02 | 9.63E-04 | 2.04E-03 | 1.05E-03 | 1.01E-03 | 9.97E-04 | 1.02E-03 | 1.01E-03 | 2.92E-03 | 2.64E-03 | 3.34E-03 | 1.96E-03 | 3.80E-03 | 3.91E-03 | 2.24E-03 | 1.04E-02 | 9.63E-04 |
| Magnesium (Mg) | $\mu g/m^3$ | 4.15E-01 | 3.99E-02 | 1.34E-01 | 2.65E-01 | 3.68E-01 | 3.99E-02 | 8.60E-02 | 1.21E-01 | 3.87E-01 | 6.76E-02 | 1.96E-01 | 1.35E-01 | 4.15E-01 | 3.03E-01 | 2.17E-01 | 1.86E-01 | 1.51E-01 |
| Manganese (Mn) | $\mu g/m^3$ | 3.21E-02 | 3.54E-03 | 9.26E-03 | 1.07E-02 | 1.45E-02 | 5.19E-03 | 6.90E-03 | 7.29E-03 | 1.65E-02 | 3.54E-03 | 1.41E-02 | 8.35E-03 | 3.21E-02 | 1.81E-02 | 1.74E-02 | 1.23E-02 | 7.64E-03 |
| Molybdenum (Mo) | $\mu g/m^3$ | 3.17E-03 | 9.58E-04 | 9.58E-04 | 1.05E-03 | 1.01E-03 | 9.97E-04 | 1.02E-03 | 1.01E-03 | 1.04E-03 | 9.66E-04 | 3.07E-03 | 9.79E-04 | 1.04E-03 | 3.17E-03 | 1.02E-03 | 1.02E-03 | 9.63E-04 |
| Nickel (Ni) | $\mu g/m^3$ | 1.24E-02 | 9.58E-04 | 9.58E-04 | 1.05E-03 | 1.01E-03 | 9.97E-04 | 1.02E-03 | 1.01E-03 | 1.04E-03 | 2.64E-03 | 1.19E-02 | 9.79E-04 | 1.04E-03 | 1.24E-02 | 1.02E-03 | 2.31E-03 | 9.63E-04 |
| Phosphorus (P) | $\mu g/m^3$ | 3.87E-02 | 7.98E-03 | 7.98E-03 | 8.71E-03 | 8.44E-03 | 8.31E-03 | 8.46E-03 | 8.44E-03 | 1.80E-02 | 8.05E-03 | 1.77E-02 | 8.16E-03 | 3.87E-02 | 3.84E-02 | 3.20E-02 | 2.92E-02 | 3.40E-02 |
| Selenium (Se) | $\mu g/m^3$ | 3.48E-03 | 3.19E-03 | 3.19E-03 | 3.48E-03 | 3.38E-03 | 3.32E-03 | 3.38E-03 | 3.38E-03 | 3.47E-03 | 3.22E-03 | 3.41E-03 | 3.26E-03 | 3.45E-03 | 3.37E-03 | 3.40E-03 | 3.39E-03 | 3.21E-03 |
| Silver (Ag) | $\mu g/m^3$ | 1.74E-03 | 1.60E-03 | 1.60E-03 | 1.74E-03 | 1.69E-03 | 1.66E-03 | 1.69E-03 | 1.69E-03 | 1.74E-03 | 1.61E-03 | 1.70E-03 | 1.63E-03 | 1.73E-03 | 1.69E-03 | 1.70E-03 | 1.70E-03 | 1.61E-03 |
| Strontium (Sr) | $\mu g/m^3$ | 1.33E-02 | 9.97E-04 | 3.77E-03 | 5.71E-03 | 1.04E-02 | 9.97E-04 | 2.78E-03 | 3.58E-03 | 1.33E-02 | 3.03E-03 | 5.32E-03 | 5.09E-03 | 1.17E-02 | 4.85E-03 | 5.17E-03 | 5.36E-03 | 6.36E-03 |
| Thallium (Tl) | $\mu g/m^3$ | 3.48E-03 | 3.19E-03 | 3.19E-03 | 3.48E-03 | 3.38E-03 | 3.32E-03 | 3.38E-03 | 3.38E-03 | 3.47E-03 | 3.22E-03 | 3.41E-03 | 3.26E-03 | 3.45E-03 | 3.37E-03 | 3.40E-03 | 3.39E-03 | 3.21E-03 |
| Tin (Sn) | $\mu g/m^3$ | 3.48E-03 | 3.19E-03 | 3.19E-03 | 3.48E-03 | 3.38E-03 | 3.32E-03 | 3.38E-03 | 3.38E-03 | 3.47E-03 | 3.22E-03 | 3.41E-03 | 3.26E-03 | 3.45E-03 | 3.37E-03 | 3.40E-03 | 3.39E-03 | 3.21E-03 |
| Titanium (Ti) | $\mu g/m^3$ | 1.77E-02 | 3.19E-03 | 3.19E-03 | 3.48E-03 | 8.78E-03 | 3.32E-03 | 3.38E-03 | 3.38E-03 | 9.72E-03 | 3.22E-03 | 3.41E-03 | 3.26E-03 | 1.45E-02 | 1.08E-02 | 1.77E-02 | 8.14E-03 | 7.70E-03 |
| Vanadium (V) | $\mu g/m^3$ | 1.74E-03 | 1.60E-03 | 1.60E-03 | 1.74E-03 | 1.69E-03 | 1.66E-03 | 1.69E-03 | 1.69E-03 | 1.74E-03 | 1.61E-03 | 1.70E-03 | 1.63E-03 | 1.73E-03 | 1.69E-03 | 1.70E-03 | 1.70E-03 | 1.61E-03 |
| Zinc (Zn) | $\mu g/m^3$ | 6.24E-02 | 1.37E-02 | 2.31E-02 | 2.47E-02 | 3.44E-02 | 2.00E-02 | 2.66E-02 | 1.37E-02 | 3.21E-02 | 2.13E-02 | 3.11E-02 | 1.37E-02 | 2.32E-02 | 2.43E-02 | 1.54E-02 | 6.24E-02 | 1.72E-02 |
| Zirconium (Zr) | $\mu g/m^3$ | 1.74E-03 | 1.60E-03 | 1.60E-03 | 1.74E-03 | 1.69E-03 | 1.66E-03 | 1.69E-03 | 1.69E-03 | 1.74E-03 | 1.61E-03 | 1.70E-03 | 1.63E-03 | 1.73E-03 | 1.69E-03 | 1.70E-03 | 1.70E-03 | 1.61E-03 |
| Total Uranium (U) | $\mu g/m^3$ | 1.57E-04 | 1.44E-04 | 1.44E-04 | 1.57E-04 | 1.52E-04 | 1.50E-04 | 1.52E-04 | 1.52E-04 | 1.56E-04 | 1.45E-04 | 1.53E-04 | 1.47E-04 | 1.55E-04 | 1.52E-04 | 1.53E-04 | 1.53E-04 | 1.44E-04 |

# Appendix H PAHS DATA SUMMARY

| Polycyclic Aromatic Hydrocarbons | Courtice WPCP Station | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | Courtice | | Courtice | | Courtice | | Courtice | | Courtice | | Courtice | | Courtice | |
| Date | dd/mm/yyyy | 7/01/2017 | | 19/01/2017 | | 31/01/2017 | | 12/02/2017 | | 24/02/2017 | | 8/03/2017 | | 20/03/2017 | |
| Start Time | hh:mm | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | |
| Sample Duration | hours | 23.78 | | 23.5 | | 24.15 | | 24.04 | | 23.5 | | 23.04 | | 23.29 | |
| Technician | | TH | | TH | | TH | | TH | | TH | | TH | | TH | |
| Filter Number | | DQS473-01 | | DQS523-01 | | DQS692-01 | | DSD995-01 | | DSE214-01 | | DWR772-01 | | DWR787-01 | |
| Maxaam ID | | DSX350 | | DUJ028 | | DWB591 | | DXM306 | | DZC814 | | EAQ958 | | ECI937 | |
| Maxxam Job # | | B706301 | | B714368 | | B724009 | | B731622 | | B740598 | | B749273 | | B758463 | |
| Total Volumetric Flow | $Am^3$/sample | 348.52 | | 371.96 | | 378.25 | | 365.25 | | 346.66 | | 348.41 | | 354.06 | |
| Analytical Results | Units | Value | RDL | Value | RDL | Value | RDL | Value | RDL | Value | RDL | Value | RDL | Value | RDL |
| Benzo(a)pyrene | µg | 0.0308 | 0.0029 | 0.0121 | 0.0023 | 0.0175 | 0.0039 | 0.0147 | 0.0067 | 0.0052 | 0.0014 | 0.0090 | 0.0034 | 0.0244 | 0.0075 |
| 1-Methylnaphthalene | µg | 1.85 | 0.15 | 2.09 | 0.10 | 1.27 | 0.15 | 1.56 | 0.10 | 1.47 | 0.15 | 0.57 | 0.10 | 1.44 | 0.15 |
| 2-Methylnaphthalene | µg | 2.74 | 0.15 | 3.41 | 0.10 | 1.91 | 0.15 | 2.37 | 0.10 | 2.34 | 0.15 | 0.89 | 0.10 | 2.37 | 0.15 |
| Acenaphthene | µg | 0.216 | 0.075 | 0.254 | 0.050 | 0.219 | 0.075 | 0.204 | 0.050 | 0.771 | 0.075 | 0.094 | 0.050 | 0.318 | 0.075 |
| Acenaphthylene | µg | 0.096 | 0.075 | <0.050 | 0.050 | 0.081 | 0.075 | 0.106 | 0.050 | 0.078 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 |
| Anthracene | µg | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 |
| Benzo(a)anthracene | µg | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 |
| Benzo(a)fluorene | µg | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 |
| Benzo(b)fluoranthene | µg | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 |
| Benzo(b)fluorene | µg | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 |
| Benzo(e)pyrene | µg | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 |
| Benzo(g,h,i)perylene | µg | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 |
| Benzo(k)fluoranthene | µg | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 |
| Biphenyl | µg | 0.88 | 0.15 | 0.82 | 0.10 | 0.76 | 0.15 | 0.96 | 0.10 | 0.89 | 0.15 | 0.25 | 0.10 | 0.73 | 0.15 |
| Chrysene | µg | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 |
| Dibenz(a,h)anthracene | µg | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 |
| Dibenzo(a,c) anthracene + Picene [1] | µg | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 |
| Fluoranthene | µg | 0.249 | 0.075 | 0.184 | 0.050 | 0.261 | 0.075 | 0.272 | 0.050 | 0.258 | 0.075 | 0.108 | 0.050 | 0.213 | 0.075 |
| Indeno(1,2,3-cd)pyrene | µg | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 |
| Naphthalene | µg | 12.4 | 0.11 | 11.4 | 0.072 | 9.20 | 0.11 | 11.3 | 0.072 | 8.69 | 0.11 | 3.60 | 0.072 | 11.9 | 0.11 |
| o-Terphenyl | µg | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 |
| Perylene | µg | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 |
| Phenanthrene | µg | 0.735 | 0.075 | 0.784 | 0.050 | 0.831 | 0.075 | 0.854 | 0.050 | 1.20 | 0.075 | 0.252 | 0.050 | 0.567 | 0.075 |
| Pyrene | µg | 0.186 | 0.075 | 0.084 | 0.050 | 0.165 | 0.075 | 0.156 | 0.050 | 0.135 | 0.075 | 0.060 | 0.050 | 0.102 | 0.075 |
| Tetralin | µg | 0.59 | 0.15 | 1.12 | 0.10 | 0.50 | 0.15 | 0.76 | 0.10 | 0.61 | 0.15 | 0.83 | 0.10 | 0.79 | 0.15 |

| Calculated Concentrations | Units | Quarter 1 Maximum | Quarter 1 Minimum | Courtice 1 | Courtice 2 | Courtice 3 | Courtice 4 | Courtice 5 | Courtice 6 | Courtice 7 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1/7/2017 | 1/19/2017 | 1/31/2017 | 12/02/2017 | 24/02/2017 | 8/03/2017 | 20/03/2017 |
| Benzo(a)pyrene | $ng/m^3$ | 8.84E-02 | 1.50E-02 | 8.84E-02 | 3.25E-02 | 4.63E-02 | 4.02E-02 | 1.50E-02 | 2.58E-02 | 6.89E-02 |
| 1-Methylnaphthalene | $ng/m^3$ | 5.62E+00 | 1.64E+00 | 5.31E+00 | 5.62E+00 | 3.36E+00 | 4.27E+00 | 4.24E+00 | 1.64E+00 | 4.07E+00 |
| 2-Methylnaphthalene | $ng/m^3$ | 9.17E+00 | 2.55E+00 | 7.86E+00 | 9.17E+00 | 5.05E+00 | 6.49E+00 | 6.75E+00 | 2.55E+00 | 6.69E+00 |
| Acenaphthene | $ng/m^3$ | 2.22E+00 | 2.70E-01 | 6.20E-01 | 6.83E-01 | 5.79E-01 | 5.59E-01 | 2.22E+00 | 2.70E-01 | 8.98E-01 |
| Acenaphthylene | $ng/m^3$ | 2.90E-01 | 6.72E-02 | 2.75E-01 | 6.72E-02 | 2.14E-01 | 2.90E-01 | 2.25E-01 | 7.18E-02 | 1.06E-01 |
| Anthracene | $ng/m^3$ | 1.08E-01 | 6.72E-02 | 1.08E-01 | 6.72E-02 | 9.91E-02 | 6.84E-02 | 1.08E-01 | 7.18E-02 | 1.06E-01 |
| Benzo(a)anthracene | $ng/m^3$ | 1.08E-01 | 6.72E-02 | 1.08E-01 | 6.72E-02 | 9.91E-02 | 6.84E-02 | 1.08E-01 | 7.18E-02 | 1.06E-01 |
| Benzo(a)fluorene | $ng/m^3$ | 2.16E-01 | 1.34E-01 | 2.15E-01 | 1.34E-01 | 1.98E-01 | 1.37E-01 | 2.16E-01 | 1.44E-01 | 2.12E-01 |
| Benzo(b)fluoranthene | $ng/m^3$ | 1.08E-01 | 6.72E-02 | 1.08E-01 | 6.72E-02 | 9.91E-02 | 6.84E-02 | 1.08E-01 | 7.18E-02 | 1.06E-01 |
| Benzo(b)fluorene | $ng/m^3$ | 2.16E-01 | 1.34E-01 | 2.15E-01 | 1.34E-01 | 1.98E-01 | 1.37E-01 | 2.16E-01 | 1.44E-01 | 2.12E-01 |
| Benzo(e)pyrene | $ng/m^3$ | 2.16E-01 | 1.34E-01 | 2.15E-01 | 1.34E-01 | 1.98E-01 | 1.37E-01 | 2.16E-01 | 1.44E-01 | 2.12E-01 |
| Benzo(g,h,i)perylene | $ng/m^3$ | 1.08E-01 | 6.72E-02 | 1.08E-01 | 6.72E-02 | 9.91E-02 | 6.84E-02 | 1.08E-01 | 7.18E-02 | 1.06E-01 |
| Benzo(k)fluoranthene | $ng/m^3$ | 1.08E-01 | 6.72E-02 | 1.08E-01 | 6.72E-02 | 9.91E-02 | 6.84E-02 | 1.08E-01 | 7.18E-02 | 1.06E-01 |
| Biphenyl | $ng/m^3$ | 2.63E+00 | 7.18E-01 | 2.52E+00 | 2.20E+00 | 2.01E+00 | 2.63E+00 | 2.57E+00 | 7.18E-01 | 2.06E+00 |
| Chrysene | $ng/m^3$ | 1.08E-01 | 6.72E-02 | 1.08E-01 | 6.72E-02 | 9.91E-02 | 6.84E-02 | 1.08E-01 | 7.18E-02 | 1.06E-01 |
| Dibenz(a,h)anthracene | $ng/m^3$ | 1.08E-01 | 6.72E-02 | 1.08E-01 | 6.72E-02 | 9.91E-02 | 6.84E-02 | 1.08E-01 | 7.18E-02 | 1.06E-01 |
| Dibenzo(a,c) anthracene + Picene | $ng/m^3$ | 2.16E-01 | 1.34E-01 | 2.15E-01 | 1.34E-01 | 1.98E-01 | 1.37E-01 | 2.16E-01 | 1.44E-01 | 2.12E-01 |
| Fluoranthene | $ng/m^3$ | 7.45E-01 | 3.10E-01 | 7.14E-01 | 4.95E-01 | 6.90E-01 | 7.45E-01 | 7.44E-01 | 3.10E-01 | 6.02E-01 |
| Indeno(1,2,3-cd)pyrene | $ng/m^3$ | 1.08E-01 | 6.72E-02 | 1.08E-01 | 6.72E-02 | 9.91E-02 | 6.84E-02 | 1.08E-01 | 7.18E-02 | 1.06E-01 |
| Naphthalene | $ng/m^3$ | 3.56E+01 | 1.03E+01 | 3.56E+01 | 3.06E+01 | 2.43E+01 | 3.09E+01 | 2.51E+01 | 1.03E+01 | 3.36E+01 |
| o-Terphenyl | $ng/m^3$ | 2.16E-01 | 1.34E-01 | 2.15E-01 | 1.34E-01 | 1.98E-01 | 1.37E-01 | 2.16E-01 | 1.44E-01 | 2.12E-01 |
| Perylene | $ng/m^3$ | 2.16E-01 | 1.34E-01 | 2.15E-01 | 1.34E-01 | 1.98E-01 | 1.37E-01 | 2.16E-01 | 1.44E-01 | 2.12E-01 |
| Phenanthrene | $ng/m^3$ | 3.46E+00 | 7.23E-01 | 2.11E+00 | 2.11E+00 | 2.20E+00 | 2.34E+00 | 3.46E+00 | 7.23E-01 | 1.60E+00 |
| Pyrene | $ng/m^3$ | 5.34E-01 | 1.72E-01 | 5.34E-01 | 2.26E-01 | 4.36E-01 | 4.27E-01 | 3.89E-01 | 1.72E-01 | 2.88E-01 |
| Tetralin | $ng/m^3$ | 3.01E+00 | 1.32E+00 | 1.69E+00 | 3.01E+00 | 1.32E+00 | 2.08E+00 | 1.76E+00 | 2.38E+00 | 2.23E+00 |
| Total PAH | $ng/m^3$ | 5.95E+01 | 2.06E+01 | 5.95E+01 | 5.56E+01 | 4.22E+01 | 5.22E+01 | 4.96E+01 | 2.06E+01 | 5.43E+01 |

Note:
RDL = Reportable Detection Limit

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

| Polycyclic Aromatic Hydrocarbons | Rundle Road Station | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | | Rundle | |
| Date | dd/mm/yyyy | | 7/01/2017 | | 19/01/2017 | | 31/01/2017 | | 12/02/2017 | | 24/02/2017 | | 8/03/2017 | | 20/03/2017 | |
| Start Time | hh:mm | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | | 0:00 | |
| Sample Duration | hours | | 23.98 | | 23.77 | | 23.89 | | 23.99 | | 8.53 | | 23.49 | | 23.37 | |
| Technician | | | TH | | TH | | TH | | TH | | TH | | TH | | TH | |
| Filter Number | | | DQS472-01 | | DQS522-01 | | DQS693-01 | | DSD996-01 | | Invalid. Did not run | | DWR771-01 | | DWR786-01 | |
| Maxaam ID | | | DSX351 | | DUJ029 | | DWB592 | | DXM307 | | for sufficient | | EAQ959 | | ECI938 | |
| Maxxam Job # | | | B706301 | | B714368 | | B724009 | | B731622 | | amount of time | | B749273 | | B758463 | |
| Total Volumetric Flow | $Am^3$/sample | | 330.20 | | 348.74 | | 338.63 | | 354.40 | | 121.78 | | 273.72 | | 282.38 | |
| **Analytical Results** | **Units** | | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** | **Value** | **RDL** |
| **Benzo(a)pyrene** | µg | | 0.0521 | 0.0035 | 0.0204 | 0.0047 | 0.0254 | 0.0064 | 0.0190 | 0.0062 | | | 0.0132 | 0.0061 | 0.0192 | 0.0025 |
| **1-Methylnaphthalene** | µg | | 2.37 | 0.15 | 2.83 | 0.10 | 1.21 | 0.15 | 2.21 | 0.10 | | | 0.87 | 0.10 | 2.73 | 0.15 |
| **2-Methylnaphthalene** | µg | | 3.50 | 0.15 | 4.77 | 0.10 | 1.97 | 0.15 | 3.58 | 0.10 | | | 1.53 | 0.10 | 4.94 | 0.15 |
| **Acenaphthene** | µg | | 0.276 | 0.075 | 0.946 | 0.050 | 0.471 | 0.075 | 0.296 | 0.050 | | | 0.660 | 0.050 | 1.69 | 0.075 |
| **Acenaphthylene** | µg | | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | 0.108 | 0.050 | | | <0.050 | 0.050 | <0.075 | 0.075 |
| **Anthracene** | µg | | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | | | <0.050 | 0.050 | <0.075 | 0.075 |
| **Benzo(a)anthracene** | µg | | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | | | <0.050 | 0.050 | <0.075 | 0.075 |
| **Benzo(a)fluorene** | µg | | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | | | <0.10 | 0.10 | <0.15 | 0.15 |
| **Benzo(b)fluoranthene** | µg | | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | 0.086 | 0.050 | | | <0.050 | 0.050 | <0.075 | 0.075 |
| **Benzo(b)fluorene** | µg | | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | | | <0.10 | 0.10 | <0.15 | 0.15 |
| **Benzo(e)pyrene** | µg | | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | | | <0.10 | 0.10 | <0.15 | 0.15 |
| **Benzo(g,h,i)perylene** | µg | | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | | | <0.050 | 0.050 | <0.075 | 0.075 |
| **Benzo(k)fluoranthene** | µg | | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | N/A | | <0.050 | 0.050 | <0.075 | 0.075 |
| **Biphenyl** | µg | | 1.05 | 0.15 | 1.08 | 0.10 | 0.69 | 0.15 | 1.12 | 0.10 | | | 0.36 | 0.10 | 1.22 | 0.15 |
| **Chrysene** | µg | | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | | | <0.050 | 0.050 | <0.075 | 0.075 |
| **Dibenz(a,h)anthracene** | µg | | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | | | <0.050 | 0.050 | <0.075 | 0.075 |
| **Dibenzo(a,c) anthracene + Picene** [1] | µg | | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | | | <0.10 | 0.10 | <0.15 | 0.15 |
| **Fluoranthene** | µg | | 0.306 | 0.075 | 0.324 | 0.050 | 0.252 | 0.075 | 0.334 | 0.050 | | | 0.212 | 0.050 | 0.339 | 0.075 |
| **Indeno(1,2,3-cd)pyrene** | µg | | <0.075 | 0.075 | <0.050 | 0.050 | <0.075 | 0.075 | <0.050 | 0.050 | | | <0.050 | 0.050 | <0.075 | 0.075 |
| **Naphthalene** | µg | | 15.0 | 0.11 | 13.7 | 0.072 | 8.18 | 0.11 | 14.2 | 0.072 | | | 3.80 | 0.072 | 14.9 | 0.11 |
| **o-Terphenyl** | µg | | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | | | <0.10 | 0.10 | <0.15 | 0.15 |
| **Perylene** | µg | | <0.15 | 0.15 | <0.10 | 0.10 | <0.15 | 0.15 | <0.10 | 0.10 | | | <0.10 | 0.10 | <0.15 | 0.15 |
| **Phenanthrene** | µg | | 0.900 | 0.075 | 1.57 | 0.050 | 0.909 | 0.075 | 1.13 | 0.050 | | | 0.898 | 0.050 | 1.67 | 0.075 |
| **Pyrene** | µg | | 0.222 | 0.075 | 0.174 | 0.050 | 0.147 | 0.075 | 0.196 | 0.050 | | | 0.110 | 0.050 | 0.165 | 0.075 |
| **Tetralin** | µg | | 0.79 | 0.15 | 1.05 | 0.10 | 0.40 | 0.15 | 0.96 | 0.10 | | | 0.34 | 0.10 | 0.81 | 0.15 |

| Calculated Concentrations | Quarter 1 | | | Rundle 1 | Rundle 2 | Rundle 3 | Rundle 4 | Rundle 5 | Rundle 6 | Rundle 7 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Units | Maximum | Minimum | 1/7/2017 | 1/19/2017 | 1/31/2017 | 12/02/2017 | 24/02/2017 | 8/03/2017 | 20/03/2017 |
| Benzo(a)pyrene | $ng/m^3$ | 1.58E-01 | 4.82E-02 | 1.58E-01 | 5.85E-02 | 7.50E-02 | 5.36E-02 | - | 4.82E-02 | 6.80E-02 |
| 1-Methylnaphthalene | $ng/m^3$ | 9.67E+00 | 3.18E+00 | 7.18E+00 | 8.11E+00 | 3.57E+00 | 6.24E+00 | - | 3.18E+00 | 9.67E+00 |
| 2-Methylnaphthalene | $ng/m^3$ | 1.75E+01 | 5.59E+00 | 1.06E+01 | 1.37E+01 | 5.82E+00 | 1.01E+01 | - | 5.59E+00 | 1.75E+01 |
| Acenaphthene | $ng/m^3$ | 5.98E+00 | 8.35E-01 | 8.36E-01 | 2.71E+00 | 1.39E+00 | 8.35E-01 | - | 2.41E+00 | 5.98E+00 |
| Acenaphthylene | $ng/m^3$ | 3.05E-01 | 7.17E-02 | 1.14E-01 | 7.17E-02 | 1.11E-01 | 3.05E-01 | - | 9.13E-02 | 1.33E-01 |
| Anthracene | $ng/m^3$ | 1.33E-01 | 7.05E-02 | 1.14E-01 | 7.17E-02 | 1.11E-01 | 7.05E-02 | - | 9.13E-02 | 1.33E-01 |
| Benzo(a)anthracene | $ng/m^3$ | 1.33E-01 | 7.05E-02 | 1.14E-01 | 7.17E-02 | 1.11E-01 | 7.05E-02 | - | 9.13E-02 | 1.33E-01 |
| Benzo(a)fluorene | $ng/m^3$ | 2.66E-01 | 1.41E-01 | 2.27E-01 | 1.43E-01 | 2.21E-01 | 1.41E-01 | - | 1.83E-01 | 2.66E-01 |
| Benzo(b)fluoranthene | $ng/m^3$ | 2.43E-01 | 7.17E-02 | 1.14E-01 | 7.17E-02 | 1.11E-01 | 2.43E-01 | - | 9.13E-02 | 1.33E-01 |
| Benzo(b)fluorene | $ng/m^3$ | 2.66E-01 | 1.41E-01 | 2.27E-01 | 1.43E-01 | 2.21E-01 | 1.41E-01 | - | 1.83E-01 | 2.66E-01 |
| Benzo(e)pyrene | $ng/m^3$ | 2.66E-01 | 1.41E-01 | 2.27E-01 | 1.43E-01 | 2.21E-01 | 1.41E-01 | - | 1.83E-01 | 2.66E-01 |
| Benzo(g,h,i)perylene | $ng/m^3$ | 1.33E-01 | 7.05E-02 | 1.14E-01 | 7.17E-02 | 1.11E-01 | 7.05E-02 | - | 9.13E-02 | 1.33E-01 |
| Benzo(k)fluoranthene | $ng/m^3$ | 1.33E-01 | 7.05E-02 | 1.14E-01 | 7.17E-02 | 1.11E-01 | 7.05E-02 | - | 9.13E-02 | 1.33E-01 |
| Biphenyl | $ng/m^3$ | 4.32E+00 | 1.32E+00 | 3.18E+00 | 3.10E+00 | 2.04E+00 | 3.16E+00 | - | 1.32E+00 | 4.32E+00 |
| Chrysene | $ng/m^3$ | 1.33E-01 | 7.05E-02 | 1.14E-01 | 7.17E-02 | 1.11E-01 | 7.05E-02 | - | 9.13E-02 | 1.33E-01 |
| Dibenz(a,h)anthracene | $ng/m^3$ | 1.33E-01 | 7.05E-02 | 1.14E-01 | 7.17E-02 | 1.11E-01 | 7.05E-02 | - | 9.13E-02 | 1.33E-01 |
| Dibenzo(a,c) anthracene + Picene | $ng/m^3$ | 2.66E-01 | 1.41E-01 | 2.27E-01 | 1.43E-01 | 2.21E-01 | 1.41E-01 | - | 1.83E-01 | 2.66E-01 |
| Fluoranthene | $ng/m^3$ | 1.20E+00 | 7.44E-01 | 9.27E-01 | 9.29E-01 | 7.44E-01 | 9.42E-01 | - | 7.75E-01 | 1.20E+00 |
| Indeno(1,2,3-cd)pyrene | $ng/m^3$ | 1.33E-01 | 7.05E-02 | 1.14E-01 | 7.17E-02 | 1.11E-01 | 7.05E-02 | - | 9.13E-02 | 1.33E-01 |
| Naphthalene | $ng/m^3$ | 5.28E+01 | 1.39E+01 | 4.54E+01 | 3.93E+01 | 2.42E+01 | 4.01E+01 | - | 1.39E+01 | 5.28E+01 |
| o-Terphenyl | $ng/m^3$ | 2.66E-01 | 1.41E-01 | 2.27E-01 | 1.43E-01 | 2.21E-01 | 1.41E-01 | - | 1.83E-01 | 2.66E-01 |
| Perylene | $ng/m^3$ | 2.66E-01 | 1.41E-01 | 2.27E-01 | 1.43E-01 | 2.21E-01 | 1.41E-01 | - | 1.83E-01 | 2.66E-01 |
| Phenanthrene | $ng/m^3$ | 5.91E+00 | 2.68E+00 | 2.73E+00 | 4.50E+00 | 2.68E+00 | 3.19E+00 | - | 3.28E+00 | 5.91E+00 |
| Pyrene | $ng/m^3$ | 6.72E-01 | 4.02E-01 | 6.72E-01 | 4.99E-01 | 4.34E-01 | 5.53E-01 | - | 4.02E-01 | 5.84E-01 |
| Tetralin | $ng/m^3$ | 3.01E+00 | 1.18E+00 | 2.39E+00 | 3.01E+00 | 1.18E+00 | 2.71E+00 | - | 1.24E+00 | 2.87E+00 |
| Total PAH | $ng/m^3$ | 1.04E+02 | 3.40E+01 | 7.65E+01 | 7.74E+01 | 4.44E+01 | 6.97E+01 | - | 3.40E+01 | 1.04E+02 |

Note:
RDL = Reportable Detection Limit

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

# Appendix I DIOXINS AND FURANS DATA SUMMARY

| Dioxins and Furans | Courtice WPCP Station | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | Courtice | | | Courtice | | | Courtice | | | Courtice | | |
| Date | dd/mm/yyyy | 7/01/2017 | | | 31/01/2017 | | | 24/02/2017 | | | 20/03/2017 | | |
| Start Time | hh:mm | 0:00 | | | 0:00 | | | 0:00 | | | 0:00 | | |
| Sample Duration | hours | 23.78 | | | 24.15 | | | 23.5 | | | 23.29 | | |
| Technician | | TH | | | TH | | | TH | | | TH | | |
| Filter Number | | DQS473-01 | | | DQS692-01 | | | DSE214-01 | | | DWR787-01 | | |
| Maxaam ID | | DSX350 | | | DWB591 | | | DZC814 | | | ECI937 | | |
| Maxxam Job # | | B706301 | | | B724009 | | | B740598 | | | B758463 | | |
| Total Volumetric Flow | $Am^3$/sample | 348.52 | | | 378.25 | | | 346.66 | | | 354.06 | | |
| Analytical Results | Units | Value | EDL | $WHO_{2005}$ TEF | Value | EDL | $WHO_{2005}$ TEF | Value | EDL | $WHO_{2005}$ TEF | Value | EDL | $WHO_{2005}$ TEF |
| 2,3,7,8-Tetra CDD * | pg | <3.6 | 3.6 | 1 | <3.1 | 3.1 | 1 | <3.2 | 3.2 | 1 | <3.9 | 3.9 | 1 |
| 1,2,3,7,8-Penta CDD * | pg | <3.7 | 3.7 | 1 | <3.0 | 3.0 | 1 | <3.0 | 3.0 | 1 | <3.7 | 3.7 | 1 |
| 1,2,3,4,7,8-Hexa CDD * | pg | <3.6 | 3.6 | 0.1 | <3.1 | 3.1 | 0.1 | <3.0 | 3.0 | 0.1 | <3.3 | 3.3 | 0.1 |
| 1,2,3,6,7,8-Hexa CDD * | pg | 4.6 | 3.8 | 0.1 | <3.3 | 3.3 | 0.1 | <3.3 | 3.3 | 0.1 | 4.5 | 3.6 | 0.1 |
| 1,2,3,7,8,9-Hexa CDD * | pg | 7.5 (1) | 3.4 | 0.1 | 5.4 | 2.9 | 0.1 | <2.9 | 2.9 | 0.1 | 5.9 | 3.1 | 0.1 |
| 1,2,3,4,6,7,8-Hepta CDD * | pg | 51.8 | 2.6 | 0.01 | 43.3 | 2.7 | 0.01 | 15.5 | 3.2 | 0.01 | 27.6 | 2.7 | 0.01 |
| Octa CDD * | pg | 118 | 3.9 | 0.0003 | 126 | 3.1 | 0.0003 | 51.9 | 3.2 | 0.0003 | 86.8 | 3.2 | 0.0003 |
| Total Tetra CDD * | pg | <3.6 | 3.6 | | <3.1 | 3.1 | | <3.2 | 3.2 | | <3.9 | 3.9 | |
| Total Penta CDD * | pg | 5.4 | 3.7 | | <3.0 | 3.0 | | <3.0 | 3.0 | | <3.7 | 3.7 | |
| Total Hexa CDD * | pg | 50.8 | 3.6 | | 17.8 | 3.1 | | 3.3 | 3.1 | | 28.6 | 3.3 | |
| Total Hepta CDD * | pg | 120 | 2.6 | | 100 | 2.7 | | 35.6 | 3.2 | | 58.3 | 2.7 | |
| 2,3,7,8-Tetra CDF ** | pg | 4.7 | 3.6 | 0.1 | <3.5 | 3.5 | 0.1 | <3.0 | 3.0 | 0.1 | <4.3 (3) | 4.3 | 0.1 |
| 1,2,3,7,8-Penta CDF ** | pg | <2.8 | 2.8 | 0.03 | <4.4 | 4.4 | 0.03 | <3.2 | 3.2 | 0.03 | <3.1 | 3.1 | 0.03 |
| 2,3,4,7,8-Penta CDF ** | pg | <2.9 | 2.9 | 0.3 | <4.5 | 4.5 | 0.3 | <3.2 | 3.2 | 0.3 | <3.1 | 3.1 | 0.3 |
| 1,2,3,4,7,8-Hexa CDF ** | pg | <2.6 | 2.6 | 0.1 | <2.7 | 2.7 | 0.1 | <3.0 | 3.0 | 0.1 | <3.5 | 3.5 | 0.1 |
| 1,2,3,6,7,8-Hexa CDF ** | pg | <2.6 | 2.6 | 0.1 | <2.7 | 2.7 | 0.1 | <3.0 | 3.0 | 0.1 | <3.5 | 3.5 | 0.1 |
| 2,3,4,6,7,8-Hexa CDF ** | pg | <2.8 | 2.8 | 0.1 | <2.9 | 2.9 | 0.1 | <3.1 | 3.1 | 0.1 | <3.6 | 3.6 | 0.1 |
| 1,2,3,7,8,9-Hexa CDF ** | pg | <3.0 | 3.0 | 0.1 | <3.1 | 3.1 | 0.1 | <3.2 | 3.2 | 0.1 | <3.8 | 3.8 | 0.1 |
| 1,2,3,4,6,7,8-Hepta CDF ** | pg | 4.5 | 2.4 | 0.01 | 4.4 | 2.6 | 0.01 | <3.0 | 3.0 | 0.01 | 5.5 | 3.3 | 0.01 |
| 1,2,3,4,7,8,9-Hepta CDF ** | pg | <3.1 | 3.1 | 0.01 | <3.3 | 3.3 | 0.01 | <3.4 | 3.4 | 0.01 | <3.8 | 3.8 | 0.01 |
| Octa CDF ** | pg | 7.2 | 2.7 | 0.0003 | 6.5 | 4.2 | 0.0003 | <3.7 (2) | 3.7 | 0.0003 | 7.6 | 3.5 | 0.0003 |
| Total Tetra CDF ** | pg | 4.7 | 3.6 | | <3.5 | 3.5 | | <3.0 | 3.0 | | 4.3 | 3.6 | |
| Total Penta CDF ** | pg | <2.9 | 2.9 | | <4.5 | 4.5 | | <3.2 | 3.2 | | 3.7 | 3.1 | |
| Total Hexa CDF ** | pg | 3.2 | 2.8 | | <2.9 | 2.9 | | <3.1 | 3.1 | | <3.6 | 3.6 | |
| Total Hepta CDF ** | pg | 8.3 | 2.7 | | 4.4 | 2.9 | | <3.2 | 3.2 | | 5.5 | 3.5 | |
| Toxic Equivalency | pg | | | | | | | | | | | | |

Notes:
1. EMPC / Merged Peak
2. EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.
3. RT > 3 seconds - PCDD/DF analysis - Peak detected exceeds expected retention time (from internal standard) by greater than 3 seconds.

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

| Calculated Concentrations | Quarter 1 | | | Courtice 1 | Courtice 2 | Courtice 3 | Courtice 4 |
|---|---|---|---|---|---|---|---|
| | Units | Maximum | Minimum | 7/01/2017 | 31/01/2017 | 24/02/2017 | 20/03/2017 |
| 2,3,7,8-Tetra CDD * | pg/$m^3$ | 5.51E-03 | 4.10E-03 | 0.005 | 0.004 | 0.005 | 0.006 |
| 1,2,3,7,8-Penta CDD * | pg/$m^3$ | 5.31E-03 | 3.97E-03 | 0.005 | 0.004 | 0.004 | 0.005 |
| 1,2,3,4,7,8-Hexa CDD * | pg/$m^3$ | 5.16E-03 | 4.10E-03 | 0.005 | 0.004 | 0.004 | 0.005 |
| 1,2,3,6,7,8-Hexa CDD * | pg/$m^3$ | 1.32E-02 | 4.36E-03 | 0.013 | 0.004 | 0.005 | 0.013 |
| 1,2,3,7,8,9-Hexa CDD * | pg/$m^3$ | 2.15E-02 | 4.18E-03 | 0.022 | 0.014 | 0.004 | 0.017 |
| 1,2,3,4,6,7,8-Hepta CDD * | pg/$m^3$ | 1.49E-01 | 4.47E-02 | 0.149 | 0.114 | 0.045 | 0.078 |
| Octa CDD * | pg/$m^3$ | 3.39E-01 | 1.50E-01 | 0.339 | 0.333 | 0.150 | 0.245 |
| Total Tetra CDD * | pg/$m^3$ | 5.51E-03 | 4.10E-03 | 0.005 | 0.004 | 0.005 | 0.006 |
| Total Penta CDD * | pg/$m^3$ | 1.55E-02 | 3.97E-03 | 0.015 | 0.004 | 0.004 | 0.005 |
| Total Hexa CDD * | pg/$m^3$ | 1.46E-01 | 9.52E-03 | 0.146 | 0.047 | 0.010 | 0.081 |
| Total Hepta CDD * | pg/$m^3$ | 3.44E-01 | 1.03E-01 | 0.344 | 0.264 | 0.103 | 0.165 |
| 2,3,7,8-Tetra CDF ** | pg/$m^3$ | 1.35E-02 | 4.33E-03 | 0.013 | 0.005 | 0.004 | 0.006 |
| 1,2,3,7,8-Penta CDF ** | pg/$m^3$ | 5.82E-03 | 4.02E-03 | 0.004 | 0.006 | 0.005 | 0.004 |
| 2,3,4,7,8-Penta CDF ** | pg/$m^3$ | 5.95E-03 | 4.16E-03 | 0.004 | 0.006 | 0.005 | 0.004 |
| 1,2,3,4,7,8-Hexa CDF ** | pg/$m^3$ | 4.94E-03 | 3.57E-03 | 0.004 | 0.004 | 0.004 | 0.005 |
| 1,2,3,6,7,8-Hexa CDF ** | pg/$m^3$ | 4.94E-03 | 3.57E-03 | 0.004 | 0.004 | 0.004 | 0.005 |
| 2,3,4,6,7,8-Hexa CDF ** | pg/$m^3$ | 5.08E-03 | 3.83E-03 | 0.004 | 0.004 | 0.004 | 0.005 |
| 1,2,3,7,8,9-Hexa CDF ** | pg/$m^3$ | 5.37E-03 | 4.10E-03 | 0.004 | 0.004 | 0.005 | 0.005 |
| 1,2,3,4,6,7,8-Hepta CDF ** | pg/$m^3$ | 1.55E-02 | 4.33E-03 | 0.013 | 0.012 | 0.004 | 0.016 |
| 1,2,3,4,7,8,9-Hepta CDF ** | pg/$m^3$ | 5.37E-03 | 4.36E-03 | 0.004 | 0.004 | 0.005 | 0.005 |
| Octa CDF ** | pg/$m^3$ | 2.15E-02 | 5.34E-03 | 0.021 | 0.017 | 0.005 | 0.021 |
| Total Tetra CDF ** | pg/$m^3$ | 1.35E-02 | 4.33E-03 | 0.013 | 0.005 | 0.004 | 0.012 |
| Total Penta CDF ** | pg/$m^3$ | 1.05E-02 | 4.16E-03 | 0.004 | 0.006 | 0.005 | 0.010 |
| Total Hexa CDF ** | pg/$m^3$ | 9.18E-03 | 3.83E-03 | 0.009 | 0.004 | 0.004 | 0.005 |
| Total Hepta CDF ** | pg/$m^3$ | 2.38E-02 | 4.62E-03 | 0.024 | 0.012 | 0.005 | 0.016 |
| Toxic Equivalency | pg/$m^3$ | | | | | | |
| TOTAL TOXIC EQUIVALENCY | pg TEQ/$m^3$ | 2.05E-02 | 1.46E-02 | 0.021 | 0.016 | 0.015 | 0.019 |
| **Calculated TEQ Concentrations** | **Units** | | | **Courtice 1/7/2017** | **Courtice 1/31/2017** | **Courtice 2/24/2017** | **Courtice 3/20/2017** |
| 2,3,7,8-Tetra CDD * | pg TEQ/$m^3$ | | | 0.005 | 0.004 | 0.005 | 0.006 |
| 1,2,3,7,8-Penta CDD | pg TEQ/$m^3$ | | | 0.005 | 0.004 | 0.004 | 0.005 |
| 1,2,3,4,7,8-Hexa CDD | pg TEQ/$m^3$ | | | 0.0005 | 0.0004 | 0.0004 | 0.0005 |
| 1,2,3,6,7,8-Hexa CDD | pg TEQ/$m^3$ | | | 0.0013 | 0.0004 | 0.0005 | 0.0013 |
| 1,2,3,7,8,9-Hexa CDD | pg TEQ/$m^3$ | | | 0.0022 | 0.0014 | 0.0004 | 0.0017 |
| 1,2,3,4,6,7,8-Hepta CDD | pg TEQ/$m^3$ | | | 0.0015 | 0.0011 | 0.0004 | 0.0008 |
| Octa CDD | pg TEQ/$m^3$ | | | 0.00010 | 0.00010 | 0.00004 | 0.00007 |
| Total Tetra CDD | pg TEQ/$m^3$ | | | | | | |
| Total Penta CDD | pg TEQ/$m^3$ | | | | | | |
| Total Hexa CDD | pg TEQ/$m^3$ | | | | | | |
| Total Hepta CDD | pg TEQ/$m^3$ | | | | | | |
| 2,3,7,8-Tetra CDF ** | pg TEQ/$m^3$ | | | 0.0013 | 0.0005 | 0.0004 | 0.0006 |
| 1,2,3,7,8-Penta CDF | pg TEQ/$m^3$ | | | 0.0001 | 0.0002 | 0.0001 | 0.0001 |
| 2,3,4,7,8-Penta CDF | pg TEQ/$m^3$ | | | 0.001 | 0.002 | 0.001 | 0.001 |
| 1,2,3,4,7,8-Hexa CDF | pg TEQ/$m^3$ | | | 0.0004 | 0.0004 | 0.0004 | 0.0005 |
| 1,2,3,6,7,8-Hexa CDF | pg TEQ/$m^3$ | | | 0.0004 | 0.0004 | 0.0004 | 0.0005 |
| 2,3,4,6,7,8-Hexa CDF | pg TEQ/$m^3$ | | | 0.0004 | 0.0004 | 0.0004 | 0.0005 |
| 1,2,3,7,8,9-Hexa CDF | pg TEQ/$m^3$ | | | 0.0004 | 0.0004 | 0.0005 | 0.0005 |
| 1,2,3,4,6,7,8-Hepta CDF | pg TEQ/$m^3$ | | | 0.00013 | 0.00012 | 0.00004 | 0.00016 |
| 1,2,3,4,7,8,9-Hepta CDF | pg TEQ/$m^3$ | | | 0.00004 | 0.00004 | 0.00005 | 0.00005 |
| Octa CDF | pg TEQ/$m^3$ | | | 0.000006 | 0.000005 | 0.000002 | 0.000006 |
| Total Tetra CDF | pg TEQ/$m^3$ | | | | | | |
| Total Penta CDF | pg TEQ/$m^3$ | | | | | | |
| Total Hexa CDF | pg TEQ/$m^3$ | | | | | | |
| Total Hepta CDF | pg TEQ/$m^3$ | | | | | | |
| TOTAL TOXIC EQUIVALENCY | pg TEQ/$m^3$ | | | 0.021 | 0.016 | 0.015 | 0.019 |

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

| Dioxins and Furans | Rundle Road Station | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | | Rundle | | | Rundle | | | Rundle | | | Rundle | | |
| Date | dd/mm/yyyy | 7/01/2017 | | | 31/01/2017 | | | 24/02/2017 | | | 20/03/2017 | | |
| Start Time | hh:mm | 0:00 | | | 0:00 | | | 0:00 | | | 0:00 | | |
| Sample Duration | hours | 23.98 | | | 23.89 | | | 8.53 | | | 23.37 | | |
| Technician | | TH | | | TH | | | TH | | | TH | | |
| Filter Number | | DQS472-01 | | | DQS693-01 | | | Invalid. Did not run for sufficient amount of time | | | DWR786-01 | | |
| Maxaam ID | | DSX351 | | | DWB592 | | | | | | ECI938 | | |
| Maxxam Job # | | B706301 | | | B724009 | | | | | | B758463 | | |
| Total Volumetric Flow | $Am^3$/sample | 330.20 | | | 338.63 | | | 121.78 | | | 282.38 | | |
| Analytical Results | Units | Value | EDL | $WHO_{2005}$ TEF | Value | EDL | $WHO_{2005}$ TEF | Value | EDL | $WHO_{2005}$ TEF | Value | EDL | $WHO_{2005}$ TEF |
| 2,3,7,8-Tetra CDD * | pg | <3.0 | 3.0 | 1 | <3.3 | 3.3 | 1 | | | 1 | <3.7 | 3.7 | 1 |
| 1,2,3,7,8-Penta CDD * | pg | <4.0 | 4.0 | 1 | <3.1 | 3.1 | 1 | | | 1 | <3.9 | 3.9 | 1 |
| 1,2,3,4,7,8-Hexa CDD * | pg | 2.8 | 2.6 | 0.1 | <3.1 | 3.1 | 0.1 | | | 0.1 | <3.4 | 3.4 | 0.1 |
| 1,2,3,6,7,8-Hexa CDD * | pg | 5.6 | 2.8 | 0.1 | <3.3 | 3.3 | 0.1 | | | 0.1 | <3.6 | 3.6 | 0.1 |
| 1,2,3,7,8,9-Hexa CDD * | pg | 8.8 | 2.5 | 0.1 | <2.9 | 2.9 | 0.1 | | | 0.1 | <3.2 | 3.2 | 0.1 |
| 1,2,3,4,6,7,8-Hepta CDD * | pg | 61.8 | 2.2 | 0.01 | 34.3 | 3.8 | 0.01 | | | 0.01 | 27.6 | 3.8 | 0.01 |
| Octa CDD * | pg | 127 | 2.9 | 0.0003 | 93.8 | 3.1 | 0.0003 | | | 0.0003 | 81.1 | 3.5 | 0.0003 |
| Total Tetra CDD * | pg | <3.0 | 3.0 | | <3.3 | 3.3 | | | | | <3.7 | 3.7 | |
| Total Penta CDD * | pg | 7.1 | 4.0 | | <3.1 | 3.1 | | | | | <3.9 | 3.9 | |
| Total Hexa CDD * | pg | 59.0 | 2.6 | | 15.8 | 3.1 | | | | | 7.1 | 3.4 | |
| Total Hepta CDD * | pg | 137 | 2.2 | | 77.4 | 3.8 | | | | | 55.3 | 3.8 | |
| 2,3,7,8-Tetra CDF ** | pg | 4.2 | 2.8 | 0.1 | <3.1 | 3.1 | 0.1 | | | 0.1 | <3.7 (1) | 3.7 | 0.1 |
| 1,2,3,7,8-Penta CDF ** | pg | <2.9 | 2.9 | 0.03 | <3.4 | 3.4 | 0.03 | N/A | | 0.03 | <4.1 | 4.1 | 0.03 |
| 2,3,4,7,8-Penta CDF ** | pg | <3.0 | 3.0 | 0.3 | <3.5 | 3.5 | 0.3 | | | 0.3 | <4.1 | 4.1 | 0.3 |
| 1,2,3,4,7,8-Hexa CDF ** | pg | <3.0 | 3.0 | 0.1 | <2.6 | 2.6 | 0.1 | | | 0.1 | <3.0 | 3.0 | 0.1 |
| 1,2,3,6,7,8-Hexa CDF ** | pg | <3.0 | 3.0 | 0.1 | <2.6 | 2.6 | 0.1 | | | 0.1 | <3.0 | 3.0 | 0.1 |
| 2,3,4,6,7,8-Hexa CDF ** | pg | <3.2 | 3.2 | 0.1 | <2.8 | 2.8 | 0.1 | | | 0.1 | <3.1 | 3.1 | 0.1 |
| 1,2,3,7,8,9-Hexa CDF ** | pg | <3.5 | 3.5 | 0.1 | <3.0 | 3.0 | 0.1 | | | 0.1 | <3.2 | 3.2 | 0.1 |
| 1,2,3,4,6,7,8-Hepta CDF ** | pg | 4.6 | 2.8 | 0.01 | 2.8 | 2.4 | 0.01 | | | 0.01 | 4.4 | 3.3 | 0.01 |
| 1,2,3,4,7,8,9-Hepta CDF ** | pg | <3.7 | 3.7 | 0.01 | <3.1 | 3.1 | 0.01 | | | 0.01 | <3.8 | 3.8 | 0.01 |
| Octa CDF ** | pg | 5.4 | 2.5 | 0.0003 | <2.7 | 2.7 | 0.0003 | | | 0.0003 | <3.7 | 3.7 | 0.0003 |
| Total Tetra CDF ** | pg | 4.2 | 2.8 | | <3.1 | 3.1 | | | | | 3.7 | 3.4 | |
| Total Penta CDF ** | pg | 4.1 | 3.0 | | <3.5 | 3.5 | | | | | <4.1 | 4.1 | |
| Total Hexa CDF ** | pg | <3.2 | 3.2 | | <2.8 | 2.8 | | | | | <3.1 | 3.1 | |
| Total Hepta CDF ** | pg | 4.6 | 3.2 | | 2.8 | 2.7 | | | | | 4.4 | 3.6 | |
| Toxic Equivalency | pg | | | | | | | | | | | | |

Notes:
1. RT > 3 seconds - PCDD/DF analysis - Peak detected exceeds expected retention time (from internal standard) by greater than 3 seconds.

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

| Calculated Concentrations | Quarter 1 | | | Rundle 1 | Rundle 2 | Rundle 3 | Rundle 4 |
|---|---|---|---|---|---|---|---|
| | Units | Maximum | Minimum | 7/01/2017 | 31/01/2017 | 24/02/2017 | 20/03/2017 |
| 2,3,7,8-Tetra CDD * | $pg/m^3$ | 6.55E-03 | 4.54E-03 | 0.005 | 0.005 | - | 0.007 |
| 1,2,3,7,8-Penta CDD * | $pg/m^3$ | 6.91E-03 | 4.58E-03 | 0.006 | 0.005 | - | 0.007 |
| 1,2,3,4,7,8-Hexa CDD * | $pg/m^3$ | 8.48E-03 | 4.58E-03 | 0.008 | 0.005 | - | 0.006 |
| 1,2,3,6,7,8-Hexa CDD * | $pg/m^3$ | 1.70E-02 | 4.87E-03 | 0.017 | 0.005 | - | 0.006 |
| 1,2,3,7,8,9-Hexa CDD * | $pg/m^3$ | 2.67E-02 | 4.28E-03 | 0.027 | 0.004 | - | 0.006 |
| 1,2,3,4,6,7,8-Hepta CDD * | $pg/m^3$ | 1.87E-01 | 9.77E-02 | 0.187 | 0.101 | - | 0.098 |
| Octa CDD * | $pg/m^3$ | 3.85E-01 | 2.77E-01 | 0.385 | 0.277 | - | 0.287 |
| Total Tetra CDD * | $pg/m^3$ | 6.55E-03 | 4.54E-03 | 0.005 | 0.005 | - | 0.007 |
| Total Penta CDD * | $pg/m^3$ | 2.15E-02 | 4.58E-03 | 0.022 | 0.005 | - | 0.007 |
| Total Hexa CDD * | $pg/m^3$ | 1.79E-01 | 2.51E-02 | 0.179 | 0.047 | - | 0.025 |
| Total Hepta CDD * | $pg/m^3$ | 4.15E-01 | 1.96E-01 | 0.415 | 0.229 | - | 0.196 |
| 2,3,7,8-Tetra CDF ** | $pg/m^3$ | 1.27E-02 | 4.58E-03 | 0.013 | 0.005 | - | 0.007 |
| 1,2,3,7,8-Penta CDF ** | $pg/m^3$ | 7.26E-03 | 4.39E-03 | 0.004 | 0.005 | - | 0.007 |
| 2,3,4,7,8-Penta CDF ** | $pg/m^3$ | 7.26E-03 | 4.54E-03 | 0.005 | 0.005 | - | 0.007 |
| 1,2,3,4,7,8-Hexa CDF ** | $pg/m^3$ | 5.31E-03 | 3.84E-03 | 0.005 | 0.004 | - | 0.005 |
| 1,2,3,6,7,8-Hexa CDF ** | $pg/m^3$ | 5.31E-03 | 3.84E-03 | 0.005 | 0.004 | - | 0.005 |
| 2,3,4,6,7,8-Hexa CDF ** | $pg/m^3$ | 5.49E-03 | 4.13E-03 | 0.005 | 0.004 | - | 0.005 |
| 1,2,3,7,8,9-Hexa CDF ** | $pg/m^3$ | 5.67E-03 | 4.43E-03 | 0.005 | 0.004 | - | 0.006 |
| 1,2,3,4,6,7,8-Hepta CDF ** | $pg/m^3$ | 1.56E-02 | 8.27E-03 | 0.014 | 0.008 | - | 0.016 |
| 1,2,3,4,7,8,9-Hepta CDF ** | $pg/m^3$ | 6.73E-03 | 4.58E-03 | 0.006 | 0.005 | - | 0.007 |
| Octa CDF ** | $pg/m^3$ | 1.64E-02 | 3.99E-03 | 0.016 | 0.004 | - | 0.007 |
| Total Tetra CDF ** | $pg/m^3$ | 1.31E-02 | 4.58E-03 | 0.013 | 0.005 | - | 0.013 |
| Total Penta CDF ** | $pg/m^3$ | 1.24E-02 | 5.17E-03 | 0.012 | 0.005 | - | 0.007 |
| Total Hexa CDF ** | $pg/m^3$ | 5.49E-03 | 4.13E-03 | 0.005 | 0.004 | - | 0.005 |
| Total Hepta CDF ** | $pg/m^3$ | 1.56E-02 | 8.27E-03 | 0.014 | 0.008 | - | 0.016 |
| Toxic Equivalency | $pg/m^3$ | | | | | | |
| TOTAL TOXIC EQUIVALENCY | pg TEQ/$m^3$ | 2.27E-02 | 1.58E-02 | 0.023 | 0.016 | - | 0.022 |
| **Calculated TEQ Concentrations** | **Units** | | | **Rundle 1/7/2017** | **Rundle 1/31/2017** | **Rundle 2/24/2017** | **Rundle 3/20/2017** |
| 2,3,7,8-Tetra CDD * | pg TEQ/$m^3$ | | | 0.005 | 0.005 | - | 0.007 |
| 1,2,3,7,8-Penta CDD | pg TEQ/$m^3$ | | | 0.006 | 0.005 | - | 0.007 |
| 1,2,3,4,7,8-Hexa CDD | pg TEQ/$m^3$ | | | 0.0008 | 0.0005 | - | 0.0006 |
| 1,2,3,6,7,8-Hexa CDD | pg TEQ/$m^3$ | | | 0.0017 | 0.0005 | - | 0.0006 |
| 1,2,3,7,8,9-Hexa CDD | pg TEQ/$m^3$ | | | 0.0027 | 0.0004 | - | 0.0006 |
| 1,2,3,4,6,7,8-Hepta CDD | pg TEQ/$m^3$ | | | 0.0019 | 0.0010 | - | 0.0010 |
| Octa CDD | pg TEQ/$m^3$ | | | 0.00012 | 0.00008 | - | 0.00009 |
| Total Tetra CDD | pg TEQ/$m^3$ | | | | | | |
| Total Penta CDD | pg TEQ/$m^3$ | | | | | | |
| Total Hexa CDD | pg TEQ/$m^3$ | | | | | | |
| Total Hepta CDD | pg TEQ/$m^3$ | | | | | | |
| 2,3,7,8-Tetra CDF ** | pg TEQ/$m^3$ | | | 0.0013 | 0.0005 | - | 0.0007 |
| 1,2,3,7,8-Penta CDF | pg TEQ/$m^3$ | | | 0.0001 | 0.0002 | - | 0.0002 |
| 2,3,4,7,8-Penta CDF | pg TEQ/$m^3$ | | | 0.001 | 0.002 | - | 0.002 |
| 1,2,3,4,7,8-Hexa CDF | pg TEQ/$m^3$ | | | 0.0005 | 0.0004 | - | 0.0005 |
| 1,2,3,6,7,8-Hexa CDF | pg TEQ/$m^3$ | | | 0.0005 | 0.0004 | - | 0.0005 |
| 2,3,4,6,7,8-Hexa CDF | pg TEQ/$m^3$ | | | 0.0005 | 0.0004 | - | 0.0005 |
| 1,2,3,7,8,9-Hexa CDF | pg TEQ/$m^3$ | | | 0.0005 | 0.0004 | - | 0.0006 |
| 1,2,3,4,6,7,8-Hepta CDF | pg TEQ/$m^3$ | | | 0.00014 | 0.00008 | - | 0.00016 |
| 1,2,3,4,7,8,9-Hepta CDF | pg TEQ/$m^3$ | | | 0.00006 | 0.00005 | - | 0.00007 |
| Octa CDF | pg TEQ/$m^3$ | | | 0.000005 | 0.000001 | - | 0.000002 |
| Total Tetra CDF | pg TEQ/$m^3$ | | | | | | |
| Total Penta CDF | pg TEQ/$m^3$ | | | | | | |
| Total Hexa CDF | pg TEQ/$m^3$ | | | | | | |
| Total Hepta CDF | pg TEQ/$m^3$ | | | | | | |
| TOTAL TOXIC EQUIVALENCY | pg TEQ/$m^3$ | | | 0.023 | 0.016 | - | 0.022 |

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