DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE

2020 AMBIENT AIR MONITORING REPORT

June 2021

Executive Summary

The air quality in communities across the province is generally considered to be good as the ambient air quality standards are rarely exceeded for the pollutants being measured. On occasion, communities in close proximity to an industrial operation may experience episodic decreases in the quality of the air; however, these episodes tend to be brief in nature and are rarely at levels that exceed the air quality standards. Elevated levels of air pollutants can also occur due to long-range transport from mainland Canada, the United States, and Europe but these events are also episodic in nature and infrequently produce levels that exceed the ambient air quality standards. On the local level, emissions from sources such as vehicular traffic, forest fires and woodstoves also impact the air quality in the province.

This 2020 report is the 12th annual and presents all the monitoring results from both the federal / provincial operated National Air Pollution Surveillance (NAPS) network as well as the stations operated by industrial facilities in the province. Both datasets undergo a rigorous quality assurance procedure to ensure that the highest level of data confidence is achieved. All datasets are subject to historical revisions.

In 2020, there were no major long-range transport events to adversely affect the air quality in the province. The air quality at most monitoring stations indicated no exceedances of the ambient air quality standards. There were however instances where the levels measured at a station operated by an industrial facility approached or exceeded the associated ambient standard.

The report does not provide commentary on the data contained herein except in situations where there has been a technological change in the data collection system, or there has been a change in industrial operating conditions which would lead to a change in emissions (eg. a switch from heavy fuel oil combustion to distillate fuel oil combustion).

Though an industrial facility may monitor the ambient air for specific pollutants, this report in no way implies or attributes those measurements to emissions from that facility.

The 2020 monitoring results are summarized below.

Sulphur Dioxide - 2020

Operator	Monitoring Location	Maximum 1-hour Concentration	Maximum 3-hour Concentration	Maximum 24-hour Concentration	Annual Concentration
Regulatory Limit (µg/m³)		**900**	**600**	**300**	**60**
NAPS	St. John's	30.9	19.9	8.2	0.8
	Mt. Pearl	22.8	17.2	5.7	0.7
	Grand Falls-Windsor	12.4	4.8	2.8	1.2
	Corner Brook	10.7	7.2	3.6	1.4
	Burin	2.9	1.1	0.7	0.2
NALCOR	Butterpot Road	60.1	45.2	22.2	**
	Green Acres Road	231.2	138.5	30.0	**
	Indian Pond Drive	179.1	111.6	60.8	2.5
	Indian Pond Road	94.8	59.6	18.4	**
	Lawrence Pond Road	78.1	48.8	19.9	1.7
NARL	Arnold's Cove	39.0	22.0	5.1	1.5
	Come by Chance	20.8	10.5	6.2	2.2
	Sunnyside	21.2	14.5	8.0	2.2
	Property Boundary	202.1	175.2	72.3	6.2
IOCC	Dog Park	124.8	94.7	26.3	1.4
	Hudson Drive (Firehall)	138.0	98.9	37.3	1.0
	Smokey Mountain II	42.9	32.2	5.9	0.8
CBPP	Main Street	21.2	11.5	10.5	1.4
TACORA	Bond Street	65.7	51.9	22.0	4.6

Observations in µg/m³

* based on limited data

** insufficient data to calculate annual average

$PM_{2.5}$ - 2020

Operator	Monitoring Location	Maximum 24-hour Concentration	Annual Concentration
Regulatory Limit (µg/m³)		**25**	**8.8**
NAPS	St. John's	14.1	5.5
	Mt. Pearl	11.5	5.1
	Grand Falls-Windsor	16.9	3.4
	Corner Brook	14.7	5.4
	Burin	12.3	4.6
NALCOR	Butterpot Road	11.8	**
	Green Acres Road	9.9	**
	Indian Pond Drive	11.2	3.4
	Indian Pond Road	11.6	**
	Lawrence Pond Road	15.8	3.9
	Holyrood Property Boundary	9.3	2.8
NARL	Arnold's Cove	25.0	4.6
	Come by Chance	10.7	4.4
	Sunnyside	32.0	4.7
	Property Boundary	26.7	4.0
IOCC	Dog Park	14.2	3.4
	Hudson Drive (Firehall)	9.1	2.6
	Smokey Mountain II	11.6	3.7
TACORA	Bond Street	17.7	3.2
	Cabot Drive	19.4	3.9
CBPP	Main Street	25.8	5.1
VALE	Community Centre	22.3	5.3
	Main Road	21.6	6.4
	Access Road	23.7	5.0
	Accommodation Building	9.1	3.5
CFI	Director Drive	10.6	3.9
AML	Property Boundary	12.4	3.1
TSMC	Camp Site	35.7	2.5

Observations in µg/m3
** insufficient data to calculate annual average

Nitrogen Dioxide - 2020

Operator	Monitoring Location	Maximum 1-hour Concentration	Maximum 24-hour Concentration	Annual Concentration
Regulatory Limit (µg/m³)		**400**	**200**	**100**
NAPS	St. John's	70.1	35.5	6.2
	Mt. Pearl	75.8	22.0	2.1
	Grand Falls-Windsor	52.7	14.6	3.8
	Corner Brook	58.6	20.5	4.5
	Burin	29.7	18.5	1.4
NALCOR	Butterpot Road	20.4	8.3	**
	Green Acres Road	54.6	10.1	**
	Indian Pond Drive	23.4	9.4	0.9
	Indian Pond Road	38.2	5.5	**
	Lawrence Pond Road	32.4	8.5	1.1
IOCC	Dog Park	62.1	26.9	3.9
	Hudson Drive (Firehall)	72.4	24.2	4.0
	Smokey Mountain II	67.8	25.1	2.4
VALE	Community Centre	26.8	8.1	2.1
	Main Road	22.7	14.8	5.3
	Access Road	10.9 *	1.6 *	**
	Crusher Building	144.3	62.6	9.0
	Accommodation Building	92.7	53.5	14.6
CFI	Director Drive	16.0	2.1	0.7
TSMC	Camp Site	420.3	77.1	3.8

Observations in µg/m3

* based on limited data

** insufficient data to calculate annual average

Ozone - 2020

Operator	Monitoring Location	Maximum 1-hour Concentration	Maximum 8-hour Concentration
Regulatory Limit (µg/m^3)		**160**	**87**
NAPS	St. John's	99.7	86.5
	Mt. Pearl	98.1	87.5
	Grand Falls-Windsor	109.6	102.7
	Corner Brook	97.1	90.9
	Burin	108.9	97.8
	Port aux Choix	82.8	79.2
IOCC	Hudson Drive (Firehall)	147.3	137.2

Observations in µg/m3

Carbon Monoxide - 2020

Operator	Monitoring Location	Maximum 1-hour Concentration	Maximum 8-hour Concentration
Regulatory Limit (mg/m^3)		**35**	**15**
NAPS	St. John's	0.9	0.6
	Mt. Pearl	0.8	0.5
	Grand Falls-Windsor	1.0	0.5
	Corner Brook	0.7	0.4
	Burin	0.5	0.4

Observations in mg/m^3

* based on limited data

Total Particulate Matter - 2020

Operator	Monitoring Location	Maximum 24-hour Concentration	Annual Concentration
Regulatory Limit (µg/m³)		**120**	**60**
NALCOR	Green Acres Road	21.8	6.7
	Indian Pond Drive	22.2	8.3
	Indian Pond Road	20.6	7.6
	Lawrence Pond Road	34.2	6.7
	Holyrood Property Boundary	20.0	8.2
IOCC	Dog Park	176.5	9.5
	Hudson Drive (Firehall)	187.2	13.0
	Smokey Mountain II	233.5	5.8
TACORA	Bond Street	247.0	9.0
	Cabot Drive	145.6	10.6
CBPP	Main Street	101.5	13.5
VALE	Port Site	148.8	6.8
CFI	Director Drive	44.0	9.2
AML	Property Boundary	101.1	**

Observations in µg/m3

** insufficient data to calculate annual average

PM_{10} - 2020

Operator	Monitoring Location	Maximum 24-hour Concentration
Regulatory Limit (µg/m³)		**50**
NAPS	St. John's	34.4
	Mt. Pearl	25.6 *
	Grand Falls-Windsor	26.7 *
	Corner Brook	39.9 *
	Burin	27.5

Observations in µg/m3

* based on limited data

Table of Contents

List of Tables

List of Figures

Disclaimer

Though all data presented in this report has been subjected to quality assurance and quality control procedures, the Department of Environment and Climate Change does not warrant any data contained herein or the use of this data for other purposes. The Department accepts no liability for inaccurate data, or any misrepresentation or misuse of the data contained in this report.

All data presented herein may be subject to future revision.

1.0 Introduction

The ambient air quality in Newfoundland and Labrador is monitored through a joint effort between the Department of Environment and Climate Change, and Environment and Climate Change Canada via the National Air Pollution Surveillance (NAPS) network. In 2020, the Department operated stations at six locations as part of the NAPS network. Additionally the major industrial operations in the province are required to monitor the air quality near their operations for select pollutants. The Department audits the operation of these industrial monitoring networks on a regular basis.

In general the air quality in the province is good as indicated by the levels recorded at the various monitors, and in 2020 there were no extended periods of diminished air quality resulting from the long range transport of pollutants. There were however, sporadic short-lived episodes in 2020 where the measured levels approached or exceeded the associated ambient standard owing to short lived long range transport and / or industrial emissions. Local emissions, such as those from vehicular traffic and woodstoves also impact air quality.

This report provides a two year tabular summary information and a five year graphical trends for each air quality monitor in Newfoundland and Labrador which were either operated or audited by the Department in 2020. All monitoring stations, including those operated by industrial operations, are required to meet minimum standards set out in the *National Air Pollution Surveillance (NAPS) Program Quality Assurance/Quality Control (QA/QC) Guidelines*, and those defined in the *Departmental Guidelines for Ambient Air Monitoring* (https://www.gov.nl.ca/ecc/files/env-protection-science-gd-ppd-065.pdf). Additionally all data has gone through a data validation and quality assurance process to account for any anomalous readings or system malfunctions.

In this report, Section 2 provides an overview of the monitoring network in the province, a description of the pollutants being measured and their associated standard. Section 3 provides results from the monitors in the NAPS network; while Section 4 provides results from the monitoring networks operated at industrial facilities.

1.1 Definitions

The following definitions are used throughout this report:

AML	Atlantic Minerals Limited
AQHI	Air Quality Health Index
CBPP	Corner Brook Pulp and Paper
CFI	Canada Fluorspar Inc.
CO	Carbon Monoxide
IOCC	Iron Ore Company of Canada
mg/m^3	Milligrams per cubic metre
NALCOR	NALCOR Energy
NARL	North Atlantic Refining Limited
NAPS	National Air Pollution Surveillance
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
O_3	Ozone
$PM_{2.5}$	Particulate Matter less than or equal to 2.5 microns
PM_{10}	Particulate Matter less than or equal to 10 microns
SO_2	Sulphur Dioxide
TACORA	Tacora Resources
TPM	Total Particulate Matter
TSMC	Tata Steel Minerals Canada
$\mu g/m^3$	Micrograms per cubic metre
VALE	VALE Newfoundland and Labrador

2.0 Monitoring Network

Five categories of pollutants are measured at the monitoring networks in the province, though not all networks monitor all pollutants. The monitored categories of pollutants are sulphur dioxide (SO_2); oxides of nitrogen (NO_x) (which includes nitric oxide (NO) and nitrogen dioxide (NO_2)); carbon monoxide (CO); particulate matter (PM) (which includes particles less or equal to than 2.5 microns ($PM_{2.5}$), particles less than or equal to 10 microns (PM_{10}) and total particulate matter (TPM)); and ozone (O_3). Volatile organic compounds, (VOCs) are also measured on a one-in-six day cycle at the NAPS station in St. John's, but the data is not included in this report.

2.1 Pollutants

2.1.1 Oxides of Nitrogen (NO_x)

In a combustion process, NO_x is produced through three mechanisms, namely thermal NO_x, fuel NO_x and prompt NO_x. Thermal NO_x is the primary source of NO_x and is formed as a high temperature dissociation and subsequent reaction of nitrogen (N_2) and oxygen (O_2). It is produced in the hottest part of the flame and its formation increases exponentially with the flame temperature. The control of thermal NO_x is generally achieved through reducing the flame temperature, reducing the residence time, or by operating under fuel rich conditions. Fuel NO_x is formed by the reaction of nitrogen compounds chemically bound in liquid or solid fuels with oxygen in the combustion air. In the combustion of such fuels, fuel NO_x can account for up to 50% of the total NO_x emissions. Prompt NO_x is formed from the rapid reaction of atmospheric nitrogen with hydrocarbon radicals, and typically under partially fuel-rich conditions. It can be reduced through combustion staging or by operating under highly oxidizing combustion conditions.

NO_2 is the primary component of concern in NO_x emissions. Generally up to 10% of the NO_x emitted from the combustion of fuel is emitted as NO_2. The remainder is emitted as NO, which is subsequently converted to NO_2 in reactions with various oxidants and ozone as the plume is transported downwind from the source. The rate of NO_2 formation varies with time of day, season, temperature, wind speed, solar radiation and the availability of oxidants to help drive the chemical reactions.

NO_2 is a reddish brown gas with a pungent odour, which upon reaction with other atmospheric compounds, becomes a major contributor to smog, acid rain, inhalable particulates and reduced visibility. At significant levels and exposure, inhalation may result in irritation and burning to the skin and eyes, nose and throat. Prolonged exposure may result in permanent lung damage.

2.1.2 Particulate Matter (PM)

Particulate matter is the term for particles and aerosols found in the air, including dust, dirt, soot, smoke, and liquid droplets, and can be large and dark enough to be seen with the naked eye or so small that they can only be detected with an electron microscope. Many manmade and natural sources emit particulate matter directly while others emit gaseous pollutants that react in the atmosphere to form particulate matter.

The size of the particulate has important health considerations. Particulate matter less than or equal to 10 microns in diameter (PM_{10}) poses a health concern because it can be inhaled into and accumulate in the respiratory system. Particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$) is believed to pose the greatest health risks as it can lodge deeply into the lungs; a $PM_{2.5}$ particle is approximately $1/30^{th}$ the average width of a human hair. Typically these smaller particles are suspended in the air for long periods of time. Total Particulate Matter (TPM) is the term applied to any particle suspended in the atmosphere, but depending on the monitoring method, is typically limited to particulate matter less than 44 microns. Particulate larger than 10 microns is typically associated with a nuisance issue rather than a health issue.

2.1.3 Carbon Monoxide (CO)

Carbon monoxide is a colourless and odourless gas which reduces the delivery of oxygen to the body's organs. For those with heart disease, exposure to low doses can result in chest pain. For healthier people, exposure to higher levels affects the central nervous system.

Incomplete oxidation of fuel results in the formation of CO. In simplified terms, the generic stoichiometric combustion equation for complete combustion is:

$$HC + O_2 \rightarrow CO_2 + H_2O$$

However if sufficient oxygen (O_2) is not present to complete the combustion of the hydrocarbon fuel (HC), then the oxidation to carbon dioxide (CO_2) and water (H_2O) is not completed and hence CO is emitted.

2.1.4 Sulphur Dioxide (SO_2)

Levels of sulphur dioxide (SO_2) in ambient air are typically directly related to the concentration of sulphur in fuel and the quantity of fuel being combusted. Upon combustion, approximately 98% of the sulphur in the fuel will oxidize to form SO_2, with the remaining 2% producing sulphur trioxide (SO_3). The emitted SO_2 can also further oxidize to SO_3 and react with water to produce acid rain in the form of sulphuric acid (H_2SO_4).

Short-term exposures to SO_2 have shown adverse respiratory effects including bronchoconstriction and increased asthma symptoms.

2.1.5 Ozone (O_3)

Ground-level ozone is not directly emitted into the air, but rather is formed by chemical reactions between NO_x and volatile organic compounds (VOCs) in the presence of ultraviolet (UV) radiation. Ozone is a primary component of smog.

Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can also worsen bronchitis, emphysema, and asthma as well as reduce lung function and inflame the linings of the lungs, permanently scarring lung tissue under repeated exposure.

2.2 Ambient Air Standards

The maximum concentrations of air pollutants considered to be protective of the environment are defined in the *Air Pollution Control Regulations, 2004*. For the pollutants discussed in the report, the ambient air standards are detailed in Table 2.2.1.

TABLE 2.2.1 - AMBIENT AIR STANDARDS IN NEWFOUNDLAND AND LABRADOR

Pollutant	Averaging Period	Concentration (µg/m^3)
Carbon Monoxide (CO)	1-hour	35000 (35 mg/m^3)
	8-hour	15000 (15 mg/m^3)
Nitrogen Dioxide (NO_2)	1-hour	400
	24-hour	200
	1-year	100
Ozone	1-hour	160
	8-hour	87
Particulate Matter < 2.5 microns ($PM_{2.5}$)	24-hour	25
	1-year	8.8 *
Particulate Matter < 10 microns (PM_{10})	24-hour	50
Particulate Matter Total (TPM)	24-hour	120
	1-year	60
Sulphur Dioxide (SO_2)	1-hour	900
	3-hour	600
	24-hour	300
	1-year	60

* The 3 year average of the annual average concentrations

2.3 Monitoring in Newfoundland and Labrador

Table 2.3.1 provides the listing of monitoring stations in the province that measured pollutants during 2020. Figure 2.0.1 provides a picture of a typical ambient air monitoring station.

TABLE 2.3.1 - POLLUTANT MONITORING IN NEWFOUNDLAND AND LABRADOR

OPERATOR	STATION LOCATION	POLLUTANT						
		SO_2	NO_X / NO_2	O_3	TPM	PM_{10}	$PM_{2.5}$	CO
ENVIRONMENT AND CLIMATE CHANGE + ENVIRONMENT AND CLIMATE CHANGE CANADA (NAPS)	Water Street, St. John's	✓	✓	✓		✓	✓	✓
	Old Placentia Road, Mount Pearl	✓	✓	✓		✓	✓	✓
	Macpherson Avenue, Corner Brook	✓	✓	✓		✓	✓	✓
	Scott Avenue, Grand Falls-Windsor	✓	✓	✓		✓	✓	✓
	Port aux Choix			✓				
	Burin	✓	✓	✓		✓	✓	✓
NALCOR ENERGY	Butterpot Road	✓	✓				✓	
	Green Acres Road	✓	✓		✓		✓	
	Indian Pond Drive	✓	✓		✓		✓	
	Indian Pond Road	✓	✓		✓		✓	
	Lawrence Pond Road	✓	✓		✓		✓	
	Property Boundary				✓		✓	
NORTH ATLANTIC REFINING LIMITED	Come by Chance	✓					✓	
	First Street, Arnold's Cove	✓					✓	
	Sunnyside	✓					✓	
	Property Boundary	✓					✓	
CORNER BROOK PULP AND PAPER	Main Street	✓			✓		✓	

OPERATOR	STATION LOCATION	POLLUTANT						
		SO_2	NO_X / NO_2	O_3	TPM	PM_{10}	$PM_{2.5}$	CO
IRON ORE COMPANY OF CANADA	Dog Park	✓	✓		✓		✓	
	Hudson Drive (Firehall)	✓	✓	✓	✓		✓	
	Smokey Mountain II	✓	✓		✓		✓	
VALE NEWFOUNDLAND AND LABRADOR LIMITED	Voisey's Bay Accommodations		✓				✓	
	Voisey's Bay Crusher		✓					
	Voisey's Bay Port				✓			
	Long Harbour Community Centre		✓				✓	
	Long Harbour Main Road		✓				✓	
	Long Harbour Property Boundary		✓				✓	
TACORA RESOURCES	Bond Street	✓			✓		✓	
	Cabot Drive				✓		✓	
CANADA FLUORSPAR INC.	Director Drive		✓		✓		✓	
ATLANTIC MINERALS LIMITED	Property Boundary				✓		✓	
TATA STEEL MINERALS CANADA	Camp Site		✓				✓	

FIGURE 2.0.1 - TYPICAL AMBIENT AIR MONITORING STATION

NAPS monitoring station in Mt. Pearl

2.4 Air Quality Health Index (AQHI)

The Air Quality Health Index (AQHI) is a numerical scale designed to help an individual understand what the air quality means to their health. Ranging from 1 to 10+, the higher the number on the scale the greater the health risk associated with air quality. Specifically the AQHI health messages are defined in Table 2.4.1.

The AQHI is calculated on an hourly basis and considers the combined relative health risks of O_3, $PM_{2.5}$ and NO_2. Data for the calculation of AQHI is currently being collected at the NAPS stations and at the Hudson Drive (Firehall) station operated by the Iron Ore Company of Canada. The hourly AQHI is published to the Environment and Climate Change Canada weather office website.
http://weather.gc.ca/airquality/pages/provincial_summary/nl_e.html

TABLE 2.4.1 - AQHI HEALTH MESSAGES

AQHI READING	HEALTH RISK LEVEL	HEALTH MESSAGES	
		GENERAL POPULATION	AT RISK POPULATION
1-3	LOW	Ideal air quality for outdoor activities.	Enjoy your usual outdoor activities.
4-6	MODERATE	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.	Consider reducing or rescheduling strenuous activities outdoors if you are experiencing symptoms.
7-10	HIGH	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.	Reduce or reschedule strenuous activities outdoors. Children and the elderly should also take it easy.
10+	VERY HIGH	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.	Avoid strenuous activities outdoors. Children and the elderly should also avoid outdoor physical exertion.

2.5 Data Validity and Acceptability

All air monitoring data monitored in both the NAPS network and the industrial monitoring network undergoes a quality assurance and quality control procedure before being published. This procedure ensures that any anomalous readings or questionable data is not incorporated into the published dataset. Elements of this procedure account for:

- Routine calibration and auditing of the analyzers
- Zero correction of the baseline drift and noise
- Analyzer "Status Flag" activation
- Shelter temperature analysis
- Statistical rendering of outliers

Further details on the quality assurance and quality control procedures can be found in the Departmental *Guidelines for Ambient Air Monitoring (GD-PPD-065)* (https://www.gov.nl.ca/ecc/files/env-protection-science-gd-ppd-065.pdf) and in the *National Air Pollution Surveillance (NAPS) Program Quality Assurance/Quality Control (QA/QC) Guidelines*.

3.0 National Air Pollution Surveillance (NAPS) Network

The NAPS network in the province is primarily established to monitor the air quality in urbanized settings and in neighbourhoods away from the influences of industrial operations. In 2020 there were five sites operational with a complete suite monitoring (SO_2, $PM_{2.5}$, PM_{10}, NO_x / NO_2, CO and O_3), with the St. John's station additionally measuring VOCs, though not reported herein. The five NAPS stations provide the data necessary to calculate the hourly AQHI. A sixth NAPS station monitors O_3 only.

The five sites with a complete suite monitoring were located in St. John's on Water Street, in Mt. Pearl on Old Placentia Road, in Grand Falls-Windsor on Scott Avenue, in Corner Brook on Macpherson Avenue and in Burin at the Highway Depot. The station which monitored O_3 only was located at the Town Depot in Port aux Choix.

The maps identifying the location of the NAPS stations in the St. John's and Mt. Pearl are presented in Figures 3.0.1 and 3.0.2, while the location of the Grand Falls Windsor station is presented in Figure 3.0.3. The location of the Corner Brook station is presented in Figure 3.0.4 while Figure 3.0.5 presents the location of the Port aux Choix Station. The location of the Burin station is presented in Figure 3.0.6.

FIGURE 3.0.1 - NAPS MONITORING STATION IN ST. JOHN'S

FIGURE 3.0.2 - NAPS MONITORING STATION IN MOUNT PEARL

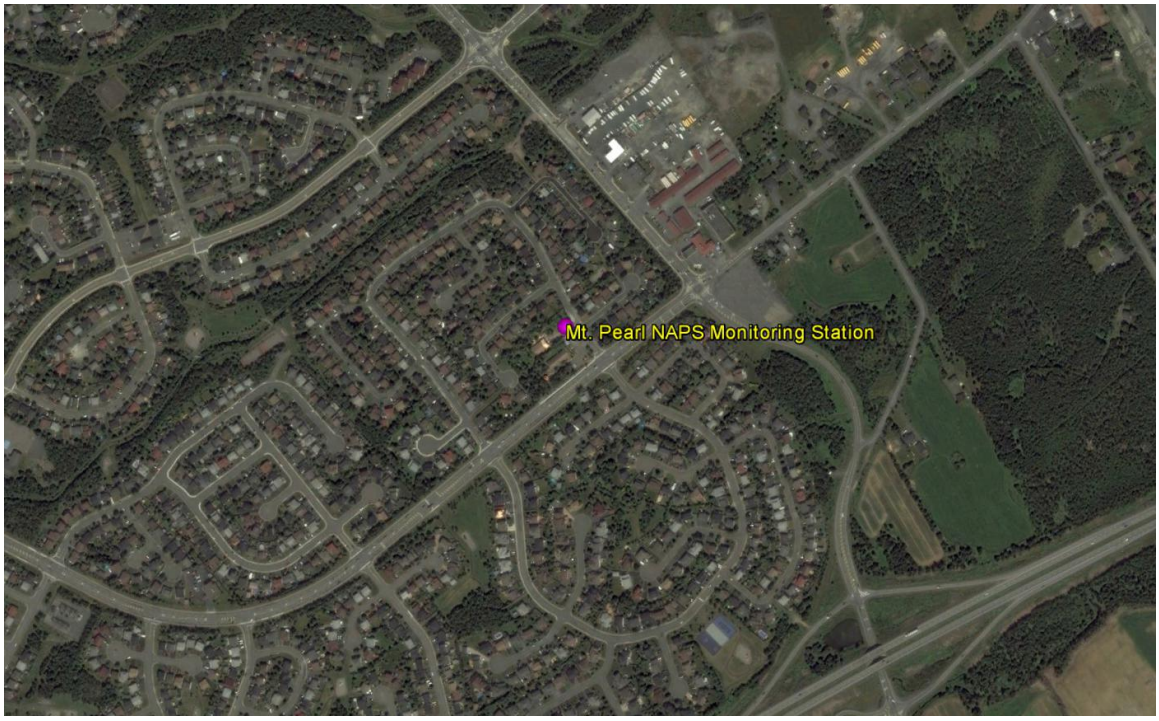


FIGURE 3.0.3 - NAPS MONITORING STATION IN GRAND FALLS-WINDSOR

FIGURE 3.0.4 - NAPS MONITORING STATION IN CORNER BROOK

FIGURE 3.0.5 - NAPS MONITORING STATION IN PORT AUX CHOIX

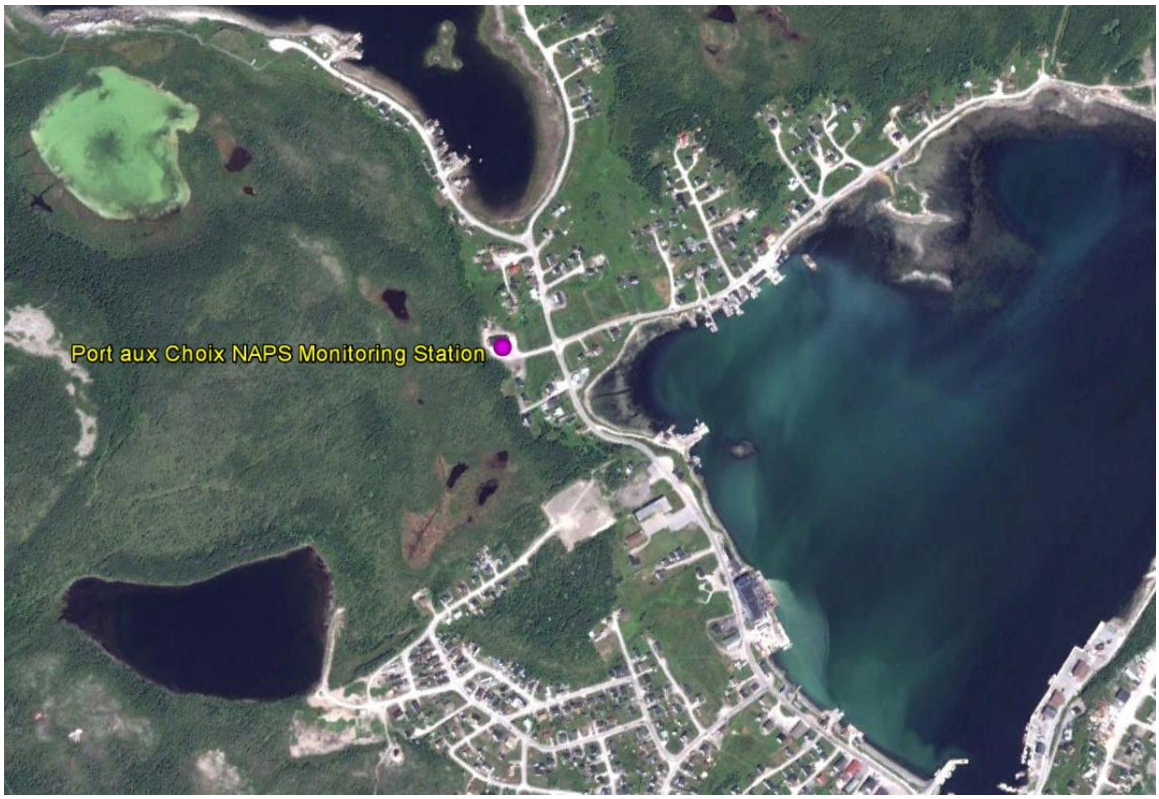
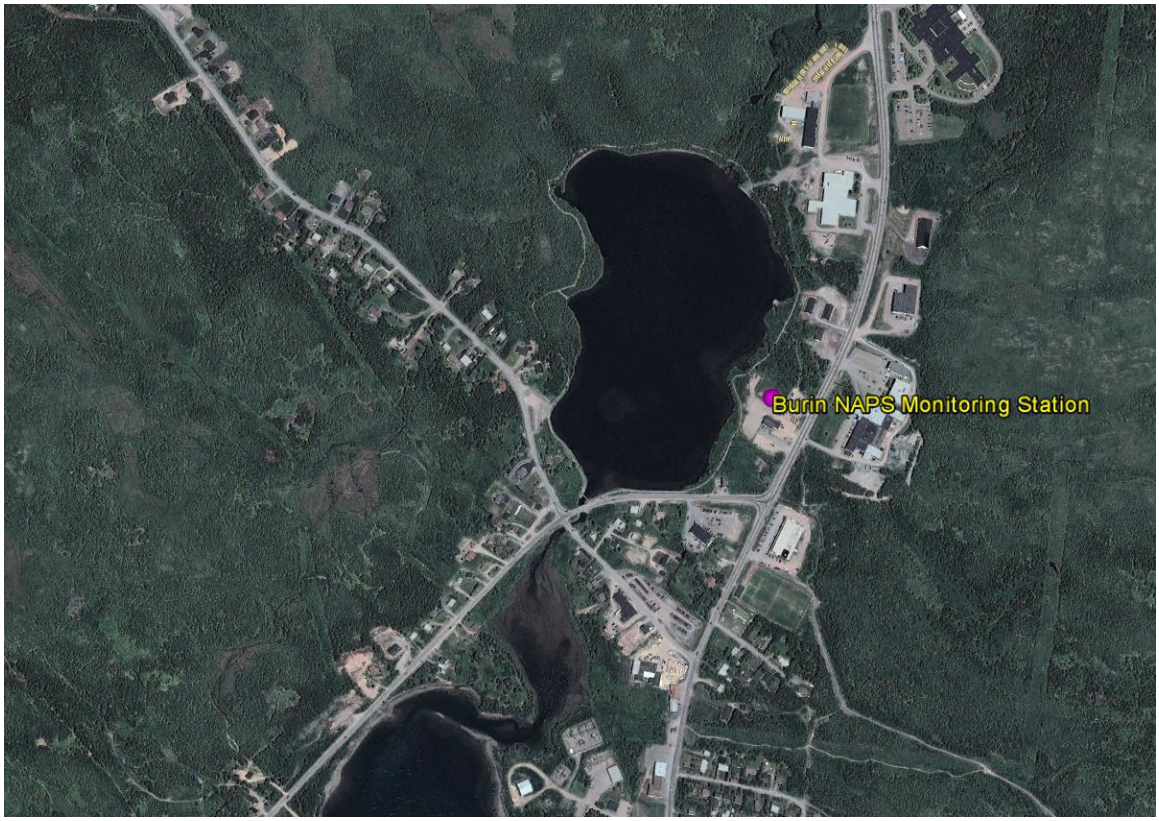


FIGURE 3.0.6 - NAPS MONITORING STATION IN BURIN



3.1 St. John's

The St. John's NAPS monitoring station is located on Water Street near the Convention Centre and monitors the ambient levels of SO_2, NO_x / NO_2, CO, O_3, $PM_{2.5}$ and PM_{10} on a continuous basis. Monitoring for PM_{10} was introduced to the station in 2019 when the Met One BAM measuring $PM_{2.5}$ was replaced with a Teledyne API T640 capable of measuring both PM_{10} and $PM_{2.5}$. For all measured pollutants, the ambient air criteria were not exceeded on any occasion in 2020.

Tables 3.1.1 through 3.1.6 present the summary information on the level of air contaminants measured at the St. John's NAPS station, while Figures 3.1.1 through 3.1.6 provide a graphical representation of the annual trend of each pollutant. Table 3.1.7 provides a summary of the AQHI while Figure 3.1.7 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2020.

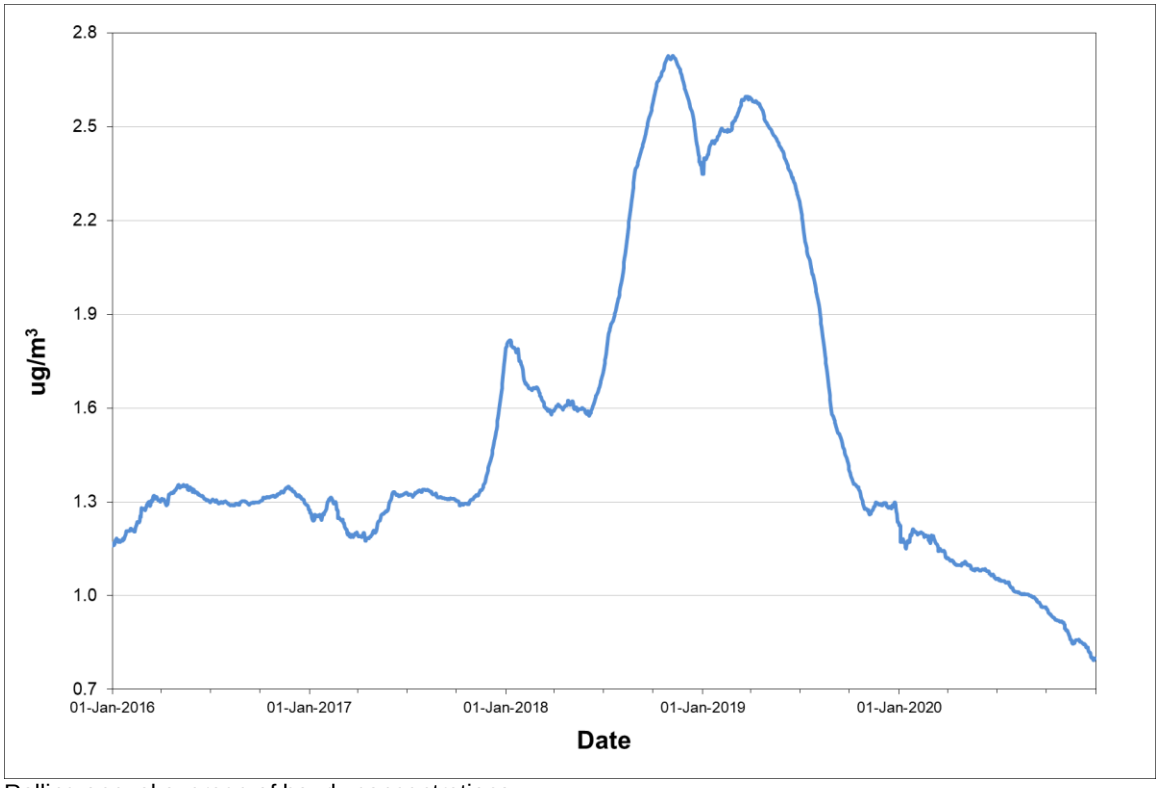
Volatile organic compounds, (VOCs) are also measured on a one-in-six day cycle at the monitoring station however the data is not included in this report.

TABLE 3.1.1 - ST. JOHN'S NAPS SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	628	84.4%	2.7	61.9	53.8	20.2	0	0	0
	February	672	100.0%	1.7	29.7	24.6	7.4	0	0	0
	March	734	98.7%	1.9	16.2	13.6	5.3	0	0	0
	April	711	98.8%	1.0	5.6	4.7	2.5	0	0	0
	May	744	100.0%	1.0	6.1	4.9	2.4	0	0	0
	June	720	100.0%	1.0	5.3	5.0	2.7	0	0	0
	July	736	98.9%	0.9	13.9	11.1	4.3	0	0	0
	August	744	100.0%	0.7	5.2	3.8	1.5	0	0	0
	September	720	100.0%	0.8	7.6	4.6	2.0	0	0	0
	October	591	79.4%	1.0	11.7	8.8	2.7	0	0	0
	November	720	100.0%	1.2	12.1	10.3	4.5	0	0	0
	December	744	100.0%	1.1	22.5	13.0	5.6	0	0	0
Annual		8464	96.6%	1.2	61.9	53.8	20.2	0	0	0
2020	January	744	100.0%	2.2	27.4	19.9	8.2	0	0	0
	February	696	100.0%	1.4	15.3	11.1	3.9	0	0	0
	March	734	98.7%	1.2	30.9	19.1	6.7	0	0	0
	April	719	99.9%	0.7	6.7	5.1	1.9	0	0	0
	May	744	100.0%	0.7	12.4	11.4	3.3	0	0	0
	June	720	100.0%	0.7	3.1	2.4	1.4	0	0	0
	July	743	99.9%	0.5	3.4	2.4	1.1	0	0	0
	August	744	100.0%	0.5	6.9	2.6	0.9	0	0	0
	September	720	100.0%	0.3	2.3	1.2	0.6	0	0	0
	October	714	96.0%	0.4	4.9	3.7	1.3	0	0	0
	November	720	100.0%	0.6	10.0	6.7	2.8	0	0	0
	December	744	100.0%	0.4	7.3	5.2	2.0	0	0	0
Annual		8742	99.5%	0.8	30.9	19.9	8.2	0	0	0

Observations in µg/m3

FIGURE 3.1.1 - ST. JOHN'S NAPS ANNUAL SO_2 CONCENTRATIONS



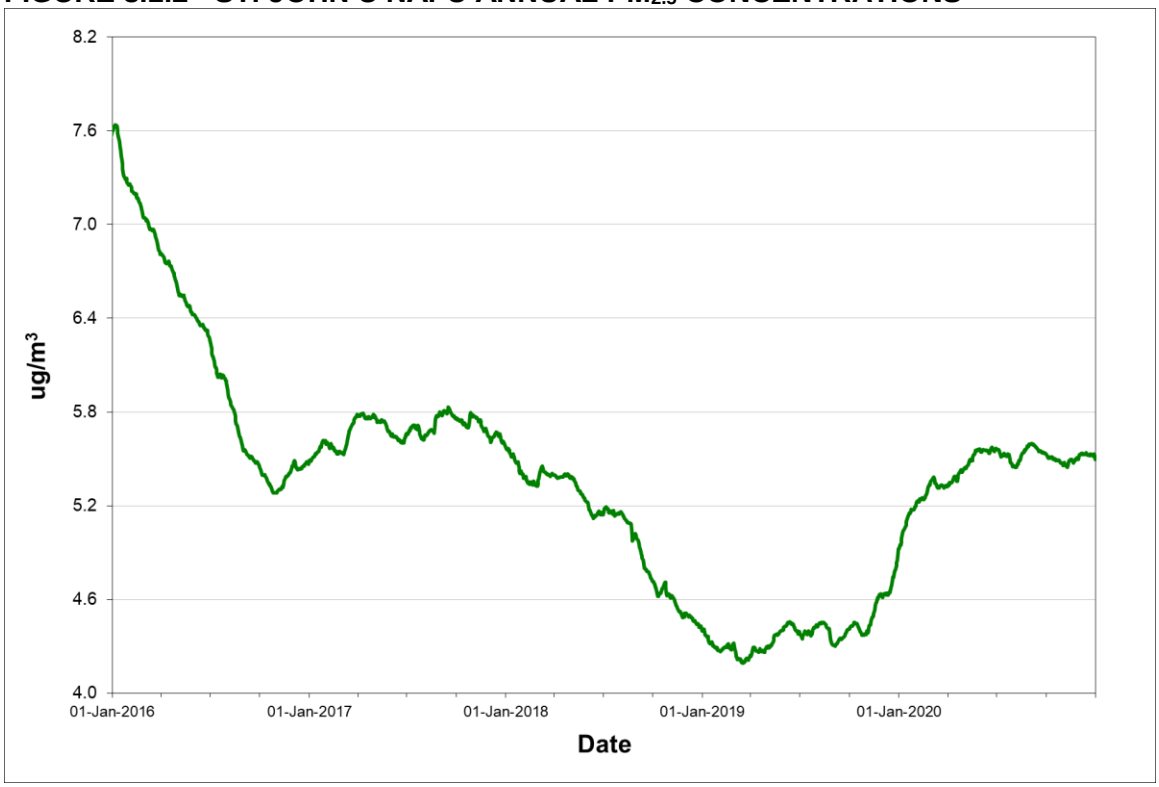
Rolling annual average of hourly concentrations

TABLE 3.1.2 - ST. JOHN'S NAPS $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	22	71.0%	2.4	8.3	0
	February	28	100.0%	4.3	8.5	0
	March	31	100.0%	6.2	10.2	0
	April	30	100.0%	5.8	10.7	0
	May	31	100.0%	4.2	7.3	0
	June	30	100.0%	4.1	9.1	0
	July	31	100.0%	5.8	12.9	0
	August	31	100.0%	4.2	8.5	0
	September	5	16.7%	3.5	5.2	0
	October	1	3.2%	5.0	5.0	0
	November	30	100.0%	5.8	10.4	0
	December	31	100.0%	5.9	15.1	0
Annual		301	82.5%	4.9	15.1	0
2020	January	31	100.0%	5.8	10.1	0
	February	29	100.0%	6.0	12.3	0
	March	30	96.8%	6.0	12.4	0
	April	30	100.0%	6.9	14.1	0
	May	31	100.0%	5.4	9.8	0
	June	30	100.0%	4.1	7.8	0
	July	31	100.0%	4.8	8.4	0
	August	31	100.0%	5.5	8.9	0
	September	30	100.0%	4.6	6.9	0
	October	31	100.0%	4.8	7.4	0
	November	30	100.0%	6.3	13.5	0
	December	31	100.0%	5.8	10.8	0
Annual		365	99.7%	5.5	14.1	0

Observations in µg/m3

FIGURE 3.1.2 - ST. JOHN'S NAPS ANNUAL $PM_{2.5}$ CONCENTRATIONS



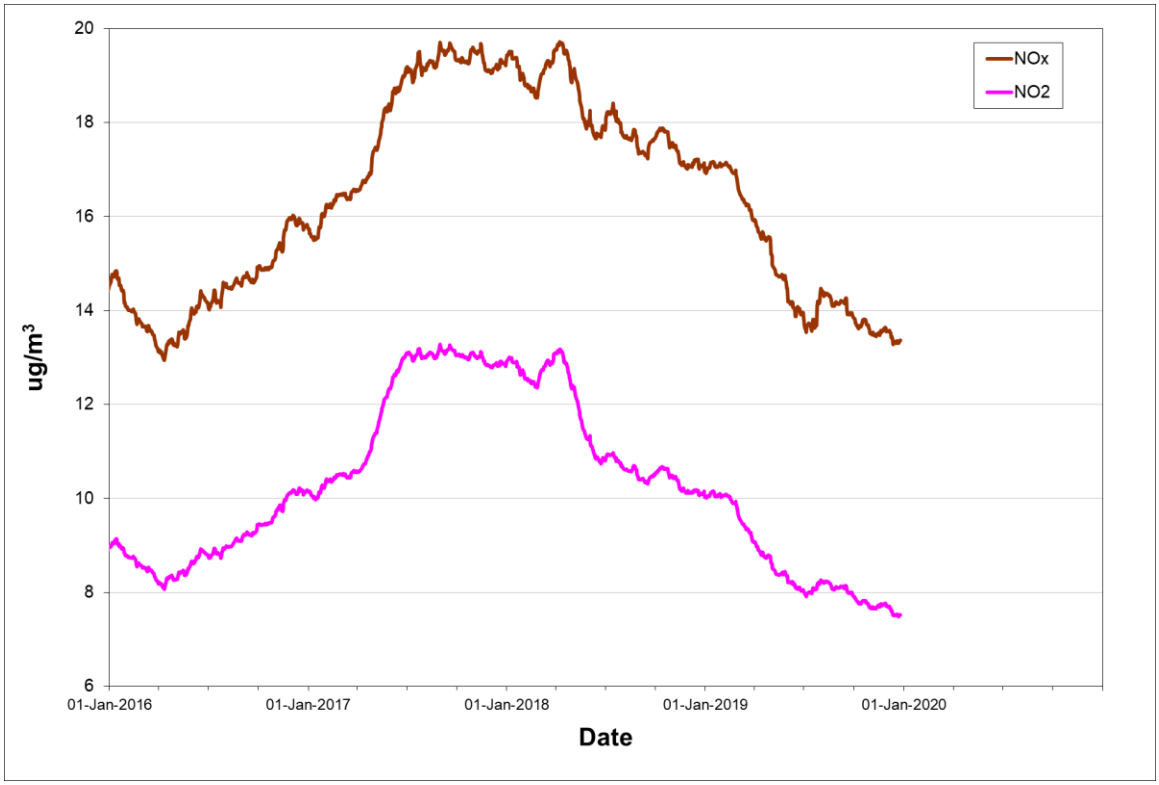
Rolling annual average of daily concentrations

TABLE 3.1.3 - ST. JOHN'S NAPS NO_X / NO_2 SUMMARY 2019 & 2020

				Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
Year	Month	# Valid Hours	% Valid Hours	NO_X	NO_2	NO_X	NO_2	NO_X	NO_2	(>400)	(>200)
2019	January	627	84.3%	15.7	10.6	198.3	74.1	69.6	38.9	0	0
	February	672	100.0%	9.7	6.0	117.2	47.5	29.3	18.5	0	0
	March	744	100.0%	10.8	6.8	126.6	57.7	25.0	17.1	0	0
	April	720	100.0%	11.8	6.6	150.2	59.8	40.4	18.9	0	0
	May	720	96.8%	9.4	6.4	97.4	51.2	26.9	19.3	0	0
	June	641	89.0%	19.6	9.5	133.9	36.3	73.0	15.6	0	0
	July	685	92.1%	25.2	10.4	434.1	62.9	150.9	30.1	0	0
	August	744	100.0%	10.8	6.0	207.1	52.1	42.9	14.3	0	0
	September	720	100.0%	11.9	6.7	136.3	56.7	38.7	21.0	0	0
	October	728	97.8%	11.4	6.6	133.2	56.6	29.4	13.4	0	0
	November	466	64.7%	11.4	7.7	230.2	74.5	32.5	20.3	0	0
	December	0	0.0%								
Annual		7467	85.2%	13.4	7.5	434.1	74.5	150.9	38.9	0	0
2020	January	0	0.0%							0	0
	February	276	39.7%	11.7	3.9	47.9	21.4	21.0	9.7	0	0
	March	734	98.7%	12.0	3.2	106.0	31.2	26.2	11.3	0	0
	April	719	99.9%	11.0	4.0	113.3	54.2	21.1	15.0	0	0
	May	744	100.0%	8.1	5.1	97.9	50.8	18.3	11.9	0	0
	June	720	100.0%	12.5	7.2	127.7	68.8	49.8	28.3	0	0
	July	744	100.0%	11.6	6.8	126.6	42.1	41.1	17.9	0	0
	August	744	100.0%	7.5	5.4	85.3	35.8	18.5	12.5	0	0
	September	720	100.0%	7.4	5.2	94.0	33.0	23.4	13.7	0	0
	October	744	100.0%	14.3	9.0	230.2	66.4	61.7	35.5	0	0
	November	720	100.0%	10.9	7.6	140.4	56.2	33.9	22.8	0	0
	December	744	100.0%	14.1	9.7	142.5	70.1	47.9	28.4	0	0
Annual		7609	86.6%	11.0	6.2	230.2	70.1	61.7	35.5	0	0

Observations in µg/m3

FIGURE 3.1.3 - ST. JOHN'S NAPS ANNUAL NO_X / NO_2 CONCENTRATIONS



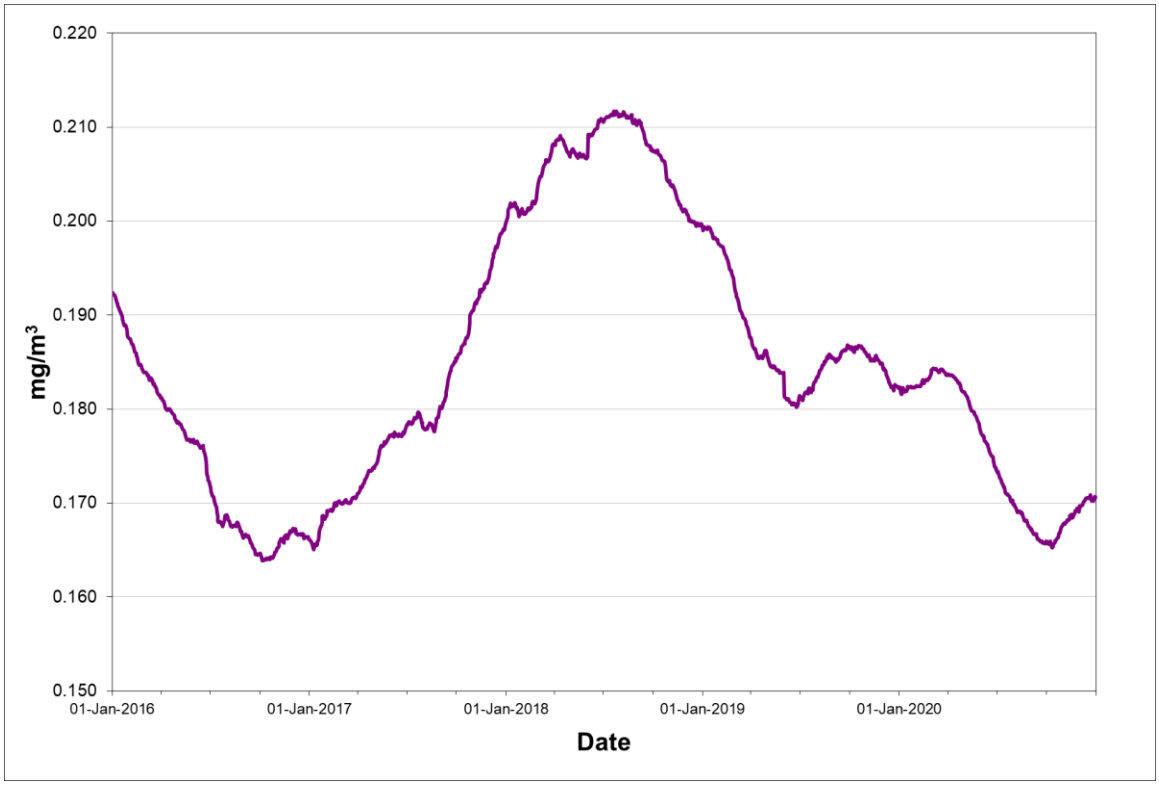
Rolling annual average of hourly concentrations

TABLE 3.1.4 - ST. JOHN'S NAPS CO SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>35)	Regulatory Exceedances 8-Hour (>15)
2019	January	627	84.3%	0.2	0.9	0.5	0	0
	February	672	100.0%	0.2	0.6	0.4	0	0
	March	744	100.0%	0.2	0.5	0.3	0	0
	April	720	100.0%	0.2	0.6	0.3	0	0
	May	744	100.0%	0.2	0.5	0.3	0	0
	June	720	100.0%	0.2	0.6	0.4	0	0
	July	742	99.7%	0.2	0.8	0.5	0	0
	August	744	100.0%	0.2	0.8	0.4	0	0
	September	720	100.0%	0.2	0.4	0.4	0	0
	October	732	98.4%	0.2	0.6	0.4	0	0
	November	720	100.0%	0.2	1.2	0.7	0	0
	December	744	100.0%	0.2	0.6	0.4	0	0
Annual		8629	98.5%	0.2	1.2	0.7	0	0
2020	January	742	99.7%	0.2	0.9	0.4	0	0
	February	696	100.0%	0.2	0.7	0.3	0	0
	March	722	97.0%	0.2	0.5	0.3	0	0
	April	719	99.9%	0.2	0.3	0.2	0	0
	May	744	100.0%	0.1	0.7	0.2	0	0
	June	720	100.0%	0.1	0.5	0.4	0	0
	July	655	88.0%	0.2	0.8	0.3	0	0
	August	744	100.0%	0.2	0.7	0.3	0	0
	September	720	100.0%	0.2	0.7	0.3	0	0
	October	743	99.9%	0.2	0.6	0.4	0	0
	November	720	100.0%	0.2	0.8	0.6	0	0
	December	744	100.0%	0.2	0.7	0.4	0	0
Annual		8669	98.7%	0.2	0.9	0.6	0	0

Observations in mg/m^3

FIGURE 3.1.4 - ST. JOHN'S NAPS ANNUAL CO CONCENTRATIONS



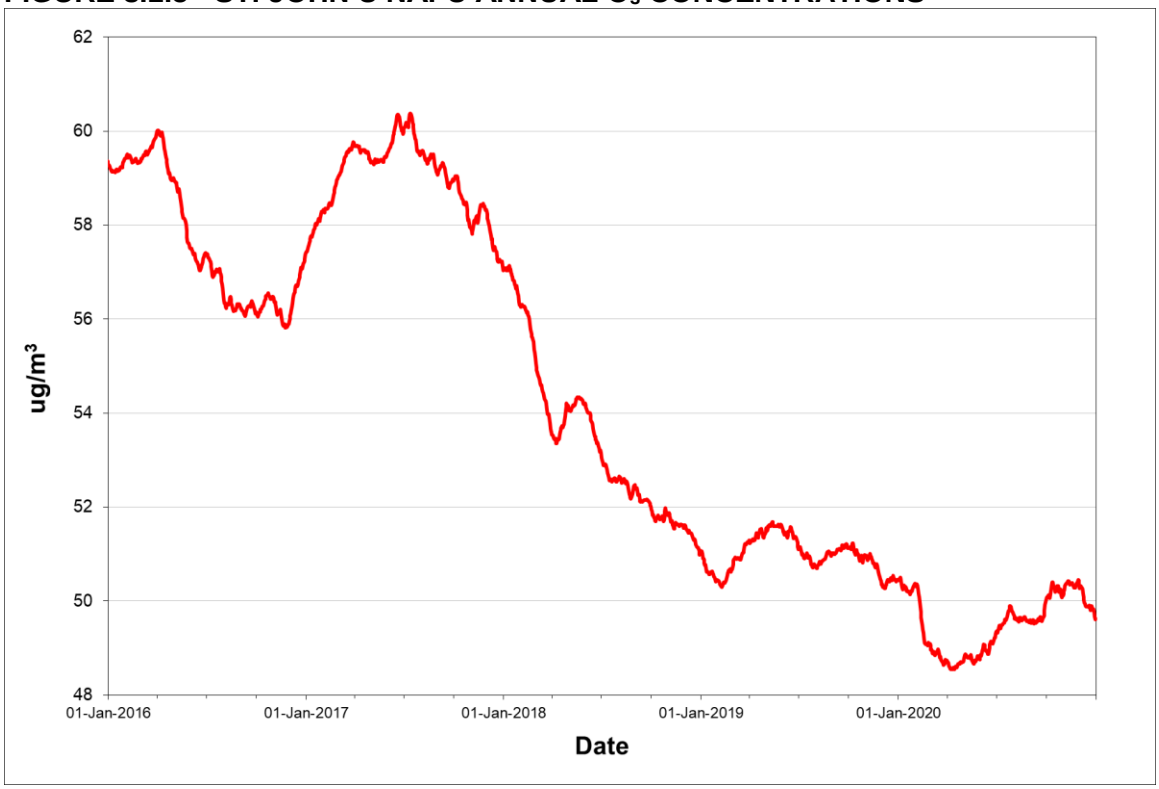
Rolling annual average of hourly concentrations

TABLE 3.1.5 - ST. JOHN'S NAPS O_3 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2019	January	627	84.3%	59.3	77.8	73.2	0	0
	February	672	100.0%	66.8	80.9	79.7	0	0
	March	744	100.0%	70.9	95.2	90.0	0	1
	April	720	100.0%	68.3	91.5	88.3	0	1
	May	720	96.8%	55.7	80.2	73.8	0	0
	June	720	100.0%	34.8	73.1	68.0	0	0
	July	744	100.0%	29.8	73.6	59.7	0	0
	August	744	100.0%	42.1	80.0	72.0	0	0
	September	720	100.0%	37.9	83.8	80.6	0	0
	October	733	98.5%	39.7	73.1	69.8	0	0
	November	720	100.0%	45.7	72.4	70.2	0	0
	December	744	100.0%	57.0	75.8	73.6	0	0
Annual		8608	98.3%	50.5	95.2	90.0	0	2
2020	January	743	99.9%	56.9	76.8	73.2	0	0
	February	696	100.0%	50.6	92.5	84.8	0	0
	March	733	98.5%	66.9	87.8	84.7	0	0
	April	717	99.6%	68.0	94.8	86.1	0	0
	May	744	100.0%	55.9	99.7	86.5	0	0
	June	720	100.0%	41.0	92.2	85.5	0	0
	July	744	100.0%	34.6	77.5	59.4	0	0
	August	744	100.0%	40.2	70.6	62.0	0	0
	September	720	100.0%	43.2	86.6	76.0	0	0
	October	743	99.9%	42.0	82.9	68.2	0	0
	November	720	100.0%	48.6	75.5	70.8	0	0
	December	744	100.0%	48.5	76.6	75.5	0	0
Annual		8768	99.8%	49.7	99.7	86.5	0	0

Observations in µg/m3

FIGURE 3.1.5 - ST. JOHN'S NAPS ANNUAL O_3 CONCENTRATIONS



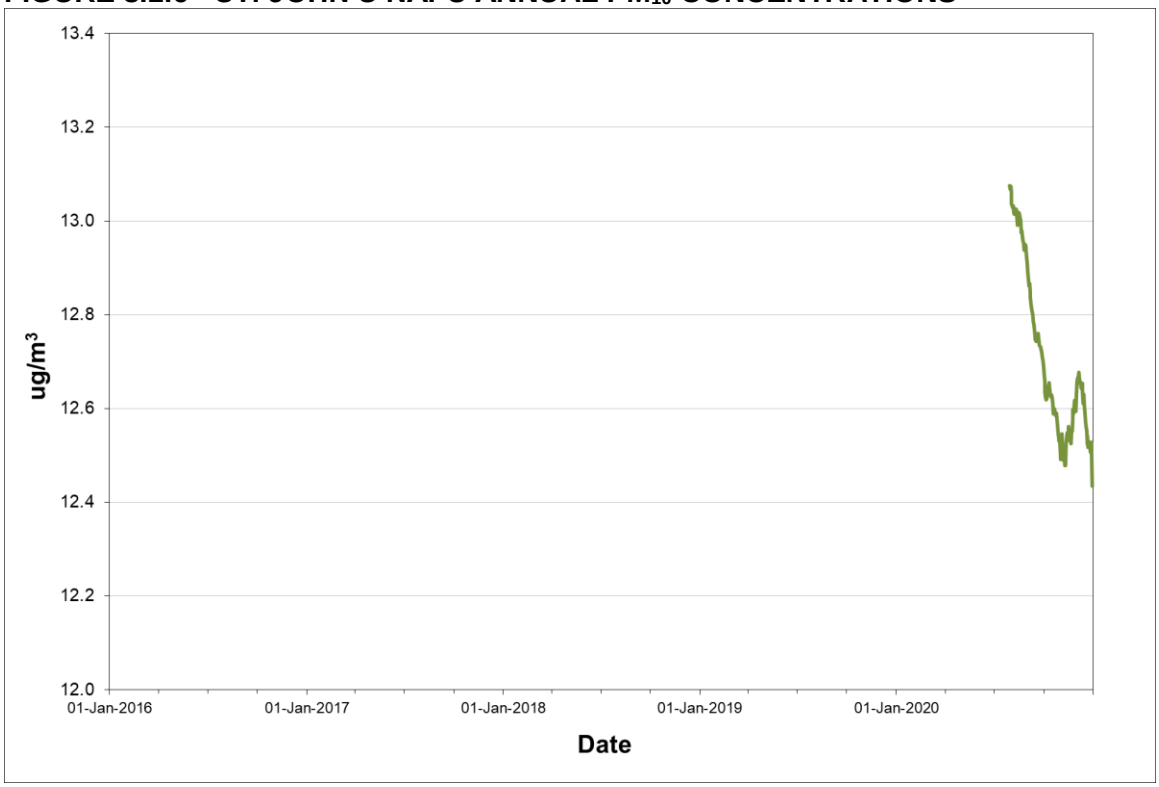
Rolling annual average of hourly concentrations

TABLE 3.1.6 - ST. JOHN'S NAPS PM_{10} SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>50 µg/m^3)
2019	January	0	0.0%			
	February	0	0.0%			
	March	0	0.0%			
	April	0	0.0%			
	May	0	0.0%			
	June	0	0.0%			
	July	0	0.0%			
	August	0	0.0%			
	September	1	3.3%	12.7	12.7	0
	October	1	3.2%	9.5	9.5	0
	November	30	100.0%	13.2	26.0	0
	December	31	100.0%	15.1	35.2	0
Annual		63	17.3%	14.0	35.2	0
2020	January	31	100.0%	13.4	23.6	0
	February	29	100.0%	14.1	20.5	0
	March	30	96.8%	14.8	29.9	0
	April	30	100.0%	16.5	34.4	0
	May	31	100.0%	12.4	24.3	0
	June	30	100.0%	8.5	15.2	0
	July	31	100.0%	10.0	16.0	0
	August	31	100.0%	11.5	20.1	0
	September	30	100.0%	10.4	16.0	0
	October	31	100.0%	10.7	18.1	0
	November	30	100.0%	14.2	29.3	0
	December	31	100.0%	13.0	20.4	0
Annual		365	99.7%	12.4	34.4	0

Observations in µg/m3

FIGURE 3.1.6 - ST. JOHN'S NAPS ANNUAL PM_{10} CONCENTRATIONS

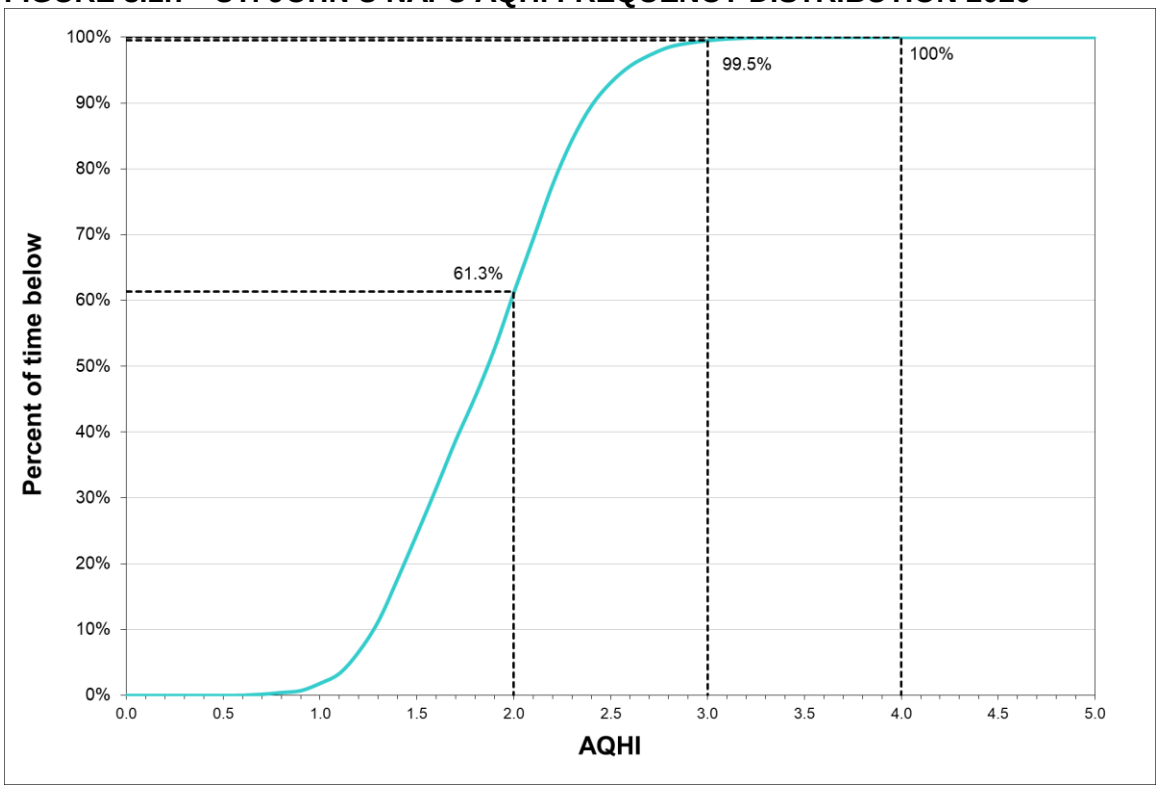


Rolling annual average of daily concentrations

TABLE 3.1.7 - ST. JOHN'S NAPS AQHI SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2019	January	601	80.8%	2.2	4.2
	February	668	99.4%	2.2	2.9
	March	744	100.0%	2.5	4.0
	April	718	99.7%	2.4	3.4
	May	714	96.0%	2.0	2.9
	June	635	88.2%	1.6	2.7
	July	685	92.1%	1.5	4.6
	August	737	99.1%	1.6	3.2
	September	140	19.4%	1.4	2.4
	October	35	4.7%	1.6	2.2
	November	467	64.9%	1.9	3.9
	December				
Annual		6144	70.1%	2.0	4.6
2020	January	0	0.0%		
	February	275	39.5%	2.3	3.1
	March	734	98.7%	2.2	3.1
	April	718	99.7%	2.3	3.4
	May	744	100.0%	2.0	3.1
	June	720	100.0%	1.6	3.5
	July	744	100.0%	1.4	2.5
	August	744	100.0%	1.6	2.3
	September	720	100.0%	1.6	2.8
	October	744	100.0%	1.7	3.1
	November	720	100.0%	1.9	2.8
	December	744	100.0%	2.0	3.4
Annual		7607	86.6%	1.8	3.5

FIGURE 3.1.7 - ST. JOHN'S NAPS AQHI FREQUENCY DISTRIBUTION 2020



e.g. 99.5% of the time the AQHI recorded was below 3.0

3.2 Mt. Pearl

The Mt. Pearl NAPS monitoring station is located on Old Placentia Road near Admiralty House and monitors the ambient levels of SO_2, NO_x / NO_2, CO, O_3, $PM_{2.5}$ and PM_{10} on a continuous basis. Monitoring for PM_{10} was introduced to the station in September 2020 when the Met One BAM measuring $PM_{2.5}$ was replaced with a Teledyne API T640 capable of measuring both PM_{10} and $PM_{2.5}$. For SO_2, NO_x / NO_2, $PM_{2.5}$, PM_{10} and CO, the ambient air criteria were not exceeded on any occasion in 2020. For O_3, the 8-hour ambient standard was exceeded once in 2020, with that exceedance occurring in April.

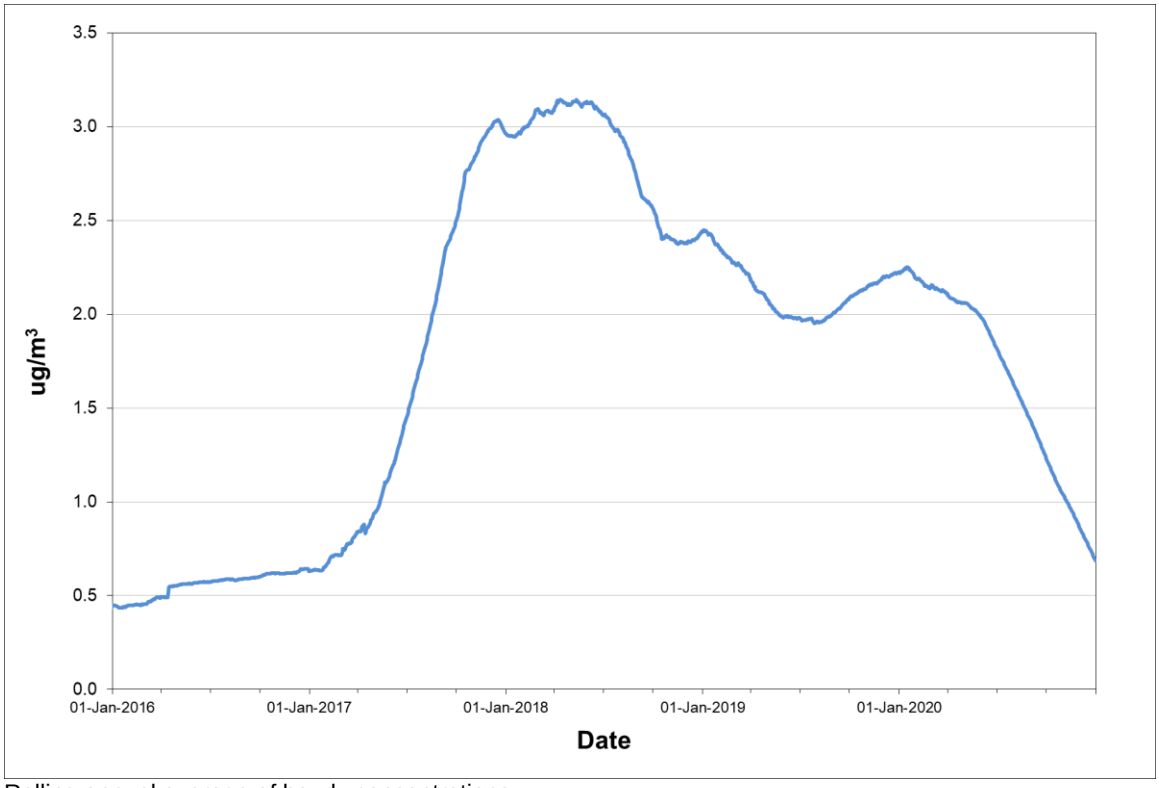
Tables 3.2.1 through 3.2.6 present the summary information on the level of air contaminants measured at the Mt. Pearl NAPS station, while Figures 3.2.1 through 3.2.5 provide a graphical representation of the annual trend of each pollutant. Table 3.2.7 provides a summary of the AQHI while Figure 3.2.6 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2020.

TABLE 3.2.1 - MT. PEARL NAPS SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	744	100.0%	2.1	15.0	10.0	4.7	0	0	0
	February	672	100.0%	1.6	13.3	9.1	3.4	0	0	0
	March	662	89.0%	1.2	17.5	9.4	2.7	0	0	0
	April	720	100.0%	1.4	5.9	5.5	2.8	0	0	0
	May	529	71.1%	1.7	3.2	3.0	2.5	0	0	0
	June	720	100.0%	2.6	3.8	3.3	3.0	0	0	0
	July	744	100.0%	2.6	3.5	3.2	2.8	0	0	0
	August	744	100.0%	2.6	5.9	4.2	2.8	0	0	0
	September	720	100.0%	2.8	7.5	5.3	3.2	0	0	0
	October	734	98.7%	2.7	14.5	6.1	3.3	0	0	0
	November	720	100.0%	2.5	4.8	3.3	3.1	0	0	0
	December	744	100.0%	2.6	5.2	3.7	2.8	0	0	0
Annual		8453	96.5%	2.2	17.5	10.0	4.7	0	0	0
2020	January	743	99.9%	1.8	22.8	17.2	5.7	0	0	0
	February	696	100.0%	1.1	21.3	11.4	5.1	0	0	0
	March	744	100.0%	0.8	19.6	11.3	2.9	0	0	0
	April	719	99.9%	0.8	9.0	4.5	1.6	0	0	0
	May	744	100.0%	1.0	6.8	4.7	1.9	0	0	0
	June	720	100.0%	0.6	1.9	1.7	1.2	0	0	0
	July	720	96.8%	0.3	1.3	0.9	0.5	0	0	0
	August	744	100.0%	0.3	1.4	0.8	0.6	0	0	0
	September	720	100.0%	0.3	1.2	0.7	0.4	0	0	0
	October	740	99.5%	0.4	2.5	1.0	0.6	0	0	0
	November	720	100.0%	0.5	1.8	1.2	0.8	0	0	0
	December	744	100.0%	0.4	1.4	1.0	0.5	0	0	0
Annual		8754	99.7%	0.7	22.8	17.2	5.7	0	0	0

Observations in µg/m3

FIGURE 3.2.1 - MT. PEARL NAPS ANNUAL SO_2 CONCENTRATIONS



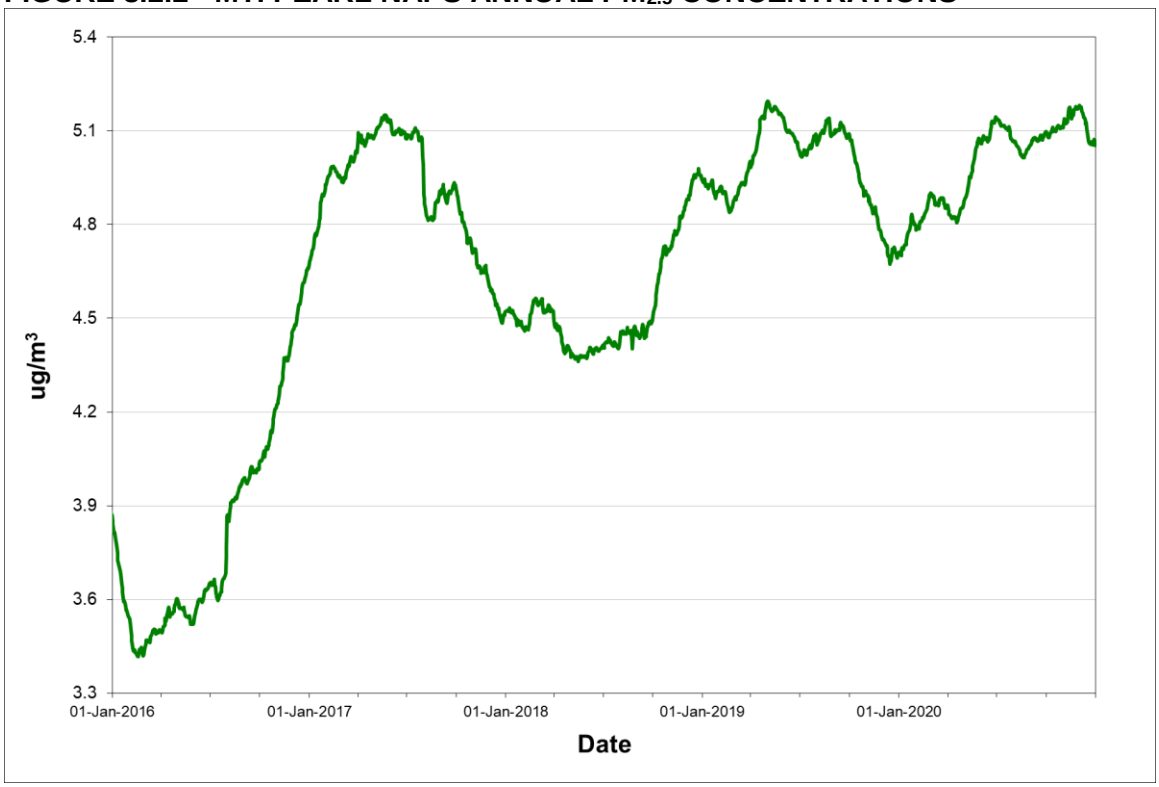
Rolling annual average of hourly concentrations

TABLE 3.2.2 - MT. PEARL NAPS $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	5.7	10.5	0
	February	28	100.0%	5.8	8.9	0
	March	31	100.0%	6.5	9.4	0
	April	30	100.0%	6.1	11.5	0
	May	31	100.0%	3.0	6.1	0
	June	30	100.0%	2.3	3.6	0
	July	31	100.0%	3.9	6.5	0
	August	31	100.0%	4.3	7.3	0
	September	30	100.0%	4.0	7.3	0
	October	31	100.0%	4.0	6.4	0
	November	30	100.0%	4.9	12.9	0
	December	31	100.0%	5.9	10.8	0
Annual		365	100.0%	4.7	12.9	0
2020	January	31	100.0%	6.8	11.1	0
	February	29	100.0%	7.1	11.3	0
	March	31	100.0%	5.9	10.7	0
	April	30	100.0%	6.2	9.2	0
	May	31	100.0%	5.3	11.0	0
	June	30	100.0%	3.2	7.4	0
	July	30	96.8%	3.0	6.5	0
	August	17	54.8%	3.5	6.0	0
	September	26	86.7%	4.5	6.5	0
	October	31	100.0%	4.2	7.1	0
	November	30	100.0%	5.7	11.5	0
	December	31	100.0%	4.6	9.2	0
Annual		347	94.8%	5.1	11.5	0

Observations in µg/m3

FIGURE 3.2.2 - MT. PEARL NAPS ANNUAL $PM_{2.5}$ CONCENTRATIONS



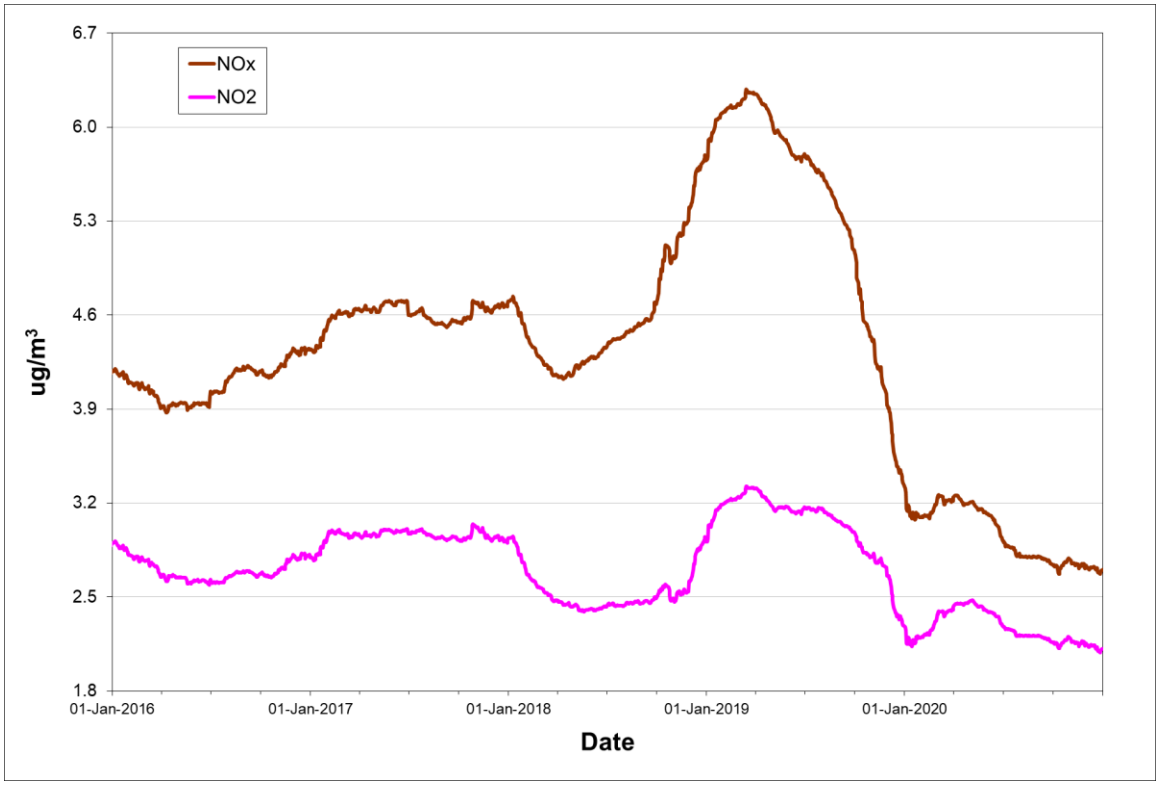
Rolling annual average of daily concentrations

TABLE 3.2.3 - MT. PEARL NAPS NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_X	NO_2	NO_X	NO_2	NO_X	NO_2	(>400)	(>200)
2019	January	743	99.9%	8.4	5.7	165.3	112.3	47.8	38.0	0	0
	February	672	100.0%	3.5	2.2	41.8	37.4	7.5	6.5	0	0
	March	661	88.8%	3.2	2.1	61.1	39.5	13.0	10.1	0	0
	April	720	100.0%	2.3	1.0	15.3	12.0	4.9	2.7	0	0
	May	529	71.1%	2.2	1.5	67.7	17.1	5.6	5.0	0	0
	June	720	100.0%	4.0	2.5	48.7	40.4	12.4	8.7	0	0
	July	744	100.0%	2.8	1.8	64.9	34.0	13.1	8.7	0	0
	August	744	100.0%	1.7	1.0	211.0	54.5	12.7	4.4	0	0
	September	720	100.0%	2.1	1.5	38.6	33.5	5.0	4.0	0	0
	October	734	98.7%	2.7	2.0	50.1	22.3	10.2	6.2	0	0
	November	720	100.0%	3.7	3.1	67.3	46.2	15.9	12.7	0	0
	December	744	100.0%	3.1	2.7	38.0	31.1	12.0	10.4	0	0
Annual		8451	96.5%	3.3	2.3	211.0	112.3	47.8	38.0	0	0
2020	January	743	99.9%	5.7	4.7	101.2	75.8	27.5	22.0	0	0
	February	696	100.0%	4.9	4.0	78.4	61.8	13.0	11.3	0	0
	March	744	100.0%	3.5	3.0	42.0	39.5	12.6	11.5	0	0
	April	719	99.9%	1.8	1.4	17.6	17.3	4.5	3.8	0	0
	May	744	100.0%	1.6	1.0	29.9	17.0	4.1	3.5	0	0
	June	720	100.0%	1.5	1.1	19.6	13.1	4.7	3.3	0	0
	July	743	99.9%	1.7	1.1	32.6	15.6	4.4	3.0	0	0
	August	744	100.0%	1.3	0.9	13.2	10.9	3.3	2.7	0	0
	September	720	100.0%	1.4	0.9	25.9	11.5	3.7	2.4	0	0
	October	743	99.9%	3.2	2.4	147.3	36.3	15.0	7.5	0	0
	November	720	100.0%	3.1	2.6	37.2	31.6	10.4	8.9	0	0
	December	744	100.0%	2.7	2.2	35.5	28.5	8.9	7.8	0	0
Annual		8780	100.0%	2.7	2.1	147.3	75.8	27.5	22.0	0	0

Observations in µg/m3

FIGURE 3.2.3 - MT. PEARL NAPS ANNUAL NO_X / NO_2 CONCENTRATIONS



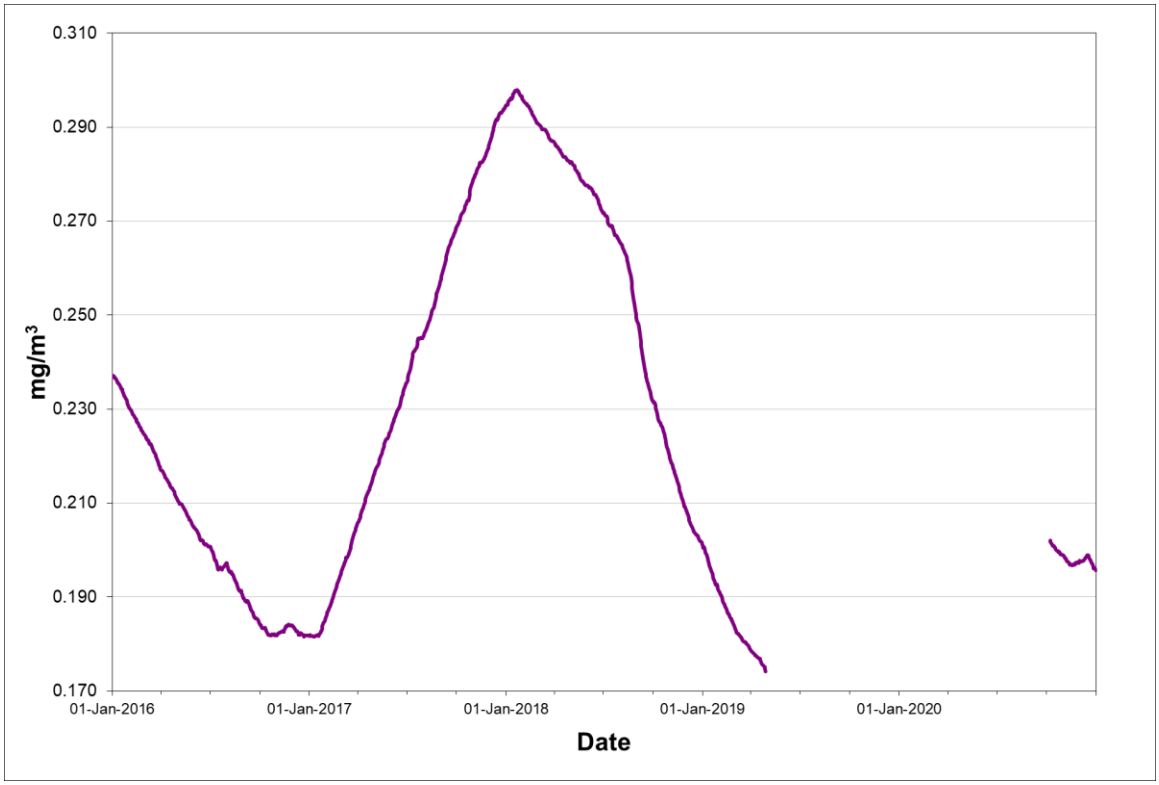
Rolling annual average of hourly concentrations

TABLE 3.2.4 - MT. PEARL NAPS CO SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>35)	Regulatory Exceedances 8-Hour (>15)
2019	January	743	99.9%	0.1	0.8	0.3	0	0
	February	672	100.0%	0.1	0.7	0.4	0	0
	March	98	13.2%	0.1	0.2	0.2	0	0
	April	0	0.0%					
	May	0	0.0%					
	June	0	0.0%					
	July	0	0.0%					
	August	563	75.7%	0.2	0.3	0.2	0	0
	September	606	84.2%	0.2	0.6	0.4	0	0
	October	29	3.9%	0.2	0.4	0.3	0	0
	November	0	0.0%					
	December	0	0.0%					
Annual		2711	30.9%	0.2	0.8	0.4	0	0
2020	January	580	78.0%	0.2	0.6	0.3	0	0
	February	696	100.0%	0.3	0.6	0.4	0	0
	March	744	100.0%	0.2	0.6	0.4	0	0
	April	718	99.7%	0.2	0.3	0.3	0	0
	May	744	100.0%	0.2	0.4	0.3	0	0
	June	720	100.0%	0.2	0.4	0.2	0	0
	July	740	99.5%	0.2	0.3	0.3	0	0
	August	743	99.9%	0.2	0.4	0.3	0	0
	September	720	100.0%	0.2	0.4	0.3	0	0
	October	742	99.7%	0.2	0.6	0.4	0	0
	November	720	100.0%	0.2	0.8	0.5	0	0
	December	744	100.0%	0.2	0.6	0.4	0	0
Annual		8611	98.0%	0.2	0.8	0.5	0	0

Observations in mg/m^3

FIGURE 3.2.4 - MT. PEARL NAPS ANNUAL CO CONCENTRATIONS



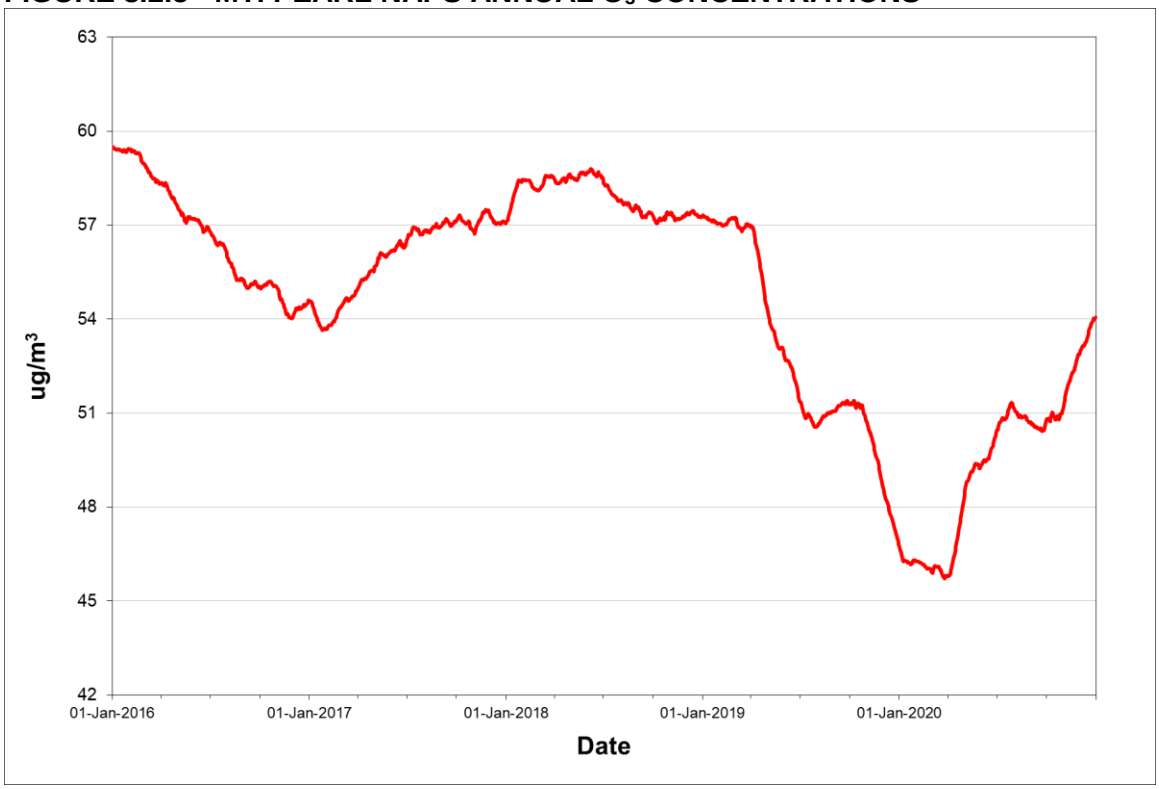
Rolling annual average of hourly concentrations

TABLE 3.2.5 - MT. PEARL NAPS O_3 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2019	January	744	100.0%	65.5	82.2	80.9	0	0
	February	672	100.0%	71.8	85.0	82.4	0	0
	March	661	88.8%	76.3	99.2	91.7	0	6
	April	720	100.0%	43.0	89.0	83.5	0	0
	May	528	71.0%	44.2	95.8	67.2	0	0
	June	718	99.7%	30.4	77.4	65.9	0	0
	July	744	100.0%	28.2	69.6	59.9	0	0
	August	744	100.0%	48.0	79.2	74.0	0	0
	September	720	100.0%	44.5	90.0	85.3	0	0
	October	734	98.7%	42.1	76.9	72.7	0	0
	November	720	100.0%	32.4	50.7	50.0	0	0
	December	744	100.0%	40.2	52.6	51.2	0	0
Annual		8449	96.4%	46.9	99.2	91.7	0	6
2020	January	744	100.0%	59.6	79.2	77.2	0	0
	February	696	100.0%	68.2	97.1	86.3	0	0
	March	744	100.0%	70.3	86.8	82.1	0	0
	April	717	99.6%	71.4	95.6	87.5	0	1
	May	744	100.0%	57.5	98.1	86.5	0	0
	June	720	100.0%	44.3	89.3	81.1	0	0
	July	742	99.7%	37.5	77.9	61.2	0	0
	August	744	100.0%	42.0	70.0	61.3	0	0
	September	720	100.0%	45.3	84.8	78.2	0	0
	October	744	100.0%	46.6	87.3	69.1	0	0
	November	720	100.0%	53.6	76.2	73.4	0	0
	December	700	94.1%	54.3	75.1	73.4	0	0
Annual		8735	99.4%	54.1	98.1	87.5	0	1

Observations in µg/m3

FIGURE 3.2.5 - MT. PEARL NAPS ANNUAL O_3 CONCENTRATIONS



Rolling annual average of hourly concentrations

TABLE 3.2.6 - MT. PEARL NAPS PM_{10} SUMMARY 2020

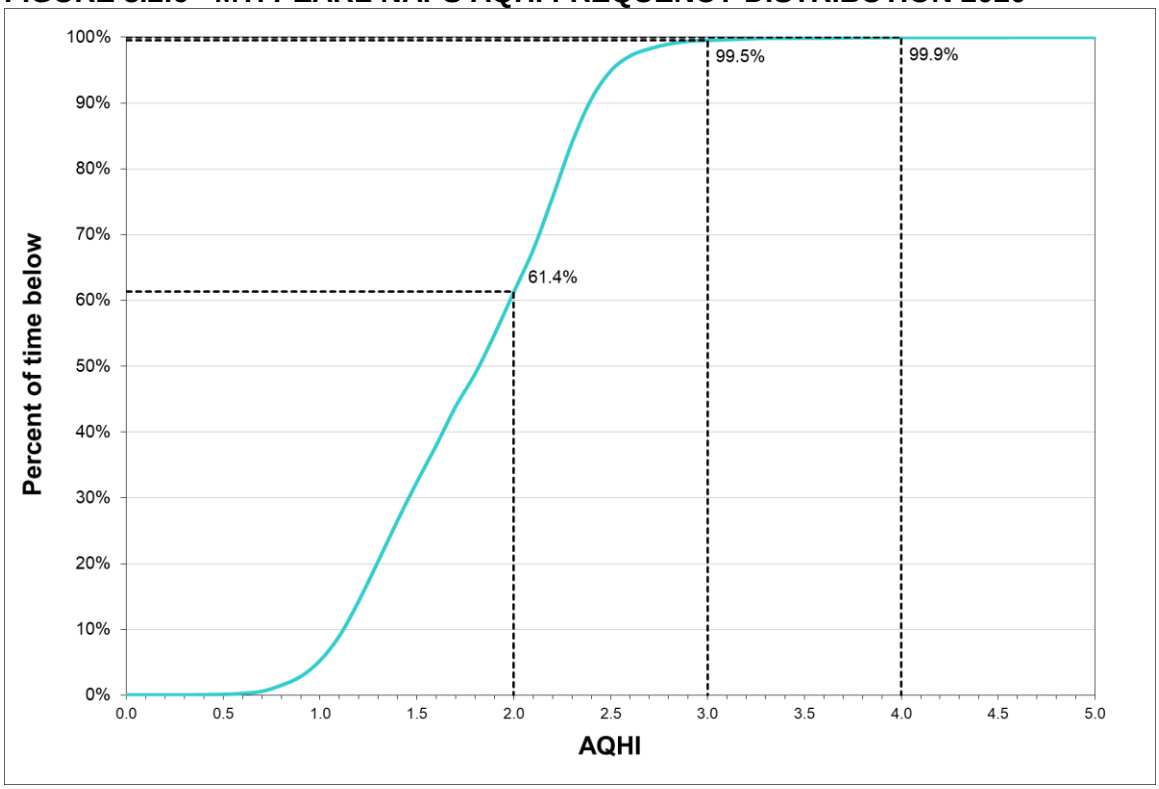
Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>50 µg/m^3)
2020	January	0	0.0%			
	February	0	0.0%			
	March	0	0.0%			
	April	0	0.0%			
	May	0	0.0%			
	June	0	0.0%			
	July	0	0.0%			
	August	0	0.0%			
	September	26	86.7%	10.3	15.8	0
	October	31	100.0%	9.6	16.9	0
	November	30	100.0%	12.3	25.6	0
	December	31	100.0%	10.1	17.0	0
Annual		118	32.2%	10.6	25.6	0

Observations in µg/m3

TABLE 3.2.7 - MT. PEARL NAPS AQHI SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2019	January	744	100.0%	2.3	5.6
	February	670	99.7%	2.3	3.3
	March	662	89.0%	2.4	3.5
	April	720	100.0%	1.5	2.8
	May	528	71.0%	1.4	2.2
	June	718	99.7%	1.0	2.1
	July	744	100.0%	1.0	2.2
	August	742	99.7%	1.5	2.7
	September	720	100.0%	1.4	2.9
	October	732	98.4%	1.4	2.6
	November	714	99.2%	1.2	3.8
	December	740	99.5%	1.5	2.8
Annual		8434	96.3%	1.6	5.6
2020	January	744	100.0%	2.1	4.7
	February	694	99.7%	2.3	3.7
	March	744	100.0%	2.3	3.2
	April	718	99.7%	2.2	2.9
	May	744	100.0%	1.8	2.8
	June	720	100.0%	1.4	2.7
	July	724	97.3%	1.2	2.0
	August	418	56.2%	1.3	2.3
	September	632	87.8%	1.5	2.6
	October	744	100.0%	1.5	2.6
	November	720	100.0%	1.8	2.6
	December	701	94.2%	1.8	2.5
Annual		8303	94.5%	1.8	4.7

FIGURE 3.2.6 - MT. PEARL NAPS AQHI FREQUENCY DISTRIBUTION 2020



e.g. 99.5% of the time the AQHI recorded was below 3.0

3.3 Grand Falls-Windsor

The Grand Falls-Windsor NAPS monitoring station is located on Scott Avenue and monitors the ambient levels of SO_2, NO_x / NO_2, CO, O_3, PM_{10} and $PM_{2.5}$ on a continuous basis. The $PM_{2.5}$ Met One BAM was replaced in September 2020 with a Teledyne API T640 capable of measuring both PM_{10} and $PM_{2.5}$. For O_3, the 8-hour ambient standard was exceeded on eighteen occasions in 2020, specifically eight times in February, once in March, five times in April and three time in May. For all other pollutants, the ambient air criteria were not exceeded on any occasion in 2020.

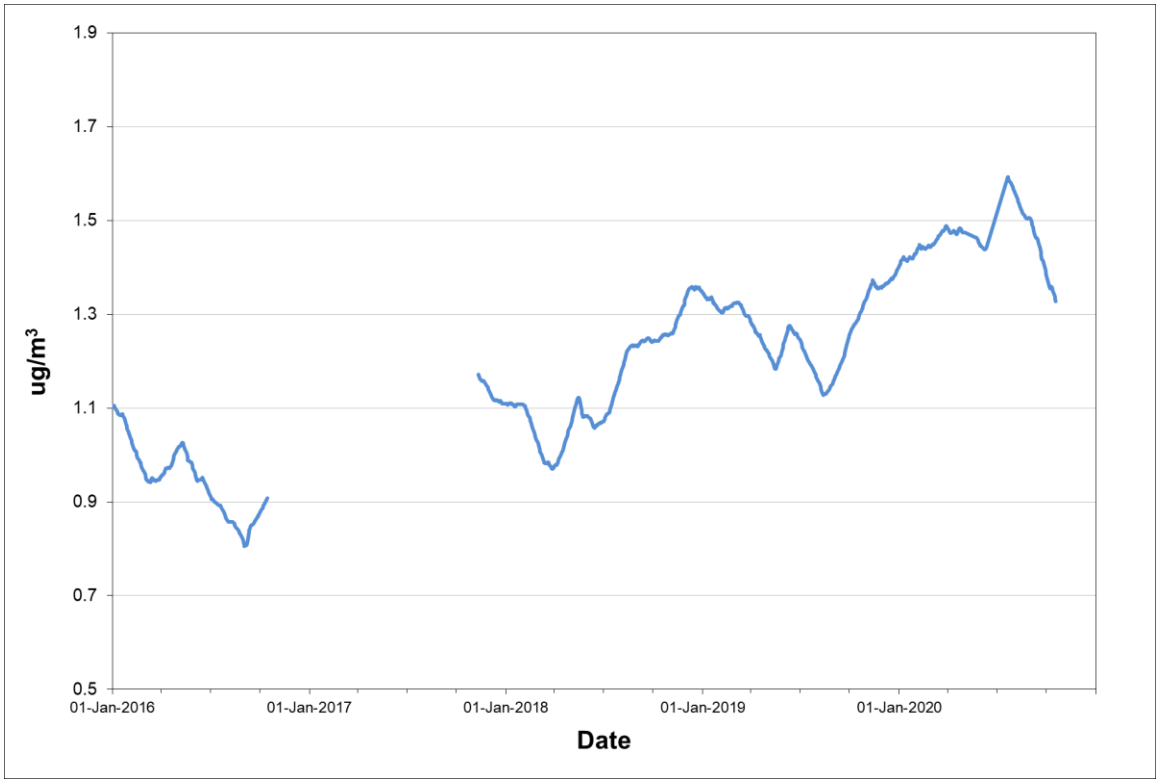
Tables 3.3.1 through 3.3.6 present the summary information on the level of air contaminants measured at the Grand Falls-Windsor NAPS station, while Figures 3.3.1 through 3.3.5 provides a graphical representation of the annual trend of each pollutant. Table 3.3.7 provides a summary of the AQHI while Figure 3.3.7 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2020.

TABLE 3.3.1 - GRAND FALLS-WINDSOR NAPS SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	743	99.9%	0.8	3.5	1.8	1.4	0	0	0
	February	668	99.4%	1.1	3.1	2.5	2.0	0	0	0
	March	744	100.0%	1.0	2.5	2.0	1.7	0	0	0
	April	719	99.9%	1.1	2.3	2.3	2.0	0	0	0
	May	552	74.2%	1.6	3.4	3.1	2.2	0	0	0
	June	714	99.2%	1.2	2.5	2.5	2.3	0	0	0
	July	614	82.5%	1.0	2.5	2.0	1.4	0	0	0
	August	528	71.0%	1.5	3.0	2.0	1.8	0	0	0
	September	716	99.4%	1.9	3.8	2.8	2.6	0	0	0
	October	737	99.1%	2.2	3.3	3.0	2.8	0	0	0
	November	718	99.7%	1.9	3.6	3.5	3.3	0	0	0
	December	262	35.2%	1.5	2.7	2.6	2.3	0	0	0
Annual		7715	88.1%	1.4	3.8	3.5	3.3	0	0	0
2020	January	585	78.6%	1.0	3.8	2.4	1.6	0	0	0
	February	456	65.5%	1.2	3.3	3.1	2.4	0	0	0
	March	128	17.2%	0.8	3.5	2.2	1.7	0	0	0
	April	648	90.0%	1.0	2.2	2.1	2.0	0	0	0
	May	579	77.8%	1.3	2.3	2.2	2.0	0	0	0
	June	575	79.9%	1.9	2.7	2.4	2.2	0	0	0
	July	739	99.3%	1.6	3.1	3.0	2.8	0	0	0
	August	679	91.3%	0.9	12.4	4.8	1.8	0	0	0
	September	631	87.6%	0.7	3.5	2.1	1.7	0	0	0
	October	309	41.5%	1.2	3.1	3.0	2.5	0	0	0
	November	0	0.0%							
	December	0	0.0%							
Annual		5329	60.7%	1.2	12.4	4.8	2.8	0	0	0

Observations in µg/m3

FIGURE 3.3.1 - GRAND FALLS-WINDSOR NAPS ANNUAL SO_2 CONCENTRATIONS



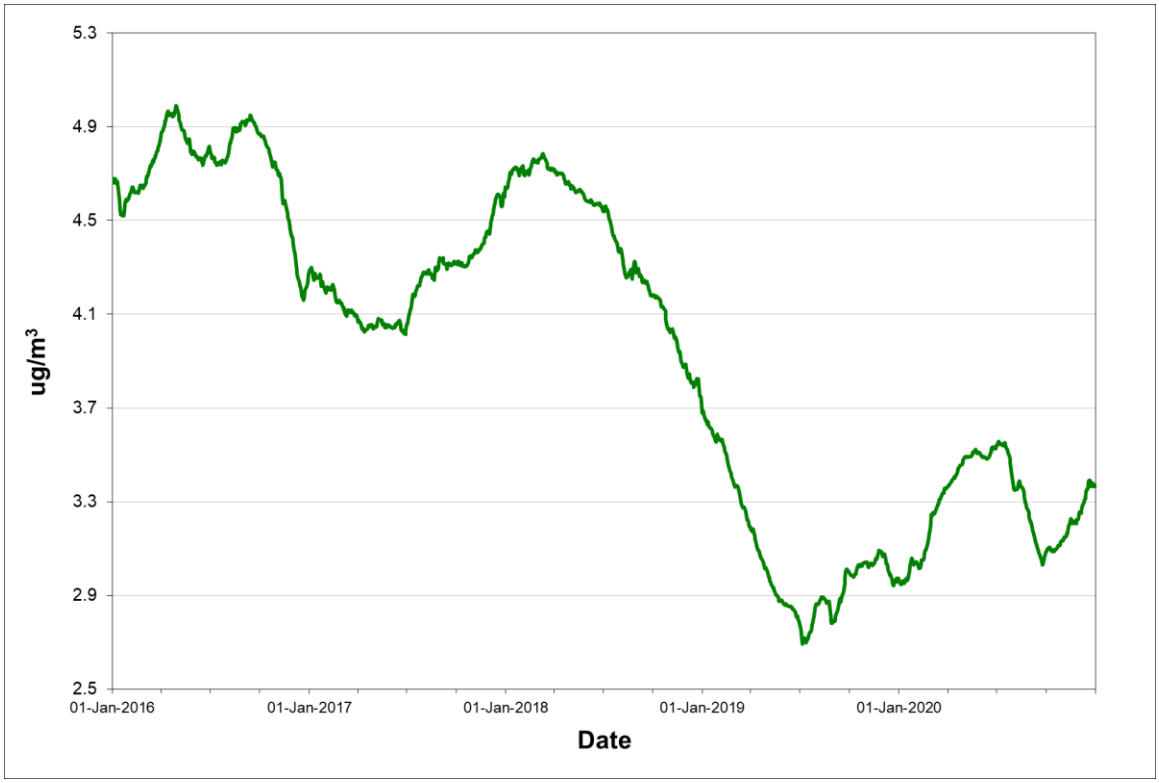
Rolling annual average of hourly concentrations

TABLE 3.3.2 - GRAND FALLS-WINDSOR NAPS $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2019	January	31	100.0%	3.4	10.1	0
	February	28	100.0%	1.9	5.5	0
	March	31	100.0%	1.8	6.0	0
	April	30	100.0%	1.5	5.1	0
	May	26	83.9%	1.0	2.6	0
	June	30	100.0%	1.9	3.5	0
	July	31	100.0%	4.3	9.4	0
	August	31	100.0%	4.7	7.6	0
	September	30	100.0%	5.3	8.8	0
	October	31	100.0%	2.9	5.8	0
	November	30	100.0%	3.6	7.0	0
	December	31	100.0%	3.0	8.7	0
Annual		360	98.6%	3.0	10.1	0
2020	January	31	100.0%	4.2	10.9	0
	February	29	100.0%	3.9	10.3	0
	March	31	100.0%	3.7	16.9	0
	April	28	93.3%	2.9	4.9	0
	May	30	96.8%	1.6	3.8	0
	June	30	100.0%	2.3	5.5	0
	July	31	100.0%	2.6	4.7	0
	August	31	100.0%	2.9	7.9	0
	September	30	100.0%	3.5	6.9	0
	October	31	100.0%	3.5	8.6	0
	November	30	100.0%	4.9	9.5	0
	December	31	100.0%	4.4	10.8	0
Annual		363	99.2%	3.4	16.9	0

Observations in µg/m^3

FIGURE 3.3.2 - GRAND FALLS-WINDSOR NAPS ANNUAL $PM_{2.5}$ CONCENTRATIONS



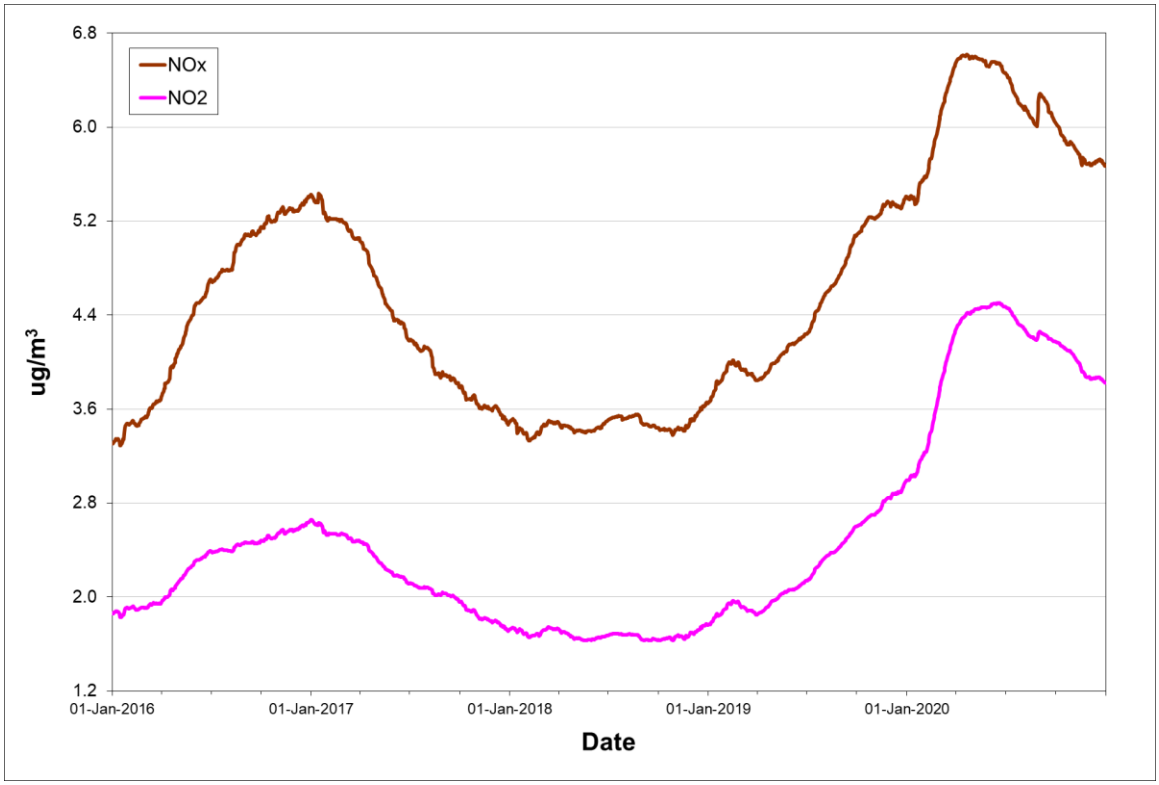
Rolling annual average of daily concentrations

TABLE 3.3.3 - GRAND FALLS-WINDSOR NAPS NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_X	NO_2	NO_X	NO_2	NO_X	NO_2	(>400)	(>200)
2019	January	744	100.0%	6.0	3.3	122.7	36.2	20.9	8.4	0	0
	February	665	99.0%	4.9	2.6	148.1	38.1	11.6	6.8	0	0
	March	738	99.2%	3.1	1.4	44.9	19.2	7.1	3.0	0	0
	April	716	99.4%	3.9	2.2	51.5	23.3	9.0	5.2	0	0
	May	740	99.5%	4.3	2.2	255.2	27.9	15.9	3.3	0	0
	June	715	99.3%	4.6	2.4	29.5	12.8	8.7	3.9	0	0
	July	615	82.7%	6.5	3.4	53.5	15.4	13.0	6.4	0	0
	August	545	73.3%	5.8	2.9	58.6	16.9	8.2	3.9	0	0
	September	718	99.7%	6.8	3.3	115.8	32.1	16.1	6.4	0	0
	October	662	89.0%	6.9	3.8	44.1	12.9	12.6	5.5	0	0
	November	469	65.1%	7.1	5.0	48.1	28.7	13.9	9.5	0	0
	December	744	100.0%	5.9	4.4	181.7	53.5	12.8	7.1	0	0
Annual		8071	92.1%	5.4	3.0	255.2	53.5	20.9	9.5	0	0
2020	January	742	99.7%	7.6	5.7	85.0	35.8	18.0	11.8	0	0
	February	674	96.8%	10.7	8.9	56.8	44.1	16.7	14.6	0	0
	March	736	98.9%	8.5	7.2	36.3	29.5	16.2	11.7	0	0
	April	718	99.7%	4.6	4.0	45.9	14.9	7.0	6.1	0	0
	May	737	99.1%	3.4	2.5	43.1	14.2	7.8	4.3	0	0
	June	718	99.7%	4.0	2.5	27.6	12.4	7.8	4.4	0	0
	July	742	99.7%	3.4	1.8	47.8	11.0	8.0	2.6	0	0
	August	738	99.2%	6.7	2.6	288.9	41.4	34.5	10.2	0	0
	September	707	98.2%	4.3	2.4	114.0	27.5	14.3	5.6	0	0
	October	735	98.8%	4.7	2.7	103.5	19.1	9.5	5.7	0	0
	November	631	87.6%	4.5	2.0	208.8	52.7	33.6	8.4	0	0
	December	0	0.0%								
Annual		7878	89.7%	5.7	3.8	288.9	52.7	34.5	14.6	0	0

Observations in µg/m3

FIGURE 3.3.3 - GRAND FALLS-WINDSOR NAPS ANNUAL NO_X / NO_2 CONCENTRATIONS



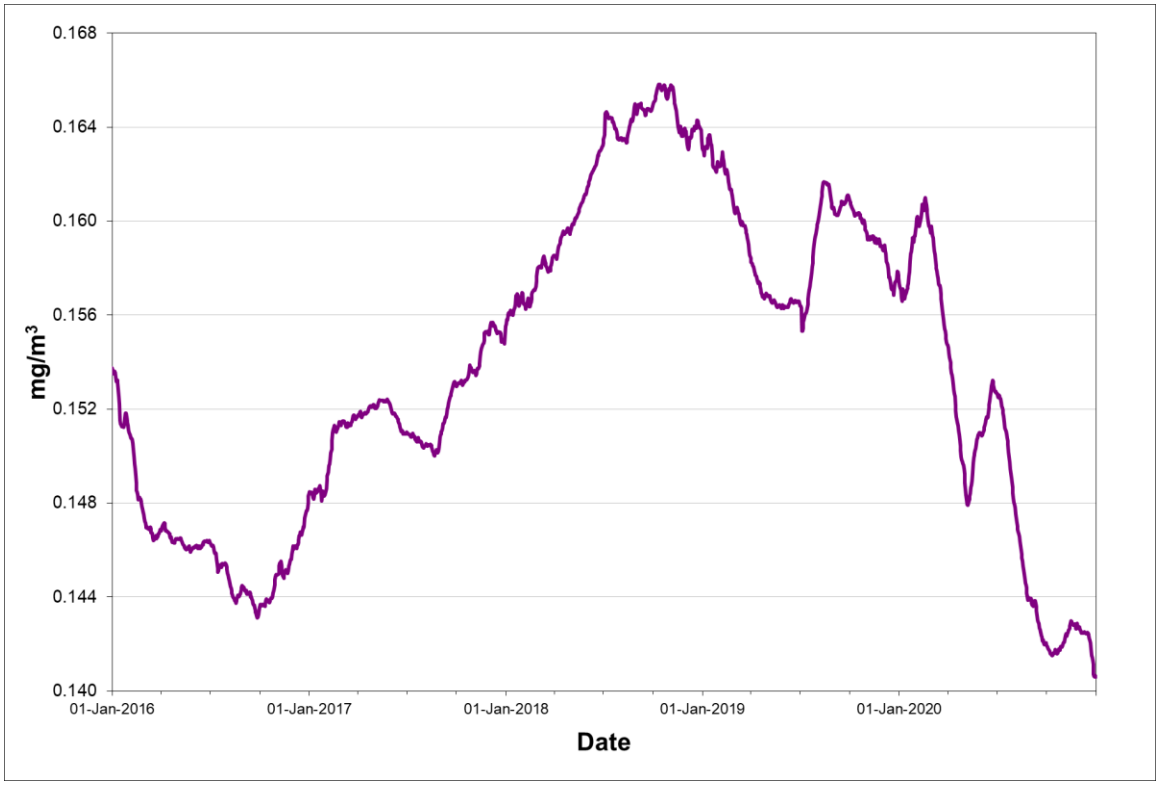
Rolling annual average of hourly concentrations

TABLE 3.3.4 - GRAND FALLS-WINDSOR NAPS CO SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>35)	Regulatory Exceedances 8-Hour (>15)
2019	January	570	76.6%	0.2	0.7	0.5	0	0
	February	594	88.4%	0.2	0.6	0.4	0	0
	March	742	99.7%	0.2	0.5	0.3	0	0
	April	717	99.6%	0.2	0.5	0.3	0	0
	May	580	78.0%	0.1	0.3	0.2	0	0
	June	716	99.4%	0.1	0.3	0.2	0	0
	July	611	82.1%	0.1	0.3	0.2	0	0
	August	547	73.5%	0.2	0.3	0.3	0	0
	September	719	99.9%	0.1	0.3	0.2	0	0
	October	738	99.2%	0.1	0.9	0.2	0	0
	November	720	100.0%	0.1	0.6	0.3	0	0
	December	693	93.1%	0.2	0.6	0.4	0	0
Annual		7947	90.7%	0.2	0.9	0.5	0	0
2020	January	582	78.2%	0.2	1.0	0.4	0	0
	February	692	99.4%	0.2	0.8	0.5	0	0
	March	727	97.7%	0.1	0.9	0.4	0	0
	April	718	99.7%	0.1	0.4	0.2	0	0
	May	734	98.7%	0.2	0.5	0.4	0	0
	June	716	99.4%	0.1	0.5	0.3	0	0
	July	739	99.3%	0.1	0.4	0.2	0	0
	August	661	88.8%	0.1	0.4	0.2	0	0
	September	694	96.4%	0.1	0.8	0.2	0	0
	October	741	99.6%	0.1	0.5	0.3	0	0
	November	636	88.3%	0.2	0.5	0.4	0	0
	December	250	33.6%	0.1	0.4	0.2	0	0
Annual		7890	89.8%	0.1	1.0	0.5	0	0

Observations in mg/m^3

FIGURE 3.3.4 - GRAND FALLS-WINDSOR NAPS ANNUAL CO CONCENTRATIONS



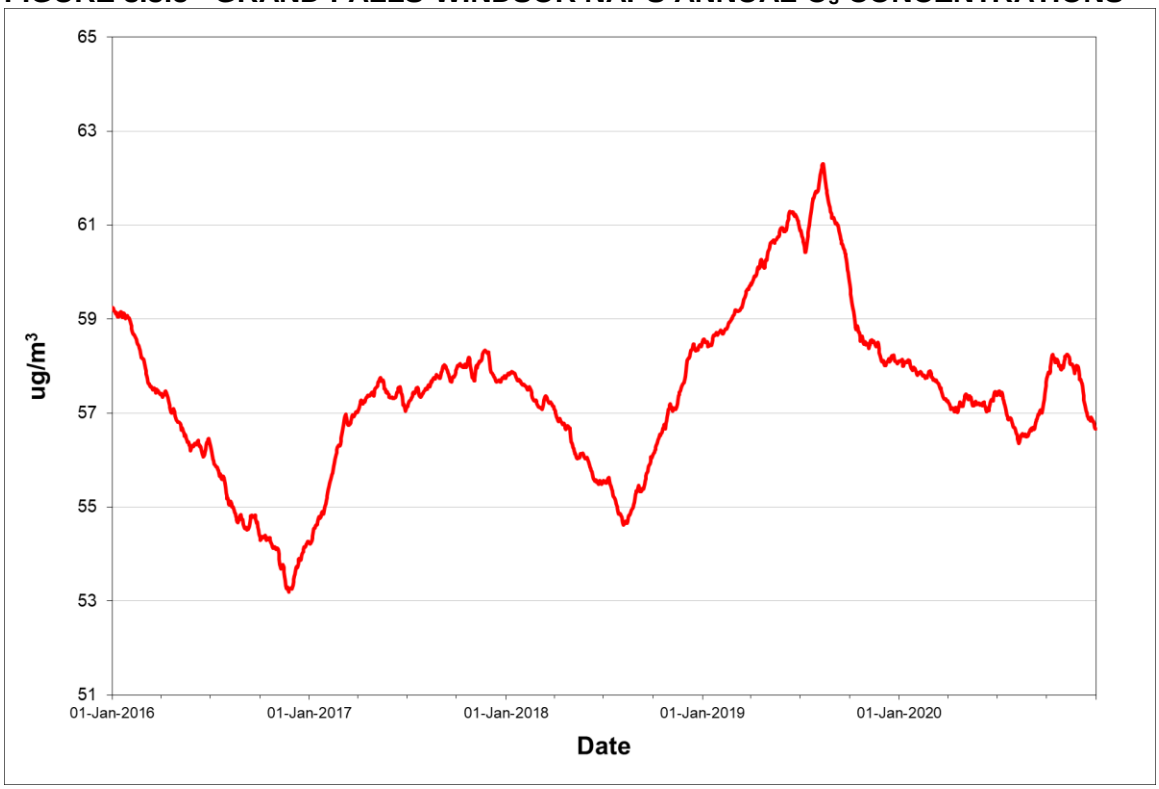
Rolling annual average of hourly concentrations

TABLE 3.3.5 - GRAND FALLS-WINDSOR NAPS O_3 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2019	January	744	100.0%	71.4	91.2	84.7	0	0
	February	668	99.4%	75.0	90.0	87.3	0	1
	March	744	100.0%	83.0	101.8	98.1	0	33
	April	719	99.9%	75.2	100.3	94.5	0	15
	May	660	88.7%	61.8	84.6	82.7	0	0
	June	609	84.6%	40.6	93.2	70.2	0	0
	July	446	59.9%	34.8	66.5	59.4	0	0
	August	547	73.5%	36.9	88.7	63.3	0	0
	September	719	99.9%	33.1	65.5	55.5	0	0
	October	739	99.3%	41.3	79.7	72.5	0	0
	November	719	99.9%	57.5	84.6	80.9	0	0
	December	744	100.0%	70.1	87.4	85.4	0	0
Annual		8058	92.0%	58.1	101.8	98.1	0	49
2020	January	741	99.6%	69.4	86.0	82.7	0	0
	February	693	99.6%	74.4	109.6	102.7	0	8
	March	737	99.1%	76.7	92.7	87.8	0	1
	April	716	99.4%	75.1	96.5	90.8	0	5
	May	738	99.2%	59.8	97.0	91.0	0	3
	June	720	100.0%	45.0	102.1	75.9	0	0
	July	741	99.6%	36.3	88.3	68.4	0	0
	August	667	89.7%	39.8	85.0	71.0	0	0
	September	713	99.0%	44.9	92.8	79.5	0	0
	October	741	99.6%	46.3	85.5	79.6	0	0
	November	717	99.6%	55.6	78.6	74.2	0	0
	December	744	100.0%	56.6	80.8	75.8	0	0
Annual		8668	98.7%	56.7	109.6	102.7	0	17

Observations in µg/m3

FIGURE 3.3.5 - GRAND FALLS-WINDSOR NAPS ANNUAL O_3 CONCENTRATIONS



Rolling annual average of hourly concentrations

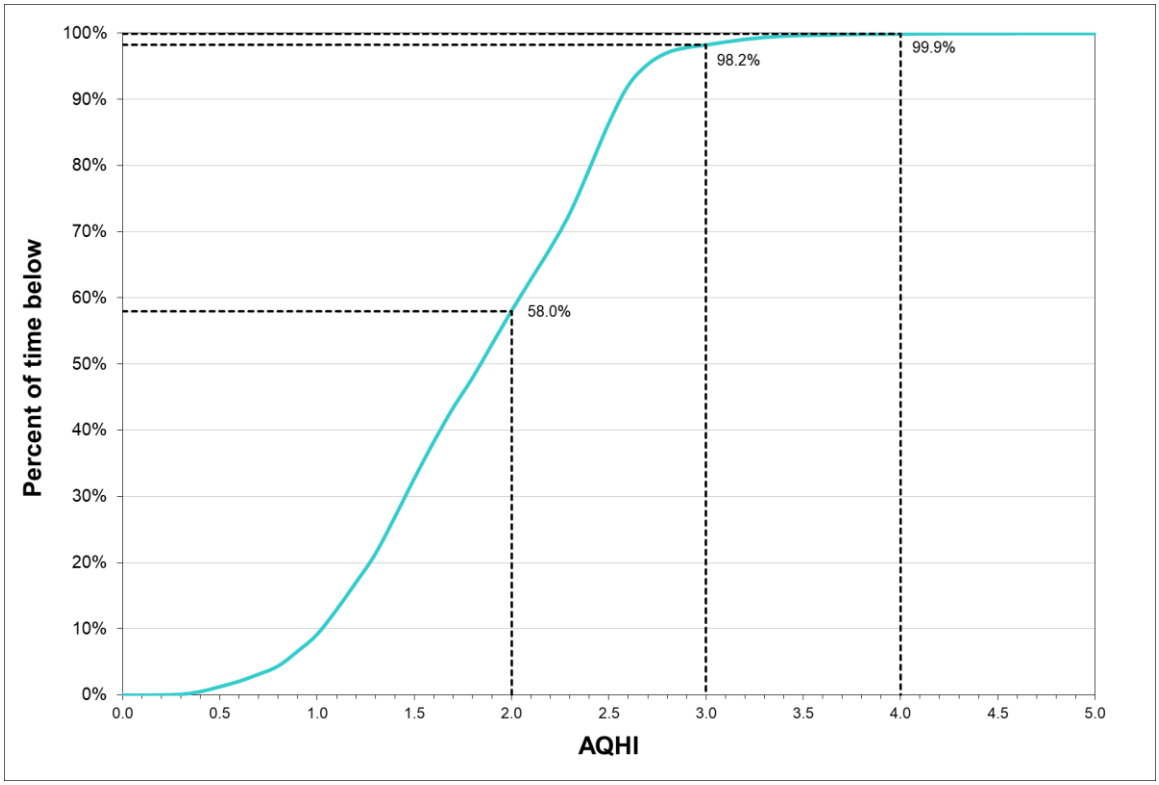
TABLE 3.3.6 - GRAND FALLS-WINDSOR NAPS PM_{10} SUMMARY 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>50 µg/m^3)
2020	January					
	February					
	March					
	April					
	May					
	June					
	July					
	August					
	September	13	100.0%	11.5	18.4	0
	October	31	100.0%	8.9	16.4	0
	November	30	100.0%	10.4	26.7	0
	December	31	100.0%	9.5	20.1	0
Annual		105	28.7%	9.8	26.7	0

TABLE 3.3.7 - GRAND FALLS-WINDSOR NAPS AQHI SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2019	January	737	99.1%	2.2	3.9
	February	663	98.7%	2.2	3.4
	March	737	99.1%	2.4	3.3
	April	714	99.2%	2.2	2.8
	May	582	78.2%	1.8	2.5
	June	606	84.2%	1.3	2.3
	July	446	59.9%	1.3	2.4
	August	543	73.0%	1.3	3.3
	September	720	100.0%	1.3	2.2
	October	657	88.3%	1.4	2.5
	November	466	64.7%	1.9	2.7
	December	742	99.7%	2.2	2.9
Annual		7613	86.9%	1.8	3.9
2020	January	737	99.1%	2.3	3.9
	February	671	96.4%	2.6	4.3
	March	736	98.9%	2.5	5.6
	April	691	96.0%	2.3	2.8
	May	733	98.5%	1.8	2.7
	June	712	98.9%	1.4	2.9
	July	742	99.7%	1.2	2.7
	August	662	89.0%	1.3	2.6
	September	706	98.1%	1.5	3.0
	October	741	99.6%	1.5	2.5
	November	630	87.5%	1.8	3.1
	December	0			
Annual		7761	88.4%	1.8	5.6

FIGURE 3.3.7 - GRAND FALLS-WINDSOR NAPS AQHI FREQUENCY DISTRIBUTION 2020



e.g. 98.2% of the time the AQHI recorded was below 3.0

3.4 Corner Brook

The Corner Brook NAPS monitoring station is located on MacPherson Avenue near Confederation Drive and monitors the ambient levels of SO_2, NO_x / NO_2, CO, O_3, PM_{10} and $PM_{2.5}$ on a continuous basis. The $PM_{2.5}$ Met One BAM was replaced in September 2020 with a Teledyne API T640 capable of measuring both PM_{10} and $PM_{2.5}$. For SO_2, NO_x / NO_2, CO, PM_{10} and $PM_{2.5}$, the ambient air criteria were not exceeded on any occasion in 2020. The 8-hour O_3 standard was exceeded on two occasions in 2020, specifically once in February and once in April.

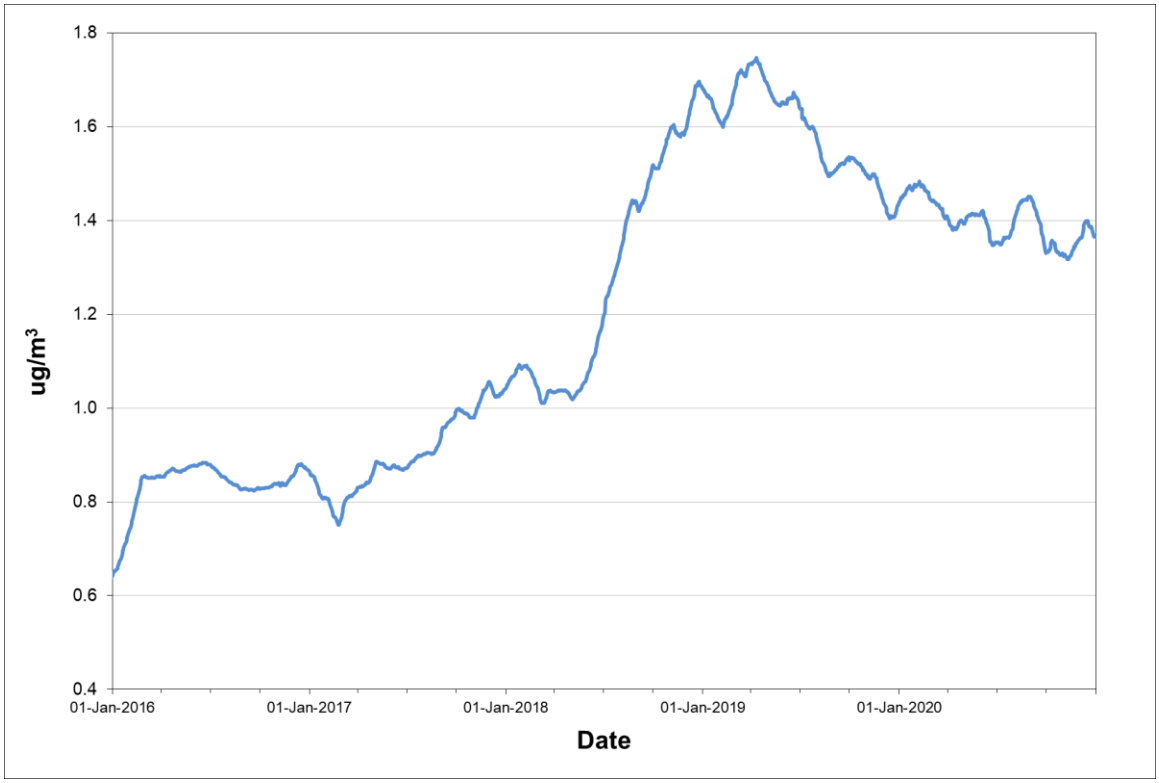
Tables 3.4.1 through 3.4.6 present the summary information on the level of air contaminants measured at the Corner Brook NAPS station, while Figures 3.4.1 through 3.4.5 provide a graphical representation of the annual trend of each pollutant. Table 3.4.7 provides a summary of the AQHI while Figure 3.4.7 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2020.

TABLE 3.4.1 - CORNER BROOK NAPS SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	742	99.7%	0.9	2.4	2.3	1.8	0	0	0
	February	669	99.6%	1.7	3.8	3.5	3.2	0	0	0
	March	740	99.5%	1.7	6.8	4.0	2.9	0	0	0
	April	717	99.6%	1.3	12.3	5.3	2.8	0	0	0
	May	741	99.6%	1.1	3.3	2.5	1.8	0	0	0
	June	718	99.7%	1.9	39.7	21.5	6.1	0	0	0
	July	740	99.5%	1.4	5.9	4.4	2.2	0	0	0
	August	742	99.7%	1.0	15.6	9.0	2.4	0	0	0
	September	715	99.3%	2.3	8.3	6.1	3.6	0	0	0
	October	740	99.5%	1.1	5.2	3.2	2.3	0	0	0
	November	628	87.2%	1.2	4.2	2.7	2.3	0	0	0
	December	681	91.5%	1.6	3.7	3.4	3.3	0	0	0
Annual		8573	97.9%	1.4	39.7	21.5	6.1	0	0	0
2020	January	737	99.1%	1.4	2.9	2.9	2.2	0	0	0
	February	691	99.3%	1.3	3.4	3.4	2.3	0	0	0
	March	733	98.5%	1.3	5.4	3.6	3.0	0	0	0
	April	711	98.8%	1.1	3.9	2.4	2.1	0	0	0
	May	739	99.3%	1.4	3.1	2.7	2.2	0	0	0
	June	714	99.2%	1.1	3.5	2.7	2.5	0	0	0
	July	744	100.0%	1.8	10.7	7.2	2.5	0	0	0
	August	738	99.2%	1.8	6.0	4.8	2.8	0	0	0
	September	714	99.2%	0.9	2.6	2.4	2.1	0	0	0
	October	741	99.6%	1.1	8.5	5.3	3.1	0	0	0
	November	719	99.9%	1.5	3.8	3.7	2.9	0	0	0
	December	739	99.3%	1.7	4.0	4.0	3.6	0	0	0
Annual		8720	99.3%	1.4	10.7	7.2	3.6	0	0	0

Observations in µg/m3

FIGURE 3.4.1 - CORNER BROOK NAPS ANNUAL SO_2 CONCENTRATIONS



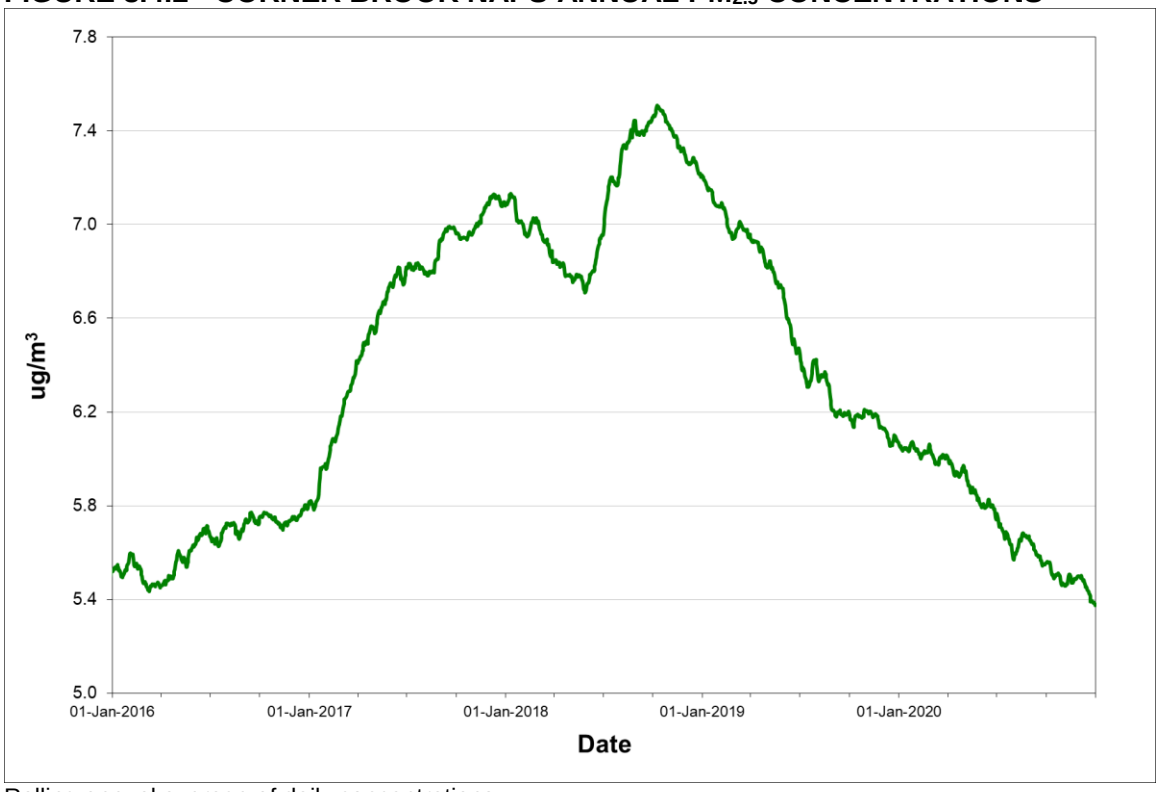
Rolling annual average of hourly concentrations

TABLE 3.4.2 - CORNER BROOK NAPS $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	6.1	8.5	0
	February	28	100.0%	7.2	11.6	0
	March	31	100.0%	7.2	12.3	0
	April	30	100.0%	6.8	11.5	0
	May	31	100.0%	7.2	11.7	0
	June	30	100.0%	6.1	12.5	0
	July	31	100.0%	7.9	15.8	0
	August	31	100.0%	4.9	8.1	0
	September	27	90.0%	4.9	8.8	0
	October	31	100.0%	4.7	10.9	0
	November	30	100.0%	4.6	8.7	0
	December	31	100.0%	5.2	9.3	0
Annual		362	99.2%	6.1	15.8	0
2020	January	31	100.0%	5.8	8.8	0
	February	29	100.0%	7.1	13.4	0
	March	31	100.0%	6.7	14.7	0
	April	30	100.0%	6.5	11.3	0
	May	31	100.0%	5.2	10.8	0
	June	30	100.0%	5.4	9.8	0
	July	31	100.0%	5.9	11.6	0
	August	31	100.0%	5.7	11.5	0
	September	30	100.0%	3.7	7.0	0
	October	31	100.0%	3.7	6.2	0
	November	30	100.0%	5.1	11.1	0
	December	31	100.0%	3.7	7.5	0
Annual		366	100.0%	5.4	14.7	0

Observations in µg/m3

FIGURE 3.4.2 - CORNER BROOK NAPS ANNUAL $PM_{2.5}$ CONCENTRATIONS



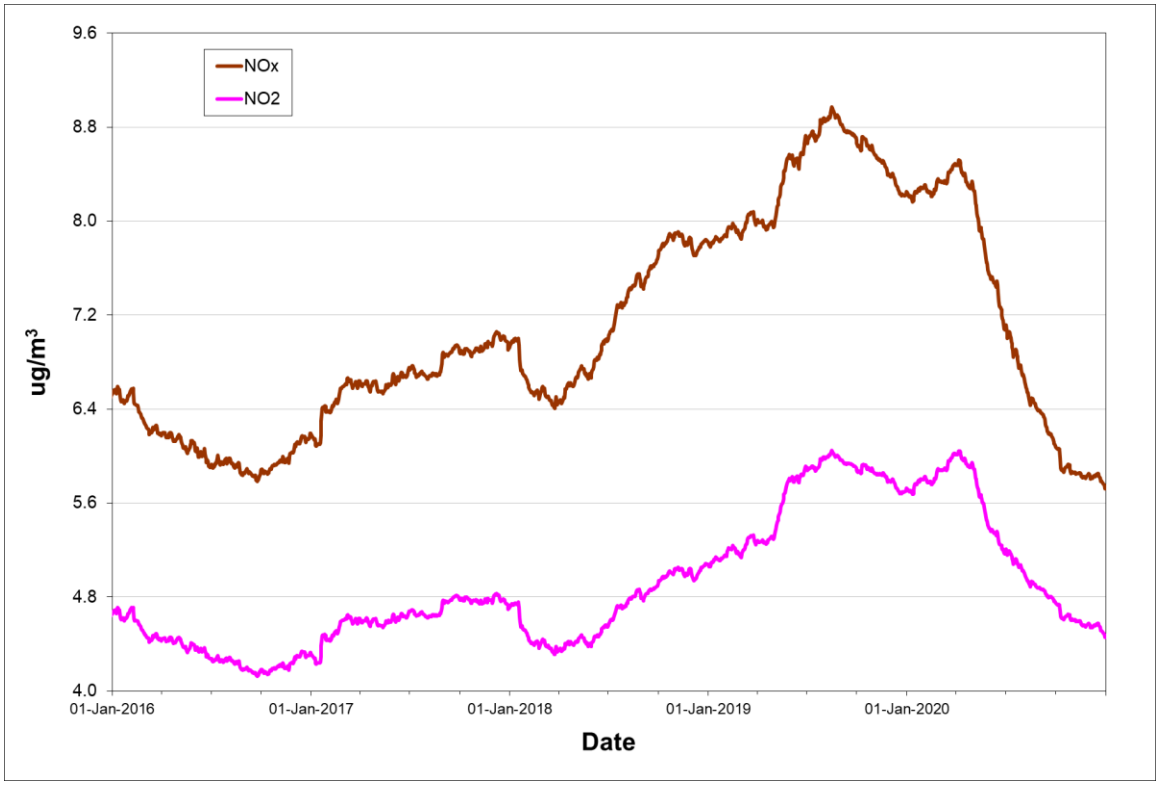
Rolling annual average of daily concentrations

TABLE 3.4.3 - CORNER BROOK NAPS NO_X / NO_2 SUMMARY 2019 & 2020

				Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
Year	Month	# Valid Hours	% Valid Hours	NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	742	99.7%	6.7	5.2	58.7	43.6	15.1	11.0	0	0
	February	670	99.7%	7.3	5.6	65.7	45.9	18.4	13.8	0	0
	March	740	99.5%	7.5	5.7	89.6	72.7	22.2	16.4	0	0
	April	717	99.6%	7.7	5.5	55.0	34.0	20.3	15.5	0	0
	May	739	99.3%	14.5	10.5	72.8	39.9	27.9	18.7	0	0
	June	716	99.4%	11.8	7.2	80.7	48.2	32.6	17.6	0	0
	July	733	98.5%	11.5	6.5	107.4	34.9	27.3	13.7	0	0
	August	742	99.7%	8.1	4.9	68.4	30.2	17.5	9.0	0	0
	September	719	99.9%	6.7	3.9	42.6	19.6	19.3	9.8	0	0
	October	693	93.1%	7.2	5.1	89.7	47.7	34.8	20.5	0	0
	November	714	99.2%	4.4	3.9	37.5	33.8	12.5	10.9	0	0
	December	743	99.9%	5.4	4.8	48.5	41.3	14.8	12.4	0	0
Annual		8668	98.9%	8.3	5.7	107.4	72.7	34.8	20.5	0	0
2020	January	739	99.3%	7.0	6.1	45.7	39.1	21.8	20.5	0	0
	February	696	100.0%	8.1	6.6	66.6	58.6	20.3	17.2	0	0
	March	738	99.2%	8.9	7.1	85.6	50.7	23.4	16.5	0	0
	April	716	99.4%	6.2	4.8	70.2	38.3	20.5	13.4	0	0
	May	744	100.0%	5.4	4.1	47.5	30.6	15.1	10.6	0	0
	June	720	100.0%	6.1	4.5	58.2	52.3	14.2	10.2	0	0
	July	743	99.9%	6.9	4.7	57.9	38.8	17.9	11.7	0	0
	August	739	99.3%	4.4	3.0	58.8	31.6	17.8	11.4	0	0
	September	716	99.4%	3.1	2.4	35.0	22.5	10.0	7.3	0	0
	October	744	100.0%	4.4	3.4	55.4	24.5	13.0	8.5	0	0
	November	716	99.4%	4.2	3.5	36.0	26.4	10.2	8.7	0	0
	December	739	99.3%	3.9	3.3	24.9	21.0	8.4	7.5	0	0
Annual		8750	99.6%	5.7	4.5	85.6	58.6	23.4	20.5	0	0

Observations in µg/m3

FIGURE 3.4.3 - CORNER BROOK NAPS ANNUAL NO_X / NO_2 CONCENTRATIONS



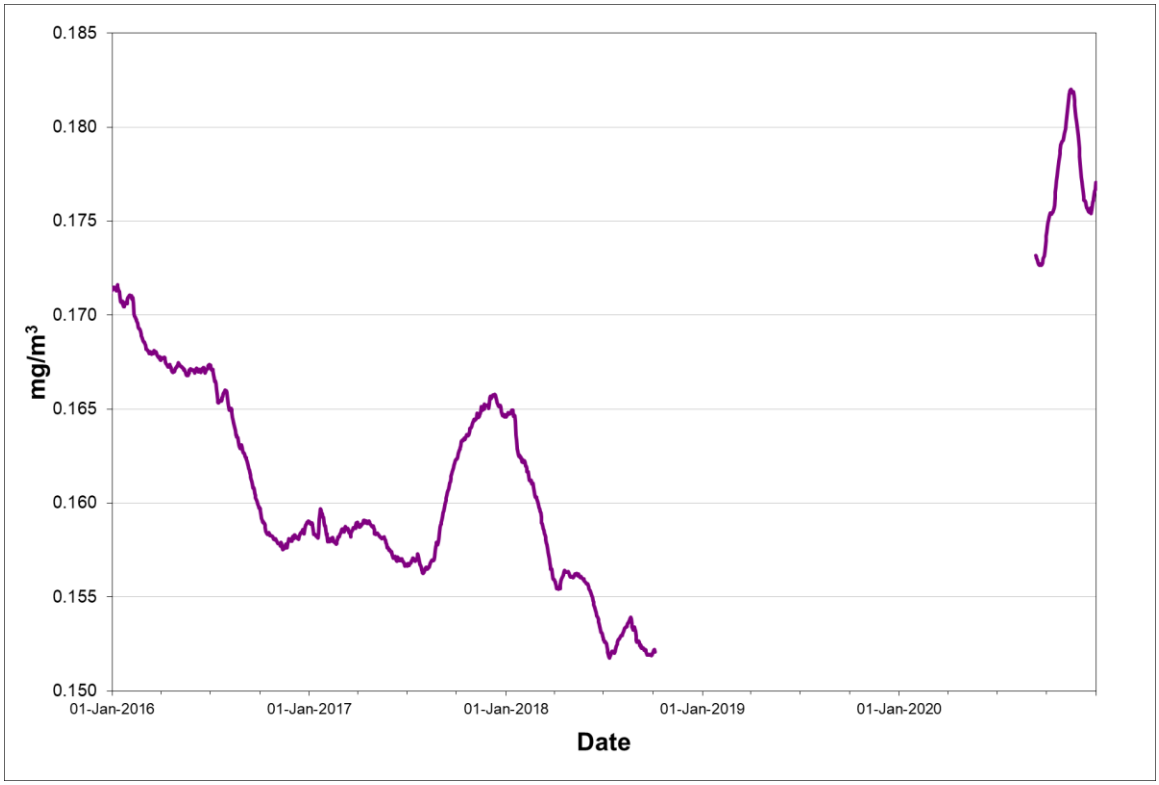
Rolling annual average of hourly concentrations

TABLE 3.4.4 - CORNER BROOK NAPS CO SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>35)	Regulatory Exceedances 8-Hour (>15)
2019	January	740	99.5%	0.2	0.4	0.3	0	0
	February	663	98.7%	0.2	0.5	0.4	0	0
	March	722	97.0%	0.2	0.5	0.3	0	0
	April	708	98.3%	0.2	0.4	0.2	0	0
	May	737	99.1%	0.2	0.4	0.2	0	0
	June	714	99.2%	0.2	0.4	0.3	0	0
	July	460	61.8%	0.1	0.3	0.3	0	0
	August	0	0.0%					
	September	0	0.0%					
	October	0	0.0%					
	November	0	0.0%					
	December	653	87.8%	0.2	0.4	0.3	0	0
Annual		5397	61.6%		0.5	0.4	0	0
2020	January	735	98.8%	0.2	0.4	0.3	0	0
	February	695	99.9%	0.2	0.6	0.3	0	0
	March	733	98.5%	0.2	0.7	0.3	0	0
	April	605	84.0%	0.2	0.5	0.4	0	0
	May	736	98.9%	0.2	0.5	0.4	0	0
	June	715	99.3%	0.2	0.4	0.3	0	0
	July	741	99.6%	0.1	0.3	0.2	0	0
	August	741	99.6%	0.1	0.3	0.2	0	0
	September	713	99.0%	0.2	0.3	0.3	0	0
	October	741	99.6%	0.2	0.5	0.3	0	0
	November	717	99.6%	0.2	0.4	0.3	0	0
	December	738	99.2%	0.1	0.5	0.4	0	0
Annual		8610	98.0%	0.2	0.7	0.4	0	0

Observations in mg/m^3

FIGURE 3.4.4 - CORNER BROOK NAPS ANNUAL CO CONCENTRATIONS



Rolling annual average of hourly concentrations

TABLE 3.4.5 - CORNER BROOK NAPS O_3 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2019	January	741	99.6%	64.7	82.4	80.5	0	0
	February	670	99.7%	64.9	78.8	76.3	0	0
	March	733	98.5%	74.8	103.8	98.6	0	15
	April	718	99.7%	74.7	103.7	99.7	0	20
	May	739	99.3%	57.1	83.2	75.7	0	0
	June	715	99.3%	43.6	86.4	77.4	0	0
	July	741	99.6%	39.0	79.3	74.1	0	0
	August	741	99.6%	42.0	89.9	65.0	0	0
	September	717	99.6%	40.1	83.8	76.4	0	0
	October	741	99.6%	42.8	74.3	67.7	0	0
	November	714	99.2%	54.0	77.9	72.3	0	0
	December	743	99.9%	65.0	81.0	77.2	0	0
Annual		8713	99.5%	55.2	103.8	99.7	0	35
2020	January	742	99.7%	67.5	83.6	78.5	0	0
	February	694	99.7%	70.2	97.1	88.9	0	1
	March	740	99.5%	69.8	87.1	84.3	0	0
	April	713	99.0%	65.1	93.9	90.9	0	1
	May	744	100.0%	52.1	91.6	86.5	0	0
	June	714	99.2%	40.9	84.1	67.7	0	0
	July	744	100.0%	32.0	80.5	74.7	0	0
	August	741	99.6%	38.8	81.7	65.7	0	0
	September	716	99.4%	42.1	89.5	82.0	0	0
	October	744	100.0%	44.1	76.1	66.8	0	0
	November	719	99.9%	52.7	74.6	73.2	0	0
	December	743	99.9%	55.3	78.7	72.2	0	0
Annual		8754	99.7%	52.5	97.1	90.9	0	2

Observations in µg/m3

FIGURE 3.4.5 - CORNER BROOK NAPS ANNUAL O_3 CONCENTRATIONS

Rolling annual average of hourly concentrations

TABLE 3.4.6 - CORNER BROOK NAPS PM_{10} SUMMARY 2020

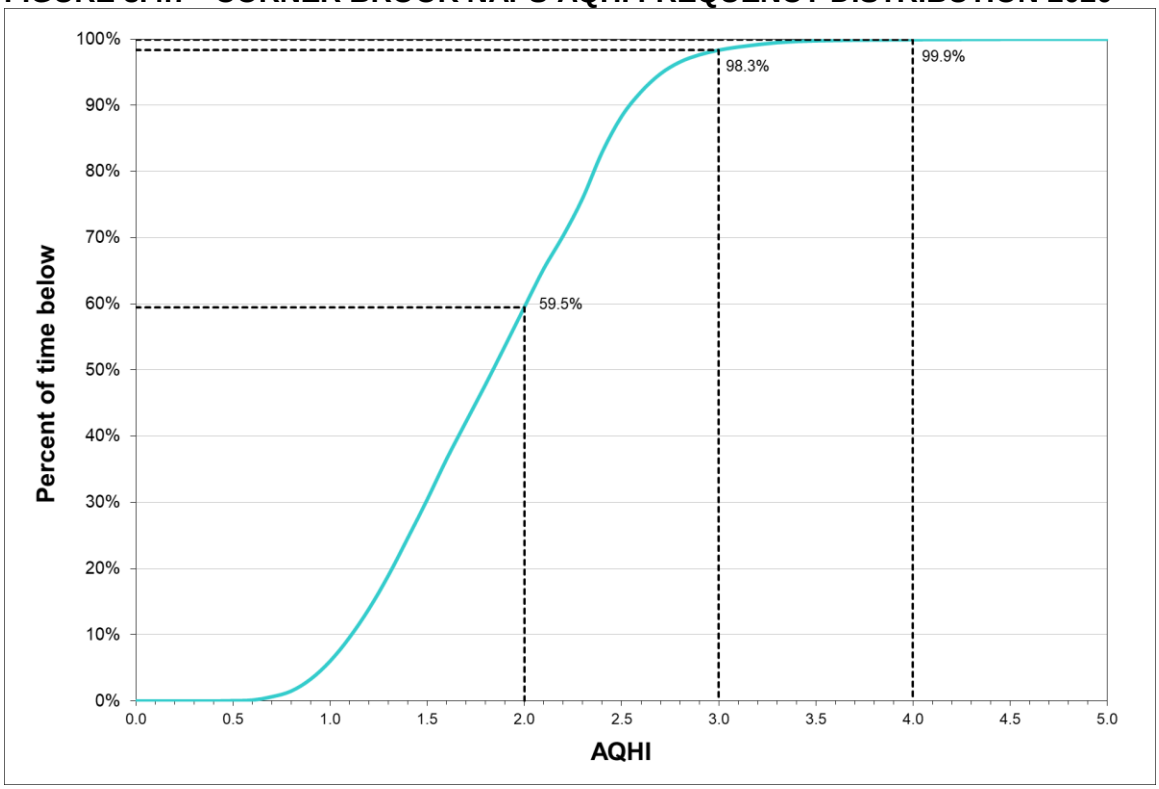
Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>50 µg/m^3)
2020	January					
	February					
	March					
	April					
	May					
	June					
	July					
	August					
	September	27	100.0%	9.7	17.3	0
	October	31	100.0%	8.6	15.4	0
	November	30	100.0%	11.6	27.9	0
	December	31	100.0%	9.9	39.9	0
Annual		119	32.5%	9.9	39.9	0

Observations in µg/m3

TABLE 3.4.7 - CORNER BROOK NAPS AQHI SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2019	January	735	98.8%	2.2	2.8
	February	665	99.0%	2.3	3.4
	March	729	98.0%	2.6	4.0
	April	716	99.4%	2.5	3.8
	May	740	99.5%	2.3	3.8
	June	716	99.4%	1.8	3.4
	July	731	98.3%	1.7	4.2
	August	742	99.7%	1.6	3.3
	September	658	91.4%	1.5	2.7
	October	693	93.1%	1.6	3.0
	November	711	98.8%	1.8	2.9
	December	744	100.0%	2.2	2.9
Annual		8580	97.9%	2.0	4.2
2020	January	736	98.9%	2.3	3.4
	February	694	99.7%	2.5	4.4
	March	737	99.1%	2.5	4.5
	April	712	98.9%	2.2	4.1
	May	744	100.0%	1.8	3.7
	June	715	99.3%	1.5	3.4
	July	740	99.5%	1.3	3.3
	August	733	98.5%	1.4	3.1
	September	708	98.3%	1.4	2.6
	October	742	99.7%	1.5	2.3
	November	717	99.6%	1.8	2.4
	December	739	99.3%	1.8	2.4
Annual		8717	99.2%	1.8	4.5

FIGURE 3.4.7 - CORNER BROOK NAPS AQHI FREQUENCY DISTRIBUTION 2020



e.g. 98.3% of the time the AQHI recorded was below 3.0

3.5 Burin

The Burin NAPS monitoring station is located near the Highway Depot in Burin and monitors the ambient levels of SO_2, $PM_{2.5}$, NO_x / NO_2, CO, O_3 and PM_{10} on a continuous basis. The ambient air criteria for SO_2, $PM_{2.5}$, NO_x / NO_2, CO and PM_{10} were not exceeded on any occasion in 2020. For 8-hour ozone, the ambient air criteria was exceeded on nine occasions in 2020, specifically four times in January, once in February, twice in April and twice in September.

In July 2018 a new Teledyne API T640 was installed at the site, capable of simultaneously measuring PM_{10} and $PM_{2.5}$. Data from this monitor is now the NAPS standard for this location, replacing data from the Met One BAMs, however the BAMs are still installed and monitoring. For the first time, the data from the T640 is captured in this annual report for both 2019 and 2020. Previous annual reports captured data from the BAMs only. As such, the PM_{10} and $PM_{2.5}$ data for 2019 from the 2019 annual report and the 2019 data in this annual report are from different monitors.

Tables 3.5.1 through 3.5.6 provide summary information on the level of each air contaminant measured at the Burin site while Figures 3.5.1 through 3.5.6 provide a graphical representation of the annual trend for each pollutant.

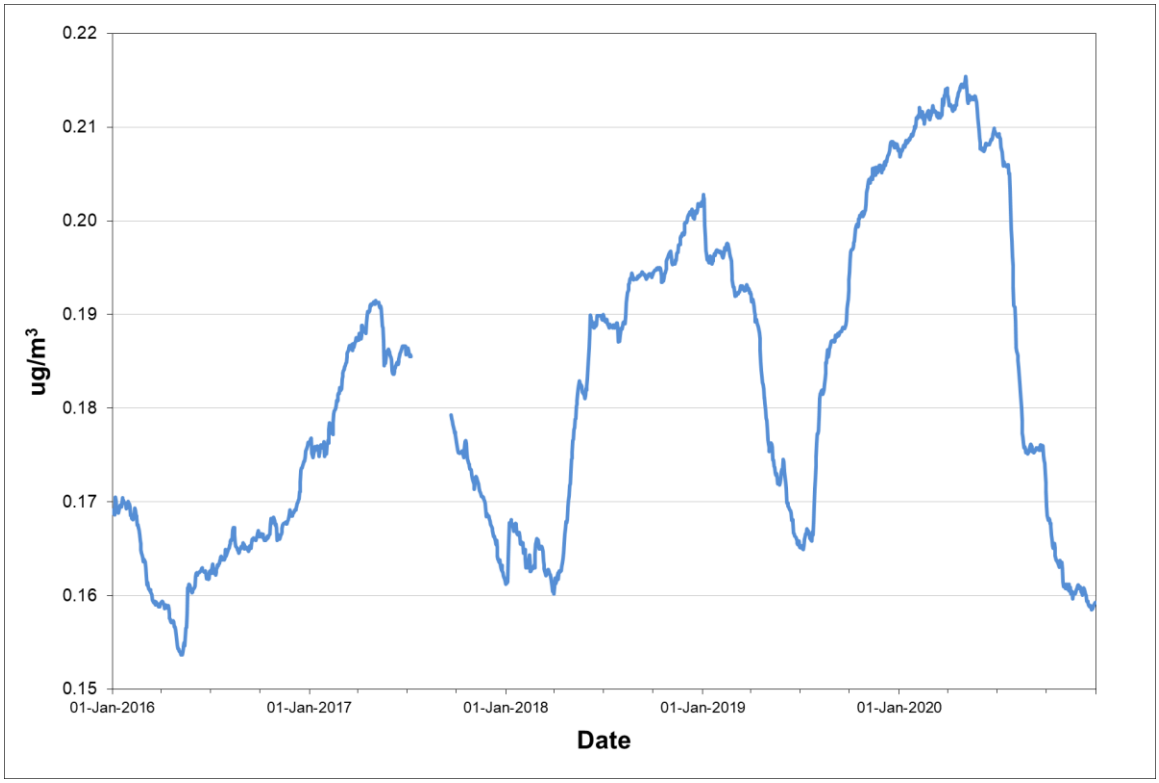
Table 3.5.7 provides a summary of the AQHI, while Figure 3.5.7 provides a graphical representation of the AQHI frequency based on all data collected in Burin in 2020.

TABLE 3.5.1 - BURIN NAPS SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	742	99.7%	0.2	1.6	1.0	0.6	0	0	0
	February	672	100.0%	0.2	0.9	0.8	0.5	0	0	0
	March	744	100.0%	0.1	0.8	0.5	0.3	0	0	0
	April	718	99.7%	0.1	1.3	0.7	0.4	0	0	0
	May	744	100.0%	0.2	1.0	0.7	0.5	0	0	0
	June	720	100.0%	0.1	0.7	0.5	0.4	0	0	0
	July	738	99.2%	0.3	1.8	1.5	0.9	0	0	0
	August	742	99.7%	0.4	3.9	3.3	1.1	0	0	0
	September	720	100.0%	0.2	0.9	0.6	0.5	0	0	0
	October	434	58.3%	0.3	1.0	0.7	0.6	0	0	0
	November	720	100.0%	0.2	0.9	0.7	0.6	0	0	0
	December	744	100.0%	0.2	1.0	0.7	0.4	0	0	0
Annual		8438	96.3%	0.2	3.9	3.3	1.1	0	0	0
2020	January	217	29.2%	0.2	1.0	0.9	0.3	0	0	0
	February	696	100.0%	0.2	1.1	0.9	0.5	0	0	0
	March	744	100.0%	0.2	1.2	1.1	0.7	0	0	0
	April	470	65.3%	0.1	0.6	0.5	0.2	0	0	0
	May	744	100.0%	0.2	0.8	0.5	0.3	0	0	0
	June	720	100.0%	0.1	1.2	0.9	0.4	0	0	0
	July	743	99.9%	0.1	2.9	1.0	0.3	0	0	0
	August	742	99.7%	0.2	0.9	0.4	0.2	0	0	0
	September	720	100.0%	0.1	1.0	0.6	0.3	0	0	0
	October	744	100.0%	0.1	1.0	0.6	0.4	0	0	0
	November	716	99.4%	0.2	1.7	0.8	0.3	0	0	0
	December	485	65.2%	0.2	1.2	0.8	0.4	0	0	0
Annual		7741	88.1%	0.2	2.9	1.1	0.7	0	0	0

Observations in µg/m3

FIGURE 3.5.1 - BURIN NAPS ANNUAL SO_2 CONCENTRATIONS



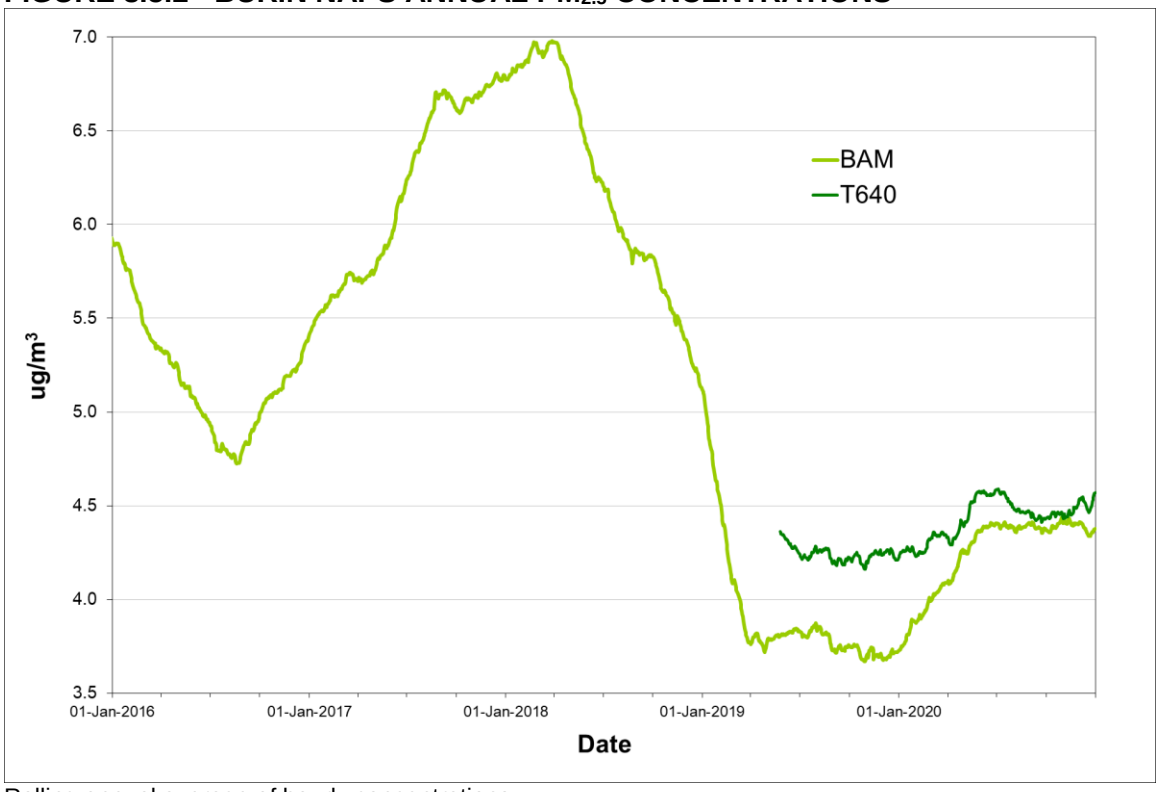
Rolling annual average of hourly concentrations

TABLE 3.5.2 - BURIN NAPS $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	4.7	10.8	0
	February	28	100.0%	4.6	8.5	0
	March	31	100.0%	5.1	7.7	0
	April	30	100.0%	4.8	12.6	0
	May	31	100.0%	3.0	7.2	0
	June	30	100.0%	3.2	6.4	0
	July	31	100.0%	4.4	9.3	0
	August	26	83.9%	4.4	8.2	0
	September	30	100.0%	4.2	13.0	0
	October	31	100.0%	3.6	8.1	0
	November	30	100.0%	4.9	10.2	0
	December	31	100.0%	4.1	9.6	0
Annual		360	98.6%	4.2	13.0	0
2020	January	31	100.0%	4.8	7.5	0
	February	29	100.0%	5.7	10.4	0
	March	31	100.0%	5.1	11.0	0
	April	30	100.0%	5.7	9.7	0
	May	31	100.0%	4.9	12.3	0
	June	30	100.0%	3.3	8.7	0
	July	31	100.0%	3.4	5.1	0
	August	31	100.0%	4.1	6.9	0
	September	30	100.0%	3.7	8.2	0
	October	31	100.0%	3.9	8.1	0
	November	30	100.0%	5.6	12.2	0
	December	31	100.0%	4.8	8.8	0
Annual		366	100.0%	4.6	12.3	0

Observations in µg/m3

FIGURE 3.5.2 - BURIN NAPS ANNUAL $PM_{2.5}$ CONCENTRATIONS



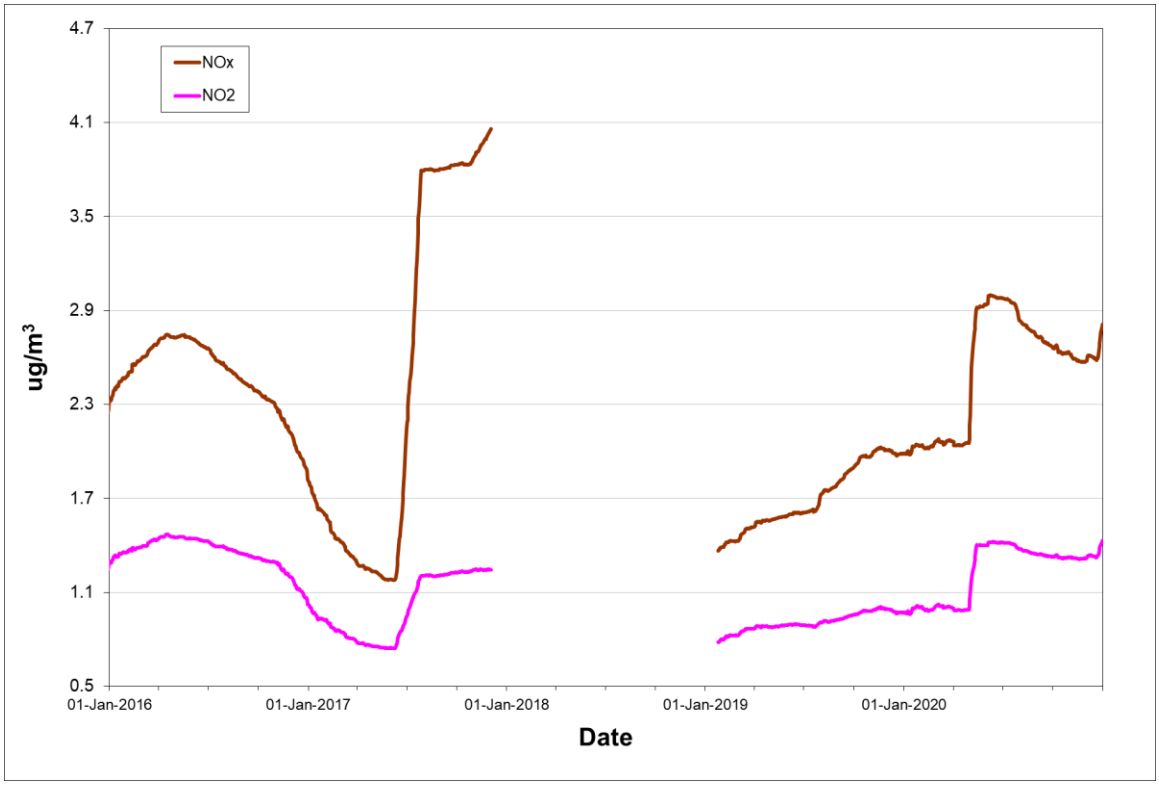
Rolling annual average of hourly concentrations

TABLE 3.5.3 - BURIN NAPS NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	743	99.9%	2.2	1.4	55.9	17.5	5.8	4.6	0	0
	February	672	100.0%	1.9	1.1	37.4	29.1	4.7	3.3	0	0
	March	744	100.0%	2.2	1.3	37.8	19.3	6.7	4.1	0	0
	April	719	99.9%	1.7	1.0	72.8	31.1	9.3	4.4	0	0
	May	743	99.9%	1.5	0.8	8.7	8.6	2.4	1.6	0	0
	June	720	100.0%	1.5	0.7	20.7	6.2	2.9	1.2	0	0
	July	744	100.0%	2.6	0.9	15.5	6.2	9.6	2.8	0	0
	August	743	99.9%	2.2	0.8	12.8	4.5	5.5	1.7	0	0
	September	719	99.9%	1.9	0.7	14.9	6.0	4.0	1.9	0	0
	October	741	99.6%	2.3	0.9	30.3	6.9	6.1	2.1	0	0
	November	720	100.0%	2.2	1.0	25.7	12.4	6.7	2.8	0	0
	December	744	100.0%	1.7	0.9	20.5	13.4	3.4	2.4	0	0
Annual		8752	99.9%	2.0	1.0	72.8	31.1	9.6	4.6	0	0
2020	January	744	100.0%	2.8	1.8	50.8	27.4	10.7	7.6	0	0
	February	696	100.0%	2.2	1.2	26.0	21.4	4.7	3.5	0	0
	March	744	100.0%	2.2	1.2	47.4	15.5	5.7	4.4	0	0
	April	720	100.0%	1.9	1.1	30.5	20.8	11.6	9.1	0	0
	May	743	99.9%	11.6	5.4	103.6	29.7	59.3	18.5	0	0
	June	715	99.3%	2.0	1.0	85.1	29.1	19.9	7.5	0	0
	July	743	99.9%	1.0	0.4	23.7	11.0	2.6	1.3	0	0
	August	744	100.0%	0.9	0.4	24.7	8.0	2.6	1.0	0	0
	September	720	100.0%	1.0	0.5	15.8	5.8	2.6	1.1	0	0
	October	740	99.5%	1.8	0.9	37.7	19.9	4.9	2.5	0	0
	November	717	99.6%	1.6	1.0	43.1	20.3	4.5	2.9	0	0
	December	741	99.6%	4.5	2.2	75.7	28.1	14.6	7.6	0	0
Annual		8767	99.8%	2.8	1.4	103.6	29.7	59.3	18.5	0	0

Observations in µg/m3

FIGURE 3.5.3 - BURIN NAPS ANNUAL NO_X / NO_2 CONCENTRATIONS



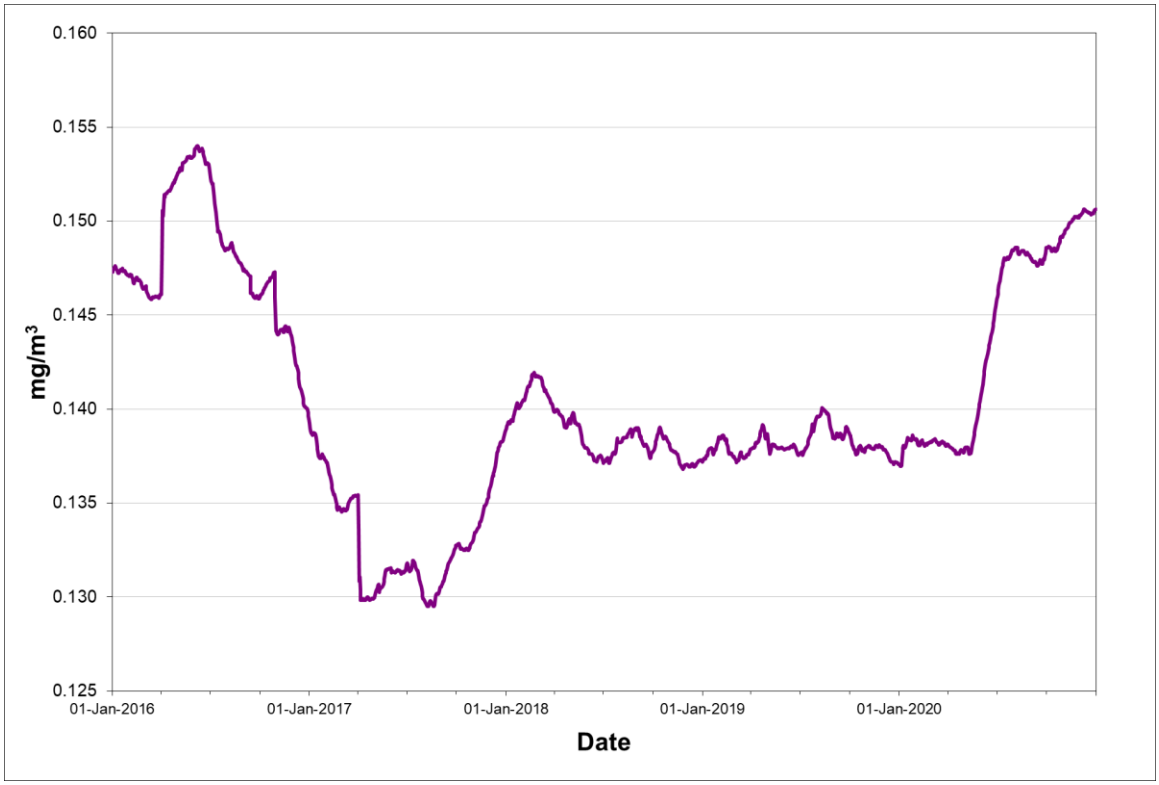
Rolling annual average of hourly concentrations

TABLE 3.5.4 - BURIN NAPS CO SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>35)	Regulatory Exceedances 8-Hour (>15)
2019	January	744	100.0%	0.2	0.4	0.2	0	0
	February	672	100.0%	0.1	0.3	0.2	0	0
	March	744	100.0%	0.2	0.3	0.2	0	0
	April	543	75.4%	0.2	0.6	0.2	0	0
	May	743	99.9%	0.1	0.3	0.3	0	0
	June	720	100.0%	0.1	0.2	0.1	0	0
	July	546	73.4%	0.1	0.6	0.2	0	0
	August	599	80.5%	0.1	0.3	0.3	0	0
	September	720	100.0%	0.1	0.2	0.2	0	0
	October	700	94.1%	0.1	0.3	0.2	0	0
	November	720	100.0%	0.1	0.3	0.2	0	0
	December	744	100.0%	0.1	0.3	0.2	0	0
Annual		8195	93.6%	0.1	0.6	0.3	0	0
2020	January	741	99.6%	0.2	0.4	0.4	0	0
	February	696	100.0%	0.1	0.3	0.2	0	0
	March	744	100.0%	0.2	0.3	0.2	0	0
	April	719	99.9%	0.1	0.3	0.2	0	0
	May	433	58.2%	0.2	0.4	0.3	0	0
	June	689	95.7%	0.2	0.3	0.3	0	0
	July	740	99.5%	0.2	0.5	0.2	0	0
	August	744	100.0%	0.1	0.5	0.2	0	0
	September	694	96.4%	0.1	0.3	0.2	0	0
	October	742	99.7%	0.1	0.2	0.2	0	0
	November	720	100.0%	0.1	0.3	0.2	0	0
	December	744	100.0%	0.1	0.2	0.2	0	0
Annual		8406	95.7%	0.2	0.5	0.4	0	0

Observations in µg/m3

FIGURE 3.5.4 - BURIN NAPS ANNUAL CO CONCENTRATIONS



Rolling annual average of hourly concentrations

TABLE 3.5.5 - BURIN NAPS O_3 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2019	January	743	99.9%	69.4	82.6	80.7	0	0
	February	672	100.0%	77.0	92.1	90.2	0	3
	March	744	100.0%	82.0	101.9	95.7	0	29
	April	716	99.4%	79.1	101.8	97.4	0	22
	May	743	99.9%	65.8	92.8	87.7	0	1
	June	720	100.0%	53.4	81.3	76.1	0	0
	July	589	79.2%	48.9	87.7	79.8	0	0
	August	675	90.7%	45.2	85.8	75.8	0	0
	September	720	100.0%	44.7	96.7	84.5	0	0
	October	739	99.3%	51.4	98.4	88.4	0	1
	November	720	100.0%	64.6	92.1	84.4	0	0
	December	744	100.0%	79.8	98.9	94.3	0	16
Annual		8525	97.3%	63.8	101.9	97.4	0	72
2020	January	743	99.9%	68.6	108.0	97.8	0	4
	February	374	53.7%	74.2	93.1	90.2	0	1
	March	744	100.0%	65.9	98.4	85.7	0	0
	April	702	97.5%	64.0	108.9	94.6	0	2
	May	420	56.5%	53.1	83.4	76.4	0	0
	June	720	100.0%	42.2	81.1	76.1	0	0
	July	742	99.7%	47.3	74.5	67.6	0	0
	August	744	100.0%	51.9	95.1	78.9	0	0
	September	720	100.0%	58.2	103.8	94.7	0	2
	October	743	99.9%	55.0	96.6	84.9	0	0
	November	719	99.9%	63.6	93.8	83.7	0	0
	December	744	100.0%	57.2	77.3	74.3	0	0
Annual		8115	92.4%	57.9	108.9	97.8	0	9

Observations in µg/m3

FIGURE 3.5.5 - BURIN NAPS ANNUAL O_3 CONCENTRATIONS

Rolling annual average of hourly concentrations

TABLE 3.5.6 - BURIN NAPS PM_{10} SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>50 µg/m^3)
2019	January	31	100.0%	10.2	19.4	0
	February	28	100.0%	10.4	18.6	0
	March	31	100.0%	10.9	17.9	0
	April	30	100.0%	10.1	27.6	0
	May	31	100.0%	6.5	16.0	0
	June	30	100.0%	6.5	14.4	0
	July	31	100.0%	8.1	14.6	0
	August	23	74.2%	9.0	17.2	0
	September	30	100.0%	9.1	26.2	0
	October	31	100.0%	8.3	20.0	0
	November	30	100.0%	11.0	23.9	0
	December	31	100.0%	9.1	21.4	0
Annual		357	97.8%	9.1	27.6	0
2020	January	31	100.0%	10.8	20.9	0
	February	28	96.6%	12.2	19.5	0
	March	30	96.8%	11.8	23.8	0
	April	29	96.7%	11.9	20.5	0
	May	29	93.5%	10.6	27.5	0
	June	30	100.0%	6.7	19.1	0
	July	31	100.0%	7.1	12.0	0
	August	31	100.0%	8.8	15.7	0
	September	30	100.0%	8.5	18.5	0
	October	31	100.0%	9.1	19.9	0
	November	30	100.0%	12.2	23.5	0
	December	31	100.0%	10.9	19.9	0
Annual		361	98.6%	10.0	27.5	0

Observations in µg/m3

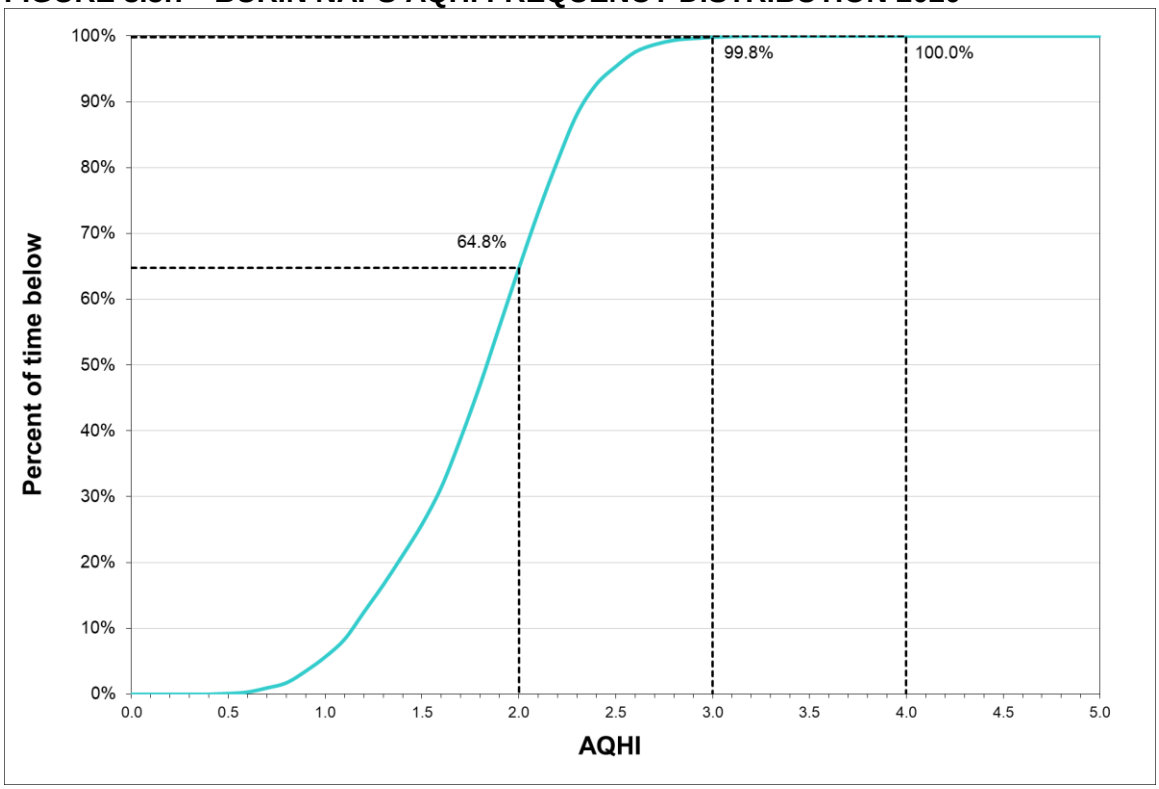
FIGURE 3.5.6 - BURIN NAPS ANNUAL PM_{10} CONCENTRATIONS

Rolling annual average of hourly concentrations

TABLE 3.5.7 - BURIN NAPS AQHI SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2019	January	651	87.5%	2.0	2.8
	February	666	99.1%	2.3	3.2
	March	742	99.7%	2.4	3.2
	April	716	99.4%	2.3	3.2
	May	740	99.5%	1.9	2.9
	June	716	99.4%	1.6	2.5
	July	584	78.5%	1.5	3.3
	August	663	89.1%	1.4	2.4
	September	718	99.7%	1.4	3.3
	October	737	99.1%	1.5	2.7
	November	715	99.3%	2.0	3.0
	December	742	99.7%	2.4	3.2
Annual		8390	95.8%	1.9	3.3
2020	January	740	99.5%	2.1	3.2
	February	370	53.2%	2.3	3.1
	March	742	99.7%	2.1	3.0
	April	701	97.4%	2.0	3.1
	May	417	56.0%	1.7	2.5
	June	713	99.0%	1.4	2.6
	July	738	99.2%	1.4	2.0
	August	736	98.9%	1.6	2.5
	September	714	99.2%	1.7	3.1
	October	662	89.0%	1.7	2.9
	November	716	99.4%	2.0	2.9
	December	740	99.5%	1.8	2.6
Annual		7989	90.9%	1.8	3.2

FIGURE 3.5.7 - BURIN NAPS AQHI FREQUENCY DISTRIBUTION 2020



e.g. 99.5% of the time the AQHI recorded was below 3.0

3.6 Port aux Choix

The Port aux Choix NAPS monitoring station is located at the Town Depot and monitors the ambient levels of O_3 on a continuous basis. There were no recorded O_3 exceedances at this station in 2020.

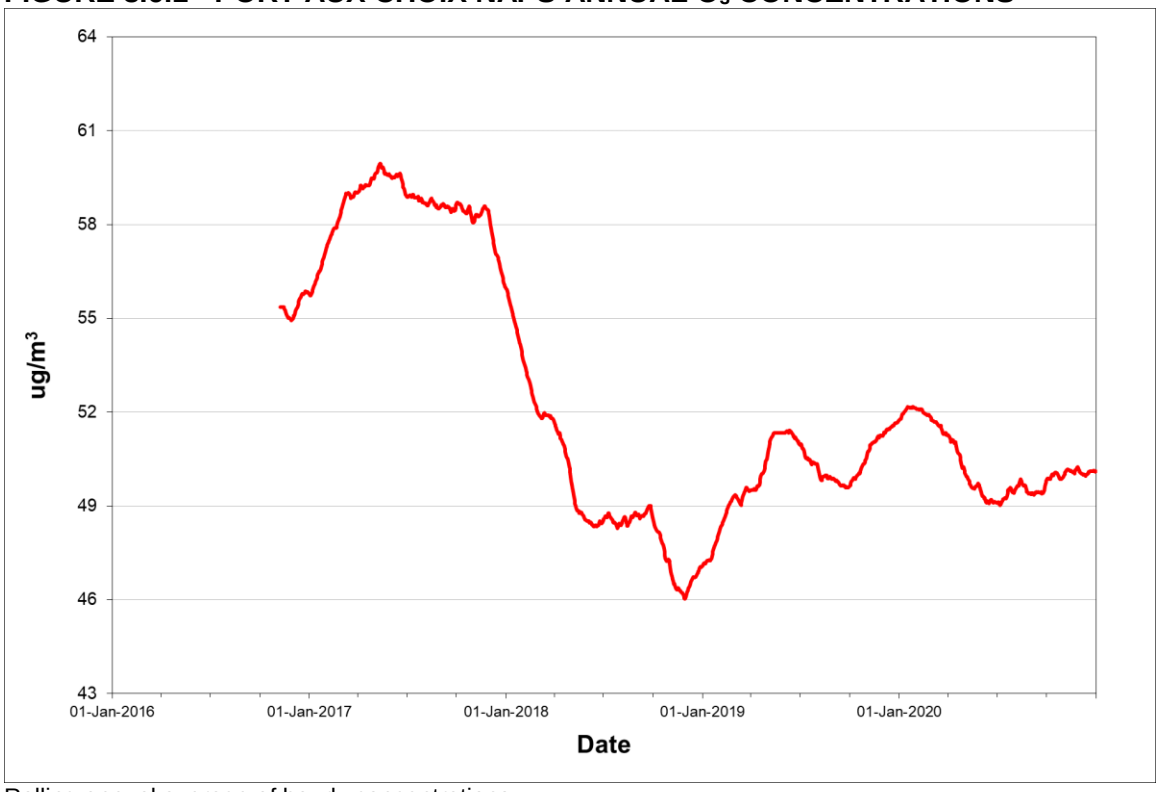
Table 3.6.1 presents the summary information on the level of O_3 measured at the Port aux Choix NAPS station while Figure 3.6.1 presents a graphical representation of the annual trend of O_3.

TABLE 3.6.1 - PORT AUX CHOIX NAPS O_3 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2019	January	586	78.8%	59.5	76.0	70.9	0	0
	February	672	100.0%	65.7	75.7	75.0	0	0
	March	744	100.0%	68.9	92.4	86.7	0	0
	April	718	99.7%	67.7	86.4	82.9	0	0
	May	339	45.6%	61.7	81.0	78.5	0	0
	June	660	91.7%	43.8	77.0	70.9	0	0
	July	742	99.7%	31.2	69.7	67.6	0	0
	August	612	82.3%	34.4	80.9	66.5	0	0
	September	706	98.1%	38.2	73.0	48.6	0	0
	October	491	66.0%	41.2	69.8	58.8	0	0
	November	486	67.5%	53.2	66.1	63.0	0	0
	December	450	60.5%	59.4	73.3	67.3	0	0
Annual		7206	82.3%	51.7	92.4	86.7	0	0
2020	January	698	93.8%	62.5	72.6	71.0	0	0
	February	696	100.0%	62.4	82.8	79.2	0	0
	March	744	100.0%	63.6	76.8	75.1	0	0
	April	361	50.1%	63.2	80.7	76.0	0	0
	May	489	65.7%	47.4	78.9	73.7	0	0
	June	720	100.0%	39.6	68.8	64.4	0	0
	July	744	100.0%	34.4	81.8	74.5	0	0
	August	741	99.6%	37.0	69.2	65.4	0	0
	September	720	100.0%	42.3	77.2	73.5	0	0
	October	736	98.9%	45.7	79.6	66.7	0	0
	November	715	99.3%	54.6	69.1	65.2	0	0
	December	744	100.0%	55.6	75.9	67.8	0	0
Annual		8108	92.3%	50.1	82.8	79.2	0	0

Observations in µg/m3

FIGURE 3.6.1 - PORT AUX CHOIX NAPS ANNUAL O_3 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.0 Industrial Monitoring Network

Industrial operations in the province are responsible for the monitoring of air quality near their facility. The Department audits the operation of the industrial monitoring stations on a regular basis to ensure that the monitors are functioning according to instrument specifications and to the standard operating procedures. If the audits indicate a monitor is not operating within the specifications, corrective actions are required by the industry and data may be invalidated.

On the island of Newfoundland, there were six monitoring networks operated by industry in 2020 and another four in Labrador. Figures 4.0.1 and 4.0.2 present the locations of these monitoring networks.

The subsequent sections of this report detail the summary statistics and the longer term trend of pollutants measured at each station within a given network.

FIGURE 4.0.1 - INDUSTRIAL MONITORING NETWORK IN NEWFOUNDLAND

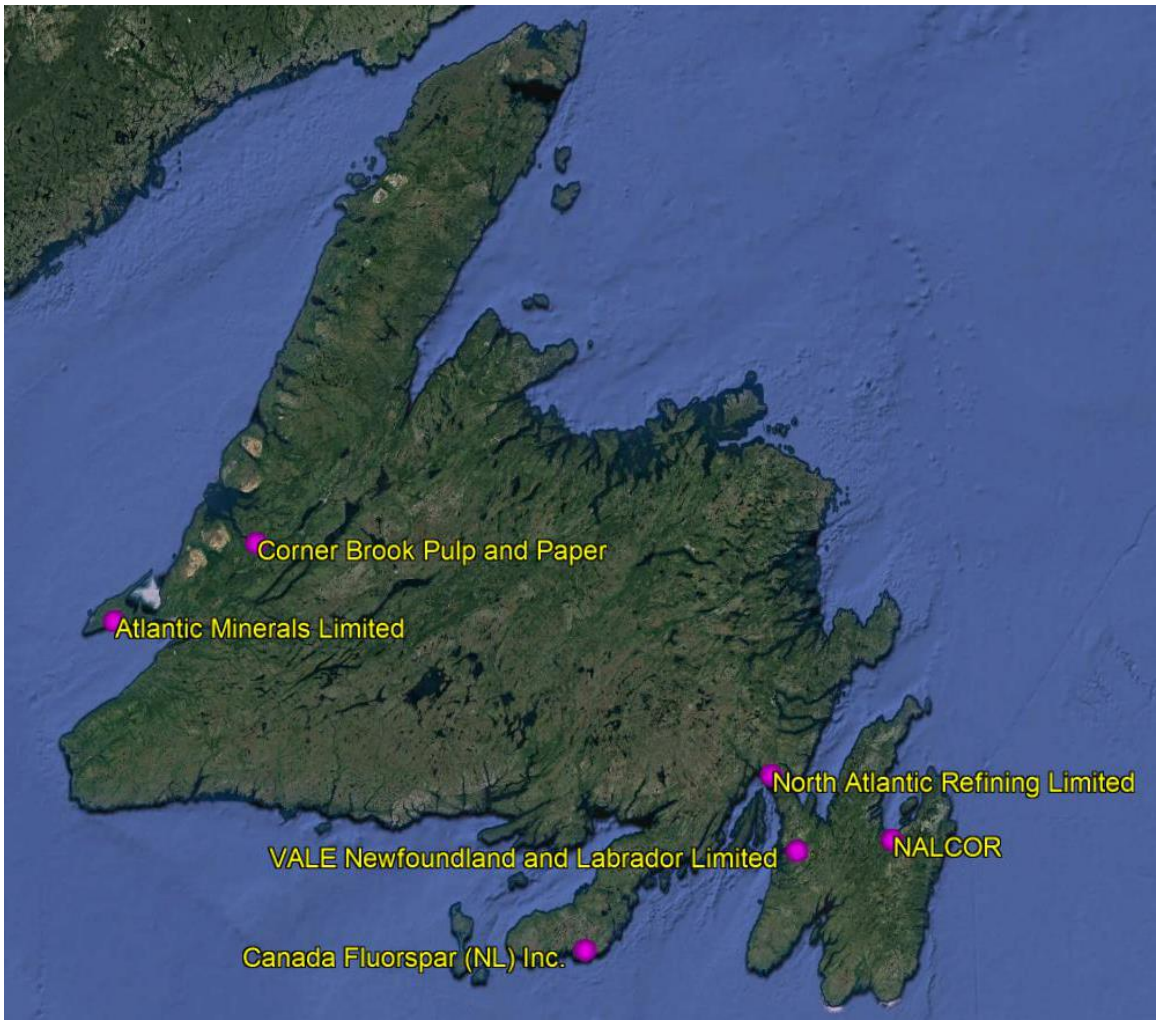
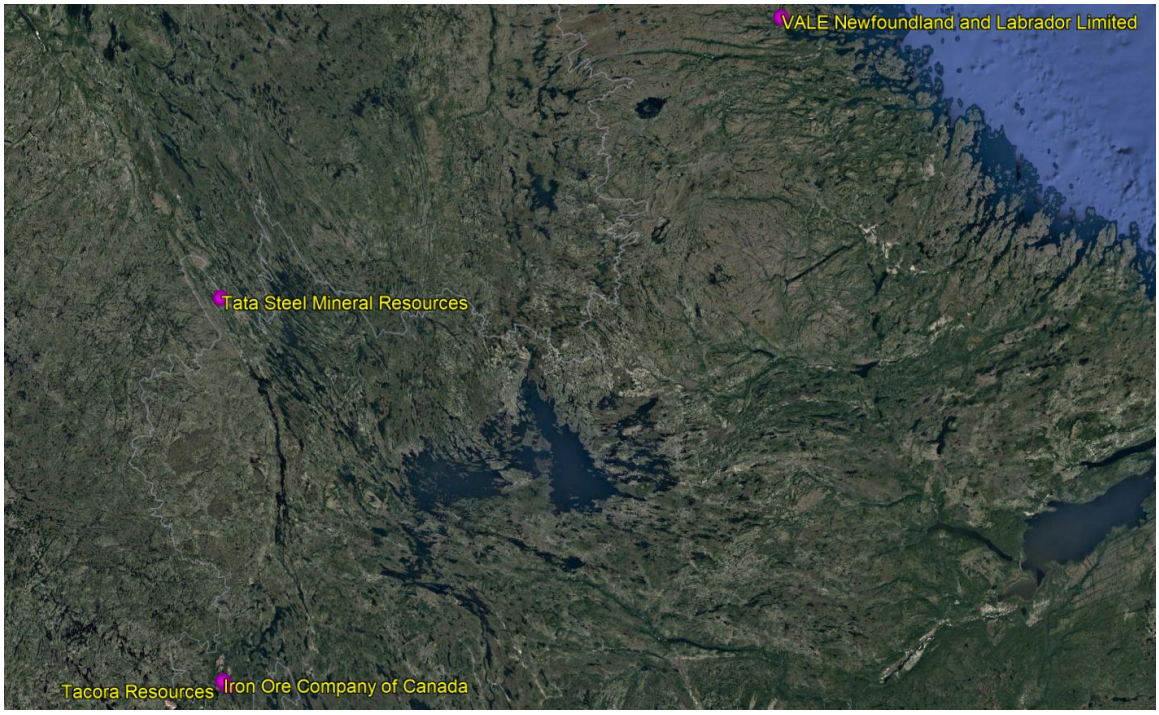


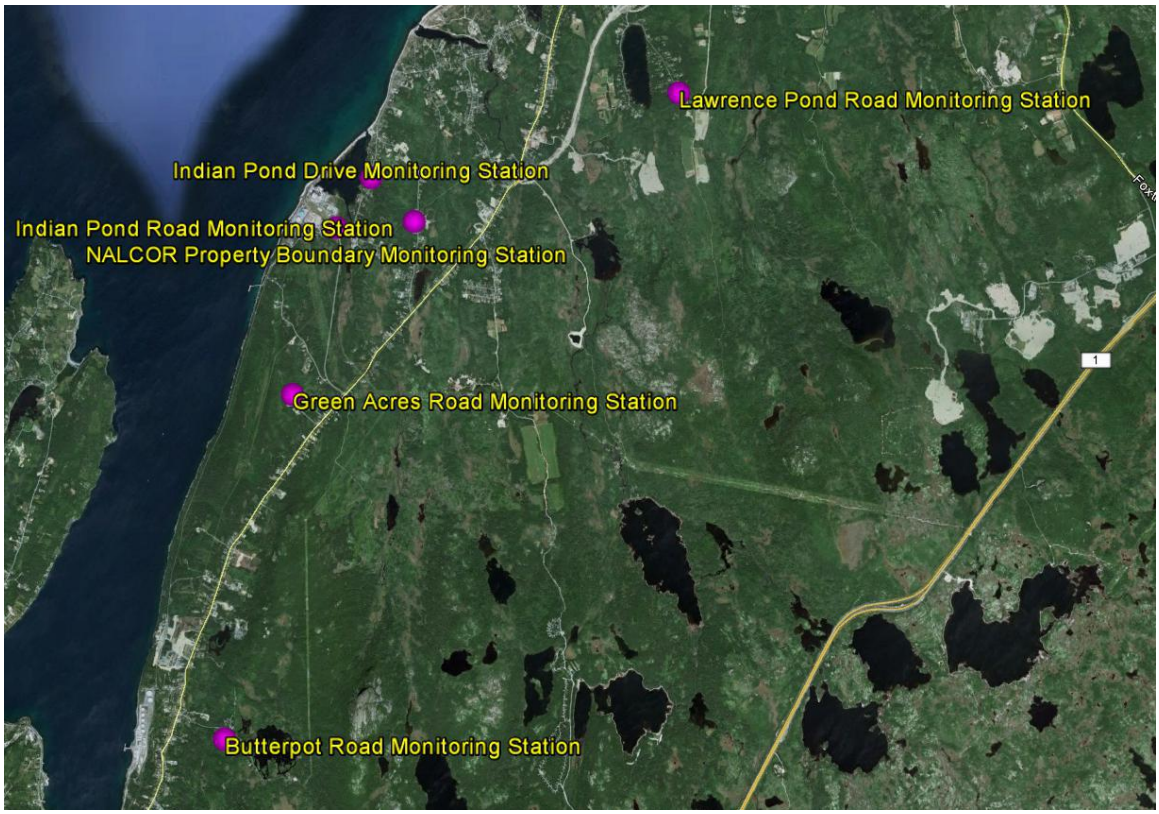
FIGURE 4.0.2 - INDUSTRIAL MONITORING NETWORK IN LABADOR



4.1 NALCOR

In 2020, NALCOR operated monitoring stations at six locations in the Holyrood area. These stations are installed to monitor the air quality near the Holyrood Thermal Generating Station and are located at Butterpot Road, Green Acres Road, Indian Pond Drive, Indian Pond Road, Lawrence Pond, and the NALCOR property boundary. Owing to the Covid-19 pandemic and associated safety protocols, Nalcor temporarily suspended monitoring at three locations from mid-March thru mid-May. The affected locations were Butterpot Road, Green Acres and Indian Pond Road. Figure 4.1.1 indicates the location of the six monitoring stations operated by NALCOR.

FIGURE 4.1.1 - NALCOR AMBIENT MONITORING STATIONS



4.1.1 Butterpot Road

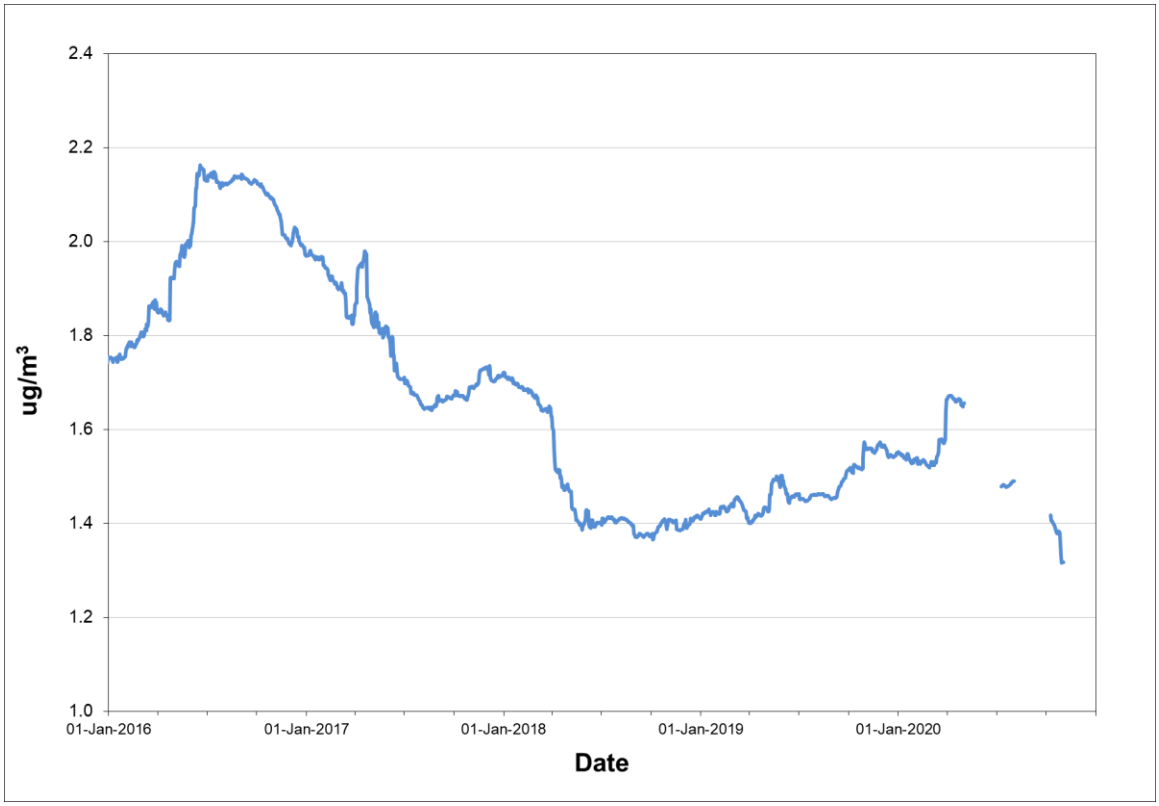
The Butterpot Road station monitors the ambient levels of SO_2, NO_x / NO_2 and $PM_{2.5}$ on a continuous basis. For all pollutants, the ambient air criteria were not exceeded on any occasion in 2020. Tables 4.1.1.1 through 4.1.1.3 provide summary information on the level of air contaminants measured at Butterpot Road, while Figures 4.1.1.1 through 4.1.1.3 provide a graphical representation of the annual trend of each pollutant. Owing to the Covid-19 pandemic and associated safety protocols, NALCOR temporarily suspended monitoring at this location from mid-March thru mid-May.

TABLE 4.1.1.1 - BUTTERPOT ROAD SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	713	95.8%	1.6	50.8	26.5	4.3	0	0	0
	February	640	95.2%	1.4	24.6	17.9	5.7	0	0	0
	March	708	95.2%	1.3	16.1	9.4	3.2	0	0	0
	April	690	95.8%	1.8	44.6	23.1	5.2	0	0	0
	May	687	92.3%	2.6	79.1	43.6	12.4	0	0	0
	June	688	95.6%	1.4	42.2	29.2	6.9	0	0	0
	July	711	95.6%	1.0	2.4	2.0	1.4	0	0	0
	August	706	94.9%	0.8	1.5	1.4	1.2	0	0	0
	September	656	91.1%	1.7	17.9	10.8	4.3	0	0	0
	October	638	85.8%	2.3	49.0	33.3	9.5	0	0	0
	November	684	95.0%	1.4	25.0	16.1	2.5	0	0	0
	December	710	95.4%	1.5	9.6	6.5	2.5	0	0	0
Annual		8231	94.0%	1.6	79.1	43.6	12.4	0	0	0
2020	January	711	95.6%	1.5	35.8	21.3	4.7	0	0	0
	February	660	94.8%	1.3	11.9	5.0	2.3	0	0	0
	March	673	90.5%	3.0	60.1	45.2	22.2	0	0	0
	April	0	0.0%							
	May	451	60.6%	1.1	24.3	11.0	2.5	0	0	0
	June	686	95.3%	0.9	2.8	1.9	1.7	0	0	0
	July	709	95.3%	1.0	3.6	2.3	1.6	0	0	0
	August	704	94.6%	0.8	1.9	1.8	1.4	0	0	0
	September	688	95.6%	1.0	2.2	2.2	1.9	0	0	0
	October	713	95.8%	1.0	20.4	8.3	2.6	0	0	0
	November	685	95.1%	1.7	24.1	15.1	7.0	0	0	0
	December	707	95.0%	1.6	6.3	4.2	2.8	0	0	0
Annual		7387	84.1%		60.1	45.2	22.2	0	0	0

Observations in µg/m3

FIGURE 4.1.1.1 - BUTTERPOT ROAD ANNUAL SO_2 CONCENTRATIONS



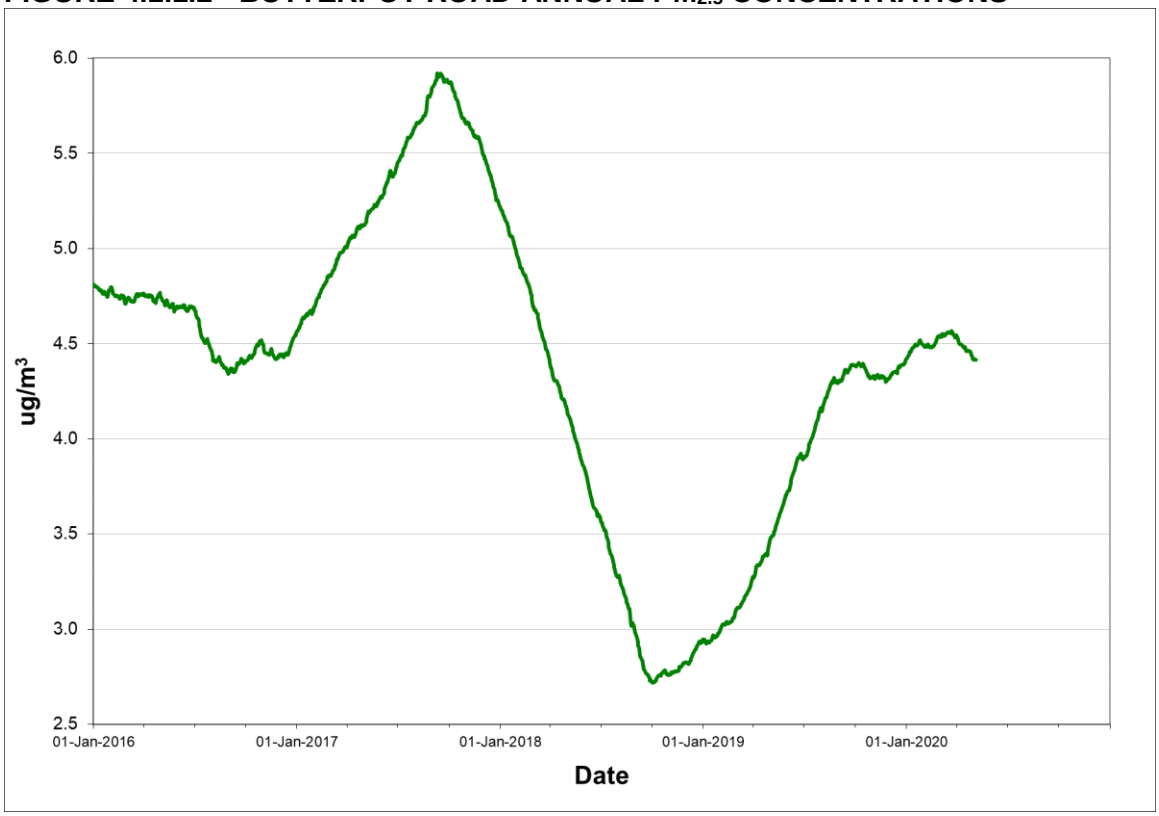
Rolling annual average of hourly concentrations

TABLE 4.1.1.2 - BUTTERPOT ROAD $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	4.5	5.9	0
	February	28	100.0%	4.8	7.2	0
	March	31	100.0%	5.4	7.7	0
	April	30	100.0%	5.8	9.4	0
	May	30	96.8%	5.5	7.2	0
	June	30	100.0%	4.3	6.4	0
	July	31	100.0%	4.4	8.1	0
	August	31	100.0%	3.9	6.9	0
	September	26	86.7%	2.8	6.1	0
	October	23	74.2%	1.5	3.0	0
	November	30	100.0%	3.7	7.6	0
	December	29	93.5%	5.5	9.6	0
Annual		350	95.9%	4.4	9.6	0
2020	January	29	93.5%	5.4	7.4	0
	February	27	93.1%	5.5	8.7	0
	March	29	93.5%	5.4	11.8	0
	April	0	0.0%			
	May	20	64.5%	3.4	7.1	0
	June	30	100.0%	2.0	5.5	0
	July	28	90.3%	1.9	3.8	0
	August	31	100.0%	2.3	4.6	0
	September	30	100.0%	2.3	4.9	0
	October	27	87.1%	2.6	5.3	0
	November	30	100.0%	3.5	8.2	0
	December	31	100.0%	3.3	5.5	0
Annual		312	85.2%		11.8	0

Observations in µg/m3

FIGURE 4.1.1.2 - BUTTERPOT ROAD ANNUAL $PM_{2.5}$ CONCENTRATIONS



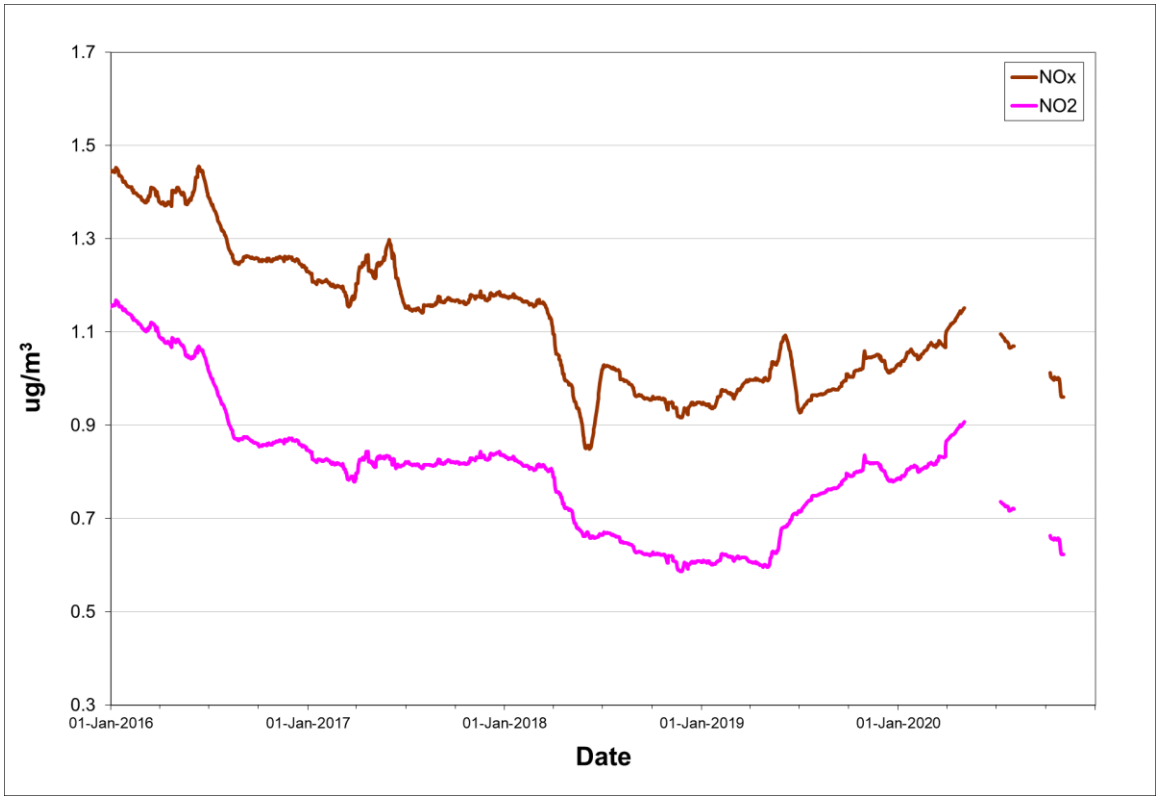
Rolling annual average of daily concentrations

TABLE 4.1.1.3 - BUTTERPOT ROAD NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	707	95.0%	0.9	0.6	22.4	16.2	3.1	1.8	0	0
	February	618	92.0%	0.7	0.6	15.3	14.2	4.0	3.7	0	0
	March	711	95.6%	1.1	0.6	13.3	11.7	2.1	1.7	0	0
	April	690	95.8%	0.6	0.5	21.9	14.6	2.9	2.2	0	0
	May	662	89.0%	1.7	1.5	41.9	29.2	7.0	5.4	0	0
	June	688	95.6%	1.4	1.3	15.6	13.7	3.8	3.0	0	0
	July	712	95.7%	1.1	0.9	9.6	7.9	3.2	2.6	0	0
	August	709	95.3%	0.6	0.5	6.7	4.6	1.0	0.8	0	0
	September	656	91.1%	1.0	0.8	29.1	19.1	3.1	2.6	0	0
	October	639	85.9%	1.4	1.1	24.2	19.9	6.2	5.5	0	0
	November	684	95.0%	0.8	0.6	16.2	13.1	2.1	1.7	0	0
	December	711	95.6%	1.0	0.6	13.6	11.8	1.8	1.4	0	0
Annual		8187	93.5%	1.0	0.8	41.9	29.2	7.0	5.5	0	0
2020	January	711	95.6%	1.2	0.9	24.9	20.4	2.9	2.3	0	0
	February	661	95.0%	1.0	0.7	11.1	9.0	2.6	2.1	0	0
	March	674	90.6%	1.5	1.2	26.8	20.1	9.4	8.3	0	0
	April	0	0.0%								
	May	447	60.1%	0.9	0.6	9.2	6.2	1.6	1.2	0	0
	June	688	95.6%	1.8	0.5	31.3	11.2	4.4	1.3	0	0
	July	710	95.4%	0.6	0.5	3.0	2.3	1.0	0.9	0	0
	August	707	95.0%	0.6	0.4	3.2	2.0	0.9	0.7	0	0
	September	688	95.6%	0.5	0.4	7.1	4.6	0.9	0.7	0	0
	October	713	95.8%	0.7	0.6	9.7	7.9	2.5	1.8	0	0
	November	687	95.4%	0.9	0.7	12.6	10.2	4.3	3.9	0	0
	December	711	95.6%	0.7	0.5	9.6	8.9	1.7	1.5	0	0
Annual		7397	84.2%			31.3	20.4	9.4	8.3	0	0

Observations in µg/m3

FIGURE 4.1.1.3 - BUTTERPOT ROAD ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.1.2 Green Acres Road

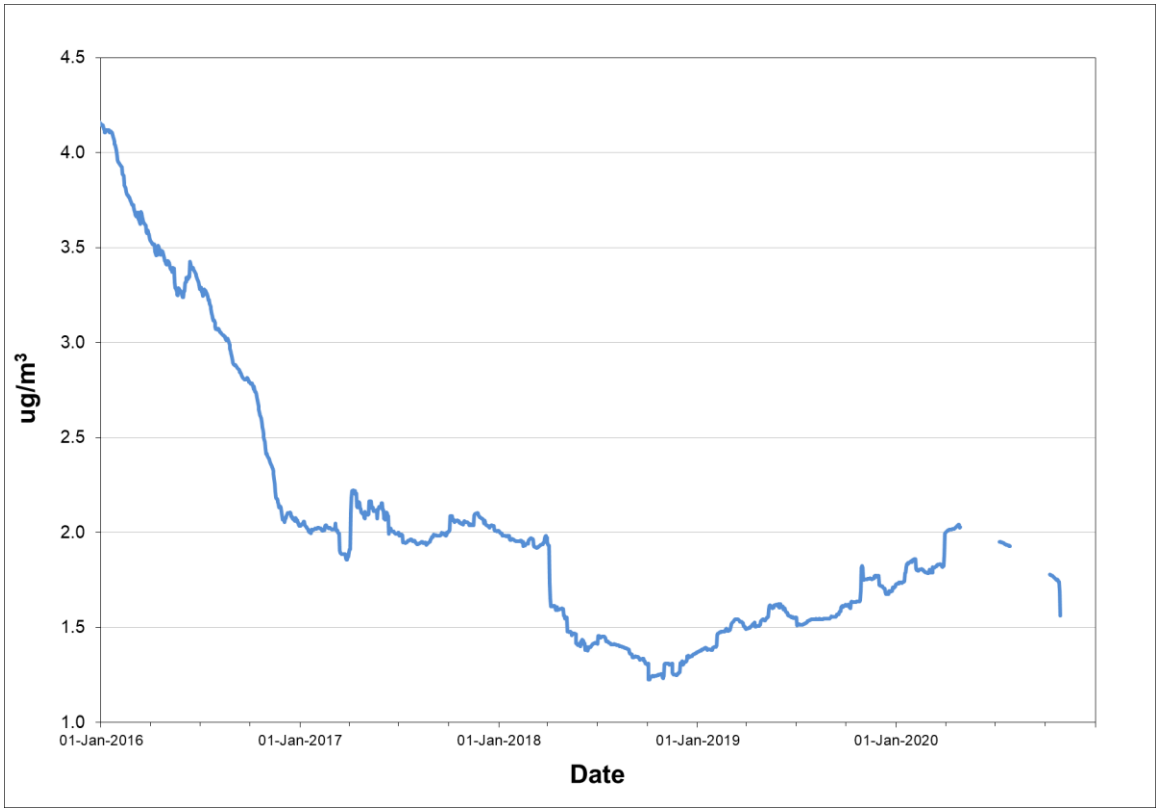
The Green Acres Road station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle consistent with the NAPS defined schedule. For all pollutants the ambient air criteria were not exceeded on any occasion in 2020. Tables 4.1.2.1 through 4.1.2.4 provide summary information on the level of air contaminants measured at Green Acres Road, while Figures 4.1.2.1 through 4.1.2.4 provide a graphical representation of the annual trend of each pollutant. Owing to the Covid-19 pandemic and associated safety protocols, NALCOR temporarily suspended monitoring at this location from mid-March thru mid-May.

TABLE 4.1.2.1 - GREEN ACRES ROAD SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	398	53.5%	1.3	44.5	24.3	5.3	0	0	0
	February	642	95.5%	2.5	76.1	66.2	19.5	0	0	0
	March	706	94.9%	1.5	69.8	26.6	6.3	0	0	0
	April	690	95.8%	1.6	75.9	27.4	7.4	0	0	0
	May	712	95.7%	2.2	104.0	53.0	12.3	0	0	0
	June	658	91.4%	1.3	101.1	48.3	7.3	0	0	0
	July	712	95.7%	1.0	2.1	1.9	1.4	0	0	0
	August	713	95.8%	0.8	1.9	1.3	1.2	0	0	0
	September	624	86.7%	1.7	44.7	37.2	8.3	0	0	0
	October	672	90.3%	3.5	120.1	81.8	40.4	0	0	0
	November	688	95.6%	1.5	36.3	13.6	4.2	0	0	0
	December	701	94.2%	1.8	53.0	44.7	7.7	0	0	0
Annual		7916	90.4%	1.7	120.1	81.8	40.4	0	0	0
2020	January	708	95.2%	3.0	231.2	97.1	16.1	0	0	0
	February	667	95.8%	1.6	28.3	11.4	3.8	0	0	0
	March	555	74.6%	4.5	165.7	138.5	22.4	0	0	0
	April	0	0.0%							
	May	468	62.9%	2.1	113.5	58.2	10.2	0	0	0
	June	658	91.4%	0.7	3.3	2.8	1.6	0	0	0
	July	711	95.6%	0.6	2.2	1.3	0.9	0	0	0
	August	680	91.4%	0.8	1.5	1.2	1.0	0	0	0
	September	685	95.1%	0.5	1.4	1.0	0.9	0	0	0
	October	713	95.8%	0.7	17.0	9.6	3.0	0	0	0
	November	675	93.8%	1.8	78.6	61.3	30.0	0	0	0
	December	705	94.8%	1.0	21.6	15.2	2.4	0	0	0
Annual		7225	82.3%		231.2	138.5	30.0	0	0	0

Observations in µg/m3

FIGURE 4.1.2.1 - GREEN ACRES ROAD ANNUAL SO_2 CONCENTRATIONS



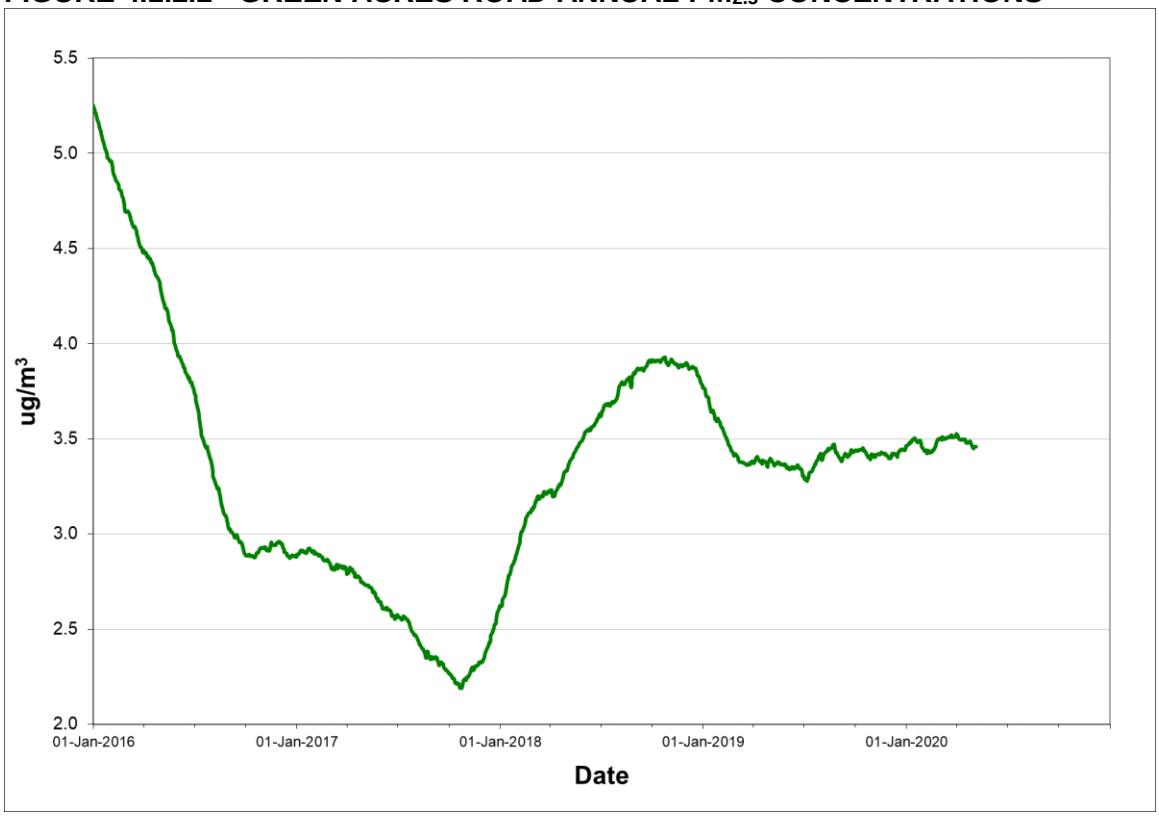
Rolling annual average of hourly concentrations

TABLE 4.1.2.2 - GREEN ACRES ROAD $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	17	54.8%	4.0	7.3	0
	February	28	100.0%	3.1	5.0	0
	March	31	100.0%	3.6	6.1	0
	April	30	100.0%	4.2	8.1	0
	May	30	96.8%	3.2	6.9	0
	June	30	100.0%	3.0	4.3	0
	July	31	100.0%	4.0	8.3	0
	August	31	100.0%	3.4	7.1	0
	September	27	90.0%	2.8	10.4	0
	October	25	80.6%	2.4	6.5	0
	November	30	100.0%	3.6	6.8	0
	December	31	100.0%	4.1	8.7	0
Annual		341	93.4%	3.5	10.4	0
2020	January	31	100.0%	3.6	6.0	0
	February	29	100.0%	3.7	7.1	0
	March	23	74.2%	3.9	9.9	0
	April	0	0.0%			
	May	20	64.5%	3.7	6.8	0
	June	30	100.0%	3.9	8.2	0
	July	31	100.0%	3.7	5.3	0
	August	29	93.5%	3.1	6.0	0
	September	30	100.0%	2.2	3.8	0
	October	27	87.1%	2.4	4.8	0
	November	30	100.0%	3.6	8.3	0
	December	31	100.0%	3.0	6.0	0
Annual		311	85.0%		9.9	0

Observations in µg/m3

FIGURE 4.1.2.2 - GREEN ACRES ROAD ANNUAL $PM_{2.5}$ CONCENTRATIONS



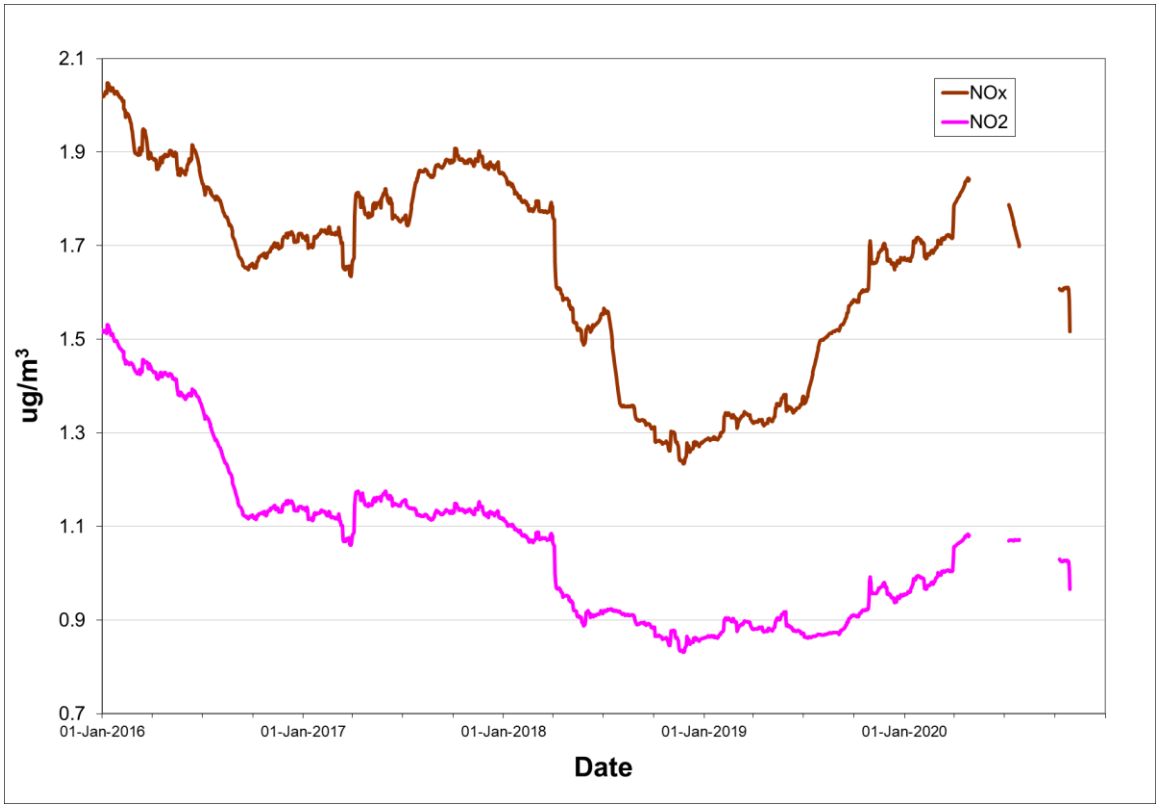
Rolling annual average of daily concentrations

TABLE 4.1.2.3 - GREEN ACRES ROAD NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	399	53.6%	1.6	1.0	29.6	16.3	3.0	2.1	0	0
	February	644	95.8%	1.6	1.0	41.7	27.7	10.7	7.4	0	0
	March	605	81.3%	1.3	0.9	15.2	12.4	3.9	2.3	0	0
	April	690	95.8%	1.1	0.7	34.9	21.1	3.9	2.6	0	0
	May	713	95.8%	1.8	1.1	44.3	28.5	5.5	3.3	0	0
	June	655	91.0%	2.1	0.8	35.8	16.1	3.9	1.8	0	0
	July	713	95.8%	2.2	0.6	12.2	6.3	3.2	1.2	0	0
	August	713	95.8%	1.1	0.6	3.7	2.4	1.6	0.9	0	0
	September	574	79.7%	1.6	1.1	23.3	13.5	5.5	3.3	0	0
	October	671	90.2%	2.3	1.6	67.6	38.1	21.3	13.6	0	0
	November	689	95.7%	1.5	1.1	43.9	32.6	4.1	3.4	0	0
	December	704	94.6%	1.7	1.1	38.9	26.7	4.7	3.9	0	0
Annual		7770	88.7%	1.7	1.0	67.6	38.1	21.3	13.6	0	0
2020	January	711	95.6%	2.0	1.4	127.5	54.6	10.3	5.1	0	0
	February	665	95.5%	1.5	1.0	24.1	12.4	2.9	2.6	0	0
	March	557	74.9%	2.5	1.8	58.1	39.9	10.1	7.4	0	0
	April	0	0.0%								
	May	471	63.3%	1.8	1.0	63.7	22.4	4.6	2.0	0	0
	June	658	91.4%	1.8	0.7	18.8	9.0	4.0	1.5	0	0
	July	708	95.2%	1.0	0.7	32.1	10.7	2.9	1.5	0	0
	August	680	91.4%	1.1	0.6	12.3	4.7	1.7	0.9	0	0
	September	684	95.0%	0.8	0.6	6.3	4.8	1.5	1.3	0	0
	October	713	95.8%	1.1	0.7	7.4	6.5	2.2	1.5	0	0
	November	675	93.8%	1.6	1.2	36.8	24.9	14.1	10.1	0	0
	December	705	94.8%	1.3	0.9	22.0	10.4	2.4	1.6	0	0
Annual		7227	82.3%			127.5	54.6	14.1	10.1	0	0

Observations in µg/m3

FIGURE 4.1.2.3 - GREEN ACRES ROAD ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

TABLE 4.1.2.4 - GREEN ACRES ROAD TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2019	January	3	60.0%	9.6	14.2	0
	February	5	100.0%	7.2	14.4	0
	March	5	100.0%	6.9	11.4	0
	April	5	100.0%	7.5	14.1	0
	May	5	100.0%	4.4	6.3	0
	June	5	100.0%	10.2	15.8	0
	July	5	100.0%	5.7	7.8	0
	August	6	100.0%	6.6	11.3	0
	September	4	80.0%	6.0	10.0	0
	October	5	100.0%	6.2	11.1	0
	November	5	100.0%	6.0	13.6	0
	December	5	100.0%	7.0	14.5	0
Annual		58	95.1%	6.7	15.8	0
2020	January	5	100.0%	5.3	13.0	0
	February	4	80.0%	8.9	11.1	0
	March	5	100.0%	9.7	14.1	0
	April	0	0.0%			
	May	3	60.0%	7.0	11.2	0
	June	5	100.0%	5.9	9.0	0
	July	5	100.0%	5.4	8.3	0
	August	6	100.0%	5.2	8.5	0
	September	5	100.0%	7.9	12.9	0
	October	5	100.0%	5.0	6.7	0
	November	5	100.0%	7.5	19.6	0
	December	5	100.0%	9.0	21.8	0
Annual		53	86.9%	6.7	21.8	0

Observations in µg/m3

FIGURE 4.1.2.4 - GREEN ACRES ROAD ANNUAL TPM CONCENTRATIONS

Rolling annual average of daily concentrations

4.1.3 Indian Pond Drive

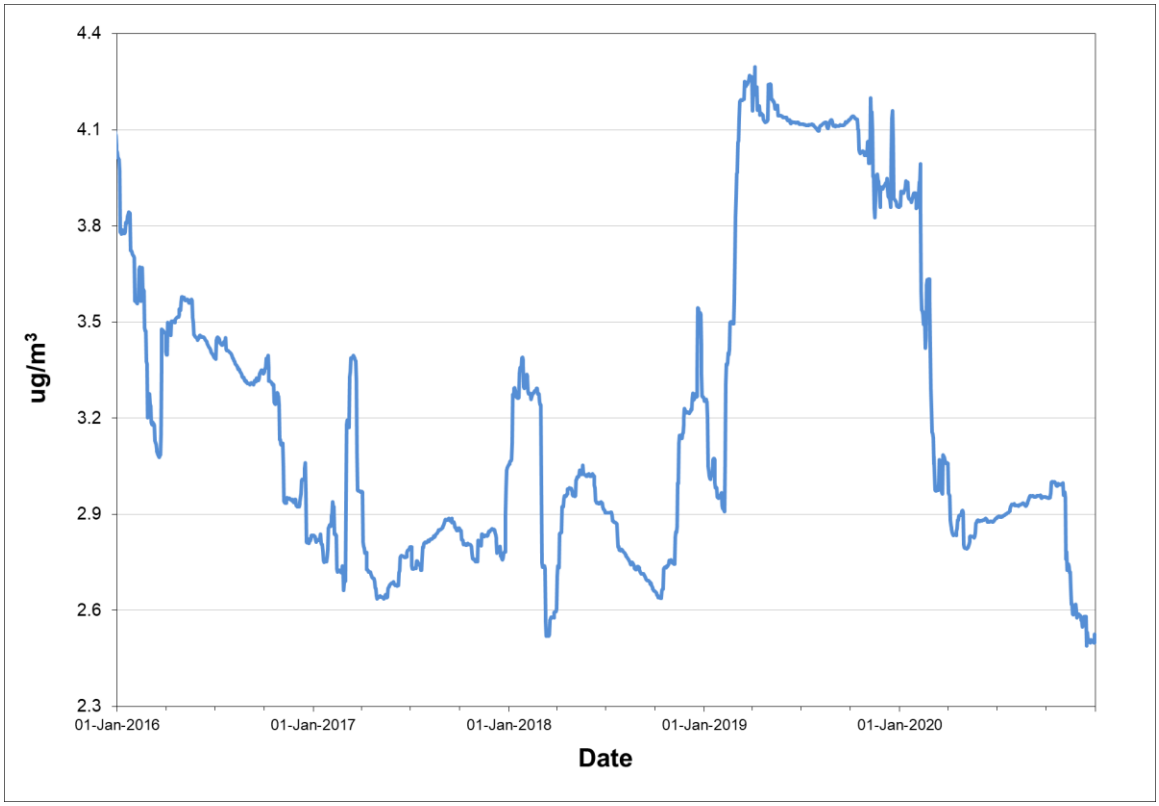
The Indian Pond Drive station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle consistent with the NAPS defined schedule. The ambient air criteria for any pollutant were not exceeded on any occasion in 2020. Tables 4.1.3.1 through 4.1.3.4 provide summary information on the level of air contaminants measured at Indian Pond Drive, while Figures 4.1.3.1 through 4.1.3.4 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.1.3.1 - INDIAN POND DRIVE SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	713	95.8%	2.5	82.1	64.4	17.8	0	0	0
	February	640	95.2%	13.8	193.6	166.7	85.8	0	0	0
	March	682	91.7%	7.2	128.4	91.9	29.5	0	0	0
	April	673	93.5%	5.0	120.9	70.8	36.0	0	0	0
	May	679	91.3%	1.0	16.0	7.9	4.4	0	0	0
	June	688	95.6%	0.9	18.3	9.6	2.9	0	0	0
	July	712	95.7%	0.8	1.9	1.6	1.0	0	0	0
	August	644	86.6%	0.9	3.9	3.3	2.6	0	0	0
	September	676	93.9%	0.9	19.5	12.1	2.9	0	0	0
	October	699	94.0%	1.1	8.0	4.8	2.6	0	0	0
	November	686	95.3%	7.5	149.7	136.9	67.7	0	0	0
	December	703	94.5%	5.3	164.7	135.9	63.4	0	0	0
Annual		8195	93.6%	3.9	193.6	166.7	85.8	0	0	0
2020	January	624	83.9%	2.6	108.1	56.6	18.4	0	0	0
	February	617	88.6%	6.4	179.1	111.6	60.8	0	0	0
	March	708	95.2%	4.4	128.9	110.9	41.4	0	0	0
	April	623	86.5%	1.9	52.2	33.3	10.0	0	0	0
	May	634	85.2%	1.9	86.0	45.7	11.4	0	0	0
	June	685	95.1%	1.0	3.0	1.6	1.5	0	0	0
	July	627	84.3%	1.0	5.8	4.0	1.5	0	0	0
	August	696	93.5%	1.4	4.7	3.5	2.3	0	0	0
	September	688	95.6%	0.9	4.2	2.2	1.7	0	0	0
	October	704	94.6%	1.6	54.2	29.6	12.2	0	0	0
	November	684	95.0%	2.8	151.4	66.3	12.1	0	0	0
	December	710	95.4%	4.6	107.8	100.2	53.1	0	0	0
Annual		8000	91.1%	2.5	179.1	111.6	60.8	0	0	0

Observations in µg/m3

FIGURE 4.1.3.1 - INDIAN POND DRIVE ANNUAL SO_2 CONCENTRATIONS



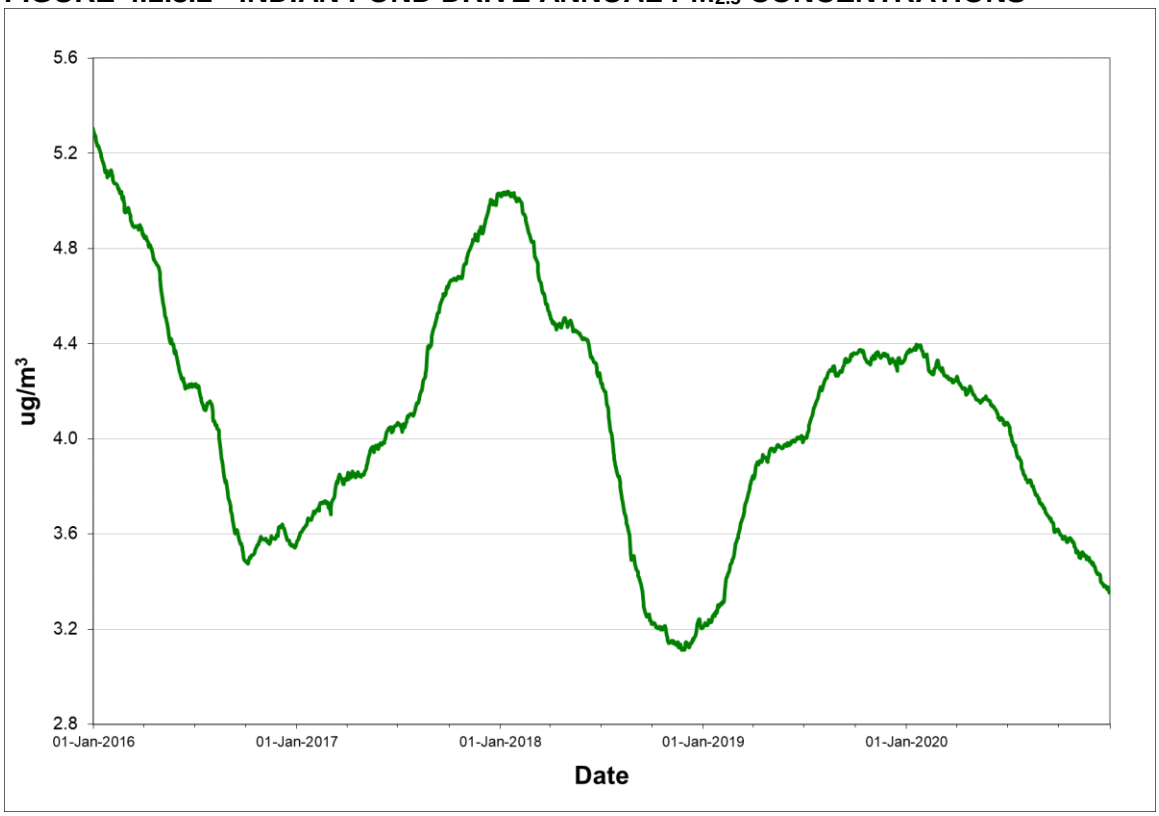
Rolling annual average of hourly concentrations

TABLE 4.1.3.2 - INDIAN POND DRIVE $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	4.5	8.8	0
	February	28	100.0%	5.2	15.2	0
	March	31	100.0%	4.7	7.1	0
	April	28	93.3%	5.0	10.0	0
	May	30	96.8%	3.9	7.4	0
	June	30	100.0%	3.4	6.6	0
	July	31	100.0%	4.5	7.7	0
	August	28	90.3%	3.6	6.8	0
	September	27	90.0%	4.0	10.5	0
	October	27	87.1%	3.6	6.3	0
	November	30	100.0%	4.8	10.2	0
	December	30	96.8%	4.9	14.2	0
Annual		351	96.2%	4.4	15.2	0
2020	January	26	83.9%	4.5	11.2	0
	February	26	89.7%	4.5	10.0	0
	March	31	100.0%	4.1	10.3	0
	April	26	86.7%	4.2	8.8	0
	May	27	87.1%	3.4	8.0	0
	June	30	100.0%	2.4	5.3	0
	July	30	96.8%	2.1	4.2	0
	August	29	93.5%	2.2	4.7	0
	September	30	100.0%	2.8	4.7	0
	October	27	87.1%	2.7	5.0	0
	November	30	100.0%	4.0	9.0	0
	December	31	100.0%	3.6	8.2	0
Annual		343	93.7%	3.4	11.2	0

Observations in µg/m3

FIGURE 4.1.3.2 - INDIAN POND DRIVE ANNUAL $PM_{2.5}$ CONCENTRATIONS



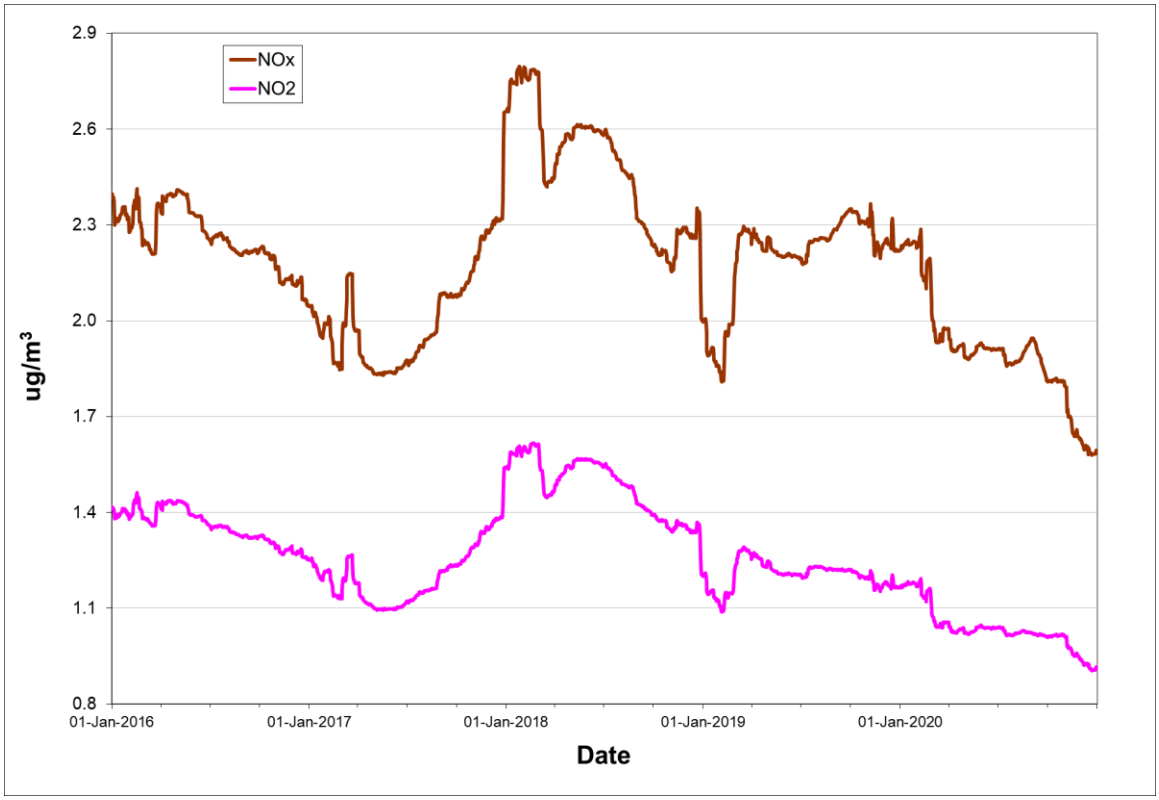
Rolling annual average of daily concentrations

TABLE 4.1.3.3 - INDIAN POND DRIVE NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	713	95.8%	1.6	1.0	46.7	26.8	6.0	4.1	0	0
	February	641	95.4%	5.7	2.8	70.7	25.0	29.1	12.4	0	0
	March	710	95.4%	2.8	1.6	54.9	24.1	11.0	5.3	0	0
	April	673	93.5%	2.3	1.3	44.6	20.6	13.9	5.9	0	0
	May	699	94.0%	0.7	0.6	11.0	8.7	2.6	1.6	0	0
	June	689	95.7%	1.1	0.7	28.6	9.9	3.3	1.8	0	0
	July	713	95.8%	1.7	1.0	66.1	29.0	12.7	6.2	0	0
	August	642	86.3%	1.2	0.5	5.2	2.4	2.7	1.2	0	0
	September	679	94.3%	2.6	0.7	8.0	5.1	3.4	1.0	0	0
	October	699	94.0%	1.1	0.6	10.6	9.0	3.3	2.1	0	0
	November	687	95.4%	3.6	1.8	53.2	19.9	24.1	9.6	0	0
	December	705	94.8%	2.5	1.4	49.0	20.6	20.2	8.1	0	0
Annual		8250	94.2%	2.2	1.2	70.7	29.0	29.1	12.4	0	0
2020	January	624	83.9%	1.7	1.1	42.5	17.2	6.3	3.3	0	0
	February	617	88.6%	3.3	1.8	65.6	23.4	23.4	9.4	0	0
	March	709	95.3%	1.9	1.1	45.9	18.1	14.3	6.1	0	0
	April	626	86.9%	1.2	0.9	12.6	9.7	3.1	2.5	0	0
	May	635	85.3%	1.1	0.8	22.5	11.6	3.7	2.1	0	0
	June	687	95.4%	0.9	0.7	29.6	10.7	3.1	1.9	0	0
	July	705	94.8%	1.3	0.8	43.0	17.6	4.7	2.4	0	0
	August	669	89.9%	2.1	0.6	9.6	6.3	3.9	1.0	0	0
	September	687	95.4%	1.1	0.6	10.7	8.5	2.9	1.9	0	0
	October	704	94.6%	1.0	0.7	18.3	9.4	3.7	1.8	0	0
	November	687	95.4%	1.5	0.9	50.8	17.1	5.1	2.0	0	0
	December	709	95.3%	2.1	1.1	39.3	14.8	18.0	7.1	0	0
Annual		8059	91.7%	1.6	0.9	65.6	23.4	23.4	9.4	0	0

Observations in µg/m3

FIGURE 4.1.3.3 - INDIAN POND DRIVE ANNUAL NO_X / NO_2 CONCENTRATIONS



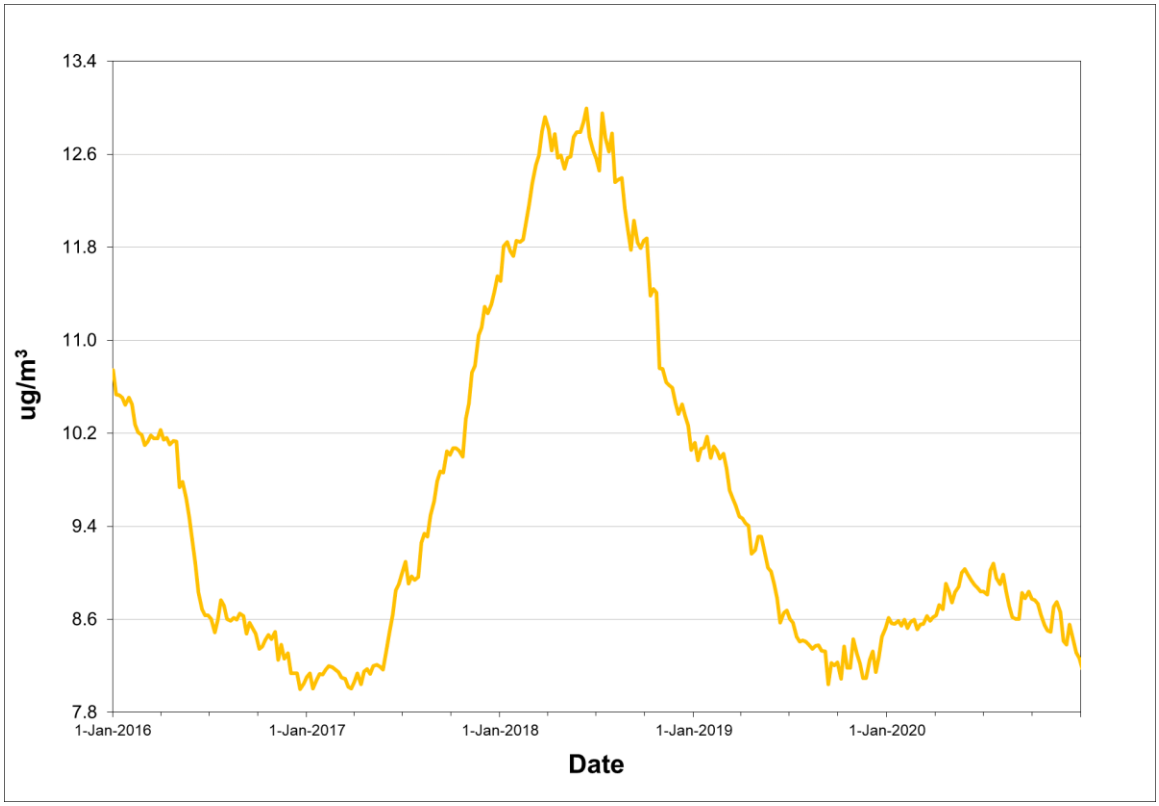
Rolling annual average of hourly concentrations

TABLE 4.1.3.4 - INDIAN POND DRIVE TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2019	January	4	80.0%	11.2	13.5	0
	February	5	100.0%	11.0	20.9	0
	March	5	100.0%	7.5	9.5	0
	April	5	100.0%	6.4	14.0	0
	May	5	100.0%	6.5	11.7	0
	June	5	100.0%	11.2	15.1	0
	July	5	100.0%	7.6	10.0	0
	August	6	100.0%	9.1	11.5	0
	September	5	100.0%	7.3	16.1	0
	October	5	100.0%	7.3	11.1	0
	November	5	100.0%	8.9	19.6	0
	December	5	100.0%	11.2	24.3	0
Annual		60	98.4%	8.5	24.3	0
2020	January	4	80.0%	11.6	16.3	0
	February	4	80.0%	11.1	12.7	0
	March	5	100.0%	8.6	13.3	0
	April	5	100.0%	8.6	13.0	0
	May	5	100.0%	8.3	12.7	0
	June	5	100.0%	8.6	12.6	0
	July	5	100.0%	8.8	22.2	0
	August	6	100.0%	6.1	9.8	0
	September	5	100.0%	9.2	13.2	0
	October	5	100.0%	5.0	8.0	0
	November	5	100.0%	7.9	19.8	0
	December	5	100.0%	9.1	11.4	0
Annual		59	96.7%	8.3	22.2	0

Observations in µg/m3

FIGURE 4.1.3.4 - INDIAN POND DRIVE ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.1.4 Indian Pond Road

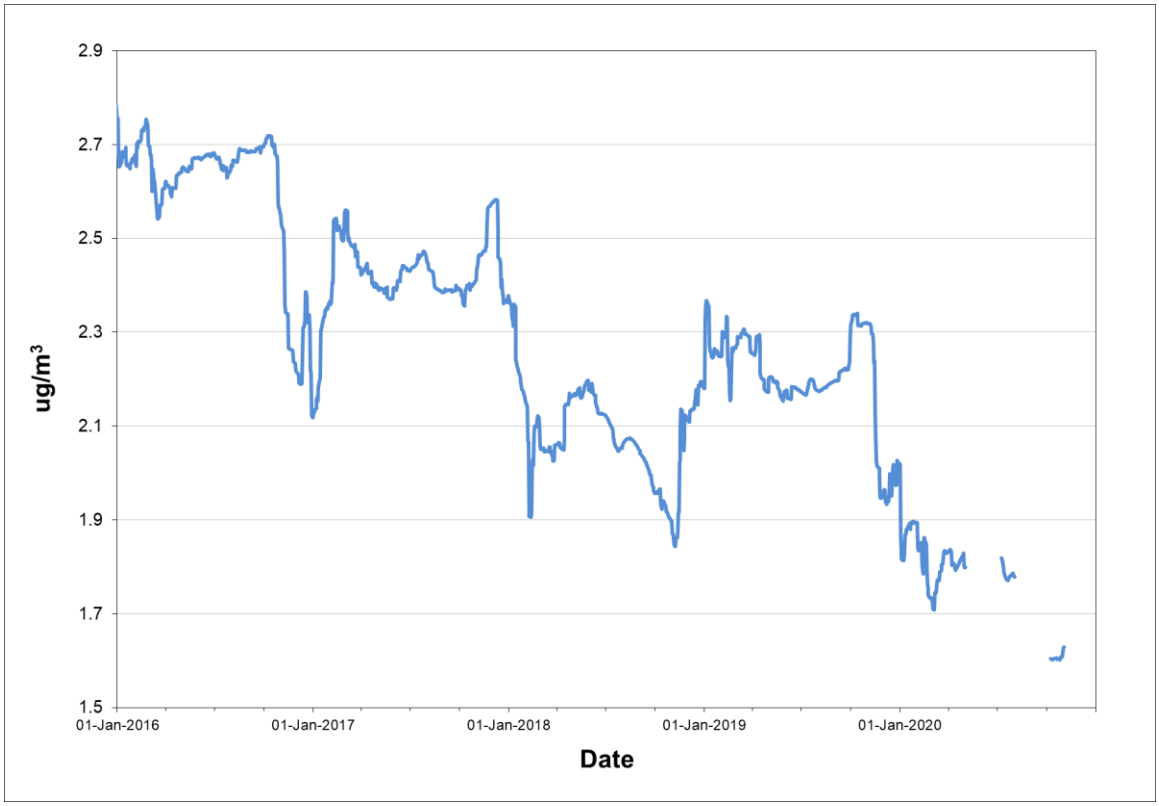
The Indian Pond Road station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle consistent with the NAPS defined schedule. For all pollutants, the ambient air criteria were not exceeded on any occasion in 2020. Tables 4.1.4.1 through 4.1.4.4 provide summary information on the level of air contaminants measured at Indian Pond Road, while Figures 4.1.4.1 through 4.1.4.4 provide a graphical representation of the annual trend of each pollutant. Owing to the Covid-19 pandemic and associated safety protocols, NALCOR temporarily suspended monitoring at this location from mid-March thru mid-May.

TABLE 4.1.4.1 - INDIAN POND ROAD SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	689	92.6%	3.6	298.6	228.2	54.9	0	0	0
	February	641	95.4%	4.4	117.4	81.6	23.0	0	0	0
	March	708	95.2%	1.3	59.3	22.1	6.4	0	0	0
	April	665	92.4%	1.9	42.8	20.7	11.8	0	0	0
	May	713	95.8%	1.8	78.2	40.8	11.1	0	0	0
	June	688	95.6%	1.1	52.8	40.2	11.2	0	0	0
	July	681	91.5%	1.2	4.0	3.6	3.3	0	0	0
	August	709	95.3%	1.2	2.4	2.1	1.8	0	0	0
	September	687	95.4%	1.8	80.2	47.5	20.8	0	0	0
	October	708	95.2%	1.5	48.2	27.7	10.9	0	0	0
	November	689	95.7%	1.1	46.8	27.7	7.0	0	0	0
	December	710	95.4%	3.6	85.3	52.4	21.1	0	0	0
Annual		8288	94.6%	2.0	298.6	228.2	54.9	0	0	0
2020	January	706	94.9%	2.0	94.8	41.3	14.7	0	0	0
	February	664	95.4%	2.3	78.8	46.5	18.4	0	0	0
	March	675	90.7%	2.5	63.8	35.3	14.3	0	0	0
	April	0	0.0%							
	May	468	62.9%	2.3	71.1	59.6	16.4	0	0	0
	June	688	95.6%	0.6	3.0	1.7	0.9	0	0	0
	July	683	91.8%	0.9	2.9	2.4	1.9	0	0	0
	August	711	95.6%	0.9	1.6	1.3	1.1	0	0	0
	September	688	95.6%	0.9	9.5	5.6	1.6	0	0	0
	October	708	95.2%	1.0	25.2	12.7	3.6	0	0	0
	November	690	95.8%	2.0	85.6	27.5	9.5	0	0	0
	December	709	95.3%	1.2	51.8	25.2	9.5	0	0	0
Annual		7390	84.1%		94.8	59.6	18.4	0	0	0

Observations in µg/m3

FIGURE 4.1.4.1 - INDIAN POND ROAD ANNUAL SO_2 CONCENTRATIONS



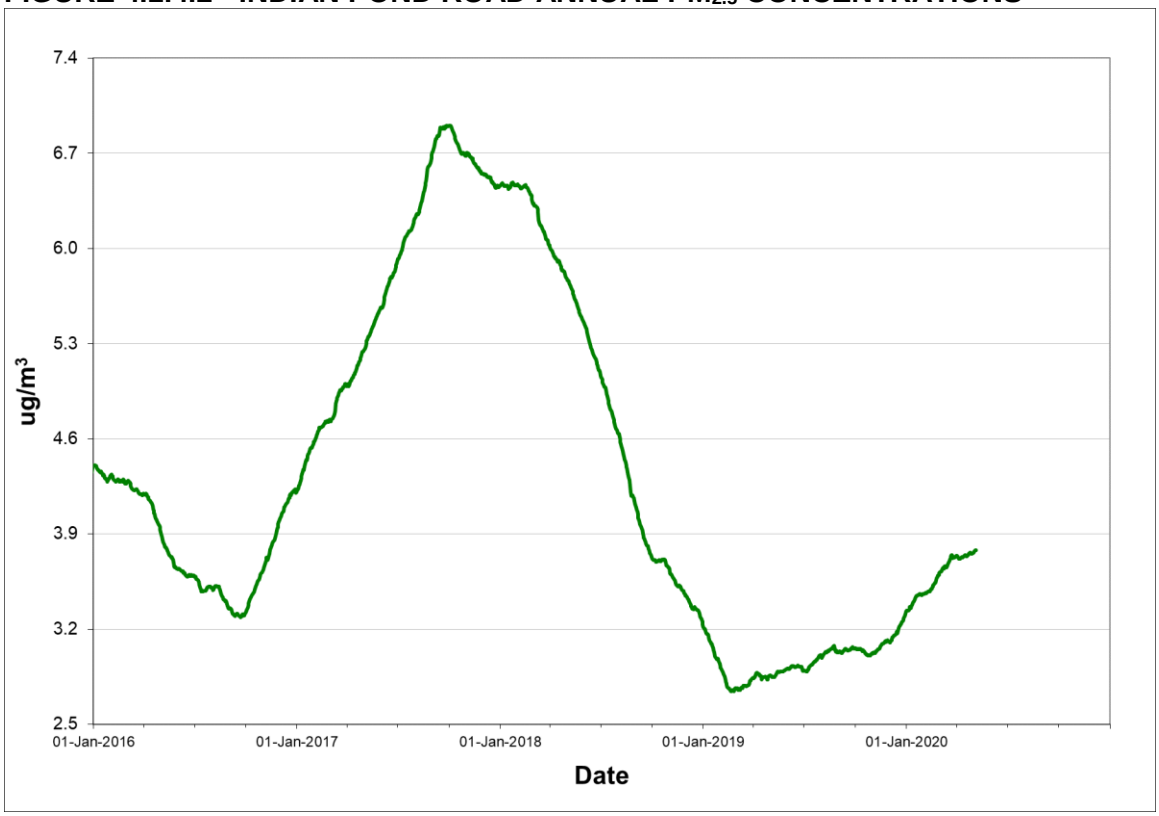
Rolling annual average of hourly concentrations

TABLE 4.1.4.2 - INDIAN POND ROAD $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	28	90.3%	4.0	7.7	0
	February	25	89.3%	3.0	5.8	0
	March	29	93.5%	4.1	12.2	0
	April	30	100.0%	3.5	7.3	0
	May	30	96.8%	3.0	5.9	0
	June	30	100.0%	2.3	4.5	0
	July	31	100.0%	2.7	6.0	0
	August	31	100.0%	2.5	5.0	0
	September	30	100.0%	2.3	7.2	0
	October	27	87.1%	2.3	5.6	0
	November	30	100.0%	4.2	8.8	0
	December	31	100.0%	5.9	10.5	0
Annual		352	96.4%	3.3	12.2	0
2020	January	29	93.5%	5.5	9.2	0
	February	26	89.7%	5.1	9.3	0
	March	29	93.5%	5.7	11.6	0
	April	0	0.0%			
	May	20	64.5%	3.5	7.0	0
	June	30	100.0%	2.1	6.0	0
	July	31	100.0%	2.4	6.9	0
	August	31	100.0%	2.2	5.1	0
	September	30	100.0%	2.3	4.5	0
	October	25	80.6%	2.5	4.9	0
	November	28	93.3%	4.2	8.8	0
	December	31	100.0%	3.9	7.1	0
Annual		310	84.7%		11.6	0

Observations in µg/m3

FIGURE 4.1.4.2 - INDIAN POND ROAD ANNUAL $PM_{2.5}$ CONCENTRATIONS



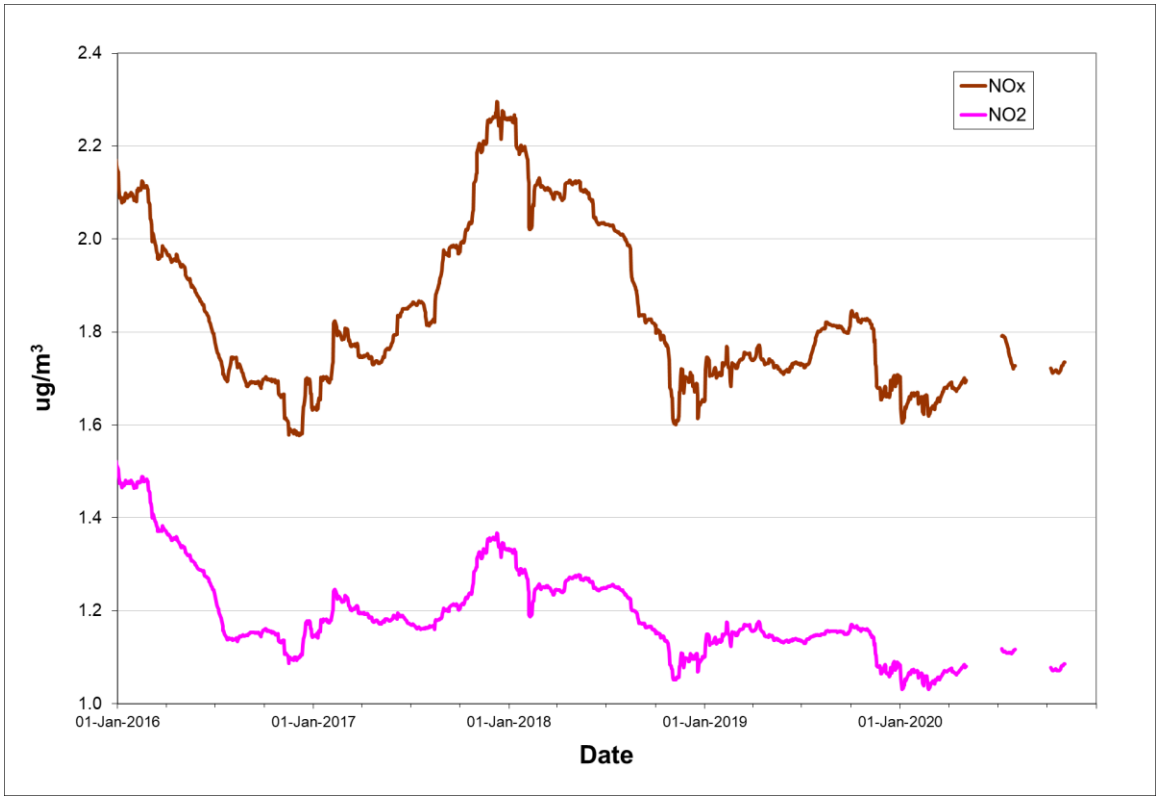
Rolling annual average of daily concentrations

TABLE 4.1.4.3 - INDIAN POND ROAD NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	688	92.5%	2.5	1.6	123.4	48.5	25.3	10.5	0	0
	February	644	95.8%	2.8	1.9	54.0	31.0	13.2	9.1	0	0
	March	711	95.6%	1.2	0.9	32.2	19.8	3.9	2.5	0	0
	April	685	95.1%	1.5	0.9	17.2	12.3	5.6	3.6	0	0
	May	713	95.8%	1.1	0.8	31.0	18.4	5.2	3.3	0	0
	June	688	95.6%	1.2	0.8	29.6	9.8	4.0	2.2	0	0
	July	670	90.1%	1.9	0.7	5.8	3.4	3.6	2.0	0	0
	August	713	95.8%	1.3	0.6	32.7	10.4	6.0	2.4	0	0
	September	688	95.6%	1.4	0.8	40.6	13.7	8.9	3.6	0	0
	October	706	94.9%	1.4	0.9	22.5	9.1	4.7	2.4	0	0
	November	690	95.8%	1.5	1.2	23.1	12.0	4.6	2.6	0	0
	December	711	95.6%	2.7	1.8	48.9	28.0	12.3	7.5	0	0
Annual		8307	94.8%	1.7	1.1	123.4	48.5	25.3	10.5	0	0
2020	January	703	94.5%	2.0	1.4	66.2	34.9	6.2	4.2	0	0
	February	666	95.7%	2.4	1.6	45.7	23.7	9.8	5.5	0	0
	March	675	90.7%	1.8	1.2	22.7	15.8	6.1	4.1	0	0
	April	0	0.0%								
	May	469	63.0%	1.8	1.1	89.3	29.3	6.5	2.5	0	0
	June	688	95.6%	1.4	0.8	63.4	38.2	5.2	3.2	0	0
	July	684	91.9%	1.3	0.8	27.0	11.4	2.8	1.5	0	0
	August	713	95.8%	1.6	0.5	12.4	4.0	2.6	1.1	0	0
	September	688	95.6%	1.1	0.6	14.0	7.5	2.0	1.3	0	0
	October	709	95.3%	1.3	0.9	29.3	14.5	2.4	1.8	0	0
	November	690	95.8%	1.8	1.2	39.4	22.0	5.2	3.1	0	0
	December	711	95.6%	1.5	1.0	23.1	16.0	5.0	3.4	0	0
Annual		7396	84.2%			89.3	38.2	9.8	5.5	0	0

Observations in µg/m3

FIGURE 4.1.4.3 - INDIAN POND ROAD ANNUAL NO_X / NO_2 CONCENTRATIONS



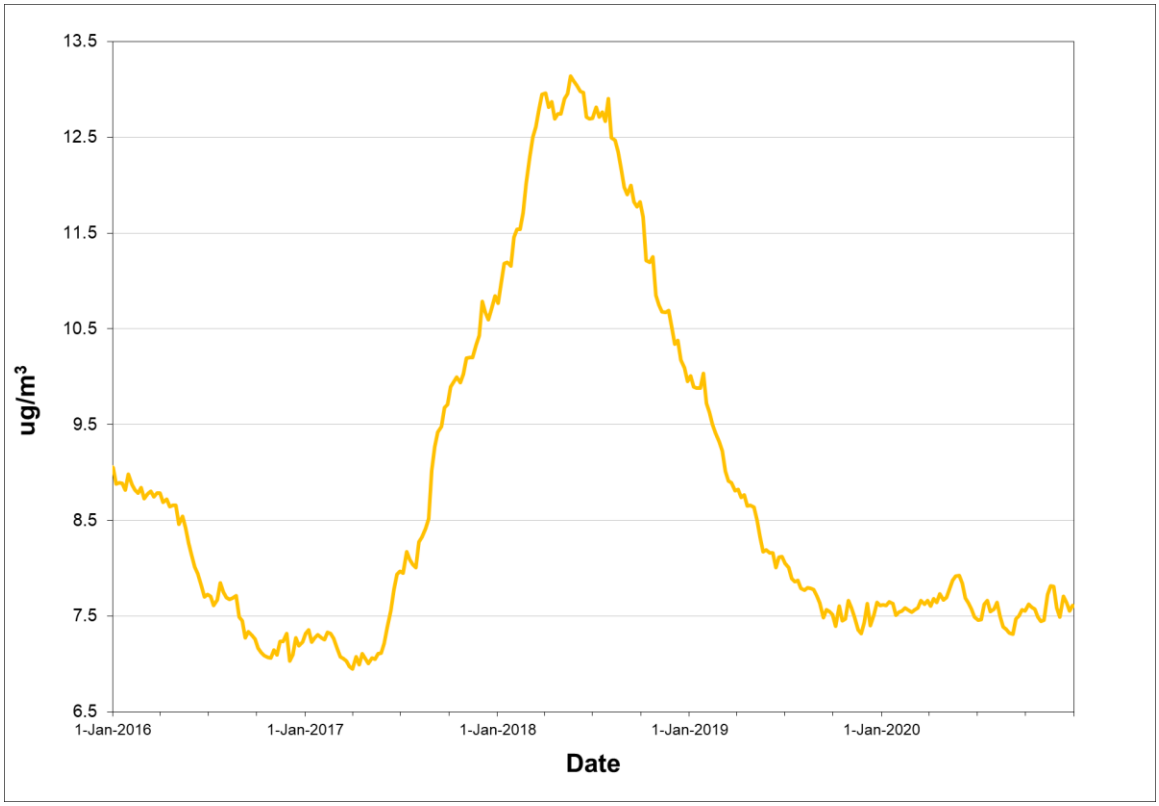
Rolling annual average of hourly concentrations

TABLE 4.1.4.4 - INDIAN POND ROAD TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2019	January	4	80.0%	12.1	18.0	0
	February	5	100.0%	8.1	14.0	0
	March	5	100.0%	7.2	9.8	0
	April	5	100.0%	7.6	12.4	0
	May	5	100.0%	5.5	7.5	0
	June	5	100.0%	12.3	18.3	0
	July	5	100.0%	6.8	8.7	0
	August	6	100.0%	7.5	11.2	0
	September	5	100.0%	6.2	9.8	0
	October	5	100.0%	6.4	11.3	0
	November	5	100.0%	7.0	15.7	0
	December	5	100.0%	8.2	20.5	0
Annual		60	98.4%	7.6	20.5	0
2020	January	5	100.0%	9.4	12.2	0
	February	4	80.0%	8.7	11.6	0
	March	5	100.0%	8.8	14.5	0
	April	0	0.0%			
	May	3	60.0%	7.8	9.8	0
	June	5	100.0%	6.7	11.6	0
	July	5	100.0%	7.3	13.5	0
	August	6	100.0%	5.8	9.8	0
	September	5	100.0%	8.5	12.9	0
	October	5	100.0%	5.5	7.4	0
	November	5	100.0%	8.5	20.6	0
	December	5	100.0%	8.5	10.6	0
Annual		53	86.9%	7.6	20.6	0

Observations in µg/m3

FIGURE 4.1.4.4 - INDIAN POND ROAD ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.1.5 Lawrence Pond Road

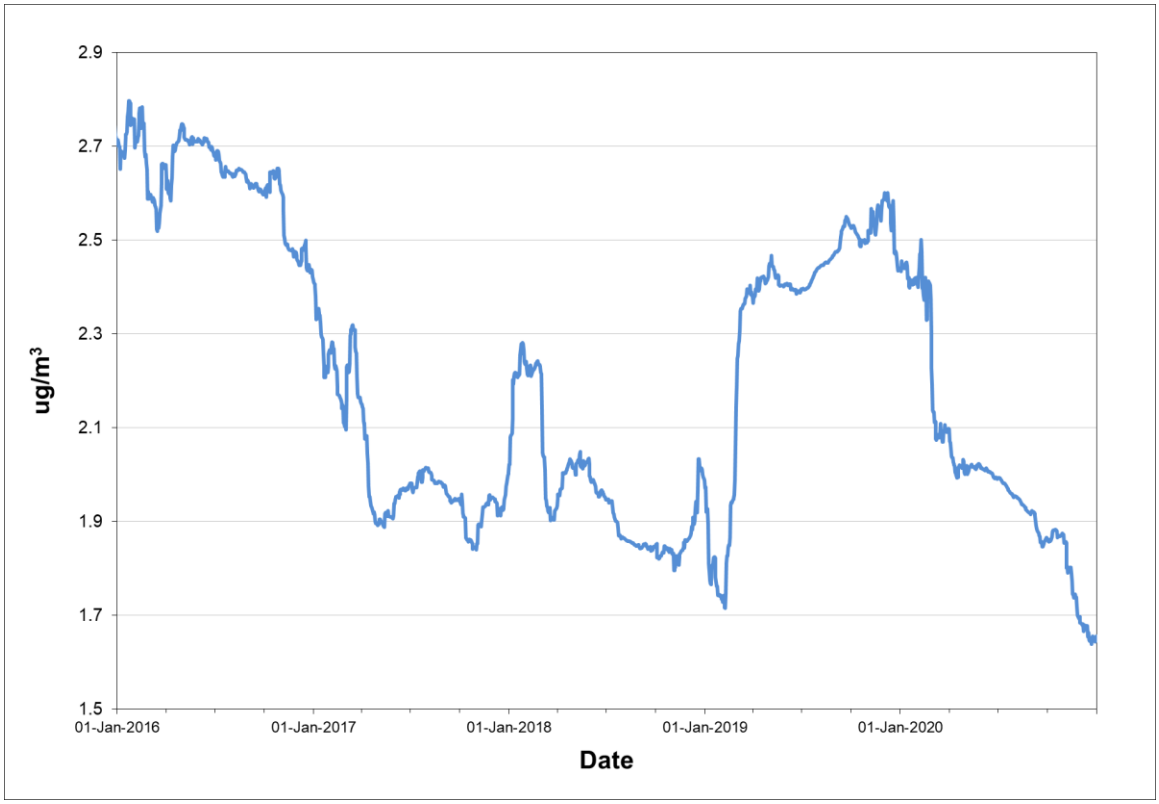
The Lawrence Pond Road station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle consistent with the NAPS defined schedule. For all pollutants, the ambient air criteria were not exceeded on any occasion in 2020. Tables 4.1.5.1 through 4.1.5.4 provide summary information on the level of air contaminants measured at Lawrence Pond Road, while Figures 4.1.5.1 through 4.1.5.4 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.1.5.1 - LAWRENCE POND ROAD SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	713	95.8%	2.3	46.8	39.1	11.8	0	0	0
	February	644	95.8%	7.3	89.1	76.8	31.2	0	0	0
	March	706	94.9%	4.1	61.6	43.2	21.8	0	0	0
	April	690	95.8%	2.9	33.3	22.9	9.2	0	0	0
	May	712	95.7%	1.2	40.3	27.7	7.1	0	0	0
	June	682	94.7%	0.9	11.7	5.7	2.1	0	0	0
	July	713	95.8%	1.2	2.4	2.3	2.0	0	0	0
	August	710	95.4%	1.1	2.5	2.2	2.1	0	0	0
	September	665	92.4%	1.6	25.3	16.2	5.7	0	0	0
	October	713	95.8%	1.0	31.2	16.5	5.0	0	0	0
	November	690	95.8%	3.7	91.8	55.0	19.8	0	0	0
	December	705	94.8%	2.4	48.3	40.6	15.1	0	0	0
Annual		8343	95.2%	2.4	91.8	76.8	31.2	0	0	0
2020	January	710	95.4%	2.0	60.7	35.4	10.0	0	0	0
	February	667	95.8%	4.8	70.7	48.8	19.9	0	0	0
	March	702	94.4%	2.5	50.7	28.3	9.4	0	0	0
	April	690	95.8%	1.8	31.3	23.2	8.5	0	0	0
	May	713	95.8%	1.3	78.1	38.0	6.6	0	0	0
	June	682	94.7%	0.7	2.6	1.5	1.2	0	0	0
	July	713	95.8%	0.8	4.0	2.6	1.4	0	0	0
	August	713	95.8%	0.7	2.9	1.9	1.3	0	0	0
	September	659	91.5%	1.0	14.0	8.3	2.3	0	0	0
	October	712	95.7%	1.1	12.6	10.0	4.5	0	0	0
	November	690	95.8%	1.6	33.9	15.4	4.1	0	0	0
	December	706	94.9%	1.9	40.6	29.0	8.9	0	0	0
Annual		8357	95.1%	1.7	78.1	48.8	19.9	0	0	0

Observations in µg/m3

FIGURE 4.1.5.1 - LAWRENCE POND ROAD ANNUAL SO_2 CONCENTRATIONS



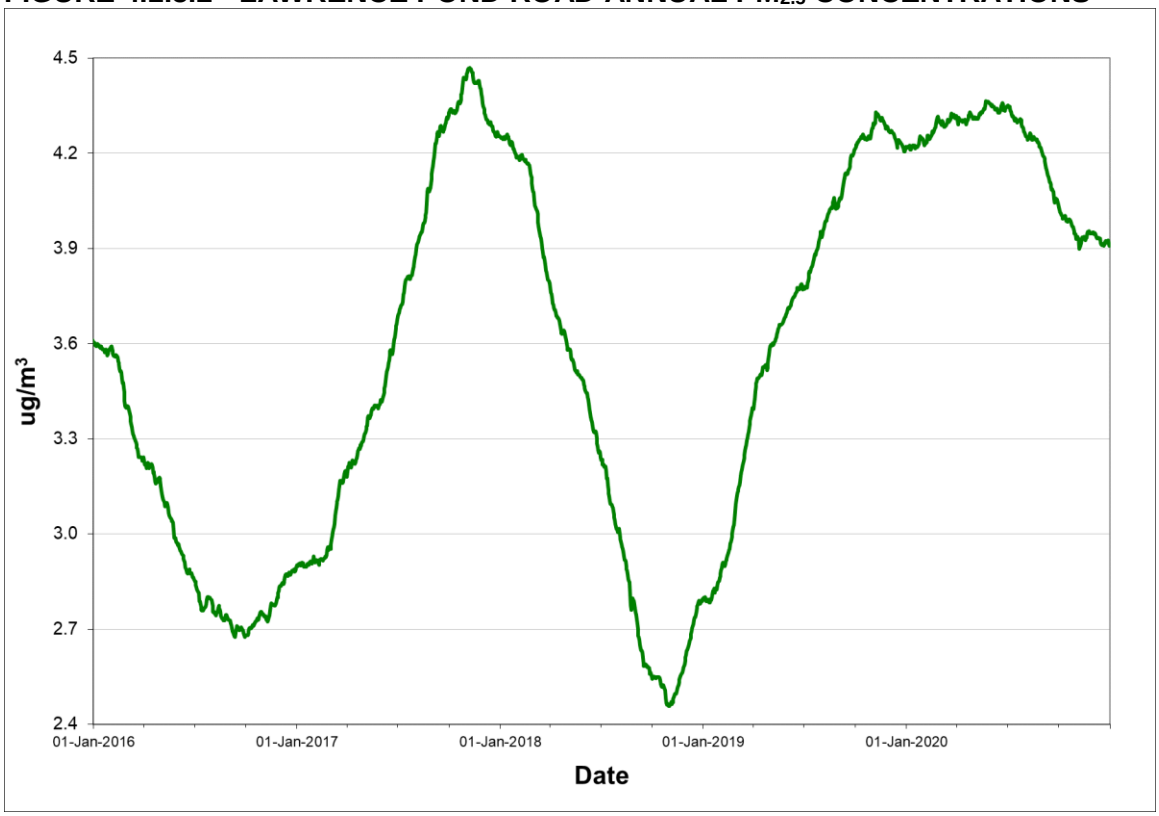
Rolling annual average of hourly concentrations

TABLE 4.1.5.2 - LAWRENCE POND ROAD $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	4.5	7.4	0
	February	28	100.0%	5.4	8.9	0
	March	31	100.0%	5.5	8.2	0
	April	30	100.0%	4.8	9.0	0
	May	30	96.8%	3.5	6.3	0
	June	30	100.0%	2.9	4.6	0
	July	31	100.0%	3.7	6.8	0
	August	31	100.0%	3.4	5.6	0
	September	30	100.0%	4.6	11.6	0
	October	27	87.1%	4.1	5.7	0
	November	30	100.0%	4.1	14.3	0
	December	31	100.0%	4.0	8.3	0
Annual		360	98.6%	4.2	14.3	0
2020	January	31	100.0%	4.8	9.0	0
	February	29	100.0%	6.2	9.9	0
	March	31	100.0%	5.5	11.0	0
	April	30	100.0%	4.8	15.8	0
	May	31	100.0%	4.1	9.1	0
	June	30	100.0%	2.8	7.3	0
	July	31	100.0%	2.8	5.0	0
	August	31	100.0%	2.8	5.0	0
	September	30	100.0%	2.6	4.8	0
	October	27	87.1%	2.9	5.2	0
	November	30	100.0%	4.1	8.6	0
	December	31	100.0%	3.5	5.8	0
Annual		362	98.9%	3.9	15.8	0

Observations in µg/m3

FIGURE 4.1.5.2 - LAWRENCE POND ROAD ANNUAL $PM_{2.5}$ CONCENTRATIONS



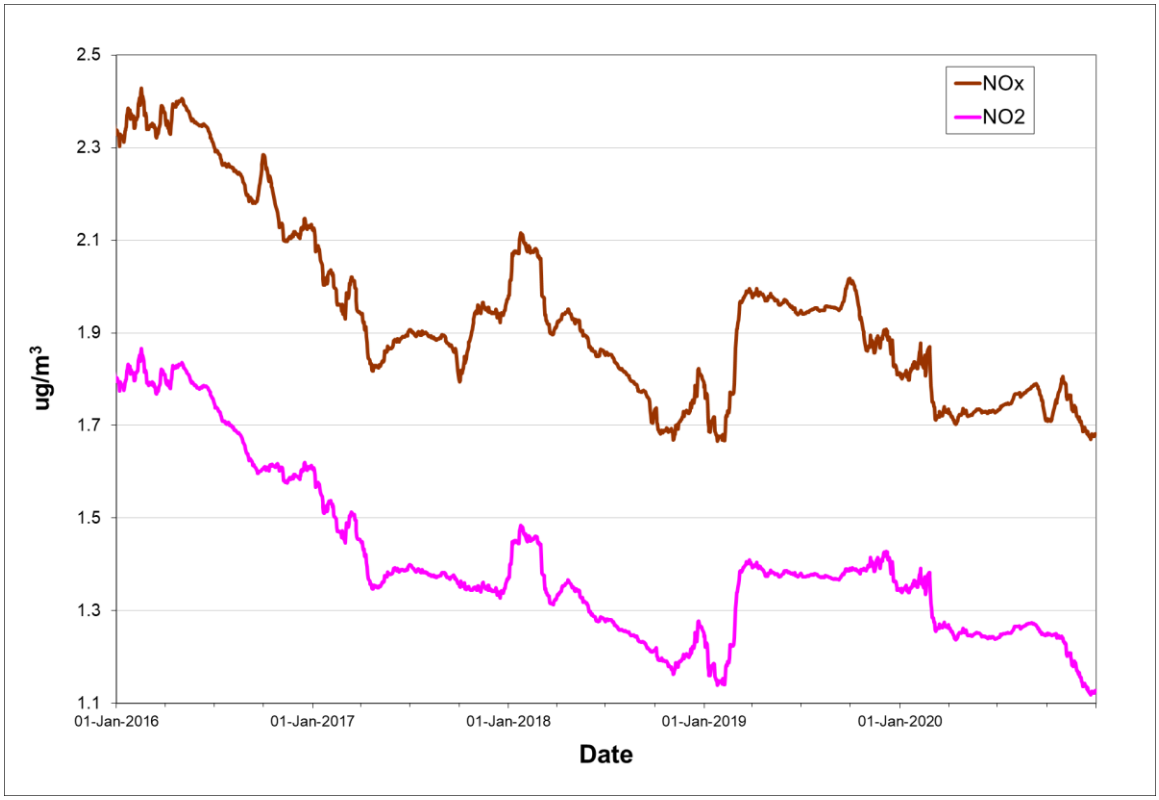
Rolling annual average of daily concentrations

TABLE 4.1.5.3 - LAWRENCE POND ROAD NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_X	NO_2	NO_X	NO_2	NO_X	NO_2	(>400)	(>200)
2019	January	713	95.8%	2.0	1.6	26.2	20.0	6.7	5.6	0	0
	February	644	95.8%	4.0	3.3	55.2	44.2	16.0	12.9	0	0
	March	706	94.9%	2.5	1.9	46.6	24.5	9.9	8.6	0	0
	April	690	95.8%	1.6	1.1	16.6	12.1	5.0	4.1	0	0
	May	713	95.8%	1.1	0.9	17.8	14.0	3.6	3.1	0	0
	June	685	95.1%	1.0	0.8	10.8	7.4	1.9	1.6	0	0
	July	713	95.8%	1.0	0.6	7.3	6.6	1.6	1.1	0	0
	August	709	95.3%	0.8	0.5	12.7	7.0	3.8	2.2	0	0
	September	660	91.7%	2.0	0.9	20.7	14.1	4.9	2.1	0	0
	October	713	95.8%	1.3	1.0	17.0	15.4	5.2	3.5	0	0
	November	690	95.8%	2.7	2.0	42.4	30.1	10.6	8.3	0	0
	December	706	94.9%	2.0	1.6	25.6	21.1	8.1	6.7	0	0
Annual		8342	95.2%	1.8	1.3	55.2	44.2	16.0	12.9	0	0
2020	January	712	95.7%	2.2	1.7	49.6	30.6	8.1	5.7	0	0
	February	667	95.8%	3.4	2.7	36.6	32.4	11.2	8.5	0	0
	March	687	92.3%	1.8	1.3	52.1	23.1	5.0	4.4	0	0
	April	690	95.8%	1.5	1.0	11.6	10.8	3.8	3.0	0	0
	May	712	95.7%	1.2	0.8	24.2	18.0	2.8	2.2	0	0
	June	684	95.0%	1.0	0.7	9.3	5.9	2.2	1.8	0	0
	July	713	95.8%	1.3	0.9	6.8	6.1	2.6	1.8	0	0
	August	710	95.4%	1.0	0.6	6.3	4.6	1.7	1.2	0	0
	September	623	86.5%	1.2	0.6	7.3	5.3	1.9	1.2	0	0
	October	653	87.8%	2.5	0.8	9.9	7.8	4.4	2.0	0	0
	November	690	95.8%	1.6	1.2	17.4	16.9	4.0	3.5	0	0
	December	708	95.2%	1.6	1.2	24.4	18.3	5.6	4.5	0	0
Annual		8249	93.9%	1.7	1.1	52.1	32.4	11.2	8.5	0	0

Observations in µg/m3

FIGURE 4.1.5.3 - LAWRENCE POND ROAD ANNUAL NO_X / NO_2 CONCENTRATIONS



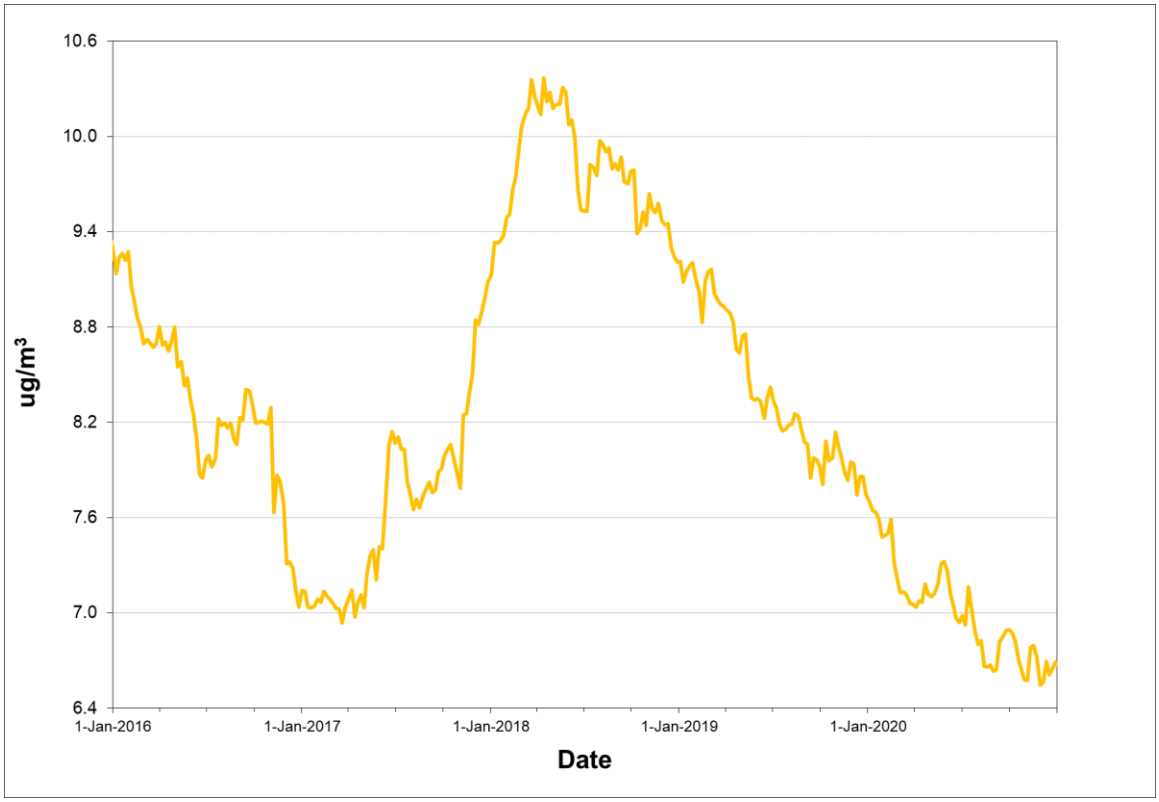
Rolling annual average of hourly concentrations

TABLE 4.1.5.4 - LAWRENCE POND ROAD TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2019	January	5	100.0%	9.6	11.9	0
	February	5	100.0%	13.7	60.7	0
	March	5	100.0%	8.3	13.3	0
	April	5	100.0%	6.6	12.2	0
	May	5	100.0%	5.8	9.3	0
	June	5	100.0%	12.0	15.8	0
	July	5	100.0%	7.3	11.4	0
	August	6	100.0%	9.5	15.5	0
	September	5	100.0%	5.2	8.9	0
	October	5	100.0%	6.6	10.4	0
	November	5	100.0%	6.7	14.2	0
	December	5	100.0%	5.6	12.3	0
Annual		61	100.0%	7.7	60.7	0
2020	January	5	100.0%	6.3	8.1	0
	February	4	80.0%	9.3	16.6	0
	March	5	100.0%	6.3	8.7	0
	April	5	100.0%	7.3	10.0	0
	May	5	100.0%	8.2	14.5	0
	June	5	100.0%	6.3	10.1	0
	July	3	60.0%	6.4	34.2	0
	August	6	100.0%	6.7	10.6	0
	September	5	100.0%	8.2	11.9	0
	October	5	100.0%	3.8	5.6	0
	November	5	100.0%	6.3	17.4	0
	December	5	100.0%	7.2	9.9	0
Annual		58	95.1%	6.7	34.2	0

Observations in µg/m3

FIGURE 4.1.5.4 - LAWRENCE POND ROAD ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.1.6 NALCOR Property Boundary

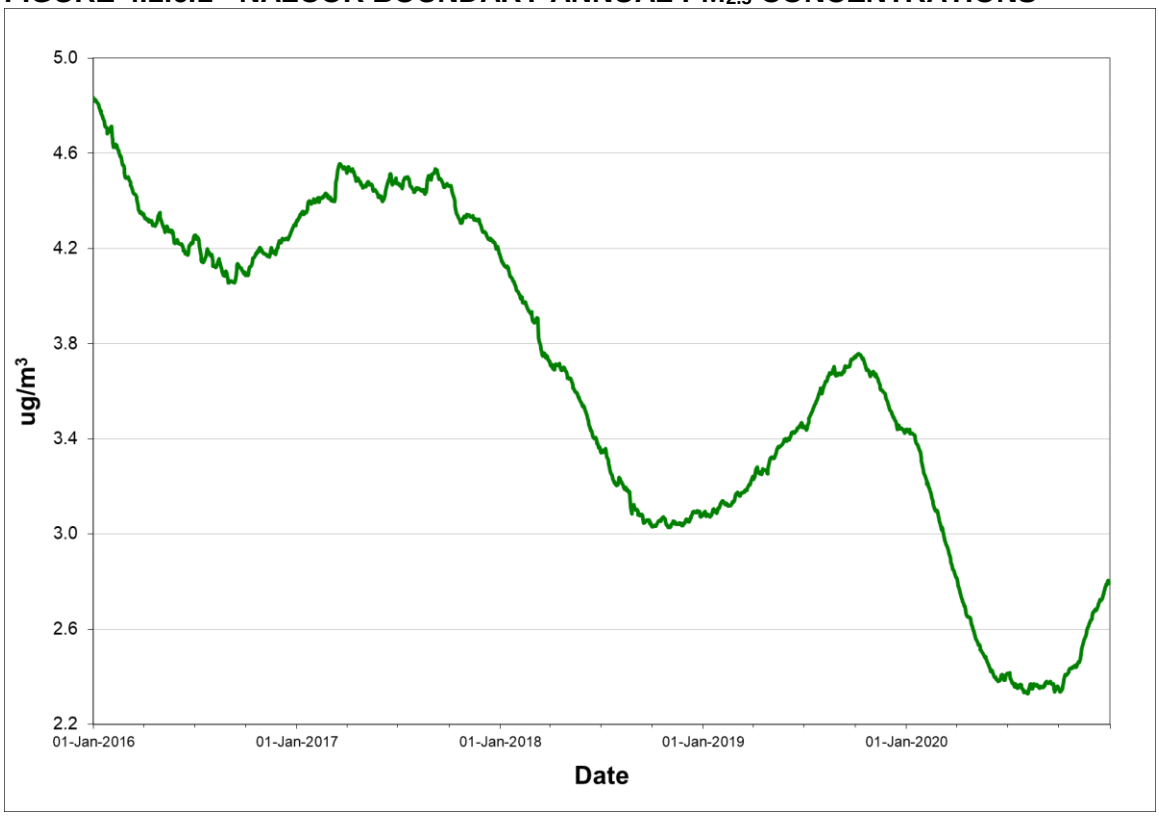
The NALCOR Property Boundary station monitors the ambient levels of $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle consistent with the NAPS defined schedule. For both pollutants, the ambient air criteria were not exceeded on any occasion in 2020. Tables 4.1.6.1 through 4.1.6.2 provide summary information on the level of air contaminants measured at NALCOR Property Boundary, while Figures 4.1.6.1 through 4.1.6.2 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.1.6.1 - NALCOR BOUNDARY $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2019	January	31	100.0%	3.8	6.8	0
	February	28	100.0%	4.2	7.1	0
	March	31	100.0%	4.2	6.9	0
	April	30	100.0%	4.3	9.8	0
	May	31	100.0%	3.2	6.8	0
	June	30	100.0%	2.9	4.8	0
	July	29	93.5%	4.0	8.1	0
	August	31	100.0%	3.8	6.5	0
	September	25	83.3%	3.7	10.3	0
	October	27	87.1%	2.2	4.7	0
	November	30	100.0%	2.3	7.0	0
	December	29	93.5%	2.6	6.6	0
Annual		352	96.4%	3.4	10.3	0
2020	January	29	93.5%	1.9	4.5	0
	February	27	93.1%	1.5	5.2	0
	March	31	100.0%	1.4	7.7	0
	April	30	100.0%	1.8	6.3	0
	May	31	100.0%	1.3	4.8	0
	June	24	80.0%	2.7	7.5	0
	July	31	100.0%	3.1	5.4	0
	August	31	100.0%	4.0	7.3	0
	September	30	100.0%	3.4	5.5	0
	October	27	87.1%	3.5	8.5	0
	November	30	100.0%	4.6	9.3	0
	December	31	100.0%	4.2	6.7	0
Annual		352	96.2%	2.8	9.3	0

Observations in µg/m3

FIGURE 4.1.6.1 - NALCOR BOUNDARY ANNUAL $PM_{2.5}$ CONCENTRATIONS



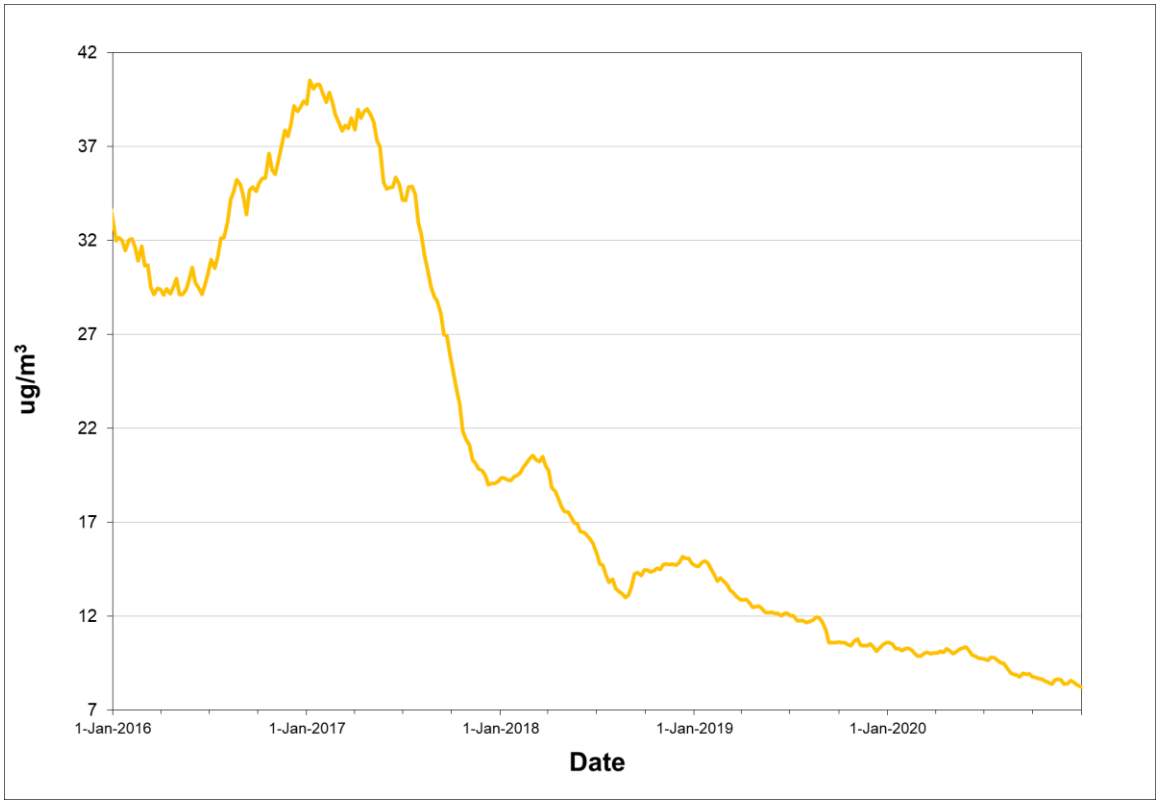
Rolling annual average of daily concentrations

TABLE 4.1.6.2 - NALCOR BOUNDARY TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2019	January	4	80.0%	12.0	17.0	0
	February	5	100.0%	14.1	29.2	0
	March	5	100.0%	7.9	11.5	0
	April	5	100.0%	7.9	14.6	0
	May	5	100.0%	7.1	15.7	0
	June	5	100.0%	14.0	21.1	0
	July	5	100.0%	8.7	13.6	0
	August	6	100.0%	15.0	32.4	0
	September	5	100.0%	11.2	19.8	0
	October	5	100.0%	9.7	13.2	0
	November	5	100.0%	10.5	20.5	0
	December	5	100.0%	12.2	35.3	0
Annual		60	98.4%	10.6	35.3	0
2020	January	5	100.0%	7.2	11.3	0
	February	5	100.0%	9.8	12.0	0
	March	5	100.0%	9.6	11.9	0
	April	5	100.0%	9.1	13.5	0
	May	4	80.0%	8.9	12.9	0
	June	5	100.0%	6.5	13.0	0
	July	5	100.0%	7.8	14.2	0
	August	6	100.0%	6.6	11.3	0
	September	5	100.0%	9.7	13.7	0
	October	5	100.0%	6.4	8.5	0
	November	5	100.0%	9.2	20.0	0
	December	5	100.0%	10.0	13.3	0
Annual		60	98.4%	8.2	20.0	0

Observations in µg/m3

FIGURE 4.1.6.2 - NALCOR BOUNDARY ANNUAL TPM CONCENTRATIONS

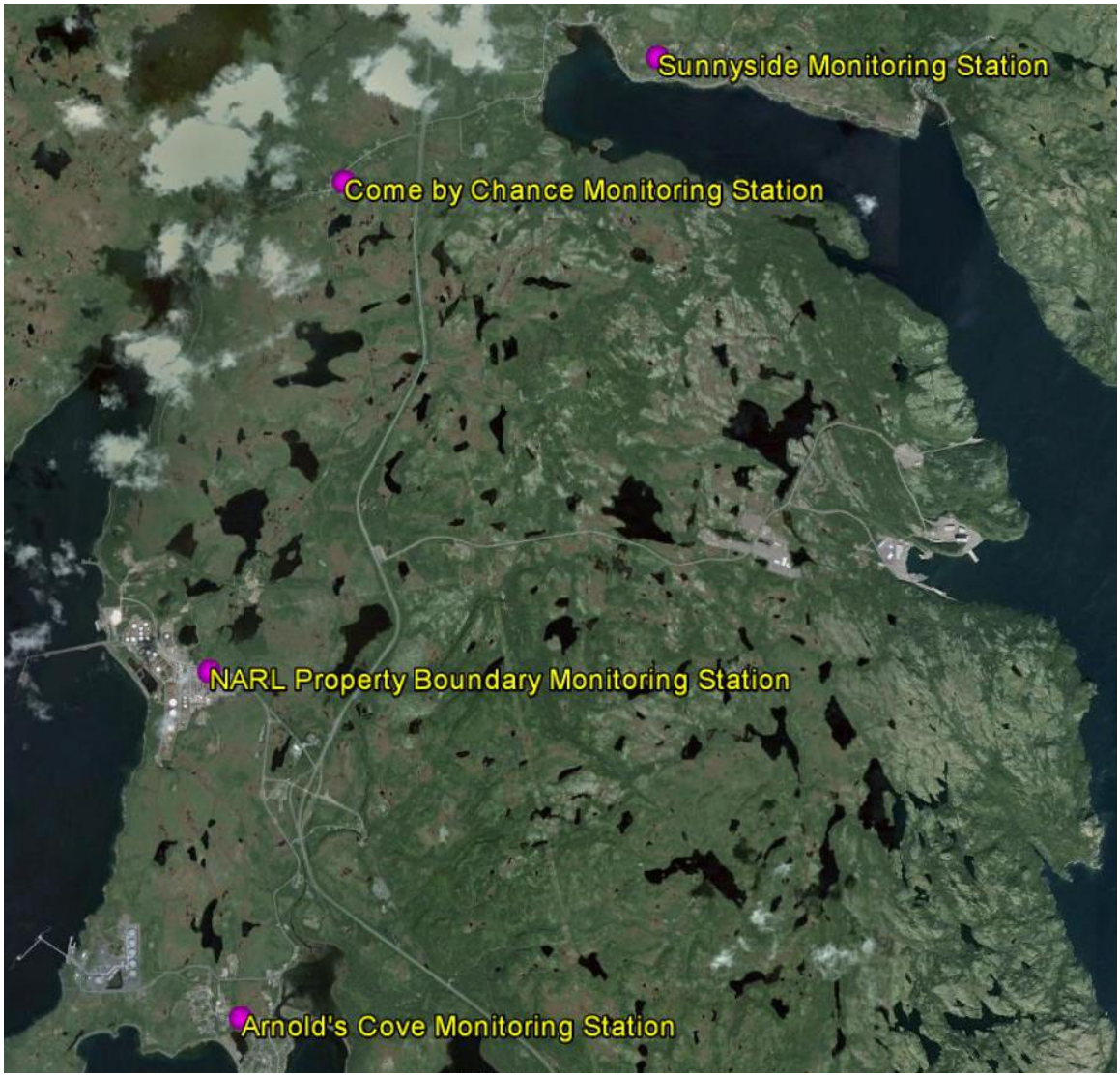


Rolling annual average of daily concentrations

4.2 North Atlantic Refining Limited

North Atlantic Refining Limited (NARL) operated monitoring stations at four locations in 2020. These stations are installed to monitor the air quality near North Atlantic's refinery in Come-by-Chance and are located at Arnold's Cove, Come-by-Chance, Sunnyside and the NARL property boundary. The locations of these monitoring stations are identified in Figure 4.2.1. In April 2020, the refinery went into warm idle owing to a drop in product demand caused by the Covid-19 pandemic. The refinery remained idle by years end.

FIGURE 4.2.1 - NARL AMBIENT MONITORING STATIONS



4.2.1 Arnold's Cove

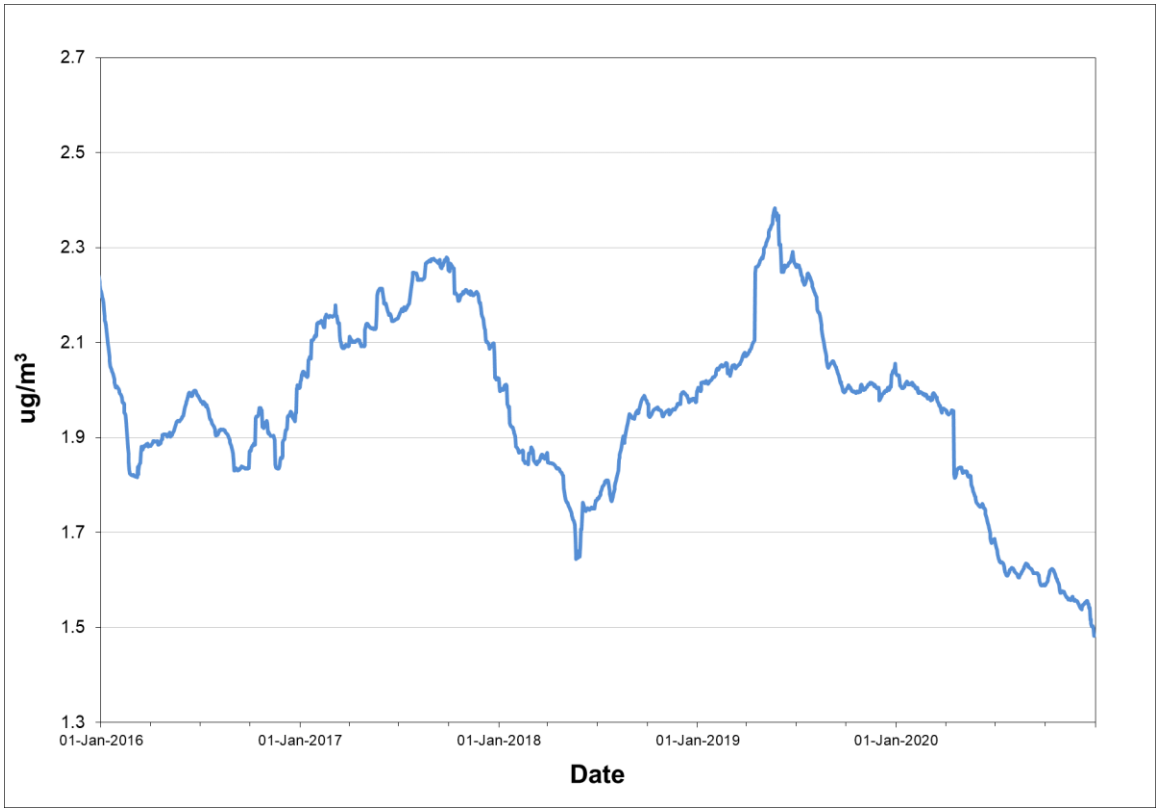
The Arnold's Cove station monitors the ambient levels of SO_2 and $PM_{2.5}$ on a continuous basis and is located near Tricentia Academy School. For both pollutants, the ambient air criteria were not exceeded on any occasion in 2020. Tables 4.2.1.1 through 4.2.1.2 provide summary information on the level of air contaminants measured at Arnold's Cove, while Figures 4.2.1.1 through 4.2.1.2 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.2.1.1 - ARNOLD'S COVE SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	739	99.3%	1.7	28.1	14.9	7.0	0	0	0
	February	666	99.1%	1.5	30.8	11.2	2.7	0	0	0
	March	738	99.2%	1.9	33.4	12.0	3.2	0	0	0
	April	714	99.2%	3.5	183.6	165.9	51.1	0	0	0
	May	738	99.2%	3.0	50.5	25.9	8.0	0	0	0
	June	710	98.6%	2.5	35.6	16.8	5.2	0	0	0
	July	738	99.2%	2.0	19.6	10.1	4.8	0	0	0
	August	741	99.6%	1.3	30.2	11.2	2.7	0	0	0
	September	712	98.9%	1.5	17.4	10.0	4.9	0	0	0
	October	739	99.3%	1.9	25.3	15.5	5.6	0	0	0
	November	716	99.4%	1.4	17.0	13.6	3.6	0	0	0
	December	737	99.1%	2.2	73.4	57.3	11.3	0	0	0
Annual		8688	99.2%	2.0	183.6	165.9	51.1	0	0	0
2020	January	736	98.9%	1.4	17.9	11.2	3.4	0	0	0
	February	693	99.6%	1.2	10.5	4.2	2.0	0	0	0
	March	738	99.2%	1.6	39.0	22.0	5.1	0	0	0
	April	710	98.6%	2.0	13.8	6.5	3.2	0	0	0
	May	694	93.3%	2.1	13.1	6.3	3.4	0	0	0
	June	666	92.5%	1.6	11.7	3.3	3.1	0	0	0
	July	703	94.5%	1.3	9.4	2.7	1.9	0	0	0
	August	700	94.1%	1.3	11.4	4.6	2.1	0	0	0
	September	664	92.2%	0.9	20.6	3.9	1.6	0	0	0
	October	697	93.7%	1.8	13.0	4.4	3.8	0	0	0
	November	715	99.3%	1.1	17.3	6.4	1.8	0	0	0
	December	738	99.2%	1.4	10.0	3.2	2.6	0	0	0
Annual		8454	96.2%	1.5	39.0	22.0	5.1	0	0	0

Observations in µg/m3

FIGURE 4.2.1.1 - ARNOLD'S COVE ANNUAL SO_2 CONCENTRATIONS



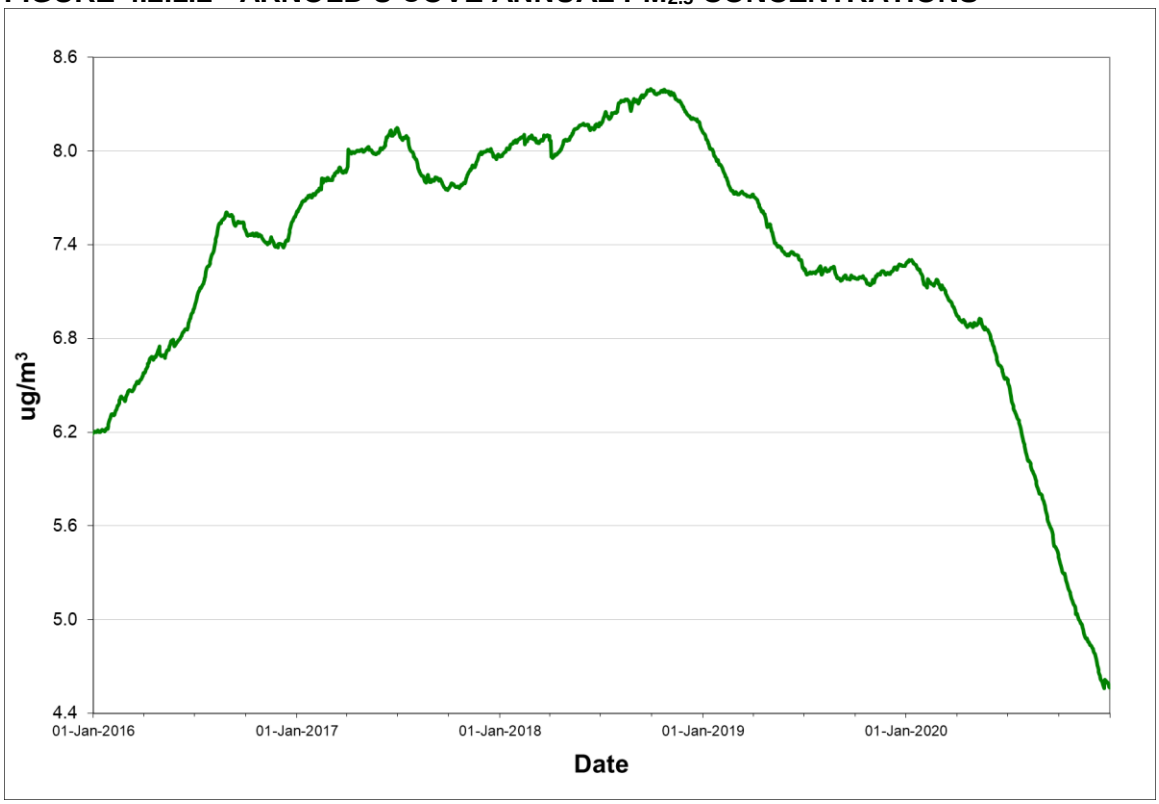
Rolling annual average of hourly concentrations

TABLE 4.2.1.2 - ARNOLD'S COVE $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	7.3	9.7	0
	February	25	89.3%	7.4	10.7	0
	March	31	100.0%	8.6	11.1	0
	April	26	86.7%	7.1	9.7	0
	May	27	87.1%	5.6	9.1	0
	June	30	100.0%	6.6	9.5	0
	July	25	80.6%	7.7	14.0	0
	August	31	100.0%	7.2	10.3	0
	September	30	100.0%	6.9	15.2	0
	October	27	87.1%	6.7	9.6	0
	November	30	100.0%	8.1	13.7	0
	December	31	100.0%	7.9	11.7	0
Annual		344	94.2%	7.3	15.2	0
2020	January	27	87.1%	6.1	10.2	0
	February	29	100.0%	7.0	25.0	0
	March	31	100.0%	6.4	17.9	0
	April	27	90.0%	6.1	9.1	0
	May	30	96.8%	5.0	12.9	0
	June	30	100.0%	3.4	7.3	0
	July	31	100.0%	2.7	5.7	0
	August	27	87.1%	3.3	6.1	0
	September	29	96.7%	2.3	5.1	0
	October	31	100.0%	2.6	8.3	0
	November	30	100.0%	5.1	9.5	0
	December	31	100.0%	5.0	24.9	0
Annual		353	96.4%	4.6	25.0	0

Observations in µg/m3

FIGURE 4.2.1.2 - ARNOLD'S COVE ANNUAL $PM_{2.5}$ CONCENTRATIONS



Rolling annual average of daily concentrations

4.2.2 Come by Chance

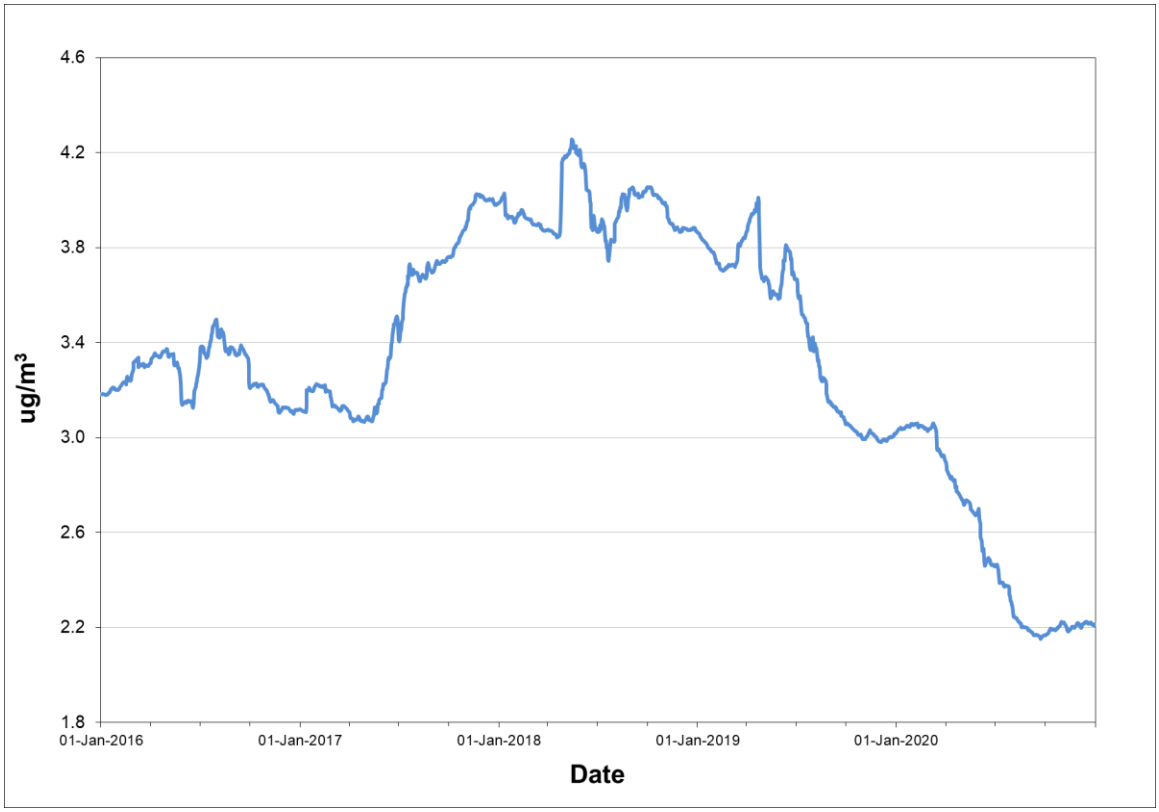
The Come by Chance station, located near the town office, monitors the ambient levels of SO_2 and $PM_{2.5}$ on a continuous basis. For both pollutants, the ambient air criteria were not exceeded on any occasion in 2020. Tables 4.2.2.1 through 4.2.2.2 provide summary information on the level of air contaminants measured at Come by Chance, while Figures 4.2.2.1 through 4.2.2.2 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.2.2.1 - COME BY CHANCE SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	739	99.3%	2.1	17.3	4.2	3.2	0	0	0
	February	630	93.8%	2.6	8.3	5.9	4.2	0	0	0
	March	738	99.2%	4.2	83.7	54.5	24.8	0	0	0
	April	715	99.3%	4.3	85.7	39.7	15.0	0	0	0
	May	738	99.2%	3.1	44.9	30.2	8.5	0	0	0
	June	714	99.2%	5.2	81.7	68.4	21.7	0	0	0
	July	739	99.3%	3.5	65.5	47.7	12.7	0	0	0
	August	742	99.7%	2.9	36.9	21.9	10.1	0	0	0
	September	695	96.5%	1.7	35.3	12.3	3.2	0	0	0
	October	741	99.6%	1.7	13.8	5.4	2.9	0	0	0
	November	713	99.0%	2.3	19.2	9.6	5.4	0	0	0
	December	738	99.2%	2.7	9.7	6.0	4.5	0	0	0
Annual		8642	98.7%	3.0	85.7	68.4	24.8	0	0	0
2020	January	741	99.6%	2.5	17.7	6.5	4.0	0	0	0
	February	693	99.6%	2.3	10.0	5.1	3.7	0	0	0
	March	739	99.3%	2.8	9.2	4.9	4.4	0	0	0
	April	711	98.8%	2.3	11.6	4.2	3.6	0	0	0
	May	707	95.0%	2.5	19.1	10.5	6.2	0	0	0
	June	630	87.5%	2.3	9.4	7.9	5.5	0	0	0
	July	701	94.2%	1.7	13.2	5.7	2.7	0	0	0
	August	702	94.4%	1.5	9.5	3.7	2.3	0	0	0
	September	661	91.8%	1.4	3.6	3.2	2.6	0	0	0
	October	697	93.7%	2.3	20.8	7.7	4.2	0	0	0
	November	713	99.0%	2.3	4.7	4.2	3.6	0	0	0
	December	738	99.2%	2.6	10.1	5.4	4.4	0	0	0
Annual		8433	96.0%	2.2	20.8	10.5	6.2	0	0	0

Observations in µg/m3

FIGURE 4.2.2.1 - COME BY CHANCE ANNUAL SO_2 CONCENTRATIONS



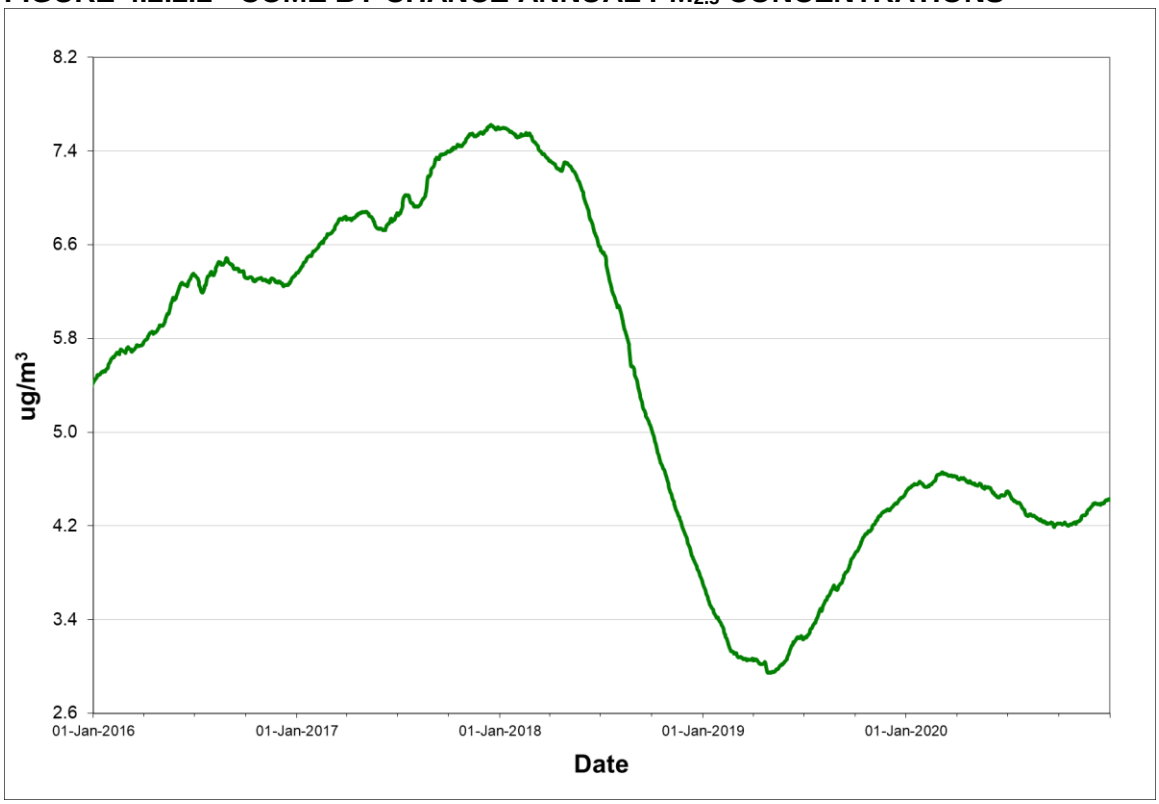
Rolling annual average of hourly concentrations

TABLE 4.2.2.2 - COME BY CHANCE $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	2.7	5.0	0
	February	25	89.3%	2.7	5.4	0
	March	31	100.0%	3.6	8.0	0
	April	26	86.7%	4.9	8.5	0
	May	31	100.0%	4.4	7.4	0
	June	30	100.0%	5.2	9.7	0
	July	31	100.0%	6.5	11.5	0
	August	31	100.0%	6.4	10.7	0
	September	30	100.0%	5.3	13.4	0
	October	27	87.1%	4.2	6.8	0
	November	30	100.0%	3.7	8.0	0
	December	26	83.9%	3.7	6.1	0
Annual		349	95.6%	4.5	13.4	0
2020	January	31	100.0%	3.4	5.9	0
	February	29	100.0%	4.0	9.4	0
	March	31	100.0%	3.4	8.5	0
	April	30	100.0%	4.2	8.3	0
	May	27	87.1%	4.0	8.3	0
	June	30	100.0%	4.9	8.0	0
	July	31	100.0%	4.7	7.3	0
	August	31	100.0%	5.3	9.4	0
	September	30	100.0%	5.0	8.8	0
	October	31	100.0%	4.4	8.0	0
	November	26	86.7%	5.5	10.7	0
	December	31	100.0%	4.4	7.0	0
Annual		358	97.8%	4.4	10.7	0

Observations in µg/m3

FIGURE 4.2.2.2 - COME BY CHANCE ANNUAL $PM_{2.5}$ CONCENTRATIONS



Rolling annual average of daily concentrations

4.2.3 Sunnyside

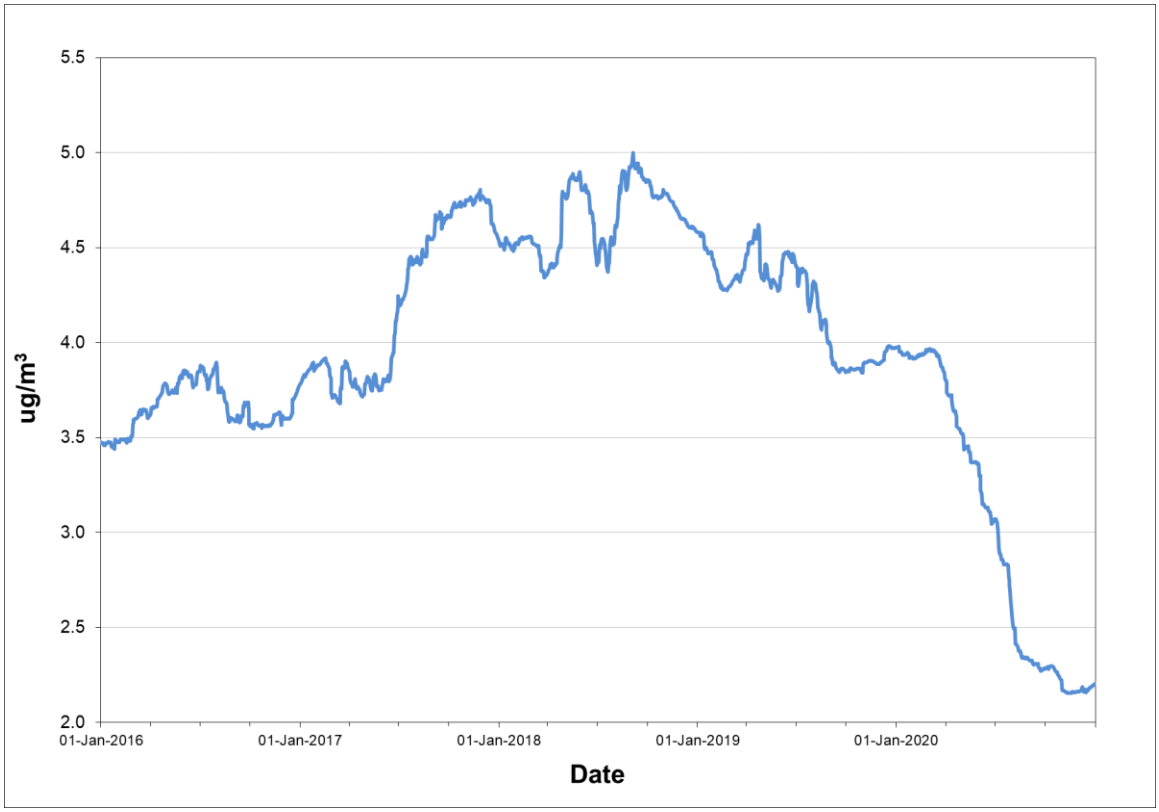
The Sunnyside station monitors are location near the town office and measure the ambient levels of SO_2 and $PM_{2.5}$ on a continuous basis. For SO_2, the ambient air criteria were not exceeded on any occasion in 2020, however once in November and once in December the $PM_{2.5}$ 24-hour ambient air criteria was exceeded. Tables 4.2.3.1 through 4.2.3.3 provide summary information on the level of air contaminants measured at Sunnyside, while Figures 4.2.3.1 through 4.2.3.3 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.2.3.1 - SUNNYSIDE SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	737	99.1%	2.4	70.6	41.7	9.2	0	0	0
	February	664	98.8%	2.3	48.7	19.8	6.0	0	0	0
	March	734	98.7%	4.2	114.3	59.2	13.6	0	0	0
	April	675	93.8%	6.4	67.5	56.0	22.0	0	0	0
	May	737	99.1%	4.4	74.2	54.7	27.6	0	0	0
	June	712	98.9%	6.0	123.3	108.1	29.1	0	0	0
	July	737	99.1%	6.8	75.5	63.9	25.4	0	0	0
	August	737	99.1%	5.6	146.2	79.3	31.5	0	0	0
	September	712	98.9%	2.4	25.1	20.9	7.4	0	0	0
	October	737	99.1%	2.8	18.0	12.7	5.4	0	0	0
	November	713	99.0%	2.1	54.6	32.2	18.7	0	0	0
	December	729	98.0%	2.2	53.3	33.6	10.0	0	0	0
Annual		8624	98.4%	4.0	146.2	108.1	31.5	0	0	0
2020	January	736	98.9%	1.7	11.2	6.0	3.0	0	0	0
	February	573	82.3%	2.7	21.2	14.5	8.0	0	0	0
	March	736	98.9%	2.6	18.0	12.1	5.3	0	0	0
	April	703	97.6%	2.7	12.9	6.9	3.7	0	0	0
	May	694	93.3%	2.5	18.6	8.1	3.4	0	0	0
	June	619	86.0%	2.4	12.3	5.6	3.0	0	0	0
	July	706	94.9%	1.5	11.9	5.4	2.9	0	0	0
	August	703	94.5%	2.4	11.4	5.3	3.5	0	0	0
	September	667	92.6%	1.8	16.8	6.1	2.8	0	0	0
	October	691	92.9%	2.1	6.6	5.9	4.8	0	0	0
	November	712	98.9%	1.4	3.8	2.8	2.4	0	0	0
	December	739	99.3%	2.7	5.4	5.3	4.6	0	0	0
Annual		8279	94.3%	2.2	21.2	14.5	8.0	0	0	0

Observations in µg/m3

FIGURE 4.2.3.1 - SUNNYSIDE ANNUAL SO_2 CONCENTRATIONS



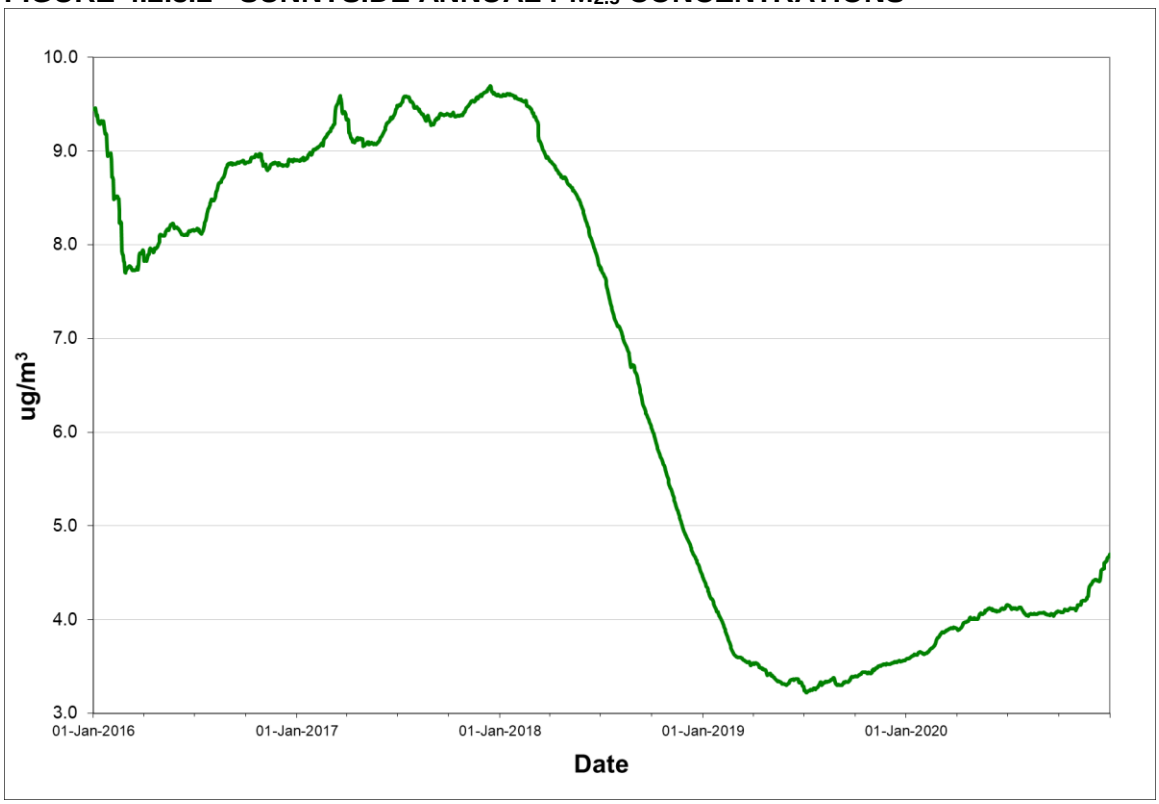
Rolling annual average of hourly concentrations

TABLE 4.2.3.2 - SUNNYSIDE $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	3.6	6.1	0
	February	28	100.0%	3.0	5.3	0
	March	31	100.0%	3.8	7.2	0
	April	26	86.7%	3.9	8.3	0
	May	31	100.0%	2.6	5.9	0
	June	30	100.0%	3.3	8.8	0
	July	31	100.0%	4.6	10.1	0
	August	31	100.0%	4.4	8.6	0
	September	30	100.0%	3.6	11.8	0
	October	20	64.5%	2.6	4.3	0
	November	30	100.0%	3.7	9.3	0
	December	31	100.0%	3.4	5.5	0
Annual		350	95.9%	3.6	11.8	0
2020	January	31	100.0%	4.3	7.0	0
	February	29	100.0%	5.2	11.6	0
	March	31	100.0%	4.8	9.6	0
	April	30	100.0%	5.0	9.5	0
	May	27	87.1%	3.9	9.9	0
	June	30	100.0%	3.8	6.3	0
	July	31	100.0%	3.7	5.8	0
	August	31	100.0%	4.4	7.3	0
	September	30	100.0%	3.7	10.7	0
	October	31	100.0%	3.6	12.0	0
	November	30	100.0%	7.1	27.8	1
	December	31	100.0%	6.9	32.0	1
Annual		362	98.9%	4.7	32.0	2

Observations in µg/m3

FIGURE 4.2.3.2 - SUNNYSIDE ANNUAL $PM_{2.5}$ CONCENTRATIONS



Rolling annual average of daily concentrations

4.2.4 NARL Property Boundary

The NARL Property Boundary station monitors the ambient levels of SO_2 and $PM_{2.5}$. Given its proximity to the process area of NARL, this station routinely records ambient levels of SO_2 and $PM_{2.5}$ in excess of the standards. In 2020 however, none of the SO_2 ambient air standards were exceeded. This was due to the temporary idling of the facility due to the Covid-19 pandemic and a significant drop in the sulphur content of the fuel being combusted at the refinery.

For $PM_{2.5}$, the monitor recorded one exceedance of the 24-hour ambient standard in December 2020.

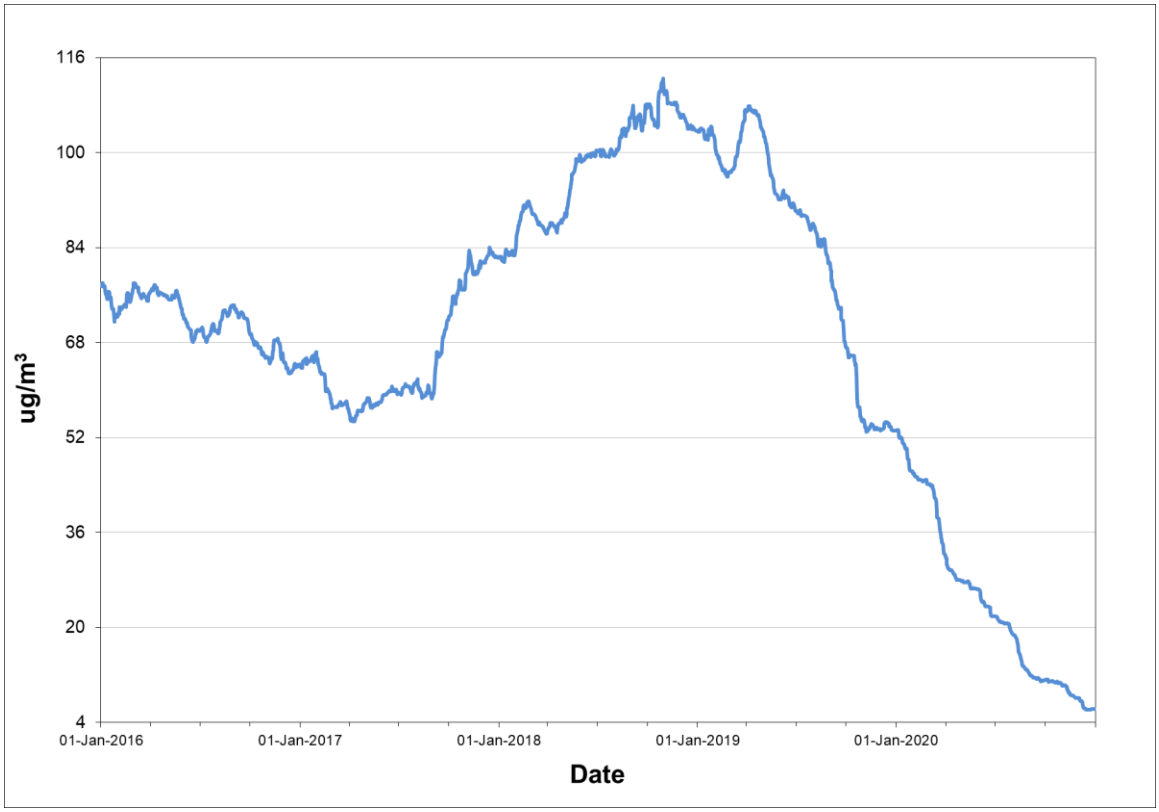
Tables 4.2.4.1 through 4.2.4.2 provide summary information on the level of air contaminants measured at NARL Property Boundary, while Figures 4.2.4.1 and 4.2.4.2 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.2.4.1 - NARL BOUNDARY SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	739	99.3%	88.1	1516.0	1460.8	612.7	6	8	2
	February	602	89.6%	36.9	825.8	480.5	268.7	0	0	0
	March	719	96.6%	150.3	1118.6	976.4	671.1	6	13	6
	April	717	99.6%	58.5	504.1	438.2	342.5	0	0	1
	May	736	98.9%	24.4	741.2	558.2	194.2	0	0	0
	June	712	98.9%	60.3	998.4	908.7	296.0	2	1	0
	July	740	99.5%	35.1	349.9	309.9	130.6	0	0	0
	August	725	97.4%	83.4	756.7	649.4	416.6	0	1	1
	September	703	97.6%	26.7	233.3	204.4	123.6	0	0	0
	October	741	99.6%	13.7	250.4	218.7	77.8	0	0	0
	November	714	99.2%	35.4	486.9	413.5	171.4	0	0	0
	December	738	99.2%	24.2	364.5	302.5	243.0	0	0	0
Annual		8586	98.0%	53.2	1516.0	1460.8	671.1	14	23	10
2020	January	732	98.4%	4.9	84.1	73.1	27.1	0	0	0
	February	631	90.7%	9.0	122.9	107.1	44.3	0	0	0
	March	736	98.9%	10.1	202.1	175.2	44.4	0	0	0
	April	626	86.9%	1.6	15.4	11.7	5.3	0	0	0
	May	682	91.7%	6.4	114.7	93.6	47.2	0	0	0
	June	603	83.8%	3.8	101.5	58.9	24.3	0	0	0
	July	686	92.2%	4.5	115.1	90.6	38.8	0	0	0
	August	691	92.9%	5.0	72.2	58.6	21.6	0	0	0
	September	638	88.6%	11.6	124.6	112.5	72.3	0	0	0
	October	682	91.7%	6.2	109.5	93.4	33.4	0	0	0
	November	713	99.0%	7.5	143.7	116.2	60.9	0	0	0
	December	739	99.3%	4.2	91.8	74.0	27.3	0	0	0
Annual		8159	92.9%	6.2	202.1	175.2	72.3	0	0	0

Observations in µg/m3

FIGURE 4.2.4.1 - NARL BOUNDARY ANNUAL SO_2 CONCENTRATIONS



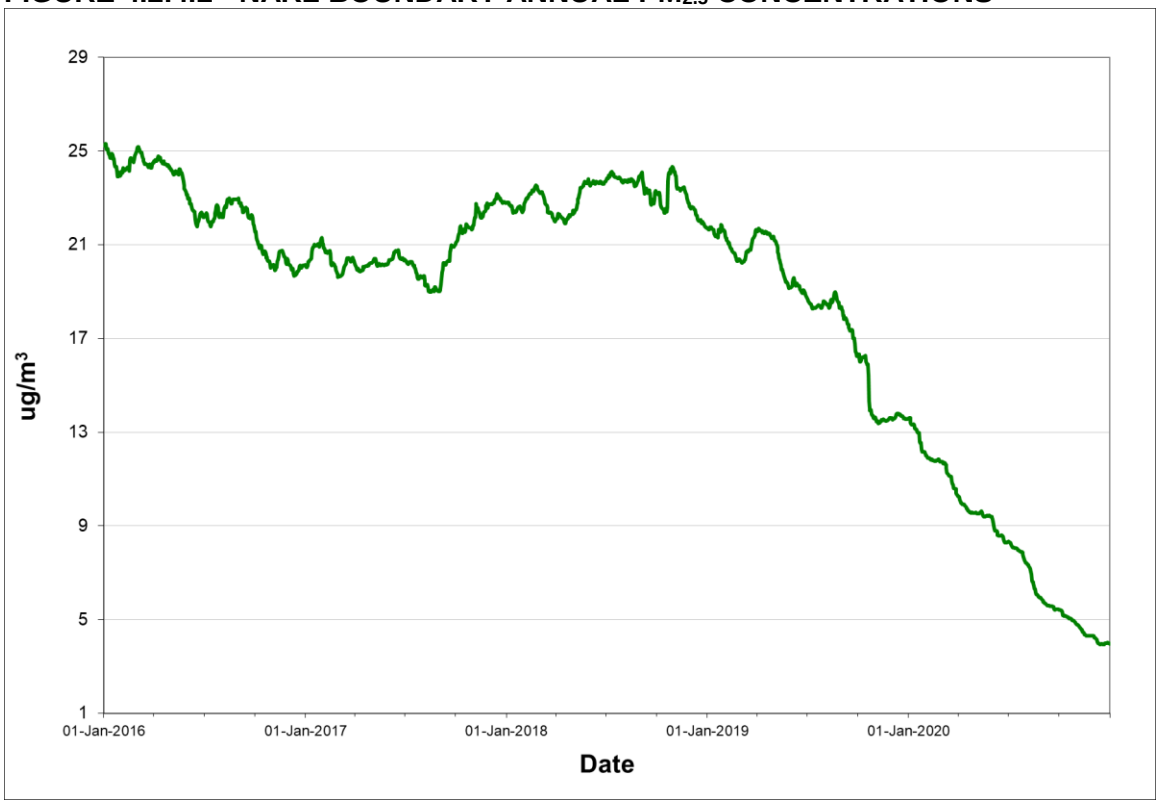
Rolling annual average of hourly concentrations

TABLE 4.2.4.2 - NARL BOUNDARY $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	21.9	131.0	7
	February	28	100.0%	11.3	37.5	3
	March	23	74.2%	25.7	73.1	9
	April	21	70.0%	16.6	52.3	2
	May	29	93.5%	5.7	35.7	2
	June	30	100.0%	14.5	53.8	8
	July	22	71.0%	11.8	33.2	4
	August	29	93.5%	21.1	93.3	7
	September	25	83.3%	7.4	30.1	1
	October	26	83.9%	8.4	48.0	1
	November	24	80.0%	11.4	33.5	3
	December	31	100.0%	7.9	37.6	1
Annual		319	87.4%	13.6	131.0	48
2020	January	31	100.0%	6.5	16.5	0
	February	29	100.0%	7.4	12.6	0
	March	31	100.0%	7.0	17.4	0
	April	26	86.7%	6.0	11.0	0
	May	30	96.8%	3.9	14.6	0
	June	29	96.7%	2.3	5.5	0
	July	28	90.3%	1.4	4.4	0
	August	29	93.5%	1.6	4.2	0
	September	28	93.3%	2.3	8.2	0
	October	30	96.8%	1.6	5.5	0
	November	30	100.0%	3.4	11.3	0
	December	31	100.0%	4.1	26.7	1
Annual		352	96.2%	4.0	26.7	1

Observations in µg/m3

FIGURE 4.2.4.2 - NARL BOUNDARY ANNUAL $PM_{2.5}$ CONCENTRATIONS



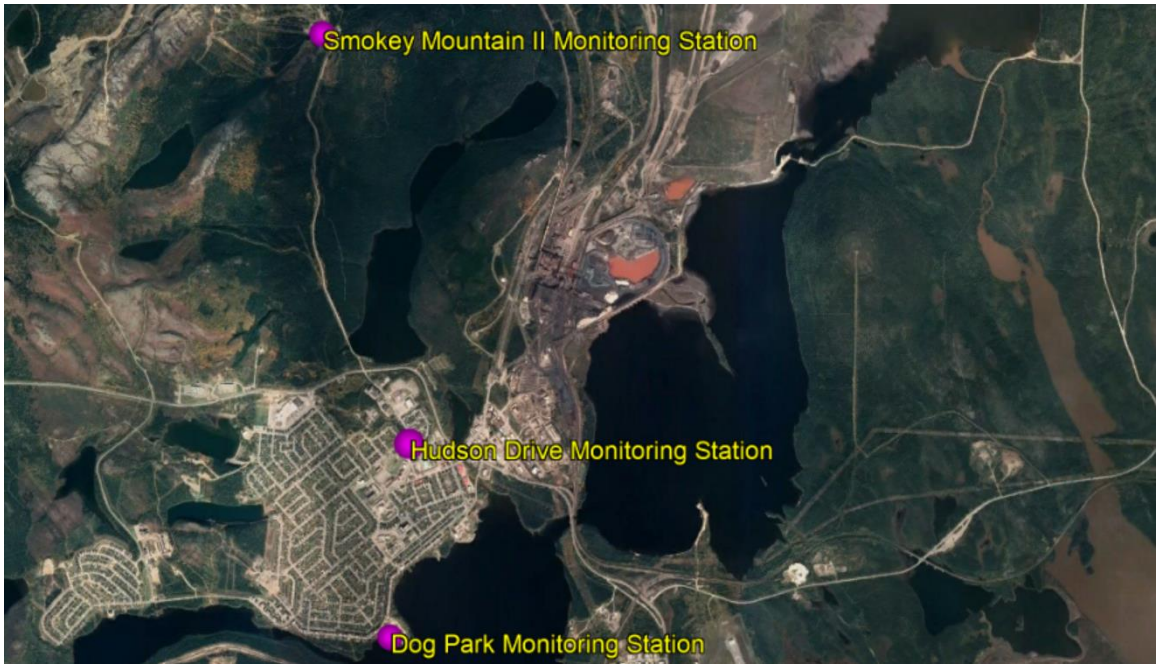
Rolling annual average of hourly concentrations

4.3 Iron Ore Company of Canada

The Iron Ore Company of Canada (IOCC) operated three monitoring stations in Labrador City in 2020, and they are located near the Dog Park, on Hudson Drive near the Firehall and on Smokey Mountain Road near the ski hill. The locations of these monitoring stations are identified in Figure 4.3.1. The Dog Park station was formerly known as the Indian Point station.

In 2013, IOCC, in conjunction with the then Environment Canada and the then Department of Environment and Conservation, became the first industrial operation in the province to operate an ozone monitor. The installation of the ozone monitor at the Hudson Drive (Firehall) location designated the station as a NAPS equivalent for the purpose of generating an hourly AQHI reading.

FIGURE 4.3.1 - IOCC AMBIENT MONITORING STATIONS



4.3.1 Dog Park

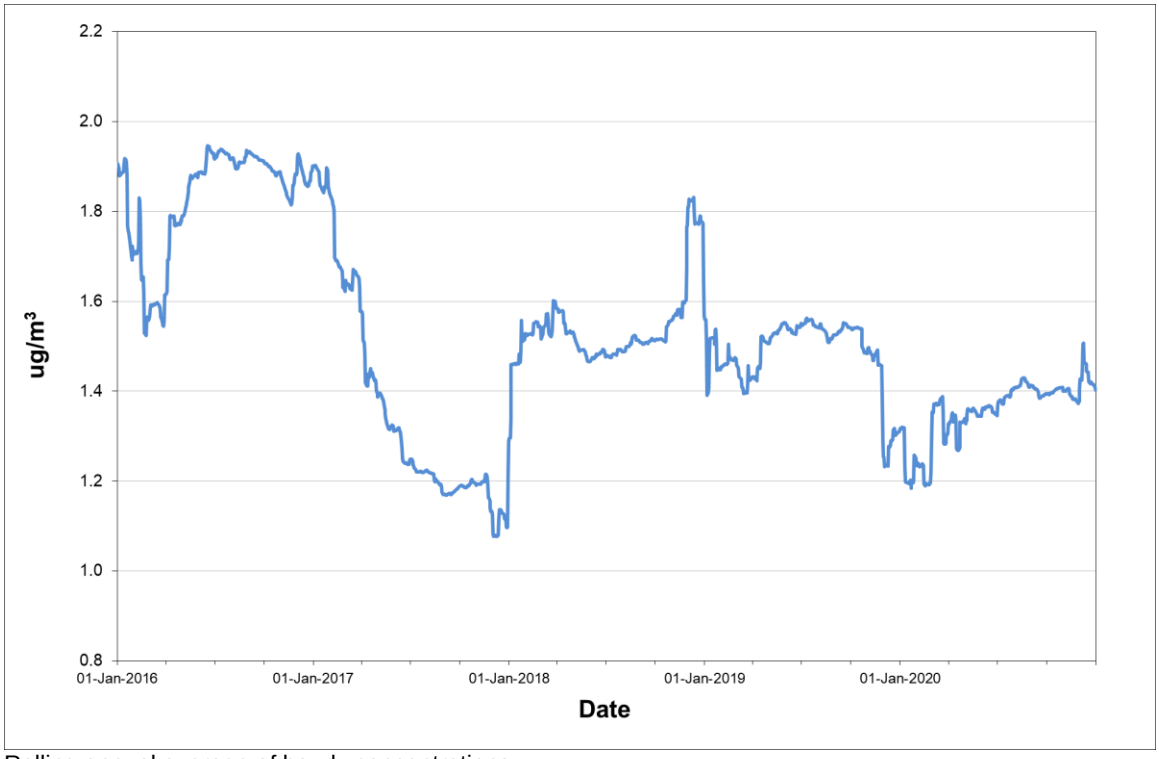
The Dog Park station, previously called the Indian Point station, monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ and TPM on a continuous basis. For all parameters except TPM, the ambient air criteria were not exceeded on any occasion in 2020. For TPM there was one exceedance of the 24-hour standard in April. Tables 4.3.1.1 through 4.3.1.4 provide summary information on the level of air contaminants measured at the Dog Park while Figures 4.3.1.1 through 4.3.1.4 present the graphical representation of the annual trends.

TABLE 4.3.1.1 - DOG PARK SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	743	99.9%	2.9	76.7	60.7	28.6	0	0	0
	February	641	95.4%	1.5	42.8	36.4	15.5	0	0	0
	March	744	100.0%	2.1	91.3	75.5	26.2	0	0	0
	April	713	99.0%	1.7	69.0	47.8	22.8	0	0	0
	May	732	98.4%	1.0	54.9	19.8	3.1	0	0	0
	June	700	97.2%	0.9	18.3	12.0	4.0	0	0	0
	July	742	99.7%	0.6	22.6	7.8	2.3	0	0	0
	August	744	100.0%	0.8	18.3	10.4	2.9	0	0	0
	September	701	97.4%	0.9	15.4	14.4	4.2	0	0	0
	October	744	100.0%	0.5	8.1	3.5	1.3	0	0	0
	November	720	100.0%	1.1	53.7	28.9	4.8	0	0	0
	December	741	99.6%	1.8	107.4	77.5	20.3	0	0	0
Annual		8665	98.9%	1.3	107.4	77.5	28.6	0	0	0
2020	January	737	99.1%	2.0	69.2	49.8	22.2	0	0	0
	February	692	99.4%	2.9	81.7	61.9	26.3	0	0	0
	March	738	99.2%	1.8	54.0	43.9	8.3	0	0	0
	April	711	98.8%	1.9	124.8	94.7	20.5	0	0	0
	May	744	100.0%	1.1	37.0	22.9	5.2	0	0	0
	June	708	98.3%	1.0	24.1	12.7	4.7	0	0	0
	July	738	99.2%	1.3	36.1	21.6	8.5	0	0	0
	August	743	99.9%	0.8	11.3	8.7	3.4	0	0	0
	September	718	99.7%	0.7	11.8	7.8	1.9	0	0	0
	October	742	99.7%	0.7	4.4	3.1	1.4	0	0	0
	November	720	100.0%	0.7	15.5	9.4	2.7	0	0	0
	December	740	99.5%	2.1	57.9	37.1	19.2	0	0	0
Annual		8731	99.4%	1.4	124.8	94.7	26.3	0	0	0

Observations in µg/m3

FIGURE 4.3.1.1 - DOG PARK ANNUAL SO_2 CONCENTRATIONS



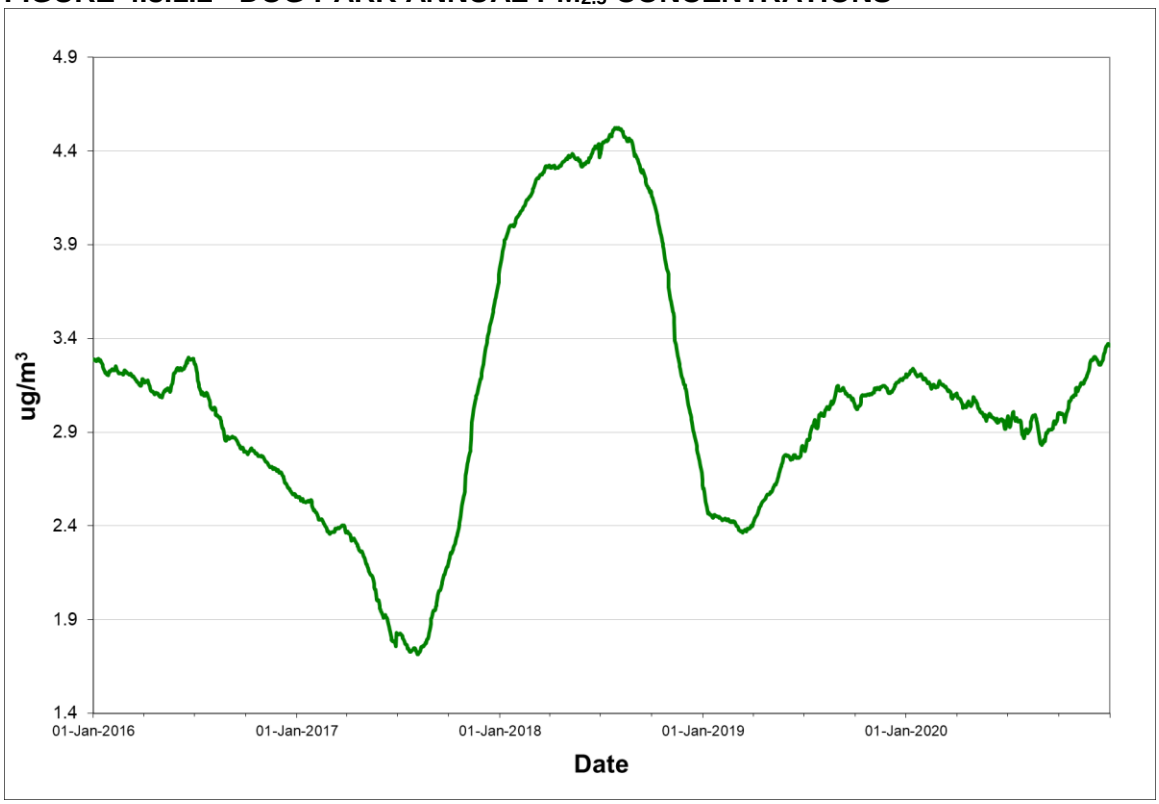
Rolling annual average of hourly concentrations

TABLE 4.3.1.2 - DOG PARK $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	24	77.4%	2.0	8.1	0
	February	28	100.0%	2.4	4.7	0
	March	31	100.0%	3.5	6.1	0
	April	30	100.0%	3.8	6.5	0
	May	30	96.8%	4.0	7.7	0
	June	27	90.0%	3.6	13.8	0
	July	29	93.5%	6.2	15.5	0
	August	31	100.0%	5.0	10.1	0
	September	24	80.0%	2.2	4.8	0
	October	31	100.0%	1.8	7.5	0
	November	26	86.7%	1.3	8.3	0
	December	25	80.6%	1.8	4.3	0
Annual		336	92.1%	3.2	15.5	0
2020	January	25	80.6%	1.8	4.0	0
	February	26	89.7%	2.1	6.1	0
	March	31	100.0%	2.8	6.6	0
	April	30	100.0%	3.6	12.1	0
	May	31	100.0%	2.9	9.9	0
	June	22	73.3%	3.5	11.2	0
	July	28	90.3%	5.3	12.7	0
	August	31	100.0%	4.5	11.7	0
	September	30	100.0%	4.1	11.8	0
	October	31	100.0%	2.9	14.2	0
	November	30	100.0%	3.7	13.8	0
	December	27	87.1%	2.8	8.2	0
Annual		342	93.4%	3.4	14.2	0

Observations in µg/m3

FIGURE 4.3.1.2 - DOG PARK ANNUAL $PM_{2.5}$ CONCENTRATIONS



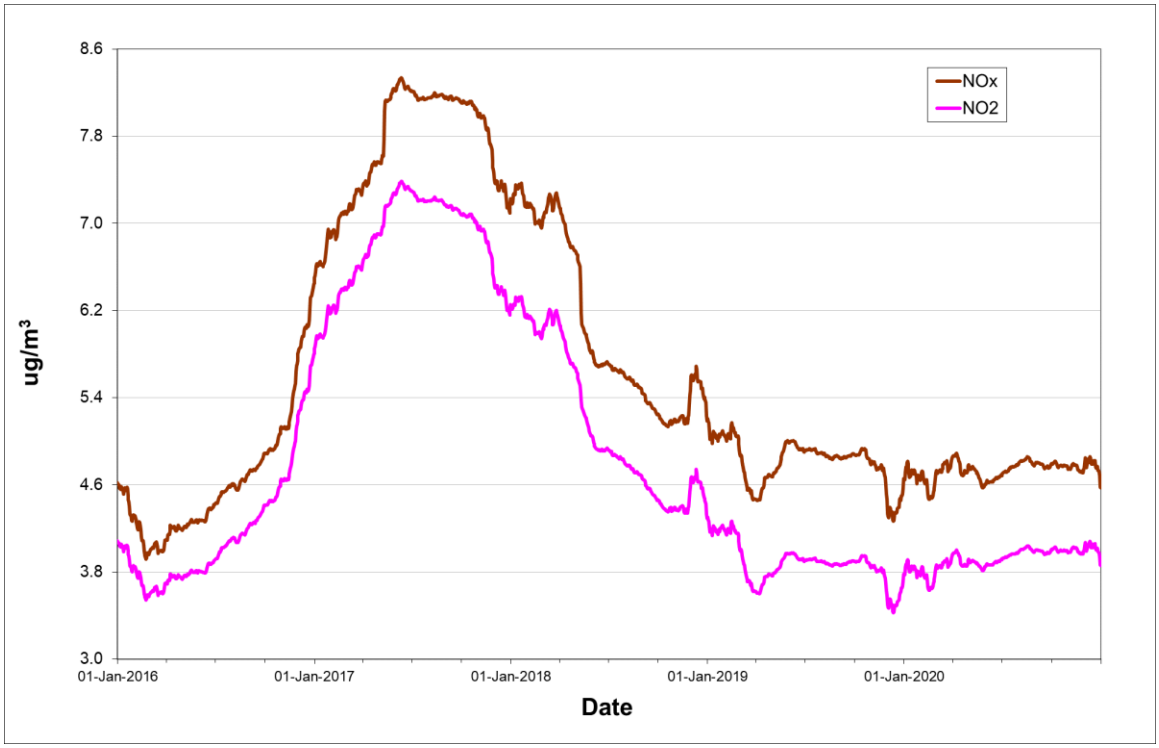
Rolling annual average of hourly concentrations

TABLE 4.3.1.3 - DOG PARK NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums				Exceedances	
						1-Hour		24-Hour		1-Hour	24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	743	99.9%	8.3	7.0	119.4	69.6	30.9	26.0	0	0
	February	642	95.5%	6.2	5.1	115.8	57.5	26.8	21.9	0	0
	March	744	100.0%	4.7	3.8	83.5	59.0	25.7	19.4	0	0
	April	714	99.2%	5.1	3.7	81.9	59.6	27.3	19.5	0	0
	May	732	98.4%	5.3	3.5	45.5	30.5	12.1	7.5	0	0
	June	677	94.0%	2.6	2.2	20.3	19.6	7.0	6.1	0	0
	July	742	99.7%	2.2	1.8	46.2	19.1	5.5	3.4	0	0
	August	744	100.0%	2.7	2.1	39.8	21.9	9.5	6.6	0	0
	September	701	97.4%	2.4	2.0	55.3	20.6	7.4	4.9	0	0
	October	744	100.0%	3.0	2.7	25.0	18.7	8.2	7.5	0	0
	November	720	100.0%	4.0	3.5	107.5	39.3	11.4	9.9	0	0
	December	741	99.6%	9.3	7.9	138.8	67.1	40.7	29.3	0	0
Annual		8644	98.7%	4.7	3.8	138.8	69.6	40.7	29.3	0	0
2020	January	737	99.1%	8.1	6.9	108.4	58.2	31.0	26.9	0	0
	February	693	99.6%	6.8	5.9	55.0	49.8	20.1	17.2	0	0
	March	741	99.6%	6.6	5.2	147.2	62.1	18.6	14.5	0	0
	April	711	98.8%	4.0	3.1	103.7	30.1	18.6	7.9	0	0
	May	744	100.0%	3.2	2.7	54.3	28.9	12.0	9.1	0	0
	June	707	98.2%	3.7	3.0	41.5	28.3	9.1	6.7	0	0
	July	735	98.8%	3.3	2.5	53.2	14.9	8.9	5.1	0	0
	August	741	99.6%	2.7	2.3	17.3	12.1	7.0	5.3	0	0
	September	718	99.7%	2.5	2.1	27.4	17.4	7.3	6.5	0	0
	October	742	99.7%	2.7	2.5	59.3	25.3	7.7	7.0	0	0
	November	718	99.7%	3.8	3.6	54.0	27.6	15.1	12.1	0	0
	December	735	98.8%	7.5	6.5	73.1	42.1	25.5	20.0	0	0
Annual		8722	99.3%	4.6	3.9	147.2	62.1	31.0	26.9	0	0

Observations in µg/m3

FIGURE 4.3.1.3 - DOG PARK ANNUAL NO_X / NO_2 CONCENTRATIONS



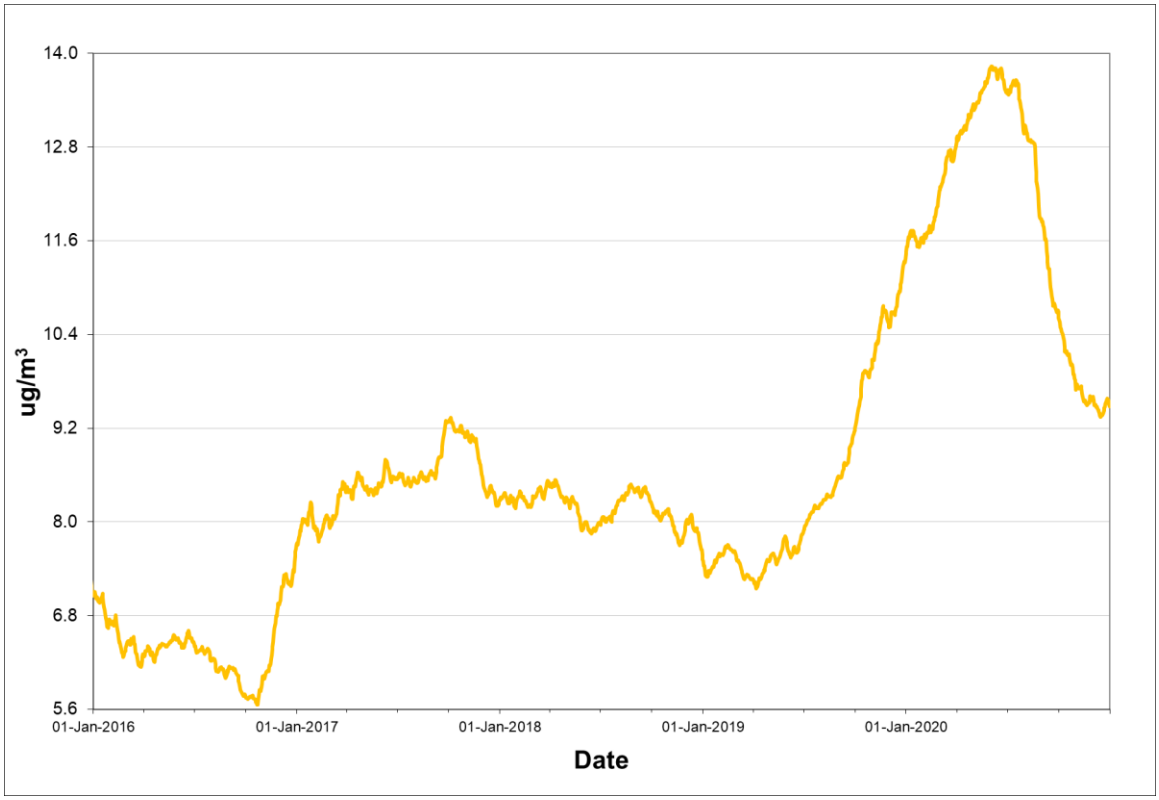
Rolling annual average of hourly concentrations

TABLE 4.3.1.4 - DOG PARK TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2019	January	24	77.4%	6.3	35.4	0
	February	26	92.9%	6.5	25.1	0
	March	31	100.0%	8.0	67.0	0
	April	30	100.0%	13.6	51.3	0
	May	30	96.8%	14.5	42.2	0
	June	29	96.7%	16.9	90.1	0
	July	31	100.0%	17.8	63.0	0
	August	30	96.8%	16.9	42.3	0
	September	29	96.7%	14.2	29.5	0
	October	30	96.8%	11.9	37.5	0
	November	28	93.3%	8.3	49.2	0
	December	30	96.8%	9.0	33.6	0
Annual		348	95.3%	11.4	90.1	0
2020	January	26	83.9%	8.0	42.5	0
	February	28	96.6%	12.8	56.5	0
	March	30	96.8%	14.6	45.9	0
	April	30	100.0%	21.1	176.5	1
	May	31	100.0%	19.8	106.8	0
	June	22	73.3%	14.0	39.6	0
	July	31	100.0%	11.5	93.9	0
	August	29	93.5%	5.7	65.2	0
	September	29	96.7%	4.1	24.6	0
	October	26	83.9%	3.5	19.2	0
	November	30	100.0%	6.9	31.3	0
	December	31	100.0%	8.5	35.4	0
Annual		343	93.7%	9.5	176.5	1

Observations in µg/m3

FIGURE 4.3.1.4 - DOG PARK ANNUAL TPM CONCENTRATIONS



Rolling annual average of hourly concentrations

4.3.2 Hudson Drive (Firehall)

The Hudson Drive (Firehall) station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$, TPM and O_3 on a continuous basis. For SO_2, $PM_{2.5}$ and NO_2 the associated ambient air criteria were not exceeded on any occasion in 2020. The 24-hour TPM standard was exceeded six times in 2020, specifically once in March, four times in April and once in May. The 8-hour O_3 standard was exceeded on two-hundred-and-eight-four occasions in 2020, specifically:

Month	# of 8-Hour O_3 Exceedances
January	7
March	53
April	77
May	78
June	48
July	7
September	1
November	1
December	12

Tables 4.3.2.1 through 4.3.2.5 provide summary information on the level of air contaminants measured at Hudson Drive (Firehall) while Table 4.3.2.6 provides the AQHI levels for 2020. Figures 4.3.2.1 through 4.3.2.5 provide the graphical representation of the annual trends for each pollutant and Figure 4.3.2.6 provides the AQHI frequency distribution for 2020.

TABLE 4.3.2.1 - HUDSON DRIVE (FIREHALL) SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	722	97.0%	1.5	83.0	42.6	5.3	0	0	0
	February	661	98.4%	0.8	47.6	27.7	5.6	0	0	0
	March	744	100.0%	0.5	7.8	3.1	1.5	0	0	0
	April	512	71.1%	1.0	57.5	31.9	6.8	0	0	0
	May	744	100.0%	1.4	71.3	27.8	5.0	0	0	0
	June	698	96.9%	0.7	22.7	7.9	3.0	0	0	0
	July	742	99.7%	0.5	14.9	7.3	1.5	0	0	0
	August	739	99.3%	0.6	22.7	9.9	3.1	0	0	0
	September	702	97.5%	0.7	21.4	9.6	3.4	0	0	0
	October	744	100.0%	0.4	5.6	3.6	1.2	0	0	0
	November	720	100.0%	1.8	112.8	87.0	19.6	0	0	0
	December	744	100.0%	0.7	43.9	21.7	5.0	0	0	0
Annual		8472	96.7%	0.9	112.8	87.0	19.6	0	0	0
2020	January	744	100.0%	0.4	7.2	2.6	0.7	0	0	0
	February	693	99.6%	1.4	58.2	50.3	10.7	0	0	0
	March	736	98.9%	1.6	103.7	90.4	24.0	0	0	0
	April	720	100.0%	3.2	138.0	98.9	37.3	0	0	0
	May	744	100.0%	0.8	22.0	20.1	3.5	0	0	0
	June	708	98.3%	0.8	63.3	30.0	4.9	0	0	0
	July	738	99.2%	1.2	34.0	18.3	5.2	0	0	0
	August	733	98.5%	0.7	15.9	7.7	3.1	0	0	0
	September	712	98.9%	0.6	14.0	7.1	2.2	0	0	0
	October	743	99.9%	0.6	3.2	2.1	1.0	0	0	0
	November	719	99.9%	0.5	2.9	2.4	0.8	0	0	0
	December	740	99.5%	0.4	36.8	18.3	3.9	0	0	0
Annual		8730	99.4%	1.0	138.0	98.9	37.3	0	0	0

Observations in µg/m3

FIGURE 4.3.2.1 - HUDSON DRIVE (FIREHALL) ANNUAL SO_2 CONCENTRATIONS

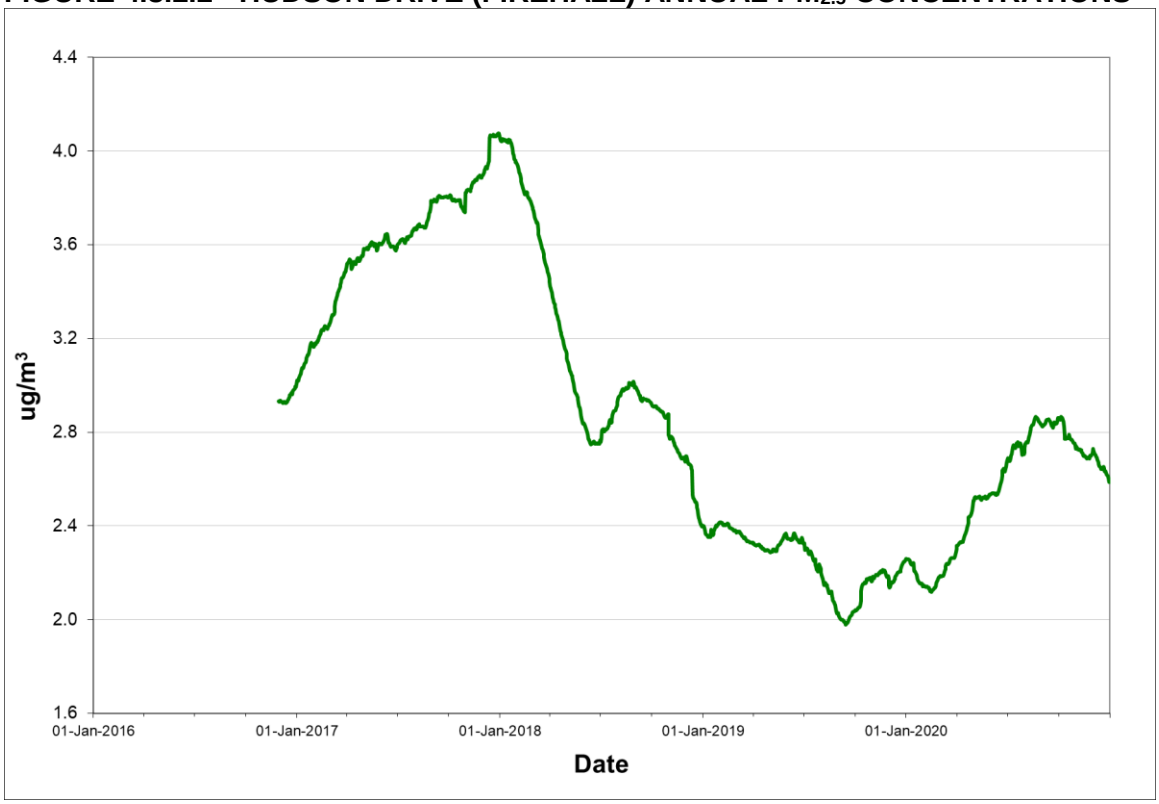
Rolling annual average of hourly concentrations

TABLE 4.3.2.2 - HUDSON DRIVE (FIREHALL) $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	24	77.4%	3.7	13.4	0
	February	28	100.0%	2.0	5.6	0
	March	28	90.3%	1.3	2.0	0
	April	30	100.0%	0.9	2.1	0
	May	30	96.8%	1.5	6.3	0
	June	29	96.7%	1.2	6.8	0
	July	31	100.0%	3.0	10.3	0
	August	23	74.2%	1.5	5.2	0
	September	26	86.7%	2.1	4.4	0
	October	31	100.0%	3.4	15.9	0
	November	29	96.7%	2.7	6.2	0
	December	31	100.0%	3.7	7.2	0
Annual		340	93.2%	2.3	15.9	0
2020	January	24	77.4%	2.1	3.8	0
	February	29	100.0%	2.4	6.2	0
	March	31	100.0%	2.7	5.3	0
	April	30	100.0%	3.2	8.8	0
	May	31	100.0%	1.8	4.4	0
	June	23	76.7%	3.1	7.8	0
	July	31	100.0%	3.3	9.1	0
	August	30	96.8%	3.2	8.3	0
	September	29	96.7%	2.5	6.9	0
	October	31	100.0%	2.1	8.6	0
	November	28	93.3%	2.2	6.8	0
	December	26	83.9%	2.4	9.0	0
Annual		343	93.7%	2.6	9.1	0

Observations in µg/m3

FIGURE 4.3.2.2 - HUDSON DRIVE (FIREHALL) ANNUAL $PM_{2.5}$ CONCENTRATIONS



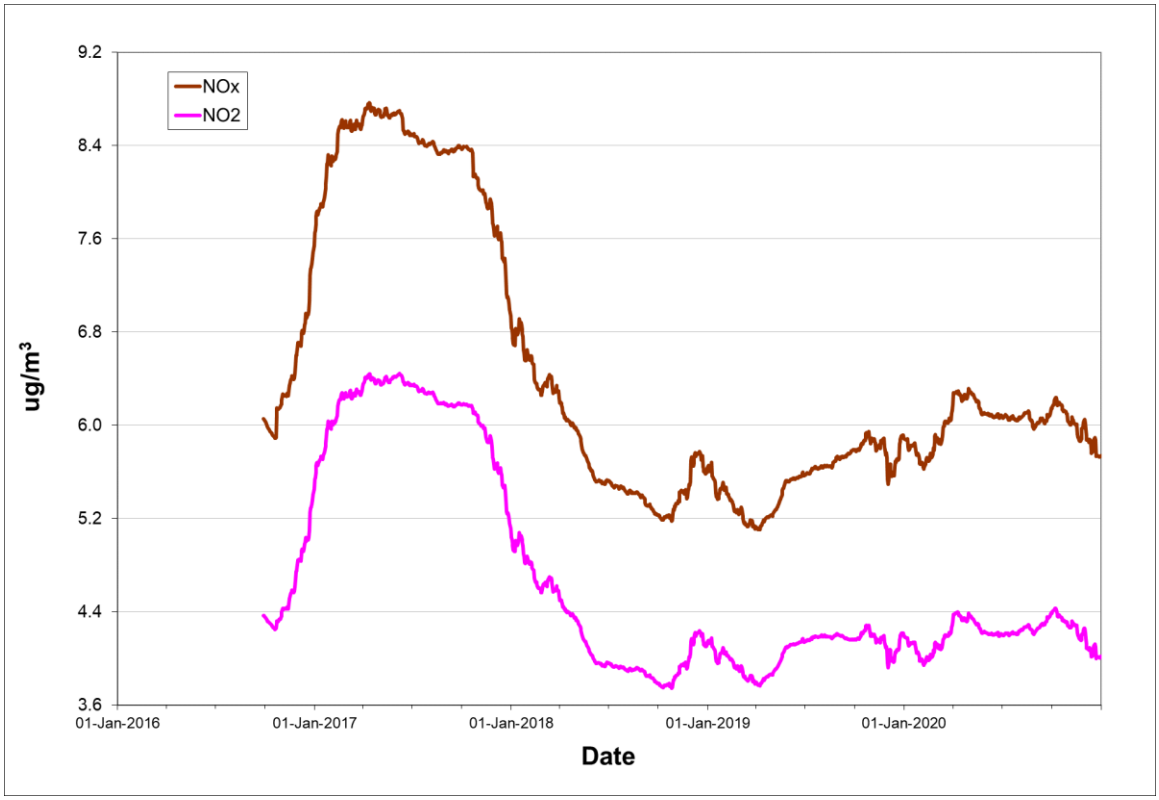
Rolling annual average of hourly concentrations

TABLE 4.3.2.3 - HUDSON DRIVE (FIREHALL) NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	722	97.0%	8.2	6.5	147.2	68.4	31.2	21.2	0	0
	February	659	98.1%	4.5	3.4	82.8	62.8	15.5	11.5	0	0
	March	744	100.0%	6.8	5.0	209.3	113.3	22.4	15.1	0	0
	April	720	100.0%	4.2	3.1	85.2	40.9	11.3	9.2	0	0
	May	744	100.0%	5.3	4.0	62.5	30.1	13.6	9.1	0	0
	June	654	90.8%	3.7	2.7	46.4	27.6	11.3	9.3	0	0
	July	742	99.7%	4.1	2.7	61.2	25.4	8.7	5.6	0	0
	August	737	99.1%	4.8	2.8	66.9	33.2	18.8	8.7	0	0
	September	703	97.6%	3.8	1.4	67.6	45.2	8.7	4.0	0	0
	October	743	99.9%	5.6	4.1	82.1	42.5	15.3	11.0	0	0
	November	720	100.0%	7.7	5.4	99.3	54.0	24.8	18.6	0	0
	December	570	76.6%	13.1	10.1	154.6	74.1	46.6	29.8	0	0
Annual		8458	96.6%	5.9	4.2	209.3	113.3	46.6	29.8	0	0
2020	January	0	0.0%								
	February	580	83.3%	7.7	5.4	148.1	66.6	27.9	22.1	0	0
	March	736	98.9%	9.5	6.9	178.4	72.4	31.9	21.2	0	0
	April	720	100.0%	5.5	3.8	98.6	48.0	31.3	19.5	0	0
	May	744	100.0%	3.0	2.3	43.0	23.7	7.9	6.5	0	0
	June	708	98.3%	3.8	2.7	72.5	24.3	8.2	4.9	0	0
	July	684	91.9%	3.5	2.6	60.1	22.4	6.4	4.5	0	0
	August	731	98.3%	4.1	2.9	144.7	24.5	8.5	6.3	0	0
	September	712	98.9%	5.6	3.3	156.0	40.1	16.1	7.7	0	0
	October	743	99.9%	5.0	3.1	228.6	56.3	16.0	5.9	0	0
	November	719	99.9%	7.2	4.9	108.4	43.5	31.2	17.7	0	0
	December	741	99.6%	8.4	6.3	73.8	57.7	28.9	24.2	0	0
Annual		7818	89.0%	5.7	4.0	228.6	72.4	31.9	24.2	0	0

Observations in µg/m3

FIGURE 4.3.2.3 - HUDSON DRIVE (FIREHALL) ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

TABLE 4.3.2.4 - HUDSON DRIVE (FIREHALL) TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2019	January	23	74.2%	8.4	25.7	0
	February	28	100.0%	7.9	24.2	0
	March	31	100.0%	10.7	71.5	0
	April	30	100.0%	20.9	124.7	1
	May	31	100.0%	39.3	247.6	5
	June	29	96.7%	26.2	174.0	2
	July	31	100.0%	11.9	52.8	0
	August	31	100.0%	12.4	71.2	0
	September	28	93.3%	5.8	30.0	0
	October	29	93.5%	12.0	55.7	0
	November	30	100.0%	7.6	69.0	0
	December	31	100.0%	8.3	59.7	0
Annual		352	96.4%	12.3	247.6	8
2020	January	26	83.9%	9.9	26.3	0
	February	29	100.0%	12.6	63.8	0
	March	31	100.0%	17.4	140.0	1
	April	30	100.0%	50.4	187.2	4
	May	30	96.8%	25.6	127.9	1
	June	23	76.7%	14.6	41.5	0
	July	30	96.8%	13.4	91.6	0
	August	27	87.1%	7.3	47.0	0
	September	30	100.0%	9.2	33.1	0
	October	30	96.8%	9.1	41.0	0
	November	29	96.7%	7.6	33.1	0
	December	24	77.4%	7.0	18.8	0
Annual		339	92.6%	13.0	187.2	6

Observations in µg/m3

FIGURE 4.3.2.4 - HUDSON DRIVE (FIREHALL) ANNUAL TPM CONCENTRATIONS

Rolling annual average of hourly concentrations

TABLE 4.3.2.5 - HUDSON DRIVE (FIREHALL) O_3 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2019	January	722	97.0%	72.7	92.8	89.1	0	3
	February	661	98.4%	76.3	95.4	92.3	0	11
	March	743	99.9%	78.9	105.0	99.9	0	22
	April	720	100.0%	78.8	103.2	97.4	0	22
	May	743	99.9%	56.2	93.8	85.7	0	0
	June	699	97.1%	49.7	89.3	77.9	0	0
	July	742	99.7%	50.9	103.6	95.9	0	1
	August	738	99.2%	45.1	97.3	83.1	0	0
	September	706	98.1%	49.1	82.0	69.3	0	0
	October	743	99.9%	55.9	93.0	74.5	0	0
	November	720	100.0%	72.3	101.0	98.2	0	10
	December	744	100.0%	77.5	103.0	100.5	0	32
Annual		8681	99.1%	63.6	105.0	100.5	0	101
2020	January	744	100.0%	55.0	98.1	94.5	0	7
	February	695	99.9%	48.4	71.4	70.4	0	0
	March	732	98.4%	88.8	123.2	120.9	0	53
	April	720	100.0%	101.0	127.3	120.9	0	77
	May	743	99.9%	104.7	147.3	137.2	0	78
	June	708	98.3%	85.0	111.8	104.1	0	48
	July	740	99.5%	56.9	108.3	96.7	0	7
	August	733	98.5%	51.8	102.6	83.2	0	0
	September	710	98.6%	53.2	100.5	88.0	0	1
	October	744	100.0%	60.7	86.9	81.7	0	0
	November	719	99.9%	71.1	99.7	91.7	0	1
	December	738	99.2%	68.5	101.2	99.9	0	12
Annual		8726	99.3%	70.5	147.3	137.2	0	284

Observations in µg/m3

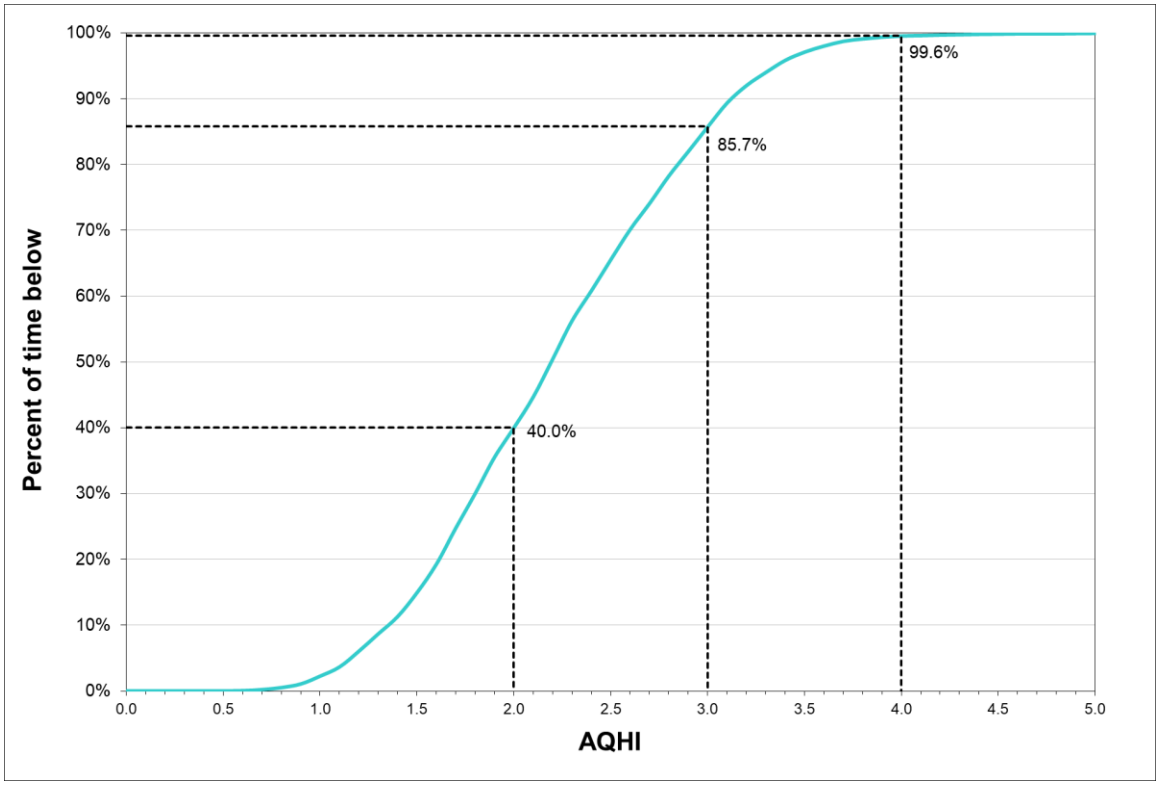
FIGURE 4.3.2.5 - HUDSON DRIVE (FIREHALL) ANNUAL O_3 CONCENTRATIONS

Rolling annual average of hourly concentrations

TABLE 4.3.2.6 - HUDSON DRIVE (FIREHALL) AQHI SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2019	January	621	83.5%	2.4	4.2
	February	655	97.5%	2.3	3.1
	March	709	95.3%	2.4	4.9
	April	699	97.1%	2.3	3.4
	May	710	95.4%	1.7	3.3
	June	633	87.9%	1.5	2.8
	July	740	99.5%	1.6	4.7
	August	570	76.6%	1.4	2.8
	September	630	87.5%	1.5	2.4
	October	744	100.0%	1.8	5.8
	November	714	99.2%	2.3	3.4
	December	571	76.7%	2.7	4.2
Annual		7996	91.3%	2.0	5.8
2020	January	0			
	February	579	83.2%	1.7	3.0
	March	729	98.0%	2.8	4.6
	April	716	99.4%	3.0	4.6
	May	740	99.5%	3.0	4.1
	June	566	78.6%	2.5	3.5
	July	678	91.1%	1.8	3.6
	August	728	97.8%	1.7	2.9
	September	706	98.1%	1.7	3.1
	October	744	100.0%	1.9	4.9
	November	695	96.5%	2.2	3.4
	December	638	85.8%	2.2	5.0
Annual		7519	85.6%	2.2	5.0

FIGURE 4.3.2.6 - HUDSON DRIVE (FIREHALL) AQHI FREQUENCY DISTRIBUTION 2020



e.g. 85.7% of the time the AQHI recorded was below 3.0

4.3.3 Smokey Mountain II

The Smokey Mountain II station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ and TPM on a continuous basis. For SO_2, NO_x / NO_2 and $PM_{2.5}$ the ambient air standards were not exceeded on any occasion in 2020. The 24-hour TPM ambient air standard was exceeded twice in May.

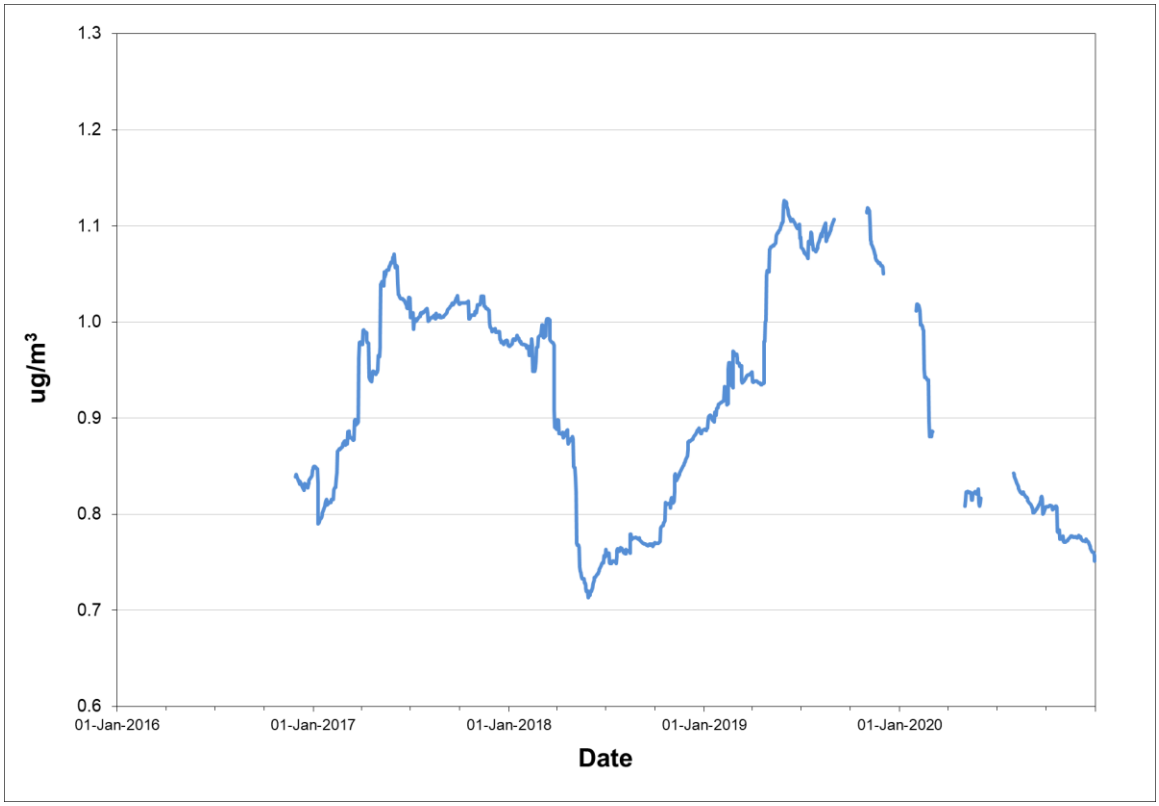
Tables 4.3.3.1 through 4.3.3.4 provide summary information on the level of air contaminants measured at Smokey Mountain II. Figures 4.3.3.1 through 4.3.3.4 provide the graphical representation of the annual trends for each pollutant.

TABLE 4.3.3.1 - SMOKEY MOUNTAIN II SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	744	100.0%	1.0	50.9	17.7	4.8	0	0	0
	February	664	98.8%	2.1	78.7	63.5	14.5	0	0	0
	March	744	100.0%	0.6	5.1	2.5	0.9	0	0	0
	April	720	100.0%	2.0	69.8	55.5	17.3	0	0	0
	May	744	100.0%	1.2	47.0	32.5	8.5	0	0	0
	June	699	97.1%	0.6	17.6	7.9	2.3	0	0	0
	July	642	86.3%	0.9	57.3	42.5	7.1	0	0	0
	August	0	0.0%							
	September	588	81.7%	0.8	42.2	25.4	6.7	0	0	0
	October	744	100.0%	1.0	40.6	33.2	10.0	0	0	0
	November	720	100.0%	0.6	18.7	9.1	2.3	0	0	0
	December	744	100.0%	0.8	12.5	6.0	2.4	0	0	0
Annual		7753	88.5%	1.0	78.7	63.5	17.3	0	0	0
2020	January	744	100.0%	0.7	17.4	10.3	1.7	0	0	0
	February	692	99.4%	0.6	31.9	12.8	2.6	0	0	0
	March	737	99.1%	1.1	39.4	17.1	5.9	0	0	0
	April	720	100.0%	1.0	42.9	32.2	5.4	0	0	0
	May	744	100.0%	1.0	30.7	13.6	3.5	0	0	0
	June	708	98.3%	0.9	24.9	19.7	4.2	0	0	0
	July	638	85.8%	1.0	19.5	14.8	5.0	0	0	0
	August	744	100.0%	0.5	9.1	3.6	1.6	0	0	0
	September	718	99.7%	0.8	4.9	3.1	1.3	0	0	0
	October	737	99.1%	0.6	2.5	1.8	0.9	0	0	0
	November	720	100.0%	0.6	3.8	1.7	1.0	0	0	0
	December	740	99.5%	0.5	10.4	4.9	1.3	0	0	0
Annual		8642	98.4%	0.8	42.9	32.2	5.9	0	0	0

Observations in µg/m3

FIGURE 4.3.3.1 - SMOKEY MOUNTAIN II ANNUAL SO_2 CONCENTRATIONS



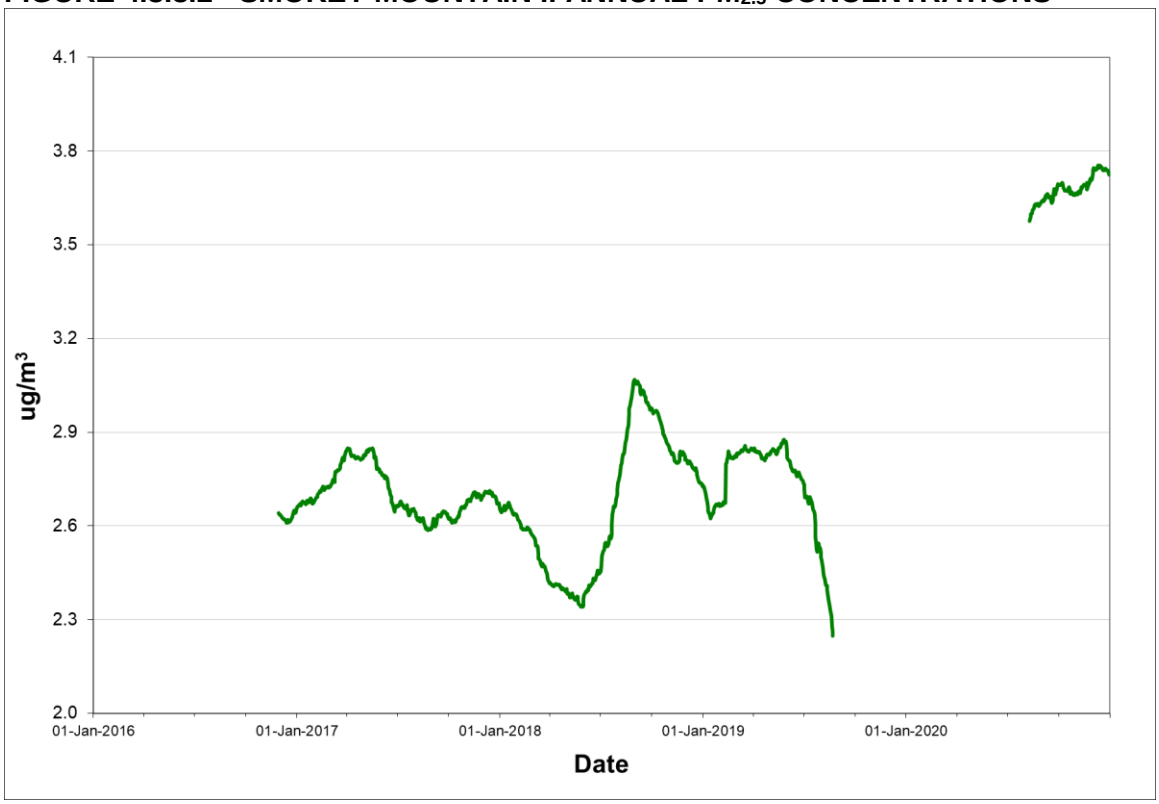
Rolling annual average of hourly concentrations

TABLE 4.3.3.2 - SMOKEY MOUNTAIN II $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	22	71.0%	1.6	6.7	0
	February	28	100.0%	4.4	43.7	1
	March	31	100.0%	2.7	3.8	0
	April	29	96.7%	2.3	4.8	0
	May	31	100.0%	2.6	4.9	0
	June	19	63.3%	1.0	2.4	0
	July	27	87.1%	3.1	12.3	0
	August	0	0.0%			
	September	24	80.0%	3.2	5.8	0
	October	23	74.2%	3.0	5.4	0
	November	28	93.3%	2.1	9.4	0
	December	31	100.0%	2.3	4.3	0
Annual		293	80.3%	2.6	43.7	1
2020	January	24	77.4%	2.3	4.5	0
	February	27	93.1%	3.5	4.9	0
	March	31	100.0%	4.1	6.4	0
	April	30	100.0%	4.3	8.4	0
	May	29	93.5%	4.8	10.0	0
	June	23	76.7%	5.3	11.6	0
	July	23	74.2%	3.7	6.5	0
	August	31	100.0%	4.9	9.4	0
	September	28	93.3%	3.9	7.9	0
	October	30	96.8%	2.7	4.9	0
	November	30	100.0%	2.8	4.6	0
	December	27	87.1%	2.2	5.5	0
Annual		333	91.0%	3.7	11.6	0

Observations in µg/m3

FIGURE 4.3.3.2 - SMOKEY MOUNTAIN II ANNUAL $PM_{2.5}$ CONCENTRATIONS



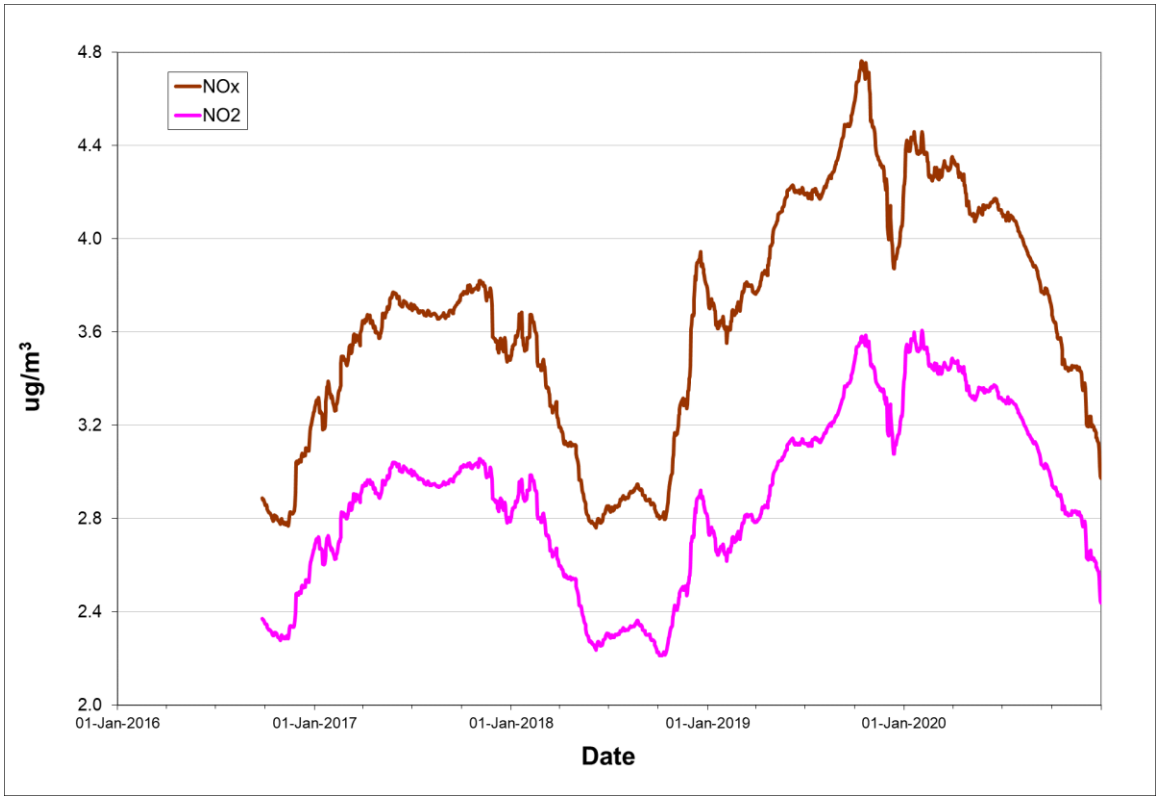
Rolling annual average of hourly concentrations

TABLE 4.3.3.3 - SMOKEY MOUNTAIN II NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums				Exceedances	
						1-Hour		24-Hour		1-Hour	24-Hour
				NO_X	NO_2	NO_X	NO_2	NO_X	NO_2	(>400)	(>200)
2019	January	744	100.0%	4.0	3.2	85.6	62.1	17.5	13.4	0	0
	February	664	98.8%	4.7	3.7	78.6	60.2	19.1	14.8	0	0
	March	741	99.6%	3.2	2.7	62.0	39.9	11.9	10.1	0	0
	April	720	100.0%	4.3	3.3	70.2	55.0	19.2	15.3	0	0
	May	744	100.0%	3.2	2.5	135.5	35.9	9.8	7.1	0	0
	June	700	97.2%	2.4	2.1	51.4	43.3	5.5	5.0	0	0
	July	642	86.3%	2.6	1.9	94.8	37.9	11.1	7.8	0	0
	August	0	0.0%								
	September	592	82.2%	4.2	3.4	52.3	26.4	10.0	9.4	0	0
	October	744	100.0%	5.7	4.0	122.4	32.5	24.4	12.0	0	0
	November	720	100.0%	3.9	3.1	302.3	78.3	17.7	7.8	0	0
	December	744	100.0%	8.0	6.9	87.2	62.7	30.7	26.0	0	0
Annual		7755	88.5%	4.2	3.4	302.3	78.3	30.7	26.0	0	0
2020	January	744	100.0%	5.5	4.7	144.2	65.4	34.6	25.1	0	0
	February	693	99.6%	3.9	3.0	173.1	67.8	19.1	16.3	0	0
	March	739	99.3%	3.7	2.9	69.0	38.9	12.9	9.7	0	0
	April	720	100.0%	2.2	2.1	57.2	45.6	7.6	6.7	0	0
	May	744	100.0%	3.0	2.3	281.7	52.1	14.1	6.4	0	0
	June	708	98.3%	2.3	1.9	27.0	17.9	5.2	4.8	0	0
	July	617	82.9%	1.4	1.2	20.1	16.7	5.5	4.2	0	0
	August	743	99.9%	2.3	1.8	28.6	26.4	5.6	4.8	0	0
	September	716	99.4%	2.1	1.5	24.6	22.2	10.0	8.4	0	0
	October	737	99.1%	2.5	2.1	35.4	23.7	7.7	6.6	0	0
	November	720	100.0%	2.9	2.6	40.1	39.1	11.0	10.4	0	0
	December	739	99.3%	3.7	3.2	70.4	59.9	14.2	12.4	0	0
Annual		8620	98.1%	3.0	2.4	281.7	67.8	34.6	25.1	0	0

Observations in µg/m3

FIGURE 4.3.3.3 - SMOKEY MOUNTAIN II ANNUAL NO_X / NO_2 CONCENTRATIONS



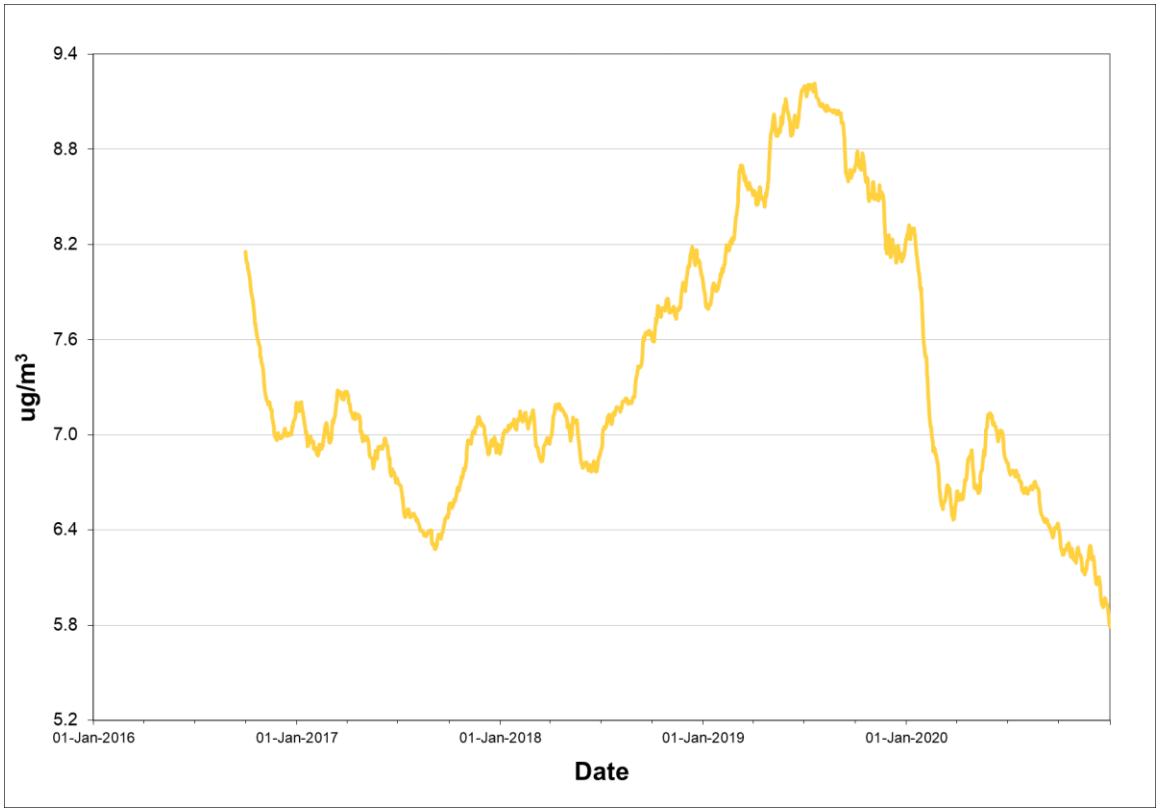
Rolling annual average of hourly concentrations

TABLE 4.3.3.4 - SMOKEY MOUNTAIN II TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2019	January	25	80.6%	8.5	48.3	0
	February	28	100.0%	13.9	71.0	0
	March	31	100.0%	11.1	76.2	0
	April	26	86.7%	11.6	138.2	2
	May	31	100.0%	7.4	50.5	0
	June	29	96.7%	9.5	47.8	0
	July	27	87.1%	10.5	63.0	0
	August	0	0.0%			
	September	24	80.0%	5.3	26.2	0
	October	31	100.0%	6.2	56.3	0
	November	30	100.0%	4.8	66.8	0
	December	31	100.0%	6.9	45.3	0
Annual		313	85.8%	8.2	138.2	2
2020	January	26	83.9%	3.4	28.0	0
	February	29	100.0%	3.3	34.9	0
	March	31	100.0%	9.9	50.1	0
	April	28	93.3%	14.9	104.8	0
	May	31	100.0%	11.6	233.5	2
	June	24	80.0%	6.2	21.3	0
	July	26	83.9%	7.3	34.3	0
	August	31	100.0%	5.2	19.0	0
	September	30	100.0%	4.9	21.7	0
	October	30	96.8%	4.3	60.2	0
	November	30	100.0%	4.7	40.6	0
	December	27	87.1%	2.8	26.9	0
Annual		343	93.7%	5.8	233.5	2

Observations in µg/m3

FIGURE 4.3.3.4 - SMOKEY MOUNTAIN II ANNUAL TPM CONCENTRATIONS



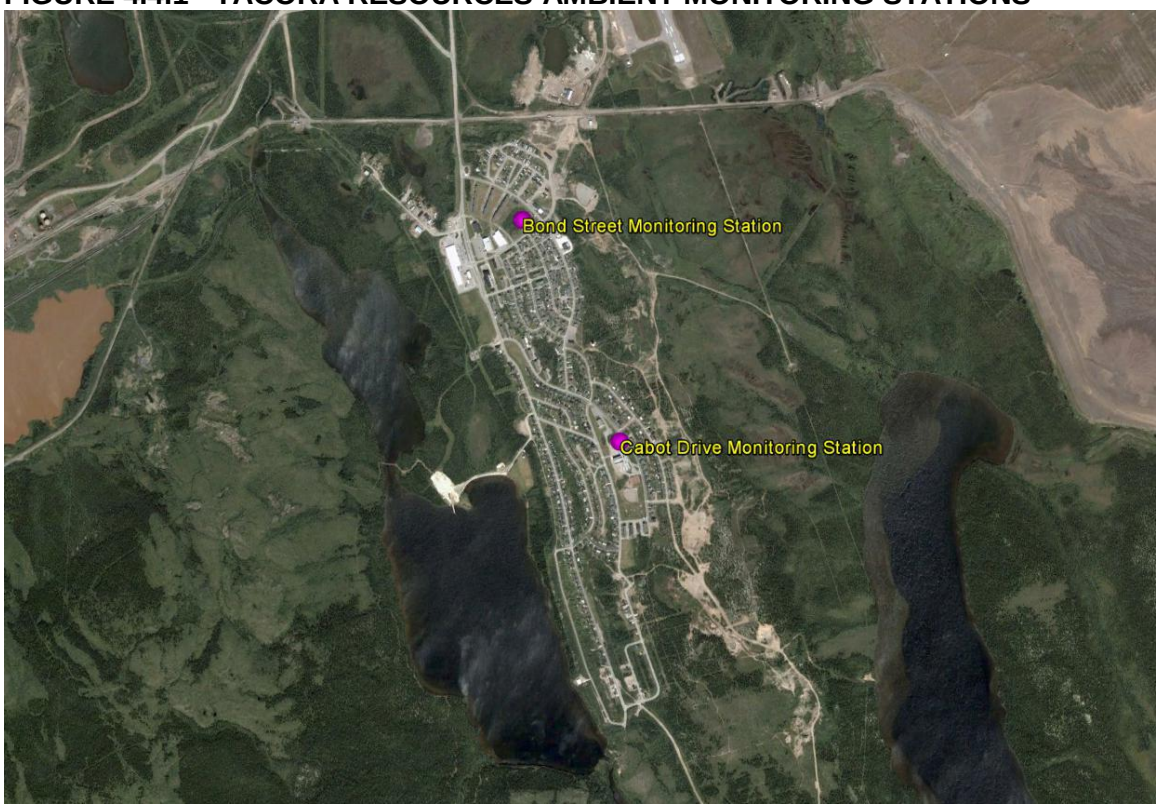
Rolling annual average of hourly concentrations

4.4 Tacora Resources

In February 2014, Wabush Mines indefinitely idled the processing facility, however ambient air monitoring continued as part of the site remediation. In July 2017, the facility was purchased by Tacora Resources for the purpose of restarting the operation, and concentrate production commenced in June 2019.

In 2020 there were two monitoring stations in operation in Wabush, namely on Bond Street near the Provincial Building and on Cabot Drive near the J. R. Smallwood School. These stations were installed to monitor the air quality near the iron ore mine, concentrator / processing facility and the tailings near Wabush. The locations of these monitoring stations are identified in Figure 4.4.1.

FIGURE 4.4.1 - TACORA RESOURCES AMBIENT MONITORING STATIONS



4.4.1 Bond Street

The Bond Street monitoring station is located near the Provincial Building and measured SO_2, $PM_{2.5}$ and TPM on a continuous basis in 2020. Upon agreement with the Province, monitoring for SO_2 was discontinued in April 2017 at the site, however with the restart of the mining operation in the summer 2019, monitoring for SO_2 was re-initialized.

In September 2018, a breach of the ambient monitoring data logging system resulted in data not being logged for an extended period; communication was re-established in November of that year. Both the SO_2 and $PM_{2.5}$ monitors did not record exceedances of the associated ambient air criteria on any occasion in 2020. The TPM monitor recorded two exceedances of the 24-hour standard, once in May and once in November.

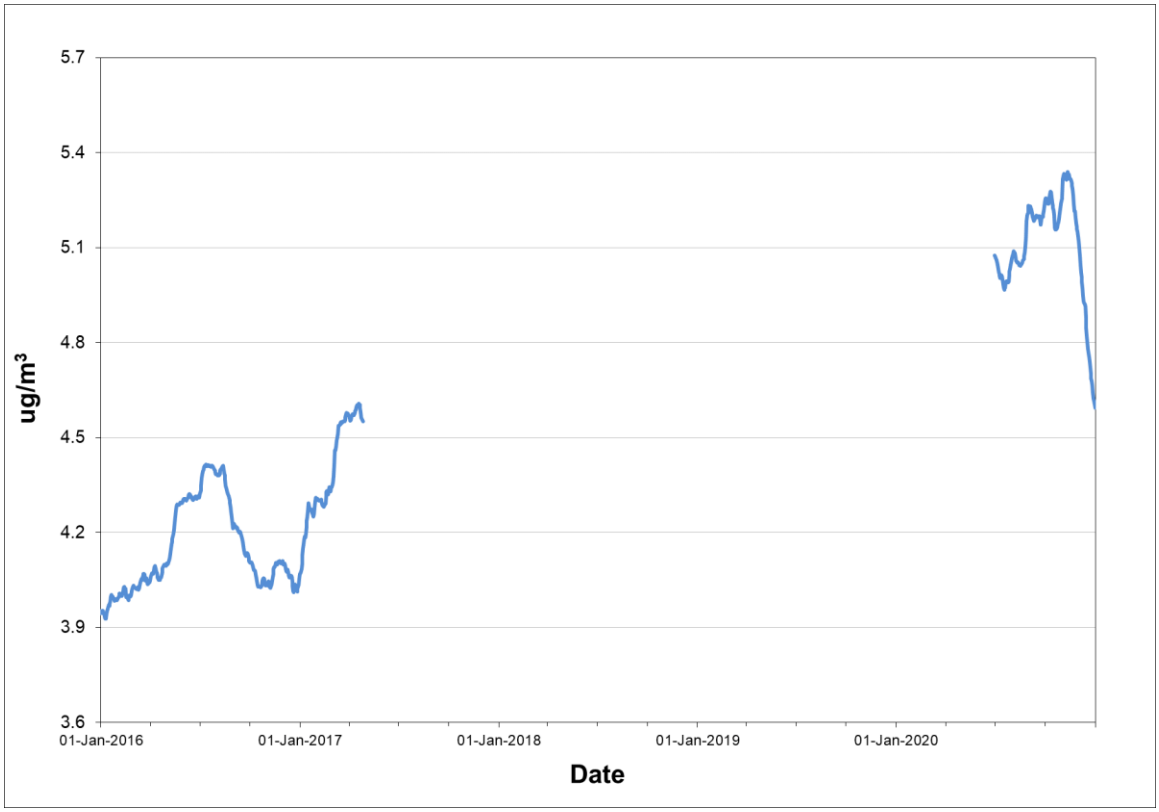
Tables 4.4.1.1 to 4.4.1.3 provide summary information of air contaminants measured at Bond Street, while Figures 4.4.1.1 to 4.4.1.3 provide a graphical representation of the annual trend of SO_2, $PM_{2.5}$ and TPM respectively.

TABLE 4.4.1.1 - BOND STREET SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January									
	February									
	March									
	April									
	May									
	June									
	July	101	13.6%	1.4	6.6	2.3	1.7	0	0	0
	August	670	90.1%	3.5	12.9	9.4	7.9	0	0	0
	September	559	77.6%	3.9	16.0	11.2	8.2	0	0	0
	October	742	99.7%	4.9	48.2	34.9	16.5	0	0	0
	November	720	100.0%	4.7	40.8	27.8	10.1	0	0	0
	December	742	99.7%	6.6	16.1	15.8	12.8	0	0	0
Annual		3534	40.3%		48.2	34.9	16.5	0	0	0
2020	January	640	86.0%	4.9	32.3	17.6	9.4	0	0	0
	February	64	9.2%	3.9	5.8	5.6	4.7	0	0	0
	March	740	99.5%	5.3	61.3	48.7	13.9	0	0	0
	April	720	100.0%	6.6	41.1	30.5	11.1	0	0	0
	May	689	92.6%	4.9	24.8	14.8	8.4	0	0	0
	June	704	97.8%	5.5	23.4	14.7	9.5	0	0	0
	July	717	96.4%	4.3	65.7	42.7	11.2	0	0	0
	August	744	100.0%	5.4	51.0	35.9	21.4	0	0	0
	September	715	99.3%	4.4	15.1	14.0	9.1	0	0	0
	October	743	99.9%	5.1	21.2	17.9	11.7	0	0	0
	November	664	92.2%	3.2	61.0	51.9	22.0	0	0	0
	December	707	95.0%	0.8	10.2	5.1	1.7	0	0	0
Annual		7847	89.3%	4.6	65.7	51.9	22.0	0	0	0

Observations in µg/m3

FIGURE 4.4.1.1 - BOND STREET ANNUAL SO_2 CONCENTRATIONS



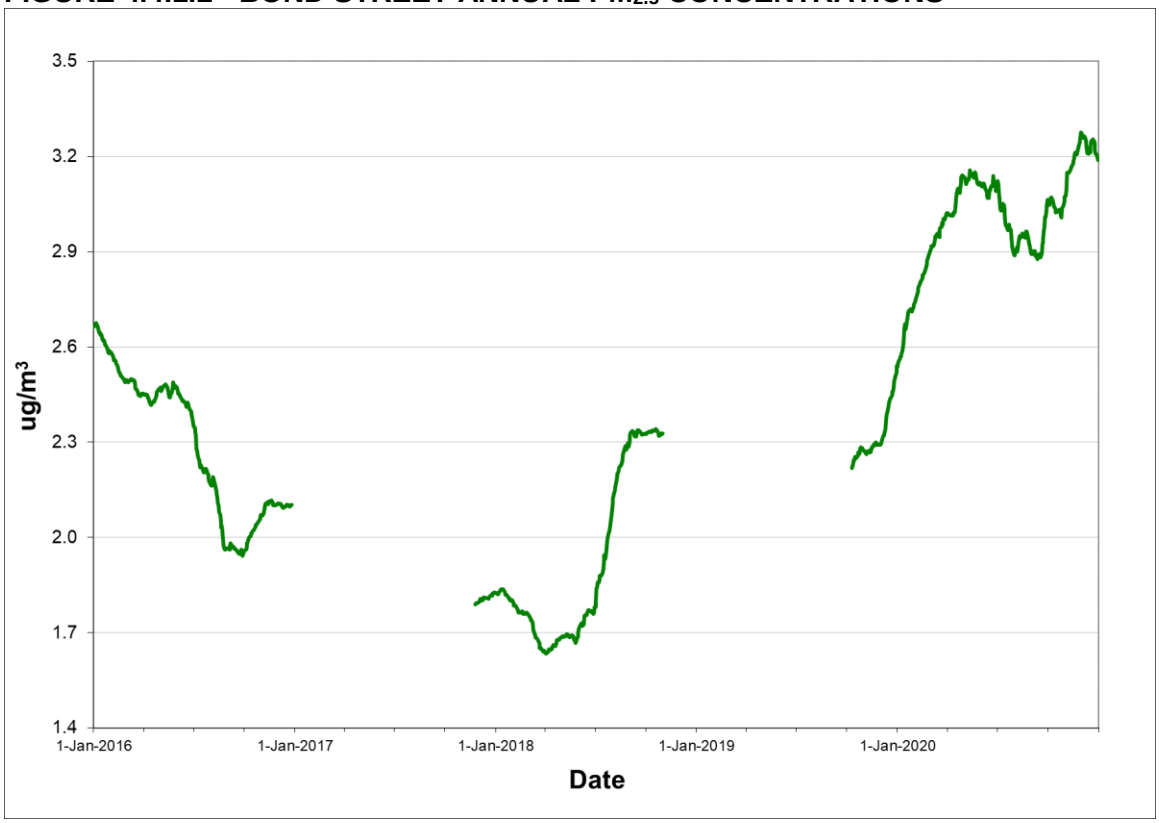
Rolling annual average of daily concentrations

TABLE 4.4.1.2 - BOND STREET $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	25	80.6%	1.7	10.8	0
	February	28	100.0%	0.9	2.3	0
	March	31	100.0%	1.3	3.1	0
	April	25	83.3%	0.7	2.3	0
	May	31	100.0%	2.0	4.8	0
	June	24	80.0%	2.1	6.0	0
	July	31	100.0%	4.9	12.2	0
	August	31	100.0%	4.1	7.9	0
	September	27	90.0%	2.6	7.4	0
	October	31	100.0%	2.9	7.8	0
	November	28	93.3%	2.0	4.8	0
	December	31	100.0%	4.4	11.1	0
Annual		343	94.0%	2.5	12.2	0
2020	January	27	87.1%	4.3	12.9	0
	February	0	0.0%	0.0	0.0	0
	March	28	90.3%	2.4	8.3	0
	April	29	96.7%	2.3	9.5	0
	May	23	74.2%	1.3	8.7	0
	June	27	90.0%	2.2	12.6	0
	July	25	80.6%	2.9	8.2	0
	August	31	100.0%	4.1	10.5	0
	September	29	96.7%	4.2	11.5	0
	October	31	100.0%	3.0	10.0	0
	November	30	100.0%	4.3	17.7	0
	December	29	93.5%	3.6	10.4	0
Annual		309	84.4%	3.2	17.7	0

Observations in µg/m3

FIGURE 4.4.1.2 - BOND STREET ANNUAL $PM_{2.5}$ CONCENTRATIONS



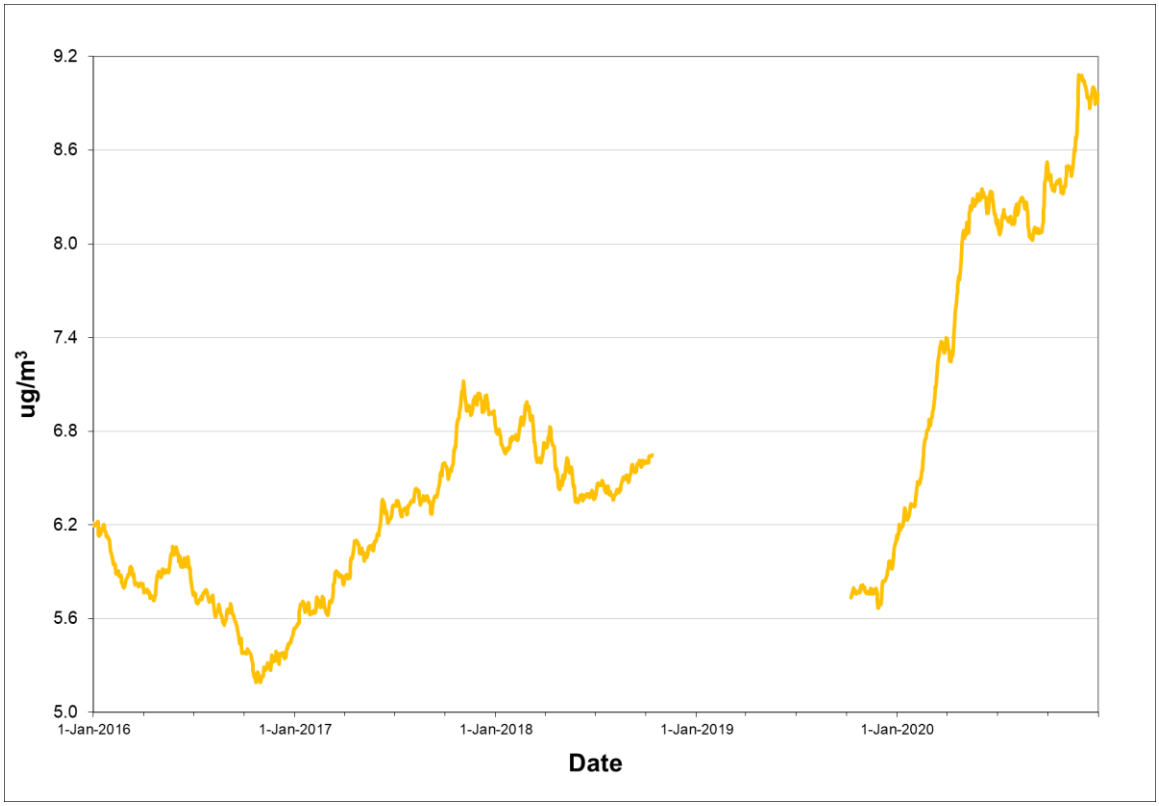
Rolling annual average of daily concentrations

TABLE 4.4.1.3 - BOND STREET TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2019	January	26	83.9%	3.2	11.5	0
	February	26	92.9%	2.4	10.1	0
	March	28	90.3%	4.2	18.2	0
	April	25	83.3%	5.2	21.1	0
	May	30	96.8%	12.6	36.2	0
	June	20	66.7%	13.4	42.2	0
	July	31	100.0%	10.5	27.0	0
	August	30	96.8%	8.6	29.0	0
	September	22	73.3%	5.4	21.3	0
	October	29	93.5%	6.9	22.6	0
	November	25	83.3%	3.6	33.6	0
	December	30	96.8%	7.0	43.3	0
Annual		322	88.2%	6.1	43.3	0
2020	January	27	87.1%	4.7	19.2	0
	February	2	6.9%	3.2	9.0	0
	March	31	100.0%	9.5	29.1	0
	April	30	100.0%	13.8	67.3	0
	May	27	87.1%	16.6	142.7	1
	June	28	93.3%	10.0	44.3	0
	July	30	96.8%	10.5	38.8	0
	August	31	100.0%	7.7	39.9	0
	September	30	100.0%	10.4	65.8	0
	October	31	100.0%	6.2	31.9	0
	November	29	96.7%	9.8	247.0	1
	December	29	93.5%	5.8	28.4	0
Annual		325	88.8%	9.0	247.0	2

Observations in µg/m3

FIGURE 4.4.1.3 - BOND STREET ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.4.2 Cabot Drive

The Cabot Drive monitoring station is located near the J.R. Smallwood School. The station measures $PM_{2.5}$ and TPM on a continuous basis. While the PM2.5 monitor did not record an exceedance in 2020, the TPM recorded two exceedances of the 24-hour standard, both in May 2020.

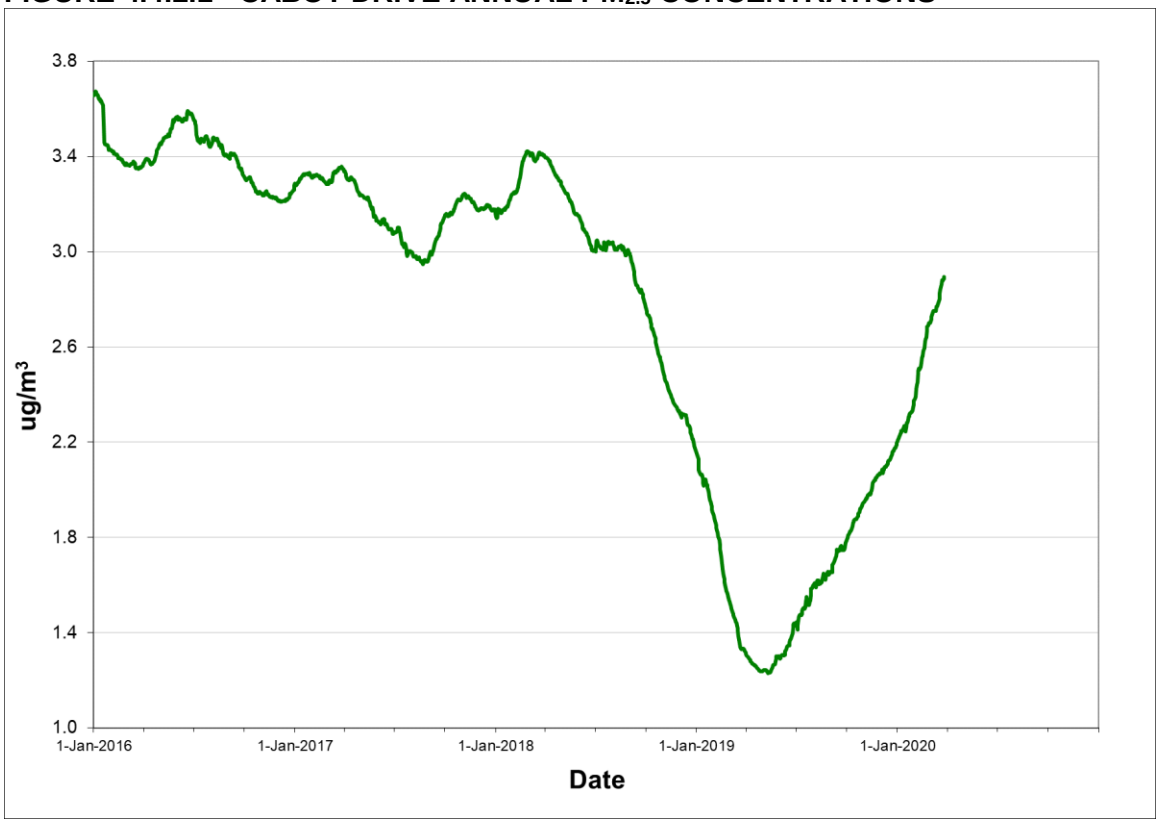
Tables 4.4.2.1 and 4.4.2.2 provide summary information of air contaminants measured at Cabot Drive while figures 4.4.2.1 and 4.4.2.2 present the annual trend of $PM_{2.5}$ and TPM respectively.

TABLE 4.4.2.1 - CABOT DRIVE $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	28	90.3%	0.9	9.3	0
	February	23	82.1%	0.4	2.7	0
	March	23	74.2%	0.5	2.1	0
	April	24	80.0%	0.3	1.0	0
	May	28	90.3%	2.2	5.1	0
	June	29	96.7%	2.7	8.0	0
	July	31	100.0%	5.2	11.6	0
	August	28	90.3%	3.4	7.0	0
	September	29	96.7%	2.9	10.5	0
	October	28	90.3%	2.3	6.3	0
	November	30	100.0%	1.7	7.3	0
	December	12	38.7%	3.1	4.9	0
Annual		313	85.8%	2.2	11.6	0
2020	January	16	51.6%	3.2	6.6	0
	February	26	89.7%	4.5	11.8	0
	March	8	25.8%	4.7	8.0	0
	April	29	96.7%	3.9	9.5	0
	May	31	100.0%	4.3	9.3	0
	June	29	96.7%	3.9	11.0	0
	July	31	100.0%	4.1	10.2	0
	August	31	100.0%	5.1	19.4	0
	September	28	93.3%	2.2	7.5	0
	October	31	100.0%	4.3	12.9	0
	November	25	83.3%	3.4	10.8	0
	December	29	93.5%	2.9	18.7	0
Annual		314	85.8%	3.9	19.4	0

Observations in µg/m3

FIGURE 4.4.2.1 - CABOT DRIVE ANNUAL $PM_{2.5}$ CONCENTRATIONS



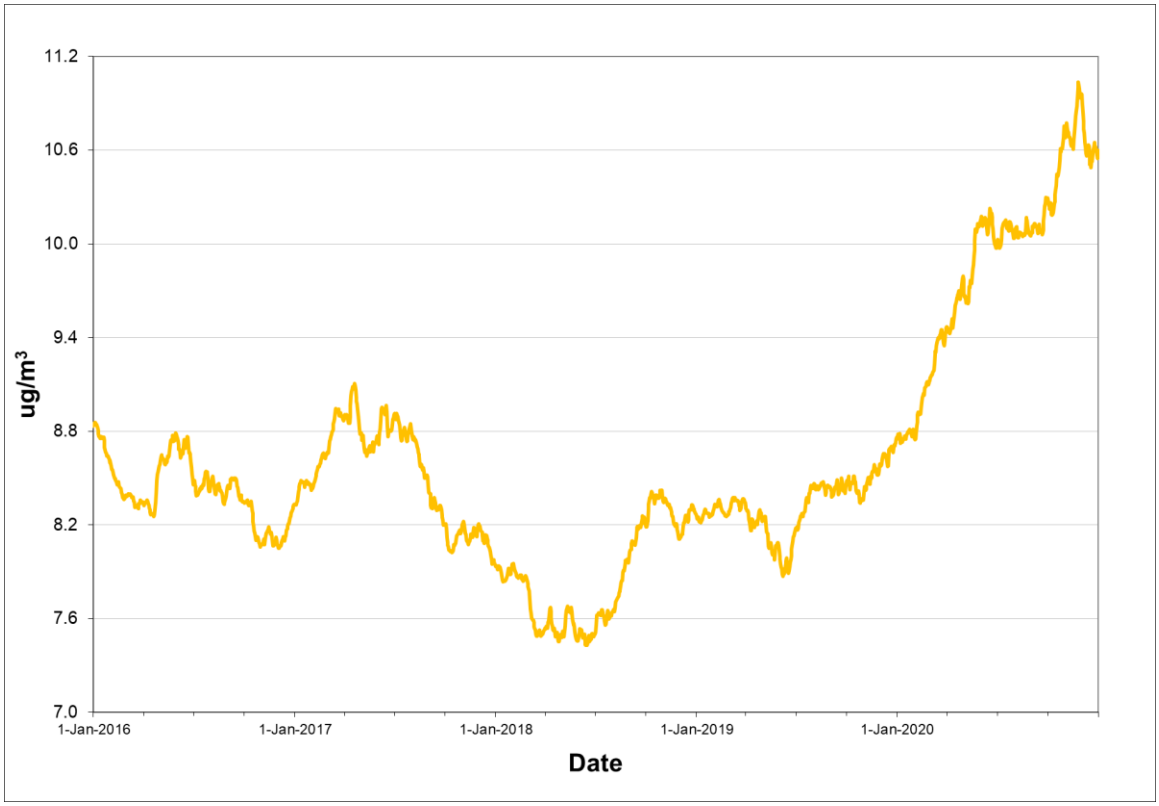
Rolling annual average of daily concentrations

TABLE 4.4.2.2 - CABOT DRIVE TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2019	January	31	100.0%	7.0	17.2	0
	February	28	100.0%	6.4	17.0	0
	March	30	96.8%	7.4	24.3	0
	April	25	83.3%	11.0	49.7	0
	May	24	77.4%	15.0	43.8	0
	June	29	96.7%	14.5	49.8	0
	July	31	100.0%	13.0	26.4	0
	August	30	96.8%	9.8	23.9	0
	September	29	96.7%	7.5	36.6	0
	October	29	93.5%	6.5	36.5	0
	November	30	100.0%	5.9	27.6	0
	December	31	100.0%	7.9	56.5	0
Annual		347	95.1%	8.8	56.5	0
2020	January	24	77.4%	7.0	19.7	0
	February	26	89.7%	9.9	28.3	0
	March	25	80.6%	11.7	42.9	0
	April	30	100.0%	15.7	48.8	0
	May	31	100.0%	19.8	145.6	2
	June	29	96.7%	12.7	79.2	0
	July	31	100.0%	13.1	62.0	0
	August	21	67.7%	10.2	42.1	0
	September	14	46.7%	9.2	23.1	0
	October	31	100.0%	10.6	38.0	0
	November	25	83.3%	6.5	20.4	0
	December	27	87.1%	5.0	39.1	0
Annual		314	85.8%	10.6	145.6	2

Observations in µg/m3

FIGURE 4.4.2.2 - CABOT DRIVE ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.5 Corner Brook Pulp and Paper

In 2020, Corner Brook Pulp and Paper (CBPP) operated one monitoring stations near CBPP's paper mill operation on Main Street. The location of this monitoring station is identified in Figure 4.5.1.

FIGURE 4.5.1 - CBPP AMBIENT MONITORING STATION

4.5.1 Main Street

The Main Street monitoring station is located at Hotel Corner Brook. The station monitors ambient levels of SO_2, $PM_{2.5}$ and TPM on a continuous basis. The station, until July 2018 monitored TPM on a 1 day in 6 day cycle, however the manual monitor was replaced with the continuous monitor. For SO_2 and TPM there were no recorded exceedances of the associated ambient air quality standards, however the $PM_{2.5}$ monitor recorded one exceedance of the 24-hour standard in February 2020.

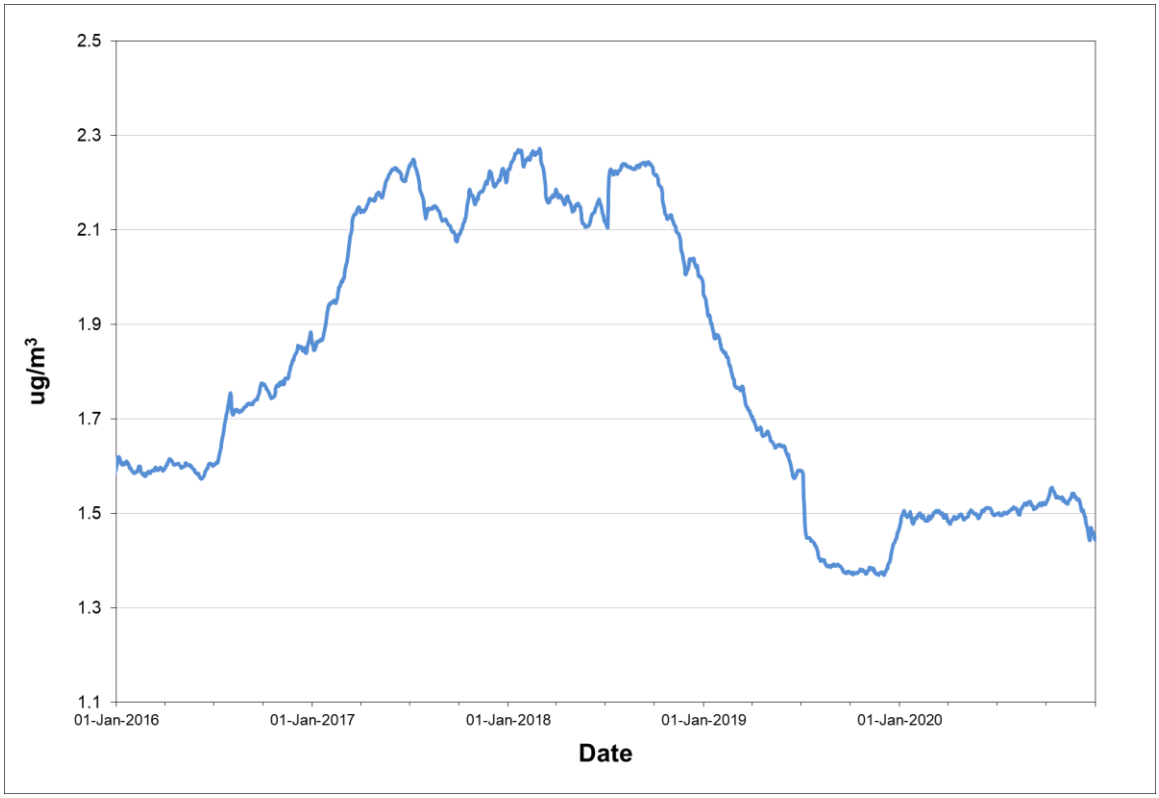
Tables 4.5.1.1 through 4.5.1.3 provide summary information on the level of air contaminants measured at the Main Street Station, while Figures 4.5.1.1 through 4.5.1.3 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.5.1.1 - MAIN STREET SO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2019	January	734	98.7%	1.6	18.3	12.2	5.3	0	0	0
	February	672	100.0%	1.5	3.3	2.9	2.4	0	0	0
	March	744	100.0%	1.5	11.6	5.2	2.8	0	0	0
	April	713	99.0%	1.3	3.3	3.2	2.6	0	0	0
	May	744	100.0%	1.3	3.9	3.7	2.1	0	0	0
	June	720	100.0%	1.1	13.0	9.6	2.4	0	0	0
	July	744	100.0%	0.9	2.9	1.9	1.5	0	0	0
	August	737	99.1%	1.2	23.2	13.2	3.0	0	0	0
	September	714	99.2%	1.2	11.6	6.4	3.3	0	0	0
	October	744	100.0%	1.4	3.2	3.1	3.0	0	0	0
	November	719	99.9%	1.7	5.2	3.0	2.7	0	0	0
	December	739	99.3%	2.9	6.5	6.2	4.6	0	0	0
Annual		8724	99.6%	1.5	23.2	13.2	5.3	0	0	0
2020	January	744	100.0%	1.9	3.5	3.5	3.1	0	0	0
	February	696	100.0%	1.6	3.9	3.4	2.8	0	0	0
	March	741	99.6%	1.4	3.8	3.7	3.0	0	0	0
	April	720	100.0%	1.3	2.9	2.8	2.5	0	0	0
	May	744	100.0%	1.4	3.1	2.9	2.4	0	0	0
	June	714	99.2%	1.0	3.3	2.3	1.7	0	0	0
	July	744	100.0%	1.1	4.0	2.9	1.8	0	0	0
	August	744	100.0%	1.3	21.2	11.5	4.3	0	0	0
	September	714	99.2%	1.2	6.3	4.9	2.6	0	0	0
	October	743	99.9%	1.6	14.3	9.6	3.7	0	0	0
	November	720	100.0%	1.6	4.0	3.9	2.8	0	0	0
	December	735	98.8%	1.9	11.6	11.4	10.5	0	0	0
Annual		8759	99.7%	1.4	21.2	11.5	10.5	0	0	0

Observations in µg/m3

FIGURE 4.5.1.1 - MAIN STREET ANNUAL SO_2 CONCENTRATIONS



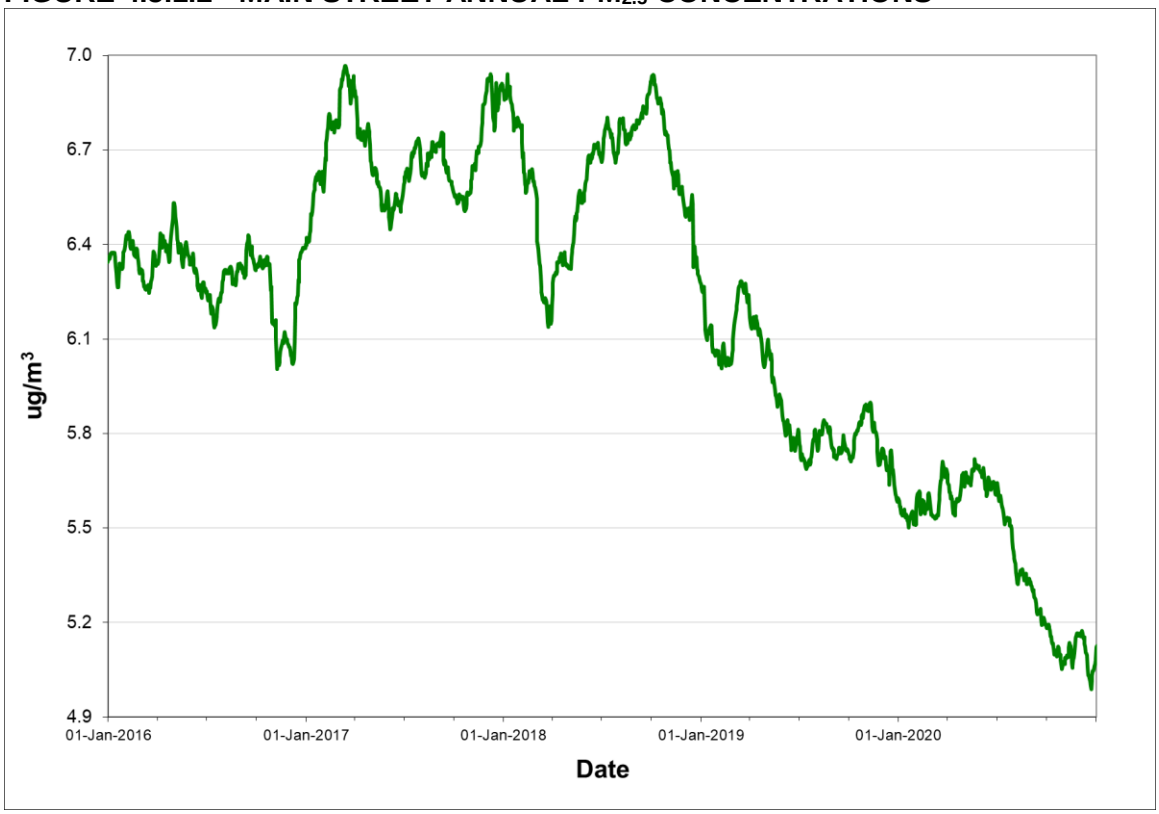
Rolling annual average of hourly concentrations

TABLE 4.5.1.2 - MAIN STREET $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	5.1	12.0	0
	February	28	100.0%	7.1	20.9	0
	March	31	100.0%	6.3	14.3	0
	April	30	100.0%	5.7	15.4	0
	May	29	93.5%	5.5	12.8	0
	June	30	100.0%	5.9	12.5	0
	July	31	100.0%	7.1	14.8	0
	August	31	100.0%	5.1	12.6	0
	September	27	90.0%	4.9	14.6	0
	October	31	100.0%	5.3	11.3	0
	November	27	90.0%	3.9	12.3	0
	December	29	93.5%	5.1	23.4	0
Annual		355	97.3%	5.6	23.4	0
2020	January	31	100.0%	4.2	9.8	0
	February	29	100.0%	7.9	25.8	1
	March	31	100.0%	7.2	17.2	0
	April	30	100.0%	5.8	11.9	0
	May	31	100.0%	5.5	15.5	0
	June	30	100.0%	5.0	16.8	0
	July	30	96.8%	5.2	10.6	0
	August	31	100.0%	3.8	13.3	0
	September	29	96.7%	3.2	11.6	0
	October	30	96.8%	3.9	13.2	0
	November	30	100.0%	5.2	13.8	0
	December	31	100.0%	4.1	14.3	0
Annual		363	99.2%	5.1	25.8	1

Observations in µg/m3

FIGURE 4.5.1.2 - MAIN STREET ANNUAL $PM_{2.5}$ CONCENTRATIONS



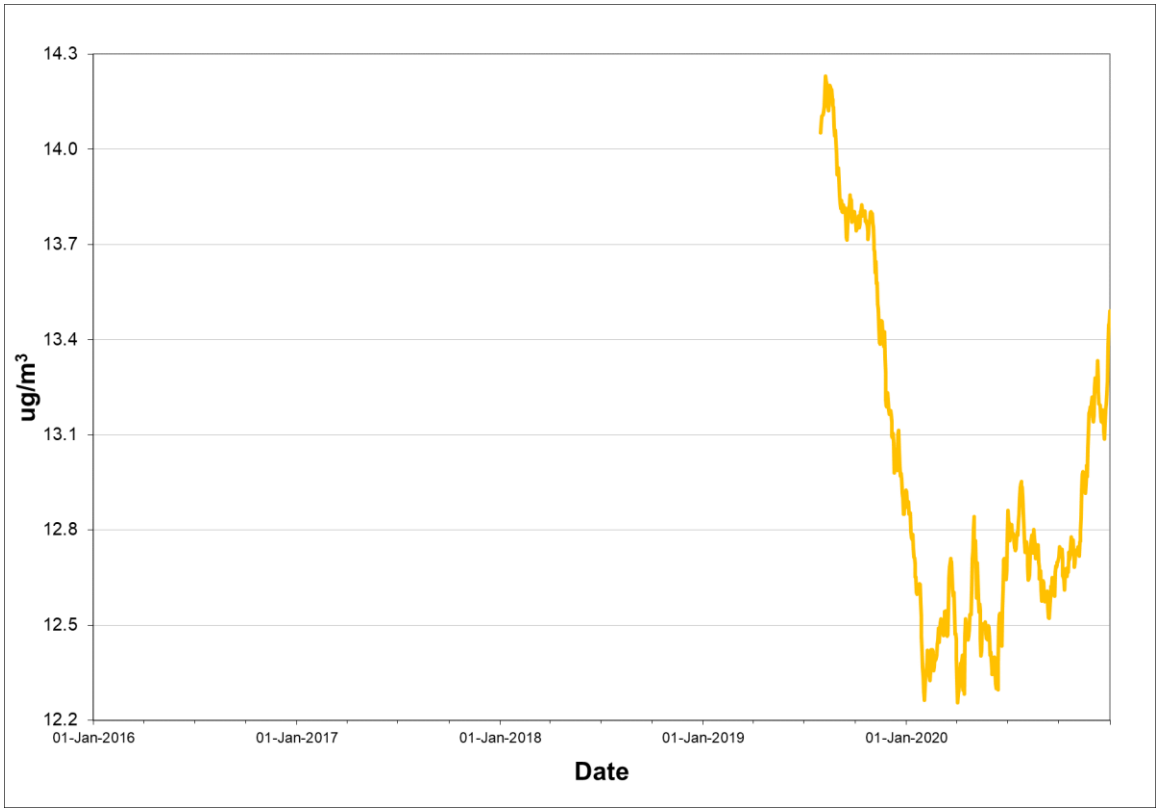
Rolling annual average of hourly concentrations

TABLE 4.5.1.3 - MAIN STREET TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2019	January	31	100.0%	9.5	63.7	0
	February	28	100.0%	8.1	35.6	0
	March	30	96.8%	14.6	112.2	0
	April	30	100.0%	18.3	105.2	0
	May	31	100.0%	28.3	80.8	0
	June	28	93.3%	19.7	69.5	0
	July	27	87.1%	21.2	51.6	0
	August	30	96.8%	17.3	48.5	0
	September	18	60.0%	11.6	39.7	0
	October	17	54.8%	8.6	16.6	0
	November	30	100.0%	6.6	31.1	0
	December	31	100.0%	6.6	28.8	0
Annual		331	90.7%	12.9	112.2	0
2020	January	31	100.0%	5.8	13.8	0
	February	29	100.0%	9.1	30.3	0
	March	31	100.0%	13.7	101.5	0
	April	30	100.0%	26.3	81.0	0
	May	31	100.0%	20.3	77.2	0
	June	30	100.0%	24.8	79.8	0
	July	31	100.0%	21.5	52.6	0
	August	31	100.0%	14.2	41.2	0
	September	30	100.0%	13.5	31.3	0
	October	31	100.0%	10.3	31.3	0
	November	30	100.0%	10.5	60.6	0
	December	31	100.0%	8.1	83.6	0
Annual		366	100.0%	13.5	101.5	0

Observations in µg/m3

FIGURE 4.5.1.3 - MAIN STREET ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.6 VALE Newfoundland and Labrador Limited - Voisey's Bay

In 2020, VALE Newfoundland and Labrador Limited operated monitoring stations at three locations at its Voisey's Bay mine site. These stations are installed to monitor the air quality near VALE's mining / processing operation and port activities, and are located at the Accommodation Unit, near the Crusher and at the Port Site near the concentrate storage facility. The locations of these monitoring stations are identified in Figure 4.6.1.

FIGURE 4.6.1 - VALE / VOISEY'S BAY AMBIENT MONITORING STATIONS

4.6.1 Accommodation Unit

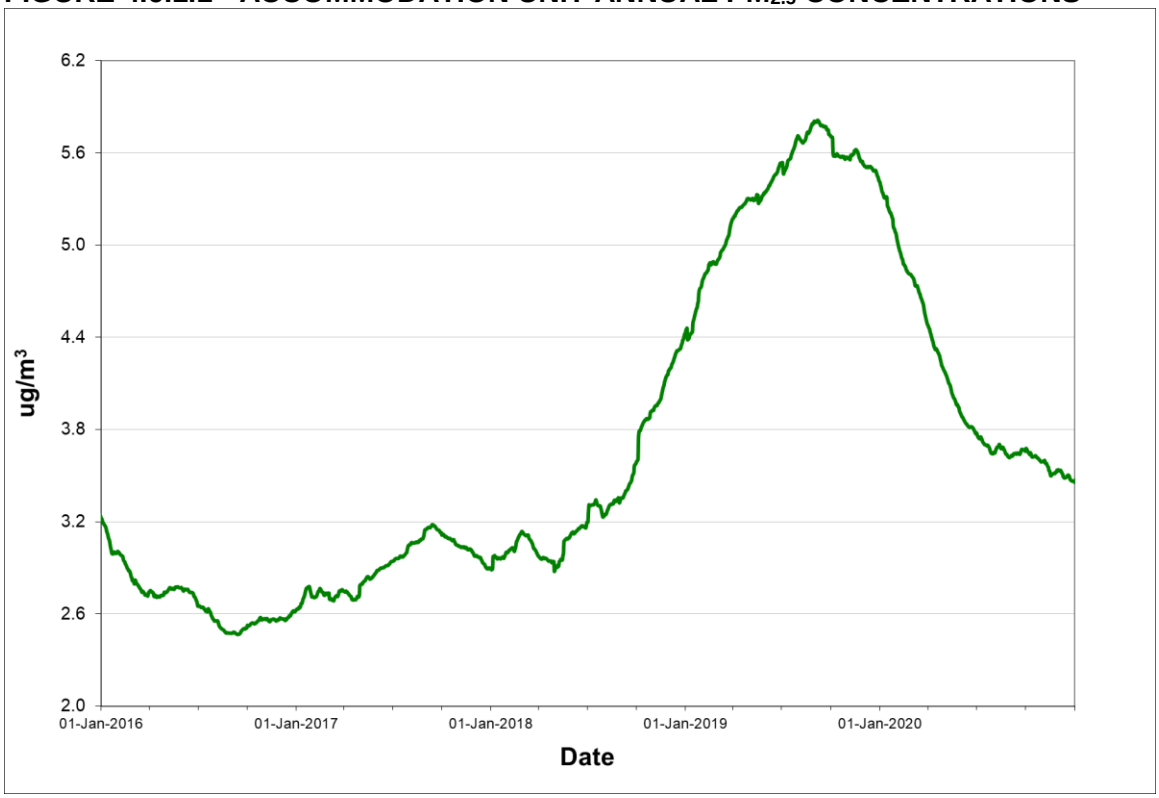
The Accommodation Unit station monitors the ambient levels of $PM_{2.5}$ and NO_x / NO_2 on a continuous basis. For both $PM_{2.5}$ and NO_x / NO_2, the ambient air criteria were not exceeded on any occasion in 2020. Tables 4.6.1.1 through 4.6.1.2 provide summary information on the level of air contaminants measured at the Accommodation Unit, while Figures 4.6.1.1 through 4.6.1.2 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.6.1.1 - ACCOMMODATION UNIT $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 ug/m^3)
2019	January	31	100.0%	8.8	22.9	0
	February	22	78.6%	8.5	12.8	0
	March	31	100.0%	7.9	13.2	0
	April	30	100.0%	6.6	9.3	0
	May	31	100.0%	5.6	8.2	0
	June	30	100.0%	4.5	5.7	0
	July	31	100.0%	4.9	7.6	0
	August	25	80.6%	4.6	7.1	0
	September	30	100.0%	2.7	5.8	0
	October	31	100.0%	3.5	8.0	0
	November	30	100.0%	3.8	11.6	0
	December	31	100.0%	4.1	8.0	0
Annual		353	96.7%	5.4	22.9	0
2020	January	31	100.0%	5.0	8.6	0
	February	29	100.0%	4.3	9.1	0
	March	31	100.0%	4.1	7.8	0
	April	30	100.0%	3.1	7.4	0
	May	31	100.0%	2.4	6.0	0
	June	24	80.0%	2.7	5.9	0
	July	31	100.0%	3.4	6.7	0
	August	31	100.0%	4.1	8.3	0
	September	25	83.3%	3.1	6.5	0
	October	31	100.0%	2.7	8.8	0
	November	30	100.0%	3.2	7.8	0
	December	31	100.0%	3.3	5.5	0
Annual		355	97.0%	3.5	9.1	0

Observations in µg/m3

FIGURE 4.6.1.1 - ACCOMMODATION UNIT ANNUAL $PM_{2.5}$ CONCENTRATIONS



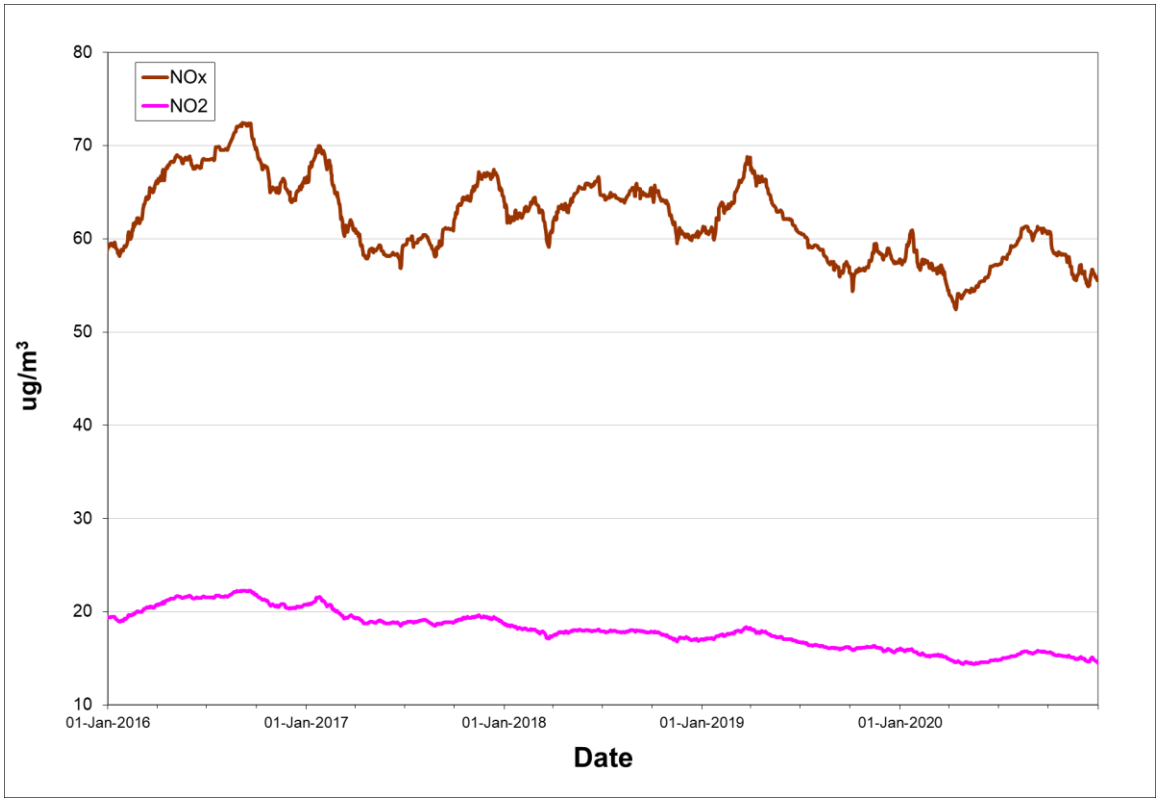
Rolling annual average of daily concentrations

TABLE 4.6.1.2 - ACCOMMODATION UNIT NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	740	99.5%	112.5	32.0	1106.0	98.1	487.1	73.8	0	0
	February	668	99.4%	119.7	29.0	1117.4	105.6	499.7	58.1	0	0
	March	744	100.0%	106.7	25.7	1130.0	81.6	432.9	47.4	0	0
	April	720	100.0%	54.5	16.6	883.3	75.1	173.0	41.6	0	0
	May	737	99.1%	14.1	7.4	270.9	60.5	58.6	21.3	0	0
	June	714	99.2%	7.5	3.7	205.1	38.8	41.7	10.2	0	0
	July	744	100.0%	13.4	5.0	703.5	33.3	100.0	14.5	0	0
	August	739	99.3%	19.3	6.6	474.8	44.8	135.4	28.9	0	0
	September	716	99.4%	52.8	12.3	550.3	39.6	198.4	27.7	0	0
	October	743	99.9%	57.0	13.6	947.3	49.2	428.7	32.3	0	0
	November	720	100.0%	64.0	16.0	1092.0	57.0	365.2	37.4	0	0
	December	743	99.9%	76.1	24.9	892.7	100.8	264.5	63.7	0	0
Annual		8728	99.6%	57.8	16.0	1130.0	105.6	499.7	73.8	0	0
2020	January	739	99.3%	123.7	27.9	1249.8	79.0	389.5	53.5	0	0
	February	693	99.6%	99.0	24.1	704.8	71.5	210.3	39.7	0	0
	March	744	100.0%	72.2	21.4	836.9	78.3	315.5	49.5	0	0
	April	718	99.7%	52.0	11.6	572.1	57.9	302.7	31.3	0	0
	May	743	99.9%	27.7	7.6	552.0	55.1	113.7	28.2	0	0
	June	713	99.0%	29.2	6.6	546.8	42.3	153.1	28.1	0	0
	July	741	99.6%	37.1	10.3	587.4	62.9	182.5	30.3	0	0
	August	741	99.6%	33.5	10.1	713.5	92.7	237.7	44.1	0	0
	September	621	86.3%	53.4	12.4	822.8	75.6	194.7	33.7	0	0
	October	744	100.0%	31.3	9.2	417.0	36.7	83.1	18.7	0	0
	November	720	100.0%	51.0	14.9	433.3	45.9	183.0	33.2	0	0
	December	587	78.9%	59.8	20.1	665.0	85.3	166.9	49.9	0	0
Annual		8504	96.8%	55.6	14.6	1249.8	92.7	389.5	53.5	0	0

Observations in µg/m3

FIGURE 4.6.1.2 - ACCOMMODATION UNIT ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.6.2 Crusher Site

The Crusher Site station monitors the ambient levels of NO_x / NO_2 on a continuous basis. The ambient air criteria were not exceeded on any occasion in 2020. Table 4.6.2.1 provides summary information on the level of air contaminants measured at the Crusher Site, while Figure 4.6.2.1 provides a graphical representation of the annual trend.

TABLE 4.6.2.1 - CRUSHER SITE NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums				Exceedances	
						1-Hour		24-Hour		1-Hour	24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	744	100.0%	18.4	12.3	431.3	113.3	104.5	64.0	0	0
	February	646	96.1%	16.9	8.1	990.6	101.9	158.0	33.1	0	0
	March	713	95.8%	9.3	7.4	142.6	79.0	41.8	28.4	0	0
	April	690	95.8%	33.4	12.5	956.8	87.7	216.3	45.9	0	0
	May	695	93.4%	22.0	12.1	460.4	63.6	109.9	24.4	0	0
	June	685	95.1%	19.8	7.0	474.2	60.7	107.7	18.7	0	0
	July	712	95.7%	15.1	6.1	616.2	48.5	140.3	20.1	0	0
	August	706	94.9%	19.0	8.4	308.9	43.8	76.2	19.2	0	0
	September	685	95.1%	18.4	7.2	542.7	79.9	156.7	30.9	0	0
	October	708	95.2%	14.1	7.0	876.3	60.9	172.7	26.2	0	0
	November	678	94.2%	12.7	9.3	252.8	62.1	33.5	25.0	0	0
	December	665	89.4%	27.3	9.7	1039.0	107.0	220.0	36.5	0	0
Annual		8327	95.1%	18.8	8.9	1039.0	113.3	220.0	64.0	0	0
2020	January	705	94.8%	13.5	9.9	416.8	106.7	89.7	46.1	0	0
	February	619	88.9%	13.5	9.1	384.3	99.1	92.5	41.3	0	0
	March	663	89.1%	18.8	9.7	887.0	89.8	78.9	35.6	0	0
	April	689	95.7%	39.7	10.7	620.0	75.0	355.4	53.6	0	0
	May	705	94.8%	20.7	7.4	416.5	60.6	87.1	23.0	0	0
	June	678	94.2%	18.1	8.2	474.2	51.9	146.8	27.9	0	0
	July	712	95.7%	11.0	6.3	123.1	32.9	23.1	10.4	0	0
	August	709	95.3%	29.0	9.1	974.0	86.8	247.0	43.2	0	0
	September	642	89.2%	16.5	7.9	702.6	144.3	98.5	27.7	0	0
	October	744	100.0%	9.6	6.6	306.7	57.7	51.2	18.6	0	0
	November	688	95.6%	12.6	9.7	251.8	92.2	54.8	36.5	0	0
	December	724	97.3%	21.5	13.0	656.6	100.6	105.7	62.6	0	0
Annual		8278	94.2%	18.7	9.0	974.0	144.3	355.4	62.6	0	0

Observations in µg/m3

FIGURE 4.6.2.1 - CRUSHER SITE ANNUAL NO_X / NO_2 CONCENTRATIONS

Rolling annual average of hourly concentrations

4.6.3 Port Site

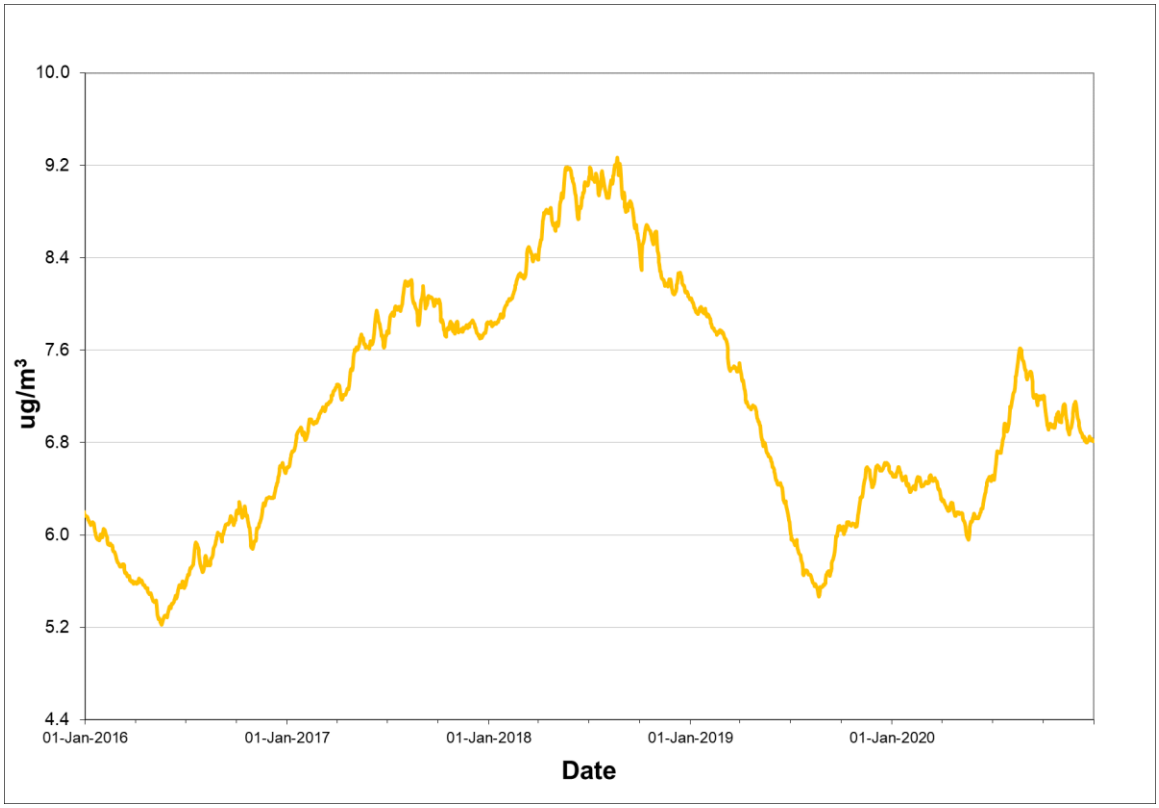
The Port Site station monitors the ambient levels of TPM on a continuous basis. The 24-hour ambient air criterion was exceeded on one occasion in August 2020. Table 4.6.3.1 provides summary information on the level of air contaminants measured at the Port Site, while Figure 4.6.3.1 provides a graphical representation of the annual trend.

TABLE 4.6.3.1 - PORT SITE TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120ug/m^3)
2019	January	31	100.0%	6.4	23.4	0
	February	28	100.0%	6.6	15.8	0
	March	31	100.0%	7.0	29.5	0
	April	30	100.0%	6.1	29.5	0
	May	30	96.8%	5.1	18.1	0
	June	30	100.0%	3.9	15.5	0
	July	31	100.0%	4.8	23.0	0
	August	15	48.4%	5.0	34.0	0
	September	30	100.0%	14.0	136.5	1
	October	23	74.2%	10.4	144.6	1
	November	28	93.3%	7.3	70.0	0
	December	23	74.2%	6.6	98.0	0
Annual		330	90.4%	6.5	144.6	2
2020	January	31	100.0%	5.3	34.8	0
	February	23	79.3%	6.7	70.0	0
	March	30	96.8%	5.6	20.6	0
	April	30	100.0%	4.9	26.8	0
	May	31	100.0%	4.8	45.6	0
	June	28	93.3%	7.5	43.6	0
	July	28	90.3%	10.7	53.8	0
	August	29	93.5%	11.8	148.8	1
	September	25	83.3%	9.7	119.2	0
	October	30	96.8%	7.9	89.2	0
	November	30	100.0%	8.5	102.1	0
	December	30	96.8%	3.9	19.8	0
Annual		345	94.3%	6.8	148.8	1

Observations in µg/m3

FIGURE 4.6.3.1 - PORT SITE ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.7 VALE Newfoundland and Labrador Limited - Long Harbour

VALE Newfoundland and Labrador Limited operates a monitoring network in the Long Harbour / Mt. Arlington Heights area to monitor the air quality near its Hydromet Nickel Processing facility. The network monitors levels of NO_x / NO_2 as well as $PM_{2.5}$. In 2020, VALE operated three stations; near the Community Centre in Long Harbour, along the Main Road in Long harbour, and near the Access Road to the Hydromet facility. The location of the stations is shown in Figure 4.7.1.

FIGURE 4.7.1 - VALE / LONG HARBOUR AMBIENT MONITORING STATIONS

4.7.1 Community Centre (AM1)

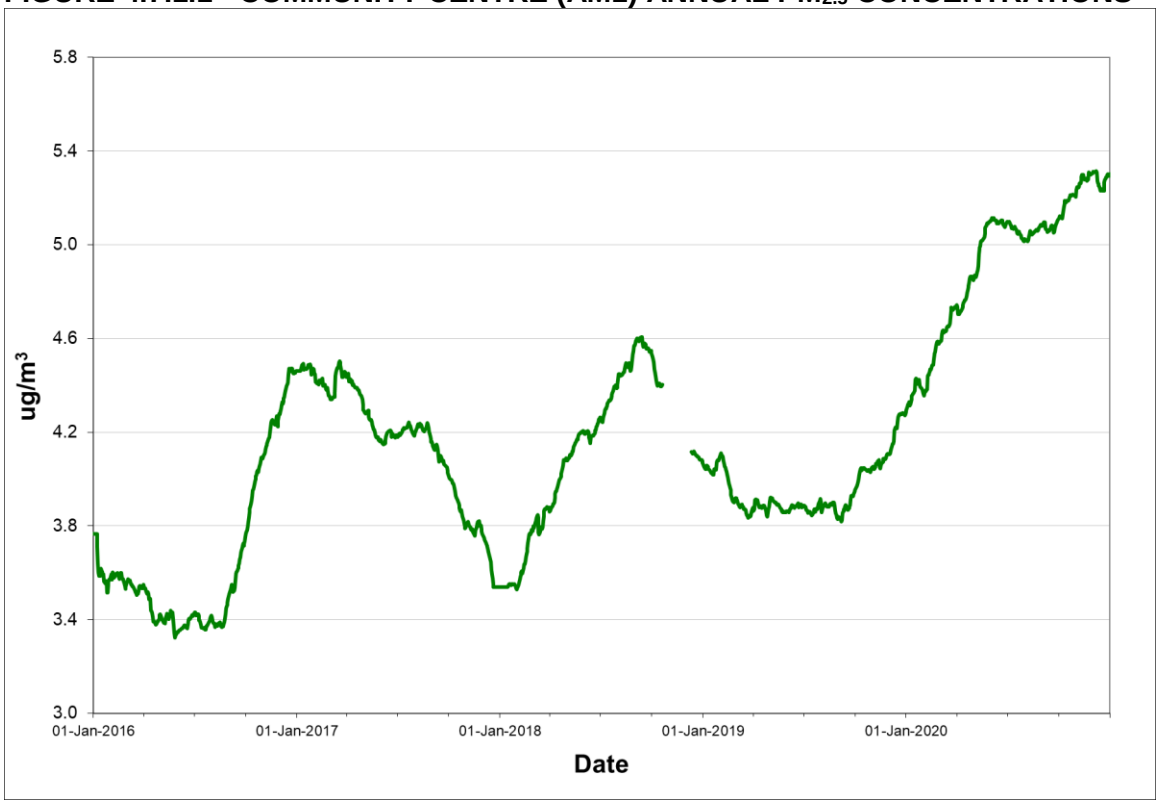
The Community Centre (AM1) station monitors the ambient levels of $PM_{2.5}$ and NO_x / NO_2 on a continuous basis. Neither the 24-hour ambient air criterion for $PM_{2.5}$ nor the ambient air criteria for NO_x / NO_2 was exceeded in 2020. Tables 4.7.1.1 and 4.7.1.2 provide summary information on the level of air contaminants measured at the Community Centre (AM1) site, while Figures 4.7.1.1 and 4.7.1.2 provide a graphical representation of the annual trend of $PM_{2.5}$ and NO_x / NO_2.

TABLE 4.7.1.1 - COMMUNITY CENTRE (AM1) $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	30	96.8%	4.3	13.8	0
	February	27	96.4%	3.9	7.8	0
	March	28	90.3%	4.6	7.2	0
	April	30	100.0%	4.8	16.6	0
	May	31	100.0%	3.1	6.7	0
	June	30	100.0%	3.7	7.4	0
	July	31	100.0%	4.4	9.2	0
	August	31	100.0%	3.8	7.1	0
	September	30	100.0%	4.6	15.0	0
	October	31	100.0%	3.9	7.5	0
	November	28	93.3%	4.9	7.6	0
	December	31	100.0%	5.3	18.9	0
Annual		358	98.1%	4.3	18.9	0
2020	January	31	100.0%	5.3	20.4	0
	February	28	96.6%	6.7	22.3	0
	March	31	100.0%	6.3	16.8	0
	April	30	100.0%	6.3	10.9	0
	May	31	100.0%	5.9	21.6	0
	June	30	100.0%	3.7	7.3	0
	July	31	100.0%	3.4	5.7	0
	August	31	100.0%	4.7	7.7	0
	September	30	100.0%	4.8	8.6	0
	October	31	100.0%	5.1	11.7	0
	November	30	100.0%	6.2	15.4	0
	December	24	77.4%	5.1	16.7	0
Annual		358	97.8%	5.3	22.3	0

Observations in µg/m3

FIGURE 4.7.1.1 - COMMUNITY CENTRE (AM1) ANNUAL $PM_{2.5}$ CONCENTRATIONS



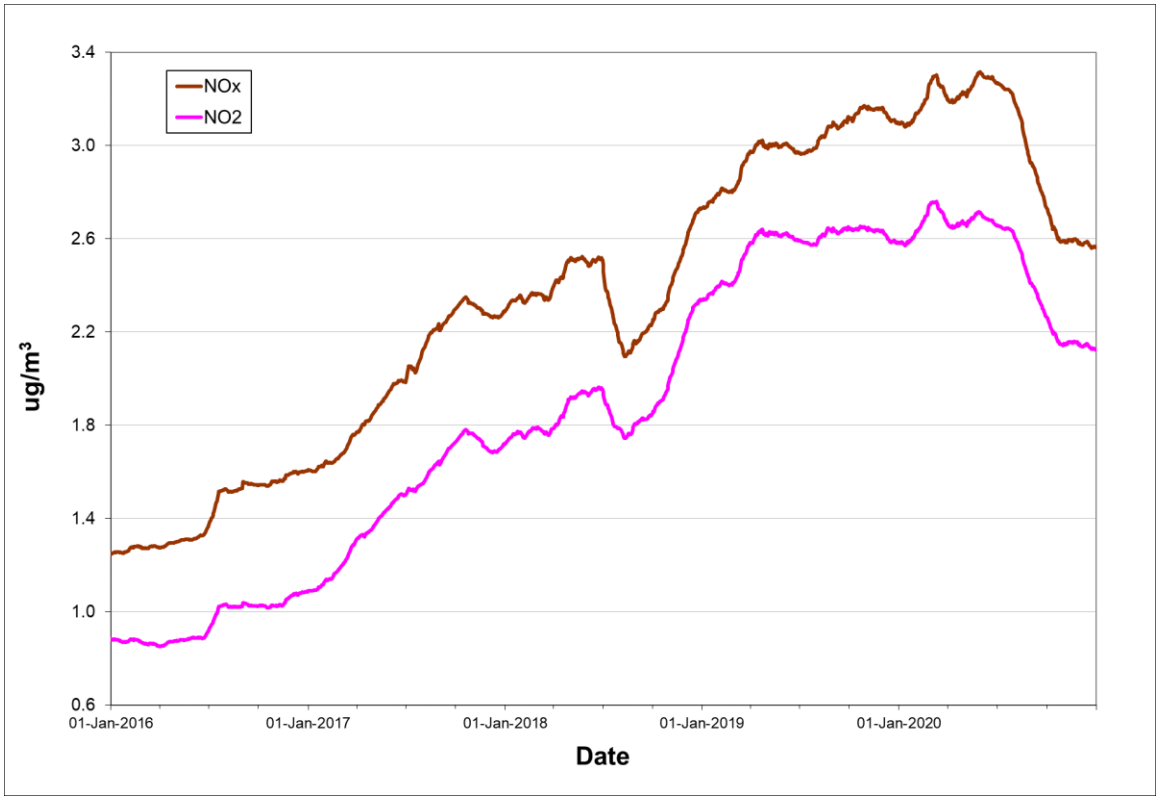
Rolling annual average of daily concentrations

TABLE 4.7.1.2 - COMMUNITY CENTRE (AM1) NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_X	NO_2	NO_X	NO_2	NO_X	NO_2	(>400)	(>200)
2019	January	742	99.7%	3.4	3.0	9.8	9.0	6.6	5.8	0	0
	February	670	99.7%	2.4	2.2	8.7	8.4	3.7	3.4	0	0
	March	729	98.0%	4.7	4.2	15.2	11.8	8.9	7.5	0	0
	April	718	99.7%	3.6	3.3	14.5	13.1	7.1	6.4	0	0
	May	742	99.7%	2.5	2.1	11.8	9.6	6.1	5.3	0	0
	June	718	99.7%	2.0	1.8	9.9	8.6	3.7	3.3	0	0
	July	728	97.8%	1.5	0.8	9.8	5.6	2.9	1.5	0	0
	August	741	99.6%	4.0	3.1	14.9	12.3	6.8	5.7	0	0
	September	720	100.0%	3.4	2.4	16.0	10.9	6.4	4.4	0	0
	October	743	99.9%	3.6	2.8	16.6	7.4	6.1	4.9	0	0
	November	695	96.5%	3.3	2.8	27.8	20.5	5.5	4.5	0	0
	December	730	98.1%	2.7	2.4	21.1	6.6	4.4	4.0	0	0
Annual		8676	99.0%	3.1	2.6	27.8	20.5	8.9	7.5	0	0
2020	January	743	99.9%	3.8	3.5	13.2	10.6	6.7	6.2	0	0
	February	684	98.3%	4.2	3.9	15.6	11.7	9.9	8.1	0	0
	March	743	99.9%	3.7	3.1	13.4	11.4	6.8	5.7	0	0
	April	720	100.0%	3.9	3.3	32.8	26.8	7.5	6.6	0	0
	May	732	98.4%	3.5	2.6	16.5	11.5	5.6	4.9	0	0
	June	689	95.7%	1.4	1.1	10.9	9.0	3.0	2.1	0	0
	July	717	96.4%	0.9	0.5	9.5	3.0	1.5	0.8	0	0
	August	717	96.4%	0.6	0.5	12.8	6.2	1.1	0.9	0	0
	September	671	93.2%	0.9	0.6	7.3	6.6	2.5	1.0	0	0
	October	726	97.6%	2.0	1.4	17.5	14.3	6.0	4.7	0	0
	November	718	99.7%	3.2	2.8	13.5	11.3	5.7	4.5	0	0
	December	475	63.8%	2.4	2.1	12.3	10.2	4.5	4.0	0	0
Annual		8335	94.9%	2.6	2.1	32.8	26.8	9.9	8.1	0	0

Observations in µg/m3

FIGURE 4.7.1.2 - COMMUNITY CENTRE (AM1) ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.7.2 Main Road (AM2)

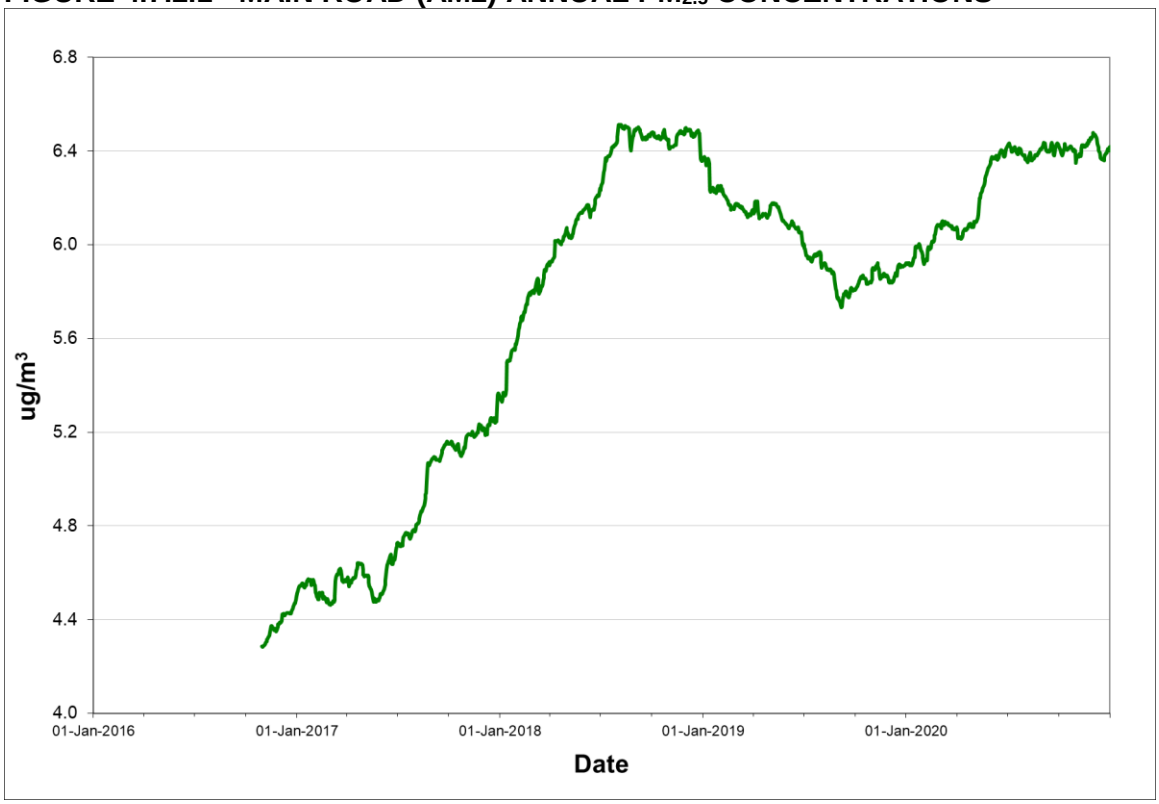
The Main Road (AM2) station monitors the ambient levels of $PM_{2.5}$ and NO_x / NO_2 on a continuous basis. Both the $PM_{2.5}$ and NO_x / NO_2 ambient air criteria was not exceeded in 2020. Tables 4.7.2.1 and 4.7.2.2 provide summary information on the level of air contaminants measured at the Main Road (AM2) site, while Figures 4.7.2.1 and 4.7.2.2 provide a graphical representation of the annual trend for pollutants.

TABLE 4.7.2.1 - MAIN ROAD (AM2) $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	6.4	11.4	0
	February	28	100.0%	5.8	11.9	0
	March	31	100.0%	6.3	8.8	0
	April	30	100.0%	6.5	20.3	0
	May	31	100.0%	4.3	7.6	0
	June	30	100.0%	5.2	8.8	0
	July	31	100.0%	6.0	12.0	0
	August	31	100.0%	5.7	10.0	0
	September	30	100.0%	5.9	16.8	0
	October	31	100.0%	5.9	8.3	0
	November	30	100.0%	6.5	20.6	0
	December	31	100.0%	6.6	13.9	0
Annual		365	100.0%	5.9	20.6	0
2020	January	23	74.2%	6.8	21.6	0
	February	29	100.0%	7.5	20.7	0
	March	25	80.6%	6.0	16.4	0
	April	16	53.3%	7.4	12.9	0
	May	21	67.7%	7.5	17.1	0
	June	20	66.7%	5.7	9.7	0
	July	31	100.0%	5.6	8.7	0
	August	24	77.4%	6.0	9.6	0
	September	26	86.7%	6.0	9.7	0
	October	31	100.0%	5.7	9.3	0
	November	30	100.0%	7.1	11.5	0
	December	31	100.0%	6.1	10.4	0
Annual		307	83.9%	6.4	21.6	0

Observations in µg/m3

FIGURE 4.7.2.1 - MAIN ROAD (AM2) ANNUAL $PM_{2.5}$ CONCENTRATIONS



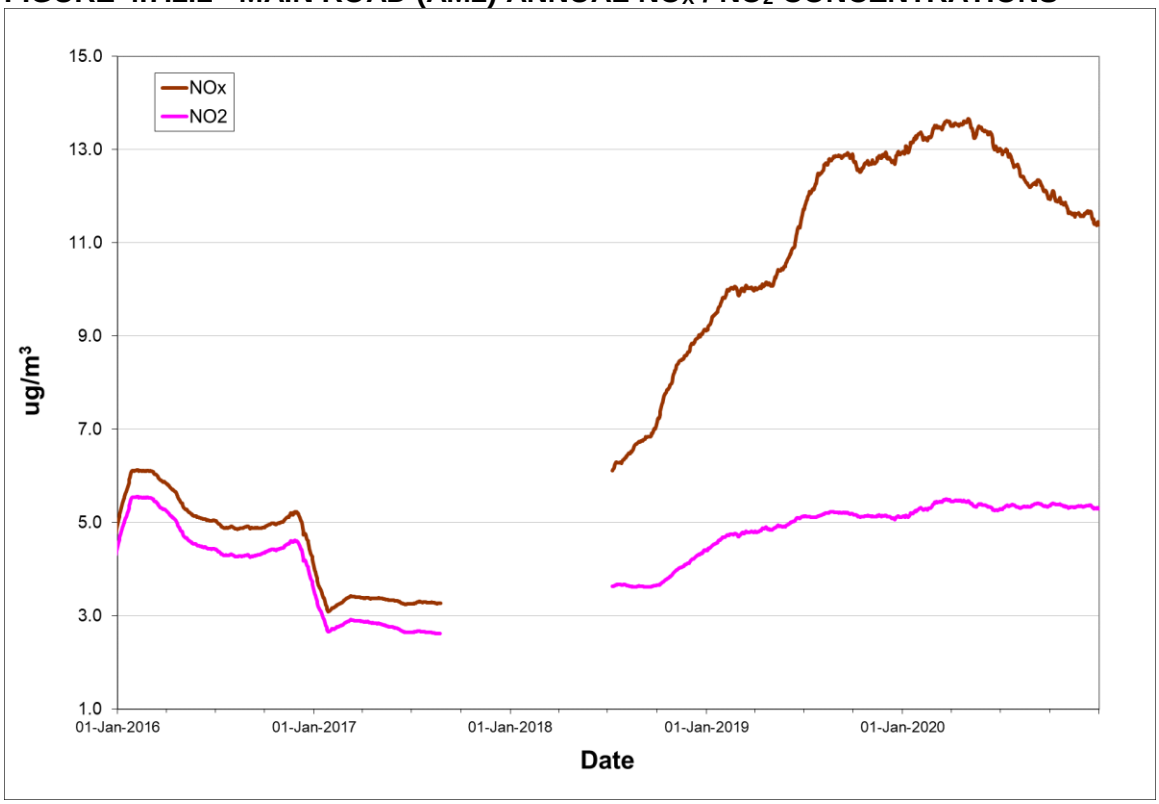
Rolling annual average of daily concentrations

TABLE 4.7.2.2 - MAIN ROAD (AM2) NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums				Exceedances	
						1-Hour		24-Hour		1-Hour	24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	709	95.3%	11.7	6.2	74.6	19.5	30.7	11.5	0	0
	February	650	96.7%	7.9	4.6	65.3	17.1	28.7	10.3	0	0
	March	717	96.4%	9.8	5.6	59.2	18.8	23.6	10.3	0	0
	April	701	97.4%	10.0	5.8	77.5	23.9	25.0	10.3	0	0
	May	732	98.4%	14.4	6.1	77.0	18.2	33.9	11.2	0	0
	June	717	99.6%	20.0	6.3	102.8	20.3	36.3	10.0	0	0
	July	711	95.6%	18.1	4.6	106.9	17.3	39.3	7.0	0	0
	August	741	99.6%	14.5	4.0	90.9	12.1	38.2	6.7	0	0
	September	719	99.9%	12.3	3.9	76.6	12.1	23.7	7.1	0	0
	October	689	92.6%	13.2	4.1	81.6	23.4	27.9	7.8	0	0
	November	715	99.3%	10.8	4.5	60.7	19.1	29.1	10.3	0	0
	December	738	99.2%	11.9	6.0	63.8	18.7	36.7	11.3	0	0
Annual		8539	97.5%	12.9	5.1	106.9	23.9	39.3	11.5	0	0
2020	January	743	99.9%	16.3	8.0	68.4	22.5	47.4	14.1	0	0
	February	687	98.7%	9.8	6.3	61.1	22.7	27.8	14.1	0	0
	March	650	87.4%	10.0	6.2	54.1	20.9	33.5	14.8	0	0
	April	398	55.3%	9.1	5.8	59.5	19.7	22.3	11.0	0	0
	May	495	66.5%	11.9	5.2	96.6	20.4	30.3	10.3	0	0
	June	464	64.4%	17.1	5.2	104.2	21.9	33.1	9.3	0	0
	July	729	98.0%	13.9	5.1	103.0	18.9	38.6	11.3	0	0
	August	573	77.0%	10.0	4.3	53.5	13.7	19.0	6.2	0	0
	September	623	86.5%	8.5	3.3	58.7	12.7	17.4	5.5	0	0
	October	735	98.8%	11.7	4.0	68.3	17.1	28.9	7.5	0	0
	November	713	99.0%	8.4	4.5	47.0	18.0	22.5	8.8	0	0
	December	733	98.5%	10.0	5.5	49.3	19.7	33.3	11.1	0	0
Annual		7543	85.9%	11.4	5.3	104.2	22.7	47.4	14.8	0	0

Observations in µg/m3

FIGURE 4.7.2.2 - MAIN ROAD (AM2) ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.7.3 Access Road (AM3)

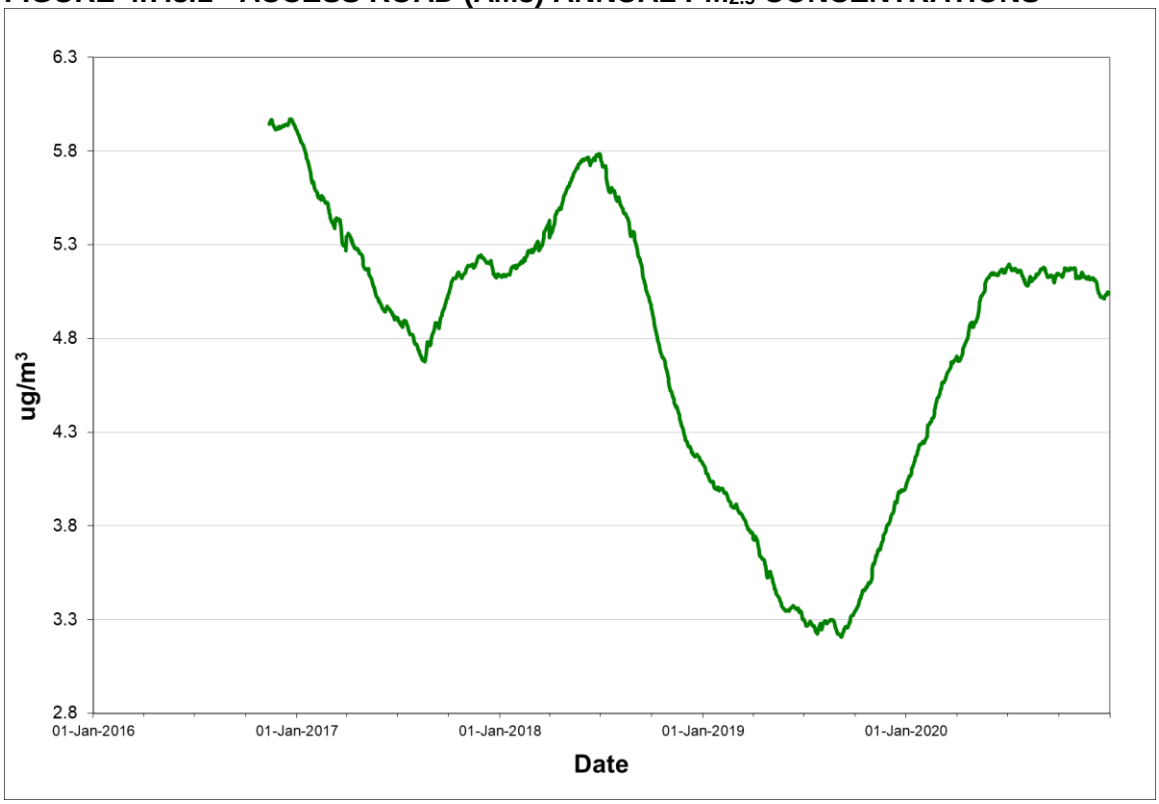
The Access Road (AM3) station is installed near the VALE Inco security gate and monitors the ambient levels of $PM_{2.5}$ and NO_x / NO_2 on a continuous basis. Both the $PM_{2.5}$ and NO_x / NO_2 standards were not exceeded during 2020. It is noted that due to operational issues with the NO_x / NO_2 monitor at this station, only 5.5% of the hours in 2020 were sampled. Tables 4.7.3.1 and 4.7.3.2 provide summary information on the level of air contaminants measured at the Access Road (AM3) site while Figures 4.7.3.1 and 4.7.3.2 provide a graphical representation of the annual trend in the data.

TABLE 4.7.3.1 - ACCESS ROAD (AM3) $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	31	100.0%	2.9	5.3	0
	February	27	96.4%	3.6	6.2	0
	March	31	100.0%	3.8	7.0	0
	April	30	100.0%	4.0	16.0	0
	May	31	100.0%	2.3	4.6	0
	June	30	100.0%	3.4	6.3	0
	July	31	100.0%	4.3	9.0	0
	August	31	100.0%	3.5	7.6	0
	September	30	100.0%	4.3	13.6	0
	October	31	100.0%	4.3	7.9	0
	November	30	100.0%	6.2	19.1	0
	December	31	100.0%	5.7	12.3	0
Annual		364	99.7%	4.0	19.1	0
2020	January	31	100.0%	5.7	12.6	0
	February	29	100.0%	6.8	23.7	0
	March	31	100.0%	6.1	14.7	0
	April	30	100.0%	6.0	10.9	0
	May	31	100.0%	5.6	14.3	0
	June	26	86.7%	3.6	7.5	0
	July	31	100.0%	3.5	5.6	0
	August	31	100.0%	4.3	8.3	0
	September	28	93.3%	3.8	9.1	0
	October	31	100.0%	4.7	9.3	0
	November	30	100.0%	5.5	10.7	0
	December	31	100.0%	4.7	9.8	0
Annual		360	98.4%	5.0	23.7	0

Observations in µg/m3

FIGURE 4.7.3.1 - ACCESS ROAD (AM3) ANNUAL $PM_{2.5}$ CONCENTRATIONS



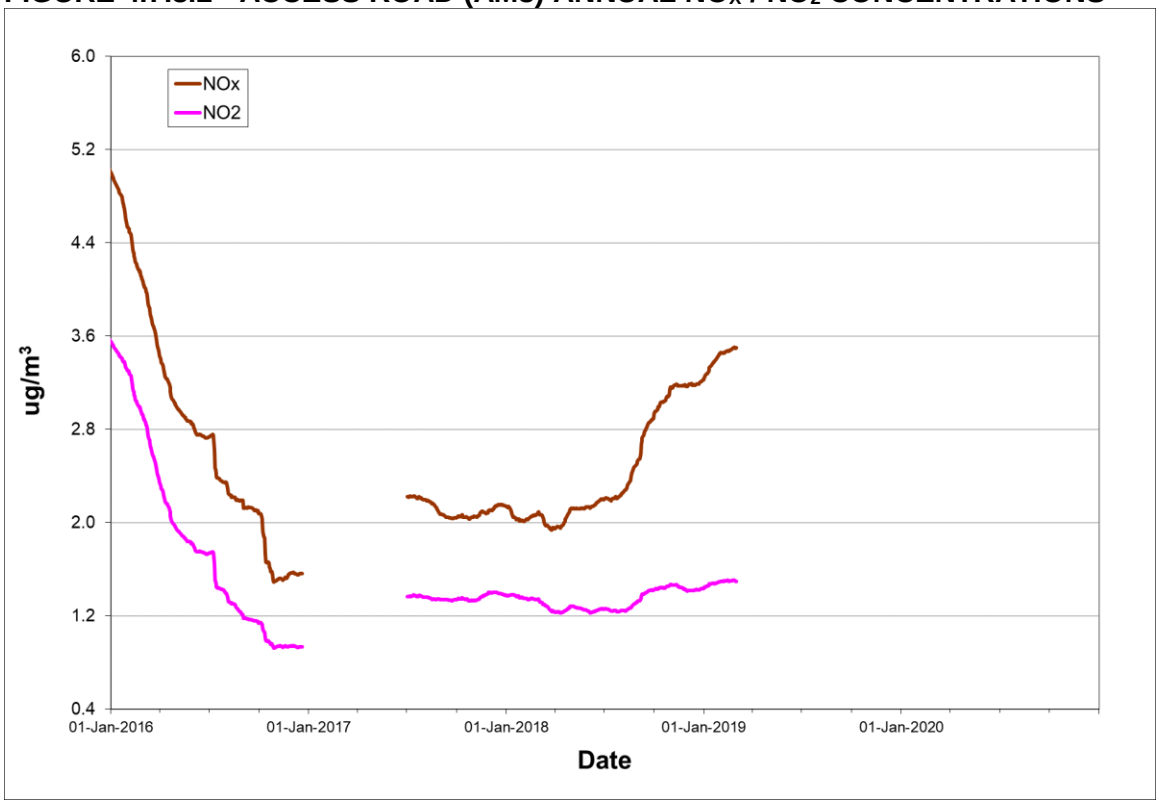
Rolling annual average of daily concentrations

TABLE 4.7.3.2 - ACCESS ROAD (AM3) NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average NO_X	Average NO_2	Maximums 1-Hour NO_X	Maximums 1-Hour NO_2	Maximums 24-Hour NO_X	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2019	January	493	66.3%	4.1	1.7	32.4	11.4	8.7	4.5	0	0
	February	44	6.5%	1.3	0.8	6.0	2.7	0.0	0.0	0	0
	March	0	0.0%								
	April	0	0.0%								
	May	0	0.0%								
	June	0	0.0%								
	July	632	84.9%	3.9	0.9	42.1	15.0	9.5	1.8	0	0
	August	740	99.5%	4.2	1.1	41.8	10.7	8.0	1.9	0	0
	September	702	97.5%	2.4	1.0	45.9	16.1	5.0	3.0	0	0
	October	729	98.0%	13.4	1.2	130.1	9.2	63.9	2.8	0	0
	November	435	60.4%	1.9	1.0	27.3	12.9	4.8	2.2	0	0
	December	0	0.0%								
Annual		3775	43.1%			130.1	16.1	63.9	4.5	0	0
2020	January	0	0.0%								
	February	0	0.0%								
	March	0	0.0%								
	April	0	0.0%								
	May	0	0.0%								
	June	0	0.0%								
	July	0	0.0%								
	August	240	32.3%	9.3	1.0	31.2	10.9	10.6	1.6	0	0
	September	245	34.0%	3.8	0.6	27.2	4.4	4.2	0.8	0	0
	October	0	0.0%								
	November	0	0.0%								
	December	0	0.0%								
Annual		485	5.5%			31.2	10.9	10.6	1.6	0	0

Observations in µg/m3

FIGURE 4.7.3.2 - ACCESS ROAD (AM3) ANNUAL NO_X / NO_2 CONCENTRATIONS

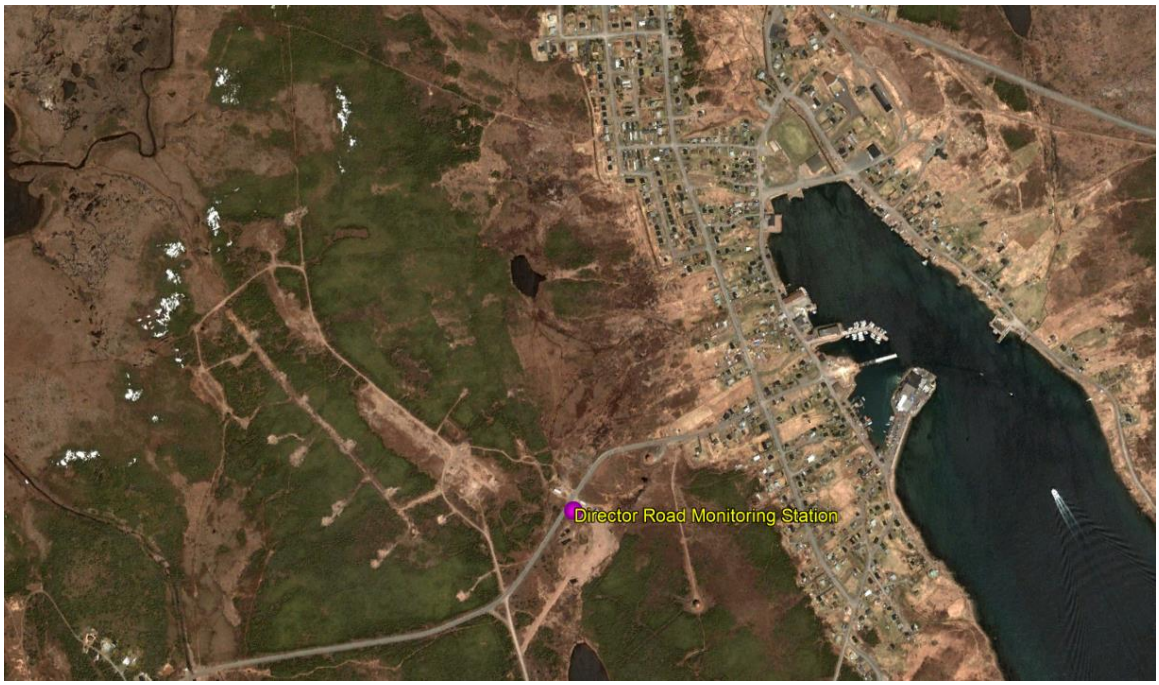


Rolling annual average of hourly concentrations

4.8 Canada Fluorspar (NL) Inc.

In 2018, Canada Fluorspar (NL) Inc. began operation of its fluorspar mine west of St. Lawrence. The company installed continuous $PM_{2.5}$, NO_X / NO_2 and TPM ambient monitors on Director Drive, between the mine site and the town of St. Lawrence. The location of the station is shown in Figure 4.8.1.

FIGURE 4.8.1 - CFI AMBIENT MONITORING STATION



4.8.1 Director Drive

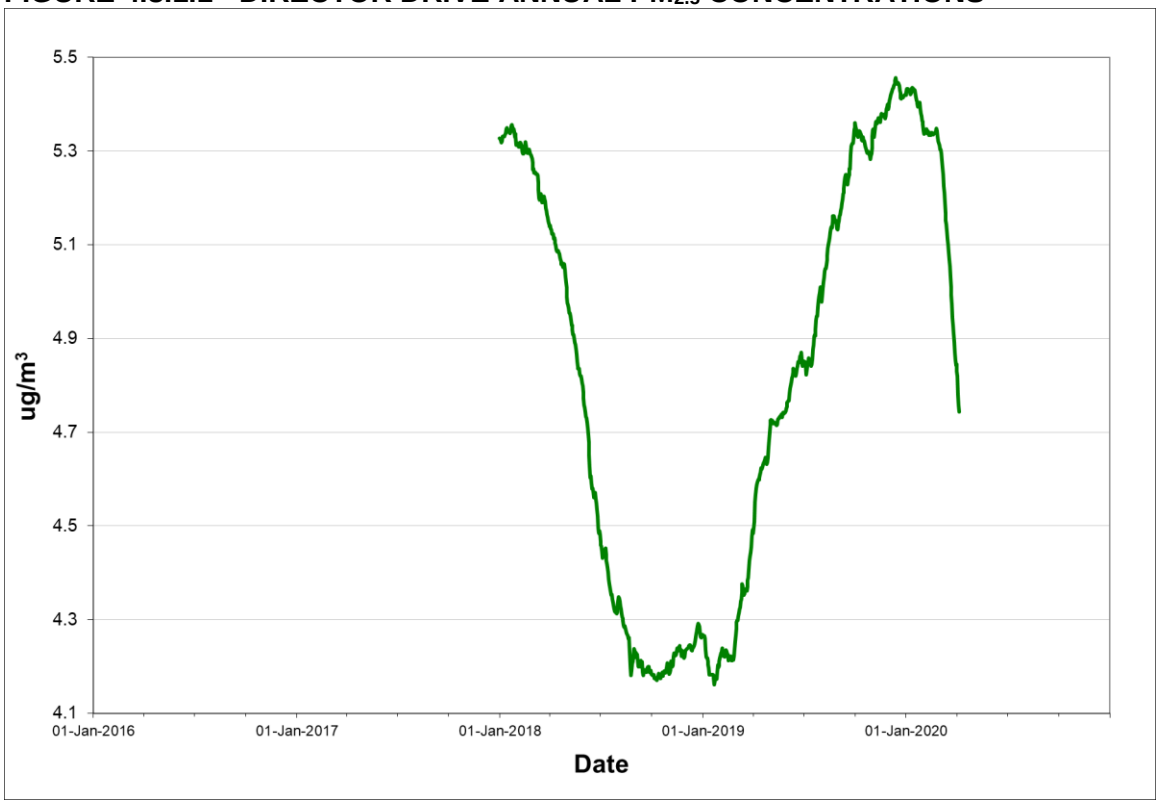
The Director Drive station was installed in early 2017 with various monitors being commissioned throughout the year. Table 4.8.1.1 presents the results for $PM_{2.5}$, Table 4.8.1.2 the results for NO_x / NO_2, and Table 4.8.1.3 the results for TPM while Figures 4.8.1.1 through 4.8.1.3 provide a graphical representation of the annual trend of $PM_{2.5}$, NO_x / NO_2, and TPM respectively. There were no exceedances of the associated ambient standards during the year.

TABLE 4.8.1.1 - DIRECTOR DRIVE $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	10	32.3%	6.4	8.2	0
	February	26	92.9%	5.7	9.2	0
	March	31	100.0%	6.7	9.7	0
	April	30	100.0%	6.7	15.9	0
	May	22	71.0%	4.6	6.9	0
	June	25	83.3%	4.6	8.1	0
	July	31	100.0%	5.0	9.8	0
	August	23	74.2%	4.8	7.9	0
	September	18	60.0%	4.5	13.3	0
	October	31	100.0%	4.5	7.6	0
	November	27	90.0%	6.0	10.7	0
	December	13	41.9%	5.5	6.5	0
Annual		287	78.6%	5.4	15.9	0
2020	January	25	80.6%	5.0	7.9	0
	February	8	27.6%	5.2	7.4	0
	March	26	83.9%	1.8	2.6	0
	April	7	23.3%	1.9	2.6	0
	May	1	3.2%	1.4	1.4	0
	June	27	90.0%	4.8	10.6	0
	July	22	71.0%	4.1	5.6	0
	August	31	100.0%	4.2	6.6	0
	September	13	43.3%	3.4	5.3	0
	October	24	77.4%	3.2	7.7	0
	November	18	60.0%	4.6	9.0	0
	December	31	100.0%	4.1	8.0	0
Annual		233	63.7%	3.9	10.6	0

Observations in µg/m3

FIGURE 4.8.1.1 - DIRECTOR DRIVE ANNUAL $PM_{2.5}$ CONCENTRATIONS



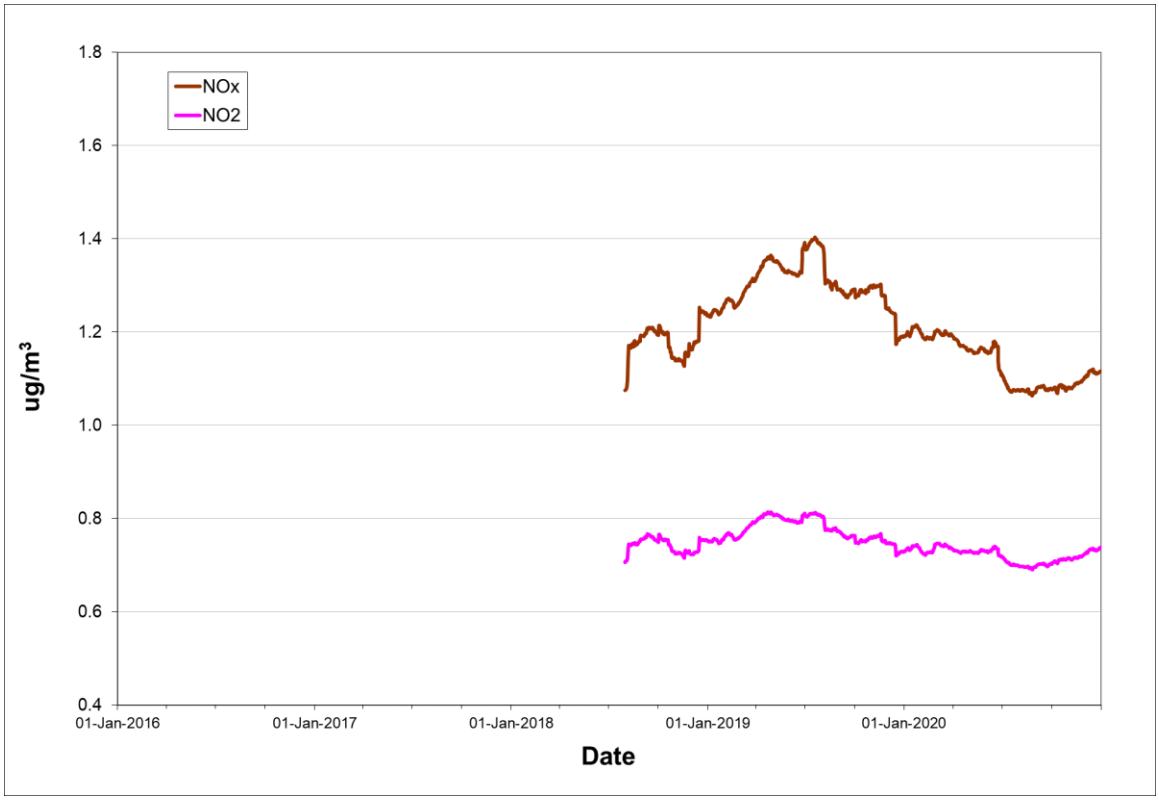
Rolling annual average of hourly concentrations

TABLE 4.8.1.2 - DIRECTOR DRIVE NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	743	99.9%	1.1	0.7	32.4	7.5	2.8	1.7	0	0
	February	469	69.8%	1.0	0.6	22.4	8.8	2.3	1.3	0	0
	March	468	62.9%	1.0	0.8	30.4	11.0	2.4	1.3	0	0
	April	720	100.0%	1.3	0.8	24.0	11.2	3.0	1.4	0	0
	May	737	99.1%	1.1	0.7	24.7	9.6	2.6	1.3	0	0
	June	708	98.3%	2.0	0.9	91.3	24.7	12.4	3.8	0	0
	July	743	99.9%	1.4	0.9	25.1	8.3	2.8	1.8	0	0
	August	520	69.9%	1.2	0.9	43.2	11.9	4.5	2.3	0	0
	September	718	99.7%	1.1	0.6	16.8	4.7	2.0	1.2	0	0
	October	744	100.0%	1.2	0.7	38.7	12.7	4.6	1.8	0	0
	November	720	100.0%	0.9	0.6	21.0	9.2	2.1	1.5	0	0
	December	742	99.7%	1.0	0.6	43.8	17.8	3.8	1.9	0	0
Annual		8032	91.7%	1.2	0.7	91.3	24.7	12.4	3.8	0	0
2020	January	742	99.7%	1.2	0.8	26.0	11.4	3.2	1.8	0	0
	February	693	99.6%	1.1	0.8	20.0	15.2	2.9	2.1	0	0
	March	742	99.7%	1.0	0.6	35.4	15.4	2.5	1.4	0	0
	April	720	100.0%	0.9	0.7	5.9	3.9	1.4	1.2	0	0
	May	744	100.0%	1.0	0.7	26.0	9.9	2.1	1.3	0	0
	June	714	99.2%	1.4	0.8	22.5	11.9	4.9	1.9	0	0
	July	744	100.0%	1.0	0.7	26.0	9.9	2.1	1.3	0	0
	August	743	99.9%	1.1	0.8	14.0	7.5	2.0	1.2	0	0
	September	580	80.6%	1.2	0.7	43.6	10.5	2.5	1.2	0	0
	October	741	99.6%	1.3	0.8	47.9	16.0	4.5	2.0	0	0
	November	720	100.0%	1.1	0.8	16.4	5.1	2.0	1.4	0	0
	December	741	99.6%	1.1	0.7	15.1	7.7	2.3	1.4	0	0
Annual		8624	98.2%	1.1	0.7	47.9	16.0	4.9	2.1	0	0

Observations in µg/m3

FIGURE 4.8.1.2 - DIRECTOR DRIVE ANNUAL NO_X / NO_2 CONCENTRATIONS



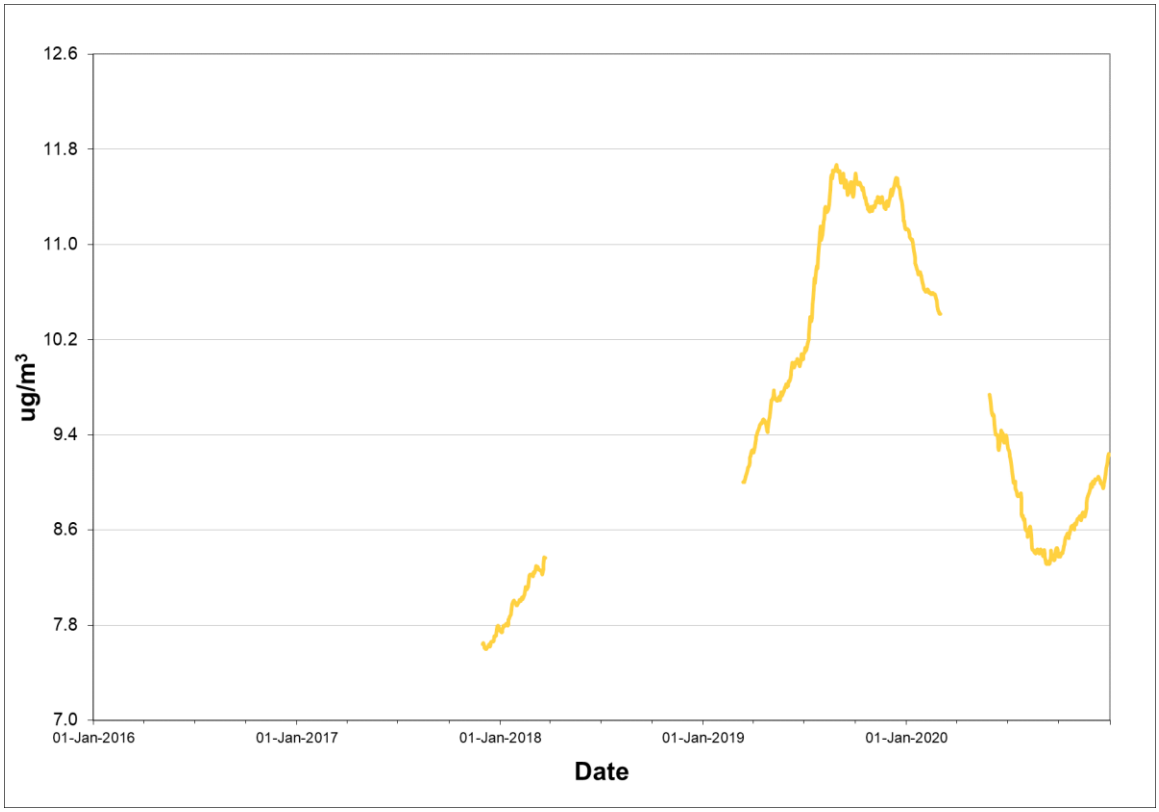
Rolling annual average of hourly concentrations

TABLE 4.8.1.3 - DIRECTOR DRIVE TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2019	January	10	32.3%	14.5	24.3	0
	February	26	92.9%	13.4	39.9	0
	March	31	100.0%	13.2	26.2	0
	April	30	100.0%	12.7	28.8	0
	May	23	74.2%	15.4	55.4	0
	June	4	13.3%	18.2	36.1	0
	July	27	87.1%	13.1	37.0	0
	August	31	100.0%	9.7	24.6	0
	September	30	100.0%	8.2	24.7	0
	October	31	100.0%	8.7	23.3	0
	November	28	93.3%	9.9	20.0	0
	December	20	64.5%	8.0	18.0	0
Annual		291	79.7%	11.1	55.4	0
2020	January	22	71.0%	7.0	12.1	0
	February	0	0.0%			
	March	27	87.1%	9.7	28.8	0
	April	30	100.0%	12.2	30.3	0
	May	26	83.9%	9.8	31.0	0
	June	30	100.0%	7.3	44.0	0
	July	23	74.2%	5.3	12.3	0
	August	31	100.0%	7.4	14.2	0
	September	18	60.0%	7.9	19.8	0
	October	31	100.0%	11.6	23.0	0
	November	24	80.0%	15.5	28.9	0
	December	28	90.3%	10.9	20.2	0
Annual		290	79.2%	9.2	44.0	0

Observations in µg/m3

FIGURE 4.8.1.3 - DIRECTOR DRIVE ANNUAL TPM CONCENTRATIONS



Rolling annual average of hourly concentrations

4.9 Atlantic Minerals Limited

In late 2016 / early 2017, Atlantic Minerals Limited installed continuous $PM_{2.5}$ and TPM ambient monitors to the west of their Port-au-Port mining operation to measure the potential impacts from of their mining operation. The location of the station is shown in Figure 4.9.1.

FIGURE 4.9.1 - ATLANTIC MINERALS AMBIENT MONITORING STATION

4.9.1 AML Property Boundary

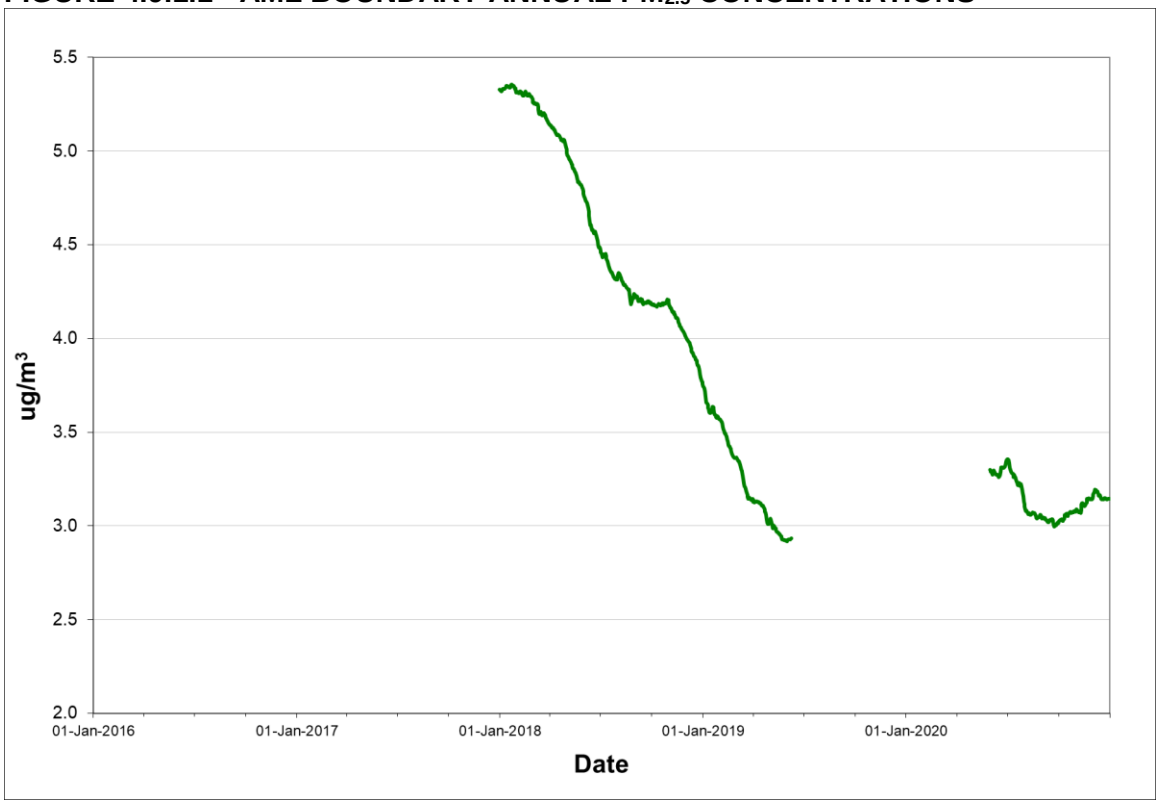
The AML Property Boundary station measures $PM_{2.5}$ and TPM. Table 4.9.1.1 presents the results for $PM_{2.5}$, while Table 4.9.1.2 the results for TPM. There were no exceedances of the associated ambient standards during the year. Annual graphics for $PM_{2.5}$ and TPM are presented in Figures 4.9.1.1 and 4.9.1.2 respectively.

TABLE 4.9.1.1 - AML BOUNDARY $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	30	96.8%	3.4	11.3	0
	February	25	89.3%	2.7	5.2	0
	March	24	77.4%	2.0	4.9	0
	April	26	86.7%	2.6	5.4	0
	May	7	22.6%	3.4	9.2	0
	June	10	33.3%	2.2	3.7	0
	July	31	100.0%	4.7	11.4	0
	August	31	100.0%	3.3	7.6	0
	September	27	90.0%	2.4	10.0	0
	October	31	100.0%	2.4	5.3	0
	November	30	100.0%	3.4	6.3	0
	December	30	96.8%	3.3	7.3	0
Annual		302	82.7%	3.0	11.4	0
2020	January	27	87.1%	3.3	10.5	0
	February	27	93.1%	3.5	8.2	0
	March	30	96.8%	3.1	6.5	0
	April	30	100.0%	4.1	6.6	0
	May	16	51.6%	2.6	7.2	0
	June	30	100.0%	3.5	12.4	0
	July	29	93.5%	2.2	7.3	0
	August	19	61.3%	1.9	4.4	0
	September	28	93.3%	2.1	6.0	0
	October	27	87.1%	3.1	5.6	0
	November	25	83.3%	4.2	11.7	0
	December	12	38.7%	3.6	7.7	0
Annual		300	82.0%	3.1	12.4	0

Observations in µg/m3

FIGURE 4.9.1.1 - AML BOUNDARY ANNUAL $PM_{2.5}$ CONCENTRATIONS



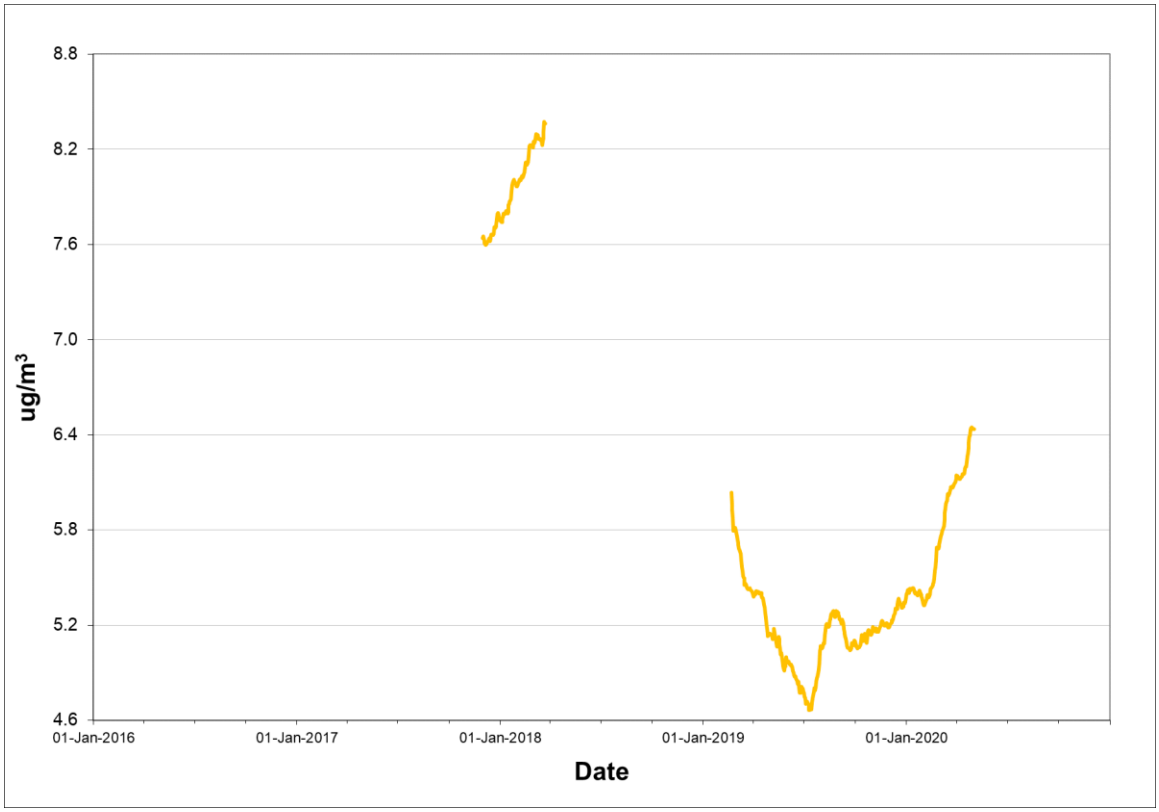
Rolling annual average of hourly concentrations

TABLE 4.9.1.2 - AML BOUNDARY TPM SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2019	January	31	100.0%	4.1	11.5	0
	February	28	100.0%	2.4	17.6	0
	March	31	100.0%	2.8	10.5	0
	April	28	93.3%	3.8	9.8	0
	May	28	90.3%	7.2	106.3	0
	June	10	33.3%	6.4	52.2	0
	July	31	100.0%	9.5	84.2	0
	August	31	100.0%	9.8	100.3	0
	September	27	90.0%	6.3	110.5	0
	October	31	100.0%	7.4	149.5	1
	November	30	100.0%	5.6	16.5	0
	December	30	96.8%	5.3	21.3	0
Annual		336	92.1%	5.4	149.5	1
2020	January	31	100.0%	3.8	8.3	0
	February	25	86.2%	5.2	11.5	0
	March	0	0.0%			
	April	0	0.0%			
	May	0	0.0%			
	June	0	0.0%			
	July	31	100.0%	10.8	43.8	0
	August	31	100.0%	9.6	101.1	0
	September	29	96.7%	7.1	67.7	0
	October	26	83.9%	6.1	15.8	0
	November	25	83.3%	8.3	67.9	0
	December	20	64.5%	5.7	16.6	0
Annual		218	59.6%		101.1	0

Observations in µg/m3

FIGURE 4.9.1.2 - AML BOUNDARY ANNUAL TPM CONCENTRATIONS



Rolling annual average of hourly concentrations

4.10 Tata Steel Minerals Canada

In 2018, TSMC began their mining operation in western Labrador, northwest of Schefferville, QC. Concurrently, a monitoring station was installed near the TSMC camp site. Figure 4.10.1 indicates the location of this station.

FIGURE 4.10.1 - TSMC AMBIENT MONITORING STATION

4.10.1 TSMC Camp Site

The TSMC Camp Site ambient air monitoring station measures $PM_{2.5}$ and NO_x / NO_2. Table 4.10.1.1 presents the results for $PM_{2.5}$ while Table 4.10.1.2 the results for NO_x / NO_2. In 2020 there were was one exceedance of the $PM_{2.5}$ ambient air standard in April, and one exceedance of the NO_x / NO_2 standard in November. Figures 4.10.1.1 and 4.10.1.2 present the annualized trend for $PM_{2.5}$ and NO_x / NO_2 respectively.

TABLE 4.10.1.1 - TSMC CAMP SITE $PM_{2.5}$ SUMMARY 2019 & 2020

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2019	January	28	90.3%	2.3	8.7	0
	February	28	100.0%	4.0	35.3	1
	March	31	100.0%	3.4	9.4	0
	April	30	100.0%	2.4	4.3	0
	May	31	100.0%	2.9	10.5	0
	June	29	96.7%	2.2	5.6	0
	July	31	100.0%	3.4	8.1	0
	August	31	100.0%	3.3	10.9	0
	September	29	96.7%	1.6	4.3	0
	October	31	100.0%	1.6	5.3	0
	November	28	93.3%	1.5	2.5	0
	December	11	35.5%	3.4	7.7	0
Annual		338	92.6%	2.6	35.3	1
2020	January	25	80.6%	2.4	5.6	0
	February	29	100.0%	2.3	5.8	0
	March	29	93.5%	2.3	4.1	0
	April	30	100.0%	4.5	35.7	1
	May	30	96.8%	1.7	5.2	0
	June	0	0.0%			
	July	31	100.0%	3.2	10.8	0
	August	31	100.0%	3.6	11.8	0
	September	25	83.3%	1.2	4.0	0
	October	8	25.8%	1.6	3.3	0
	November	30	100.0%	2.1	6.7	0
	December	31	100.0%	1.8	4.0	0
Annual		299	81.7%	2.5	35.7	1

Observations in µg/m3

FIGURE 4.10.1.1 - TSMC CAMP SITE ANNUAL $PM_{2.5}$ CONCENTRATIONS

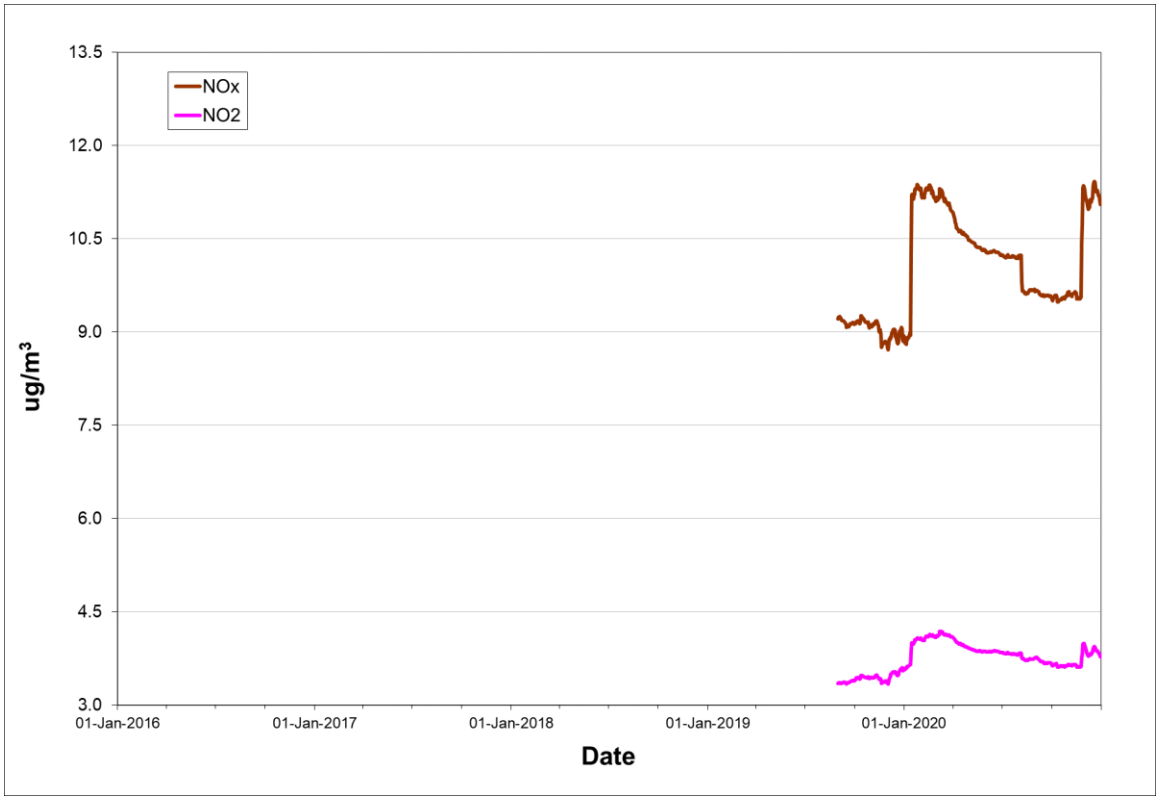
Rolling annual average of hourly concentrations

TABLE 4.10.1.2 - TSMC CAMP SITE NO_X / NO_2 SUMMARY 2019 & 2020

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums				Exceedances	
						1-Hour		24-Hour		1-Hour	24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2019	January	485	65.2%	16.2	5.5	270.5	88.4	47.1	14.5	0	0
	February	393	58.5%	20.9	6.9	589.0	150.1	67.1	20.8	0	0
	March	495	66.5%	13.0	4.8	212.1	64.2	28.4	11.0	0	0
	April	653	90.7%	7.5	3.0	271.7	80.7	27.1	8.2	0	0
	May	714	96.0%	3.9	1.8	199.3	48.3	15.1	5.2	0	0
	June	687	95.4%	3.2	1.4	50.3	31.5	10.6	4.2	0	0
	July	709	95.3%	3.4	1.8	48.3	23.5	9.6	4.6	0	0
	August	713	95.8%	10.6	3.1	1135.5	165.1	169.1	30.9	0	0
	September	683	94.9%	5.8	2.8	231.3	46.8	20.8	9.1	0	0
	October	743	99.9%	6.3	3.2	90.5	48.8	25.1	12.0	0	0
	November	678	94.2%	8.7	3.7	119.9	38.5	26.0	9.0	0	0
	December	738	99.2%	16.1	7.3	198.5	59.0	44.2	19.8	0	0
Annual		7691	87.8%	8.9	3.6	1135.5	165.1	169.1	30.9	0	0
2020	January	743	99.9%	38.9	9.9	2145.6	349.2	454.4	77.1	0	0
	February	696	100.0%	14.4	5.9	111.9	46.7	29.9	12.9	0	0
	March	744	100.0%	10.2	4.6	305.9	107.3	69.8	26.0	0	0
	April	701	97.4%	2.3	0.9	78.7	22.6	16.0	4.7	0	0
	May	743	99.9%	2.1	1.3	117.5	45.6	11.4	4.5	0	0
	June	713	99.0%	2.6	1.3	69.7	29.7	7.4	3.7	0	0
	July	729	98.0%	3.4	1.6	109.9	37.9	18.2	7.3	0	0
	August	743	99.9%	4.4	2.5	62.6	34.3	11.4	7.1	0	0
	September	720	100.0%	4.6	1.8	106.3	38.6	15.3	5.6	0	0
	October	741	99.6%	7.0	2.8	110.6	32.2	24.1	8.1	0	0
	November	720	100.0%	29.5	7.9	1798.0	420.3	308.9	61.5	1	0
	December	736	98.9%	12.6	4.9	455.1	97.4	72.0	20.9	0	0
Annual		8729	99.4%	11.0	3.8	2145.6	420.3	454.4	77.1	1	0

Observations in µg/m3

FIGURE 4.10.1.2 - TSMC CAMP SITE ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations