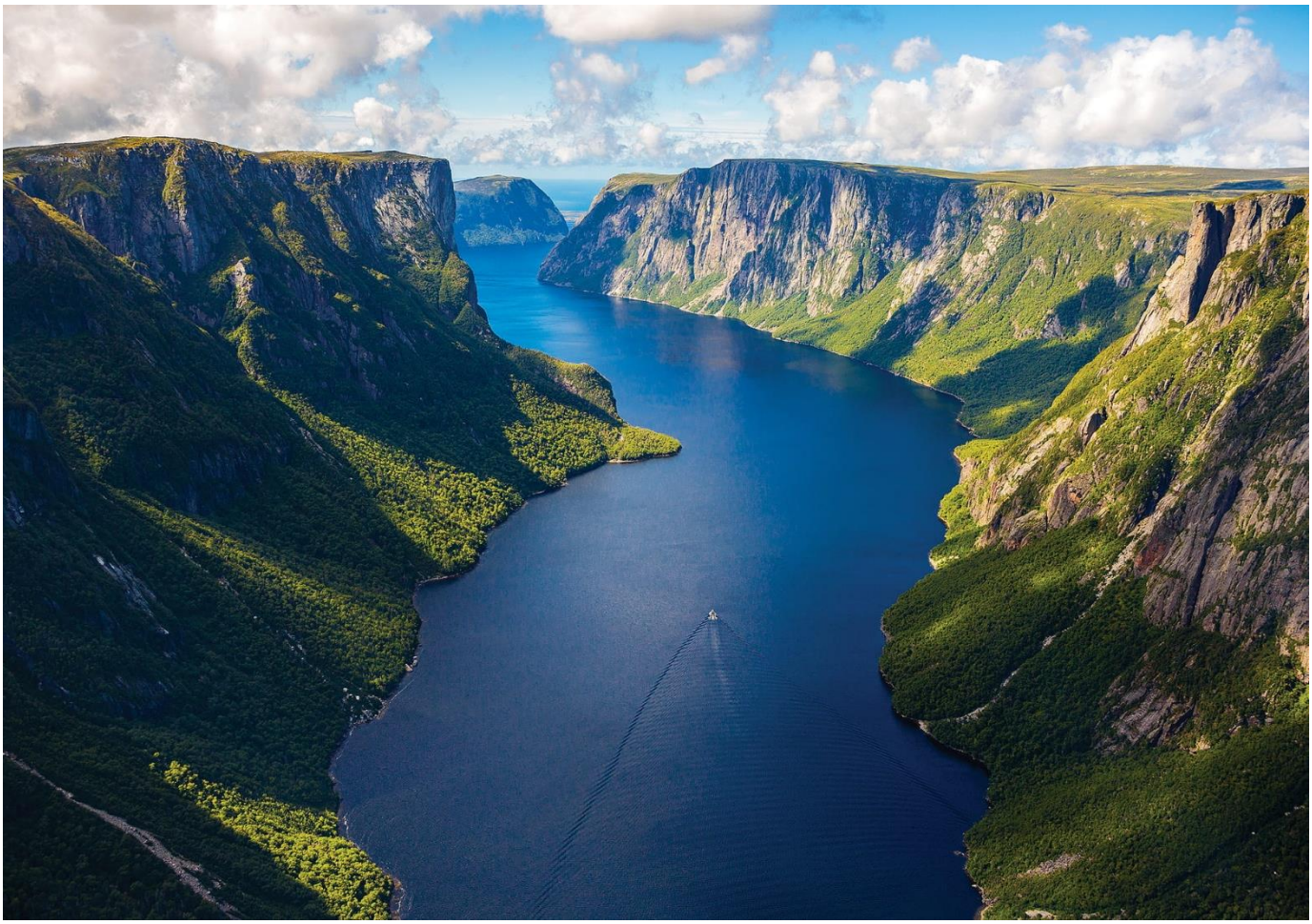
Newfoundland & Labrador

DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE

2023 AIR QUALITY MONITORING REPORT

April 2024



Executive Summary

The air quality in communities across the province is generally considered to be good as the 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 air quality standards. On the local level, emissions from sources such as vehicular traffic, forest fires and woodstoves also impact the provincial air quality.

In 2023 however, smoke from wildfires in Quebec during the spring and from northern Alberta and the Northwest Territories in late summer / early autumn had a major impact on the air quality in all parts of the province. Most National Air Pollution Surveillance (NAPS) and industrial monitoring stations recorded numerous exceedances of the $PM_{2.5}$ air quality standard during the year as a result of the wildfires. Additionally during the year, there were numerous instances where the levels measured at a station operated by an industrial facility approached or exceeded the associated air quality standard. In many of these instances, fugitive dust liftoff was a primary source.

Also in 2023 data, the methodology for calculating 24-hour particulate concentrations was modified. Historically 24-hour particulate concentrations were based on calendar days as this was an artifact of monitors only able to collect 24-hour / daily grab samples. With the advent of continuous particulate sampling monitors, the 24-hour concentration can be calculated every hour, i.e. a rolling 24-hour average, while allowing for the better capture of episodic events. This methodology change has been applied to all pertinent historical data.

This 2023 report is the 15th annual and presents all the air quality monitoring results from both the federal / provincial operated 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.

This 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, there was a series of exceedances, or there has been a change in industrial operating conditions which would lead to a change in emissions.

The 2023 air quality monitoring results are summarized below.

Sulphur Dioxide - 2023

Operator	Air Quality Monitoring Location	Maximum 1-hour Concentration	Maximum 3-hour Concentration	Maximum 24-hour Concentration	Annual Concentration
Regulatory Limit (ppb)		**344**	**229**	**115**	**23**
NAPS	St. John's	3.0	1.9	0.6	0.2
	Mt. Pearl	2.7	2.0	0.5	0.1
	Corner Brook	1.7	1.3	0.5	0.2
NL HYDRO	Butterpot Road	39.2	28.8	8.1	0.6
	Green Acres Road	71.7	42.6	7.9	0.6
	Indian Pond Drive	77.5	65.9	35.6	1.0
	Indian Pond Road	36.7	23.5	11.6	0.6
	Lawrence Pond Road	25.5	17.3	8.5	0.6
BRAYA	Arnold's Cove	9.1	3.3	1.5	0.6
	Come by Chance	7.2	5.5	4.8	1.3
	Sunnyside	7.2 *	6.0 *	4.6 *	**
	Property Boundary	9.2	3.4	1.0	0.4
IOC	Dog Park	47.0	34.6	11.7	0.6
	Hudson Drive	21.9	14.5	4.0	0.3
	Smokey Mountain II	39.1	30.2	9.9	0.5
CBPP	Main Street	3.2 *	2.6 *	1.0 *	**
TACORA RESOURCES	Bond Street	29.4	21.8	6.6	0.7

Observations in ppb

* based on limited data

** insufficient data to calculate

$PM_{2.5}$ - 2023

Operator	Air Quality Monitoring Location	Maximum 24-hour Concentration	Annual Concentration
Regulatory Limit (µg/m³)		**25**	**8.8**
NAPS	St. John's	45.3	7.6
	Mt. Pearl	40.2	5.2
	Grand Falls-Windsor	45.4	5.2
	Corner Brook	23.3	4.4
	Burin	43.7	4.5
NL HYDRO	Butterpot Road	31.3	4.3
	Green Acres Road	33.5	4.9
	Indian Pond Drive	33.1	4.9
	Indian Pond Road	33.9	5.3
	Lawrence Pond Road	32.0	5.1
	Holyrood Property Boundary	32.8	4.5
BRAYA	Arnold's Cove	37.0	5.0
	Come by Chance	32.6	4.3
	Sunnyside	36.1	4.1
	Property Boundary	37.5	5.1
IOC	Dog Park	156.2	7.2
	Hudson Drive (Firehall)	252.7	7.1
	Smokey Mountain II	159.6	7.5
TACORA RESOURCES	Bond Street	163.7	6.5
	Cabot Drive	158.8	7.2
CBPP	Main Street	24.9 *	**
VALE	Community Centre	43.7	4.5
	Access Road	43.4	4.3
	Accommodation Building	65.6	5.1
CFI	Director Drive	34.2 *	**
AML	Property Boundary	23.6	4.6
TSMC	Camp Site	127.0	6.0

Observations in µg/m³

* based on limited data

** insufficient data to calculate

Nitrogen Dioxide - 2023

Operator	Air Quality Monitoring Location	Maximum 1-hour Concentration	Maximum 24-hour Concentration	Annual Concentration
Regulatory Limit (ppb)		**213**	**106**	**53**
NAPS	St. John's	43.3	21.4	4.5
	Mt. Pearl	40.2	6.5	1.0
	Grand Falls-Windsor	23.2 *	5.0 *	**
	Corner Brook	30.3	8.0	2.2
	Burin	11.7	1.6	0.4
NL HYDRO	Butterpot Road	17.3	3.8	0.3
	Green Acres Road	23.9	3.8	0.5
	Indian Pond Drive	15.5	7.4	0.5
	Indian Pond Road	11.9	4.2	0.5
	Lawrence Pond Road	14.1	5.8	0.5
IOC	Dog Park	33.5	15.7	2.4
	Hudson Drive (Firehall)	45.2	25.6	2.6
	Smokey Mountain II	45.2	20.8	1.9
VALE	Community Centre	9.7	6.6	1.1
	Access Road	32.4	3.8	0.9
	Crusher Building	68.3	31.0	4.5
	Accommodation Building	53.5	33.9	9.2
CFI	Director Drive	12.1 *	2.5 *	**
TSMC	Camp Site	64.1	12.8	1.6

Observations in ppb

* based on limited data

** insufficient data to calculate

Ozone - 2023

Operator	Air Quality Monitoring Location	Maximum 1-hour Concentration	Maximum 8-hour Concentration
Regulatory Limit (ppb)		**82**	**44**
NAPS	St. John's	50.1	48.9
	Mt. Pearl	63.3	51.6
	Grand Falls-Windsor	53.7	51.2
	Corner Brook	53.6	50.1
	Burin	54.4	47.6
	Port aux Choix	49.8	47.8
IOC	Hudson Drive (Firehall)	80.3	62.2

Observations in ppb
* based on limited data

PM_{10} - 2023

Operator	Air Quality Monitoring Location	Maximum 24-hour Concentration
Regulatory Limit (µg/m^3)		**50**
NAPS	St. John's	72.4
	Mt. Pearl	67.0
	Grand Falls-Windsor	82.1
	Corner Brook	56.4
	Burin	69.8
IOC	Hudson Drive (Firehall)	295.9
CBPP	Main Street	**
VALE	Community Centre	70.7
	Access Road	72.0

Observations in µg/m^3
* based on limited data
** insufficient data to calculate

Total Particulate Matter - 2023

Operator	Air Quality Monitoring Location	Maximum 24-hour Concentration	Annual Concentration
Regulatory Limit (µg/m³)		**120**	**60**
NL HYDRO	Green Acres Road	74.3	10.1
	Indian Pond Drive	147.0	11.6
	Indian Pond Road	72.8	12.0
	Lawrence Pond Road	106.6	11.3
	Holyrood Property Boundary	52.5	15.3
IOC	Dog Park	228.0	9.2
	Hudson Drive (Firehall)	262.9	13.5
	Smokey Mountain II	386.1	7.7
TACORA RESOURCES	Bond Street	286.3	10.2
	Cabot Drive	303.2	11.1
CBPP	Main Street	**	**
VALE	Port Site	450.5	6.3
CFI	Director Drive	39.3 *	**
AML	Property Boundary	146.7 *	**

Observations in µg/m³

* based on limited data

** insufficient data to calculate

Carbon Monoxide - 2023

Operator	Air Quality Monitoring Location	Maximum 1-hour Concentration	Maximum 8-hour Concentration
Regulatory Limit (ppm)		**30.582**	**13.107**
NAPS	St. John's	0.6	0.4
	Mt. Pearl	1.2	0.8
	Grand Falls-Windsor	0.7	0.5
	Corner Brook	0.5	0.4
	Burin	0.4	0.4

Observations in ppm

* based on limited data

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Disclaimer

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.

In 2022, amendments to the *Air Pollution Control Regulations, 2004* were promulgated; now cited as *Air Pollution Control Regulations, 2022*. Of particular note, the units of measurement for gases in the air quality standards were changed from micrograms per cubic metre ($\mu g/m^3$) to parts per billion (ppb) for consistency with field monitors. Care is therefore required when comparing the results from previous annual reports to this 2023 annual report.

All data presented herein may be subject to future revision.

1.0 Introduction

The 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 2023, 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 air quality 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. In 2023 however, smoke from wildfires in Quebec during the spring and from northern Alberta and the Northwest Territories in late summer / early autumn had a major impact on the air quality in all parts of the province. Most National Air Pollution Surveillance (NAPS) and industrial monitoring stations recorded numerous exceedances of the $PM_{2.5}$ air quality standard during the year as a result of the wildfires. Additionally during the year, there were numerous instances where the levels measured at a station operated by an industrial facility approached or exceeded the associated air quality standard. In many of these instances, fugitive dust liftoff was a primary source.

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 trend for each air quality monitor in Newfoundland and Labrador which were either operated or audited by the Department in 2023. All air quality monitoring stations, including those operated by industrial operations, are required to meet minimum performance criteria as 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 air quality monitoring networks in the province, a description of the pollutants being measured, and their associated air quality standard. Section 3 provides results from the monitors in the NAPS network; while Section 4 provides results from the air quality monitoring networks operated at industrial facilities.

1.1 Definitions

The following definitions are used throughout this report:

AQHI	Air Quality Health Index
Braya	Braya Renewable Fuels
CBPP	Corner Brook Pulp and Paper
CFI	Canada Fluorspar Inc.
CO	carbon monoxide
IOC	Iron Ore Company of Canada
mg/m^3	milligrams per cubic metre
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
ppb	parts per billion
SO_2	sulphur dioxide
TPM	total particulate matter
TSMC	Tata Steel Minerals Canada
$\mu g/m^3$	micrograms per cubic metre
Vale	Vale Newfoundland and Labrador

2.0 Air Quality Monitoring Network

Seven pollutants are measured at the air quality monitoring networks in the province, though not all networks monitor all pollutants. The monitored pollutants are sulphur dioxide (SO_2); oxides of nitrogen (NO_x) (which includes nitric oxide (NO) and nitrogen dioxide (NO_2)); carbon monoxide (CO); total particulate matter (TPM); particles less or equal to than 10 microns (PM_{10}); particles less than or equal to 2.5 microns ($PM_{2.5}$); 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. Fuel NO_x is formed by the reaction of nitrogen compounds chemically bound in liquid or solid fuels with oxygen in the combustion air and can account for up to 50% of 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.

NO_2 is the primary component of concern in NO_x emissions. Though typically less than 10% of the NO_x emitted from the combustion of fuel is emitted as NO_2, the remaining 90+% 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 air quality 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:

$$4HC + 5O_2 \rightarrow 4CO_2 + 2H_2O$$

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) present in the 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 Air Quality Standards

The maximum concentrations of air pollutants considered to be protective of the environment are defined in the new *Air Pollution Control Regulations, 2022*. Note that under the new regulations, the air quality standards for gases were changed from $\mu g/m^3$ to ppb for consistency with pollutant monitors. Also in 2023 data, the methodology for calculating 24-hour particulate concentrations was modified. Historically 24-hour particulate concentrations were based on calendar days as this was an artifact of monitors only able to collect 24-hour / daily grab samples. With the advent of continuous particulate sampling monitors, the 24-hour concentration can be calculated every hour, i.e. a rolling 24-hour average, while allowing for the better capture of episodic events. This methodology change has been applied to all pertinent historical data.

For the pollutants discussed in the report, the air quality standards are detailed in Table 2.2.1.

TABLE 2.2.1 - AIR QUALITY STANDARDS IN NEWFOUNDLAND AND LABRADOR

Pollutant	Averaging Period	Concentration (ppb)	Concentration ($\mu g/m^3$)
Carbon Monoxide (CO)	1-hour	30582	---
	8-hour	13107	---
Nitrogen Dioxide (NO_2)	1-hour	213	---
	24-hour	106	---
	1-year	53	---
Ozone (O_3)	1-hour	82	---
	8-hour	44	---
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	344	---
	3-hour	229	---
	24-hour	115	---
	1-year	23	---

https://assembly.nl.ca/Legislation/sr/regulations/rc220011.htm

2.3 Air Quality Monitoring in Newfoundland and Labrador

Table 2.3.1 provides the coordinates (latitudes and longitudes) of each air quality monitoring station that measured pollutants during 2023 while Table 2.3.2 provides the listing of the pollutants measured at each of these stations. Figure 2.3.1 provides a picture of a typical air quality monitoring station.

TABLE 2.3.1 - AIR QUALITY MONITORING STATION LOCATIONS

OPERATOR	STATION LOCATION	COORDINATES (WGS-84)	
		LATITUDE	LONGITUDE
ENVIRONMENT AND CLIMATE CHANGE + ENVIRONMENT AND CLIMATE CHANGE CANADA (NAPS)	Water Street, St. John's	47.5604	-52.7114
	Old Placentia Road, Mount Pearl	47.5051	-52.7949
	Macpherson Avenue, Corner Brook	48.9521	-57.9222
	Scott Avenue, Grand Falls-Windsor	48.9270	-55.6597
	Fisher Street, Port aux Choix	50.7123	-57.3643
	Main Street, Burin	47.0991	-55.1985
NL HYDRO	Butterpot Road	47.3976	-53.1099
	Green Acres Road	47.4324	-53.1004
	Indian Pond Drive	47.4549	-53.0890
	Indian Pond Road	47.4503	-53.0823
	Lawrence Pond Road	47.4636	-53.0418
	Property Boundary	47.4498	-53.0941
BRAYA RENEWABLE FUELS	Main Road, Come by Chance	47.8480	-53.9713
	Spencers Cove Road, Arnold's Cove	47.7659	-53.9864
	Goulding Avenue, Sunnyside	47.8602	-53.9252
	Property Boundary	47.8000	-53.9910
CORNER BROOK PULP AND PAPER	Main Street	48.9549	-57.9446

OPERATOR	STATION LOCATION	COORDINATES (WGS-84)	
		LATITUDE	LONGITUDE
IRON ORE COMPANY OF CANADA	Dog Park, Labrador City	52.9304	-66.9105
	Hudson Drive, Labrador City	52.9455	-66.9102
	Smokey Mountain II	52.9768	-66.9210
VALE NEWFOUNDLAND AND LABRADOR LIMITED	Voisey's Bay Accommodations	56.3394	-62.0973
	Voisey's Bay Crusher	56.3365	-62.1054
	Voisey's Bay Port	56.4208	-62.0560
	Long Harbour Community Centre	47.4304	-53.8207
	Long Harbour Property Boundary	47.4329	-53.7984
TACORA RESOURCES	Bond Street, Wabush	52.9083	-66.8714
	Cabot Drive, Wabush	52.8974	-66.8630
CANADA FLUORSPAR INC.	Director Drive, St. Lawrence	46.9133	-55.4003
CEMEX	Property Boundary	48.5258	-59.0376
TATA STEEL MINERALS CANADA	Camp Site	54.8774	-67.0615

TABLE 2.3.2 - POLLUTANTS MEASURED, AIR QUALITY MONITORING STATIONS

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		✓	✓		✓	✓	✓
	Fisher Street, Port aux Choix			✓				
	Main Street, Burin		✓	✓		✓	✓	✓
NL HYDRO	Butterpot Road	✓	✓				✓	
	Green Acres Road	✓	✓		✓		✓	
	Indian Pond Drive	✓	✓		✓		✓	
	Indian Pond Road	✓	✓		✓		✓	
	Lawrence Pond Road	✓	✓		✓		✓	
	Property Boundary				✓		✓	
BRAYA RENEWABLE FUELS	Main Road, Come by Chance	✓					✓	
	Spencers Cove Road, Arnold's Cove	✓					✓	
	Goulding Avenue, Sunnyside	✓					✓	
	Property Boundary	✓					✓	
CORNER BROOK PULP AND PAPER	Main Street	✓			✓	✓	✓	
IRON ORE COMPANY OF CANADA	Dog Park, Labrador City	✓	✓		✓		✓	
	Hudson Drive, Labrador City	✓	✓	✓	✓	✓	✓	
	Smokey Mountain II	✓	✓		✓		✓	

OPERATOR	STATION LOCATION	POLLUTANT						
		SO_2	NO_X / NO_2	O_3	TPM	PM_{10}	$PM_{2.5}$	CO
VALE NEWFOUNDLAND AND LABRADOR LIMITED	Voisey's Bay Accommodations		✓				✓	
	Voisey's Bay Crusher		✓					
	Voisey's Bay Port				✓			
	Long Harbour Community Centre		✓			✓	✓	
	Long Harbour Property Boundary		✓			✓	✓	
TACORA RESOURCES	Bond Street, Wabush	✓			✓		✓	
	Cabot Drive, Wabush				✓		✓	
CANADA FLUORSPAR INC.	Director Drive, St. Lawrence		✓		✓		✓	
CEMEX	Property Boundary				✓		✓	
TATA STEEL MINERALS CANADA	Camp Site		✓				✓	

FIGURE 2.3.1 - TYPICAL AIR QUALITY MONITORING STATION

NAPS air quality 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 quality monitoring data monitored in both the NAPS network and the industrial air quality 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 2023, there were six sites operational, and of the six, three had a complete suite of air quality monitoring (SO_2, $PM_{2.5}$, PM_{10}, NO_x / NO_2, CO and O_3). Two sites operated with a subset of monitors ($PM_{2.5}$, PM_{10}, NO_x / NO_2, CO and O_3). These five NAPS stations provide the data necessary to calculate the hourly AQHI. A sixth NAPS station monitors O_3 only. It is noted that the monitoring of SO_2 is being phased out of the NAPS network.

The three sites with a complete suite of air quality monitoring were located in St. John's on Water Street, in Mt. Pearl on Old Placentia Road, and in Corner Brook on Macpherson Avenue. The two sites with the subset of air quality monitoring are located in Burin at the Highway Depot and in Grand Falls-Windsor on Scott Avenue. The station that 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 AIR QUALITY MONITORING STATION IN ST. JOHN'S

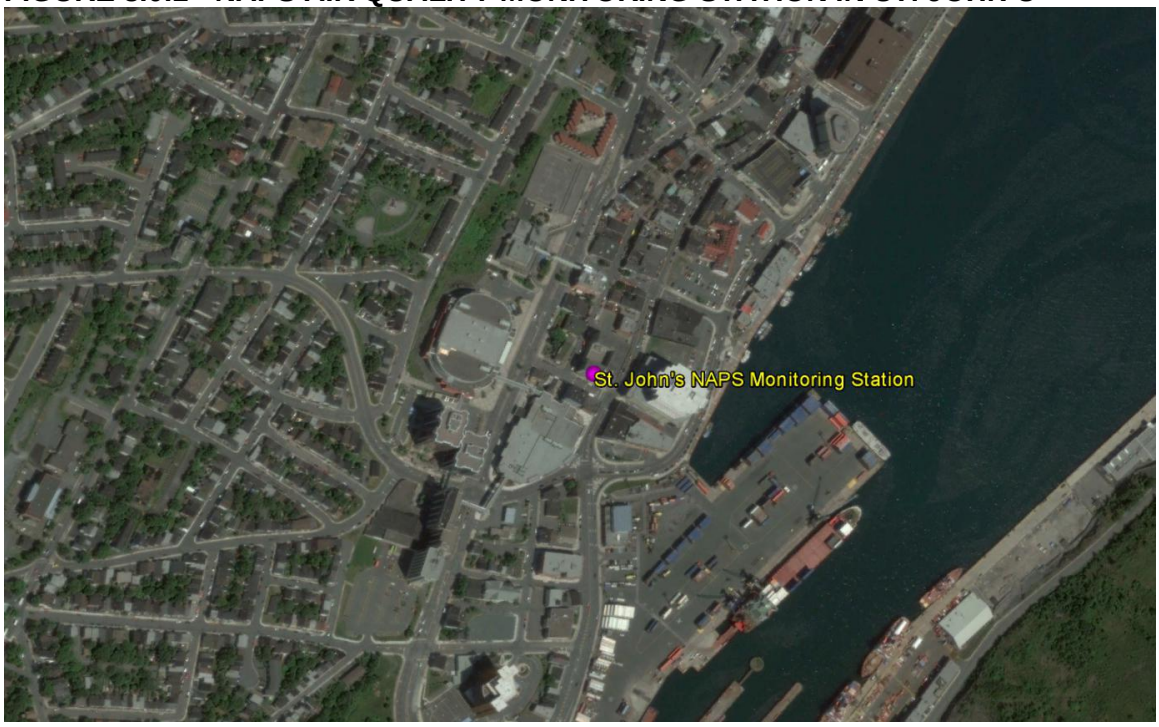


FIGURE 3.0.2 - NAPS AIR QUALITY MONITORING STATION IN MOUNT PEARL

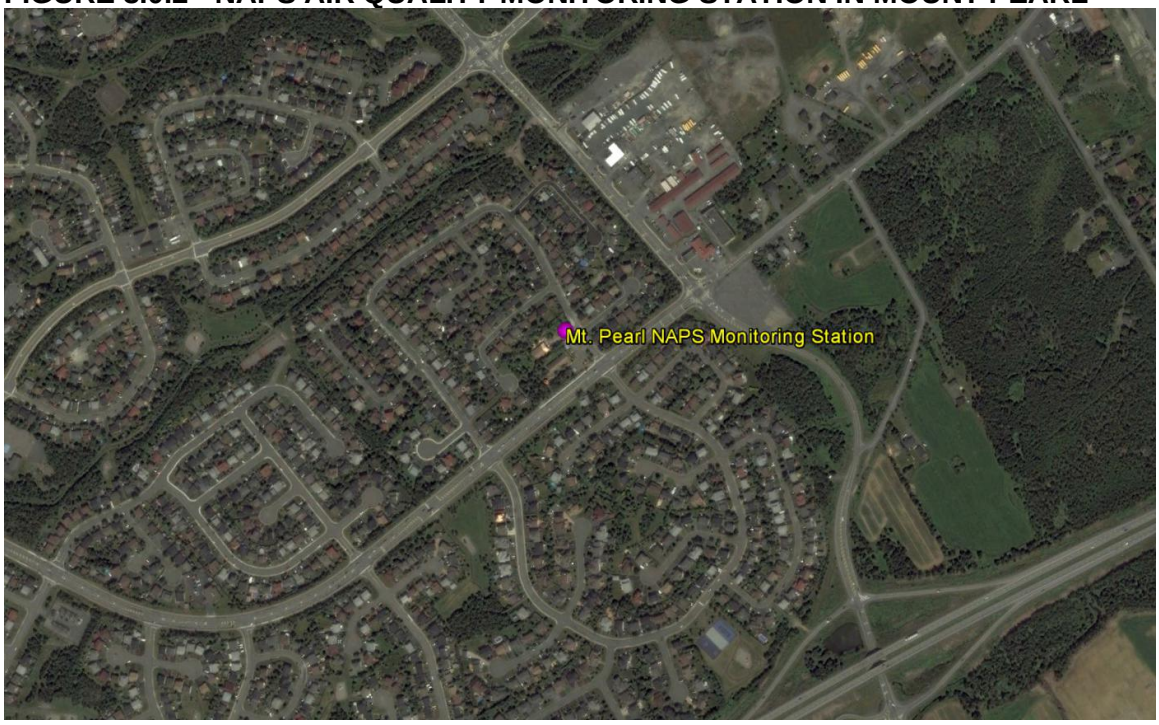


FIGURE 3.0.3 - NAPS AIR QUALITY MONITORING STATION IN GRAND FALLS-WINDSOR

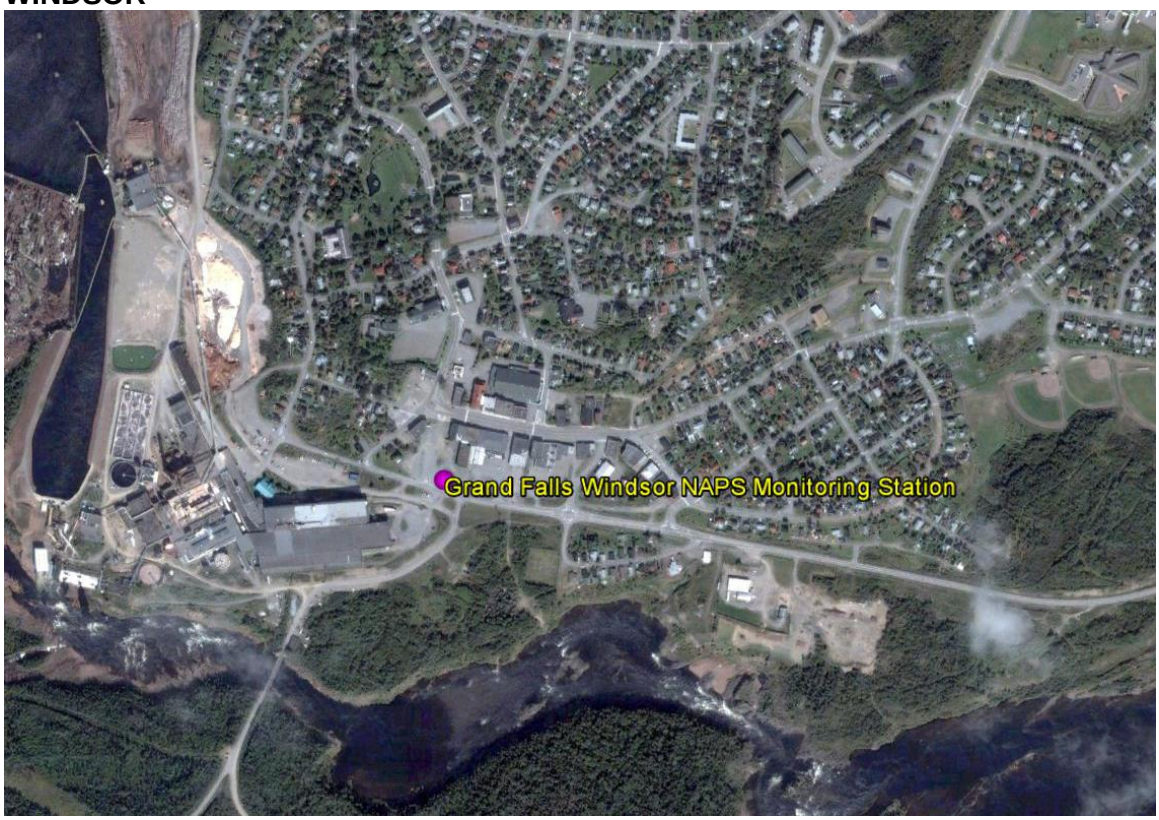


FIGURE 3.0.4 - NAPS AIR QUALITY MONITORING STATION IN CORNER BROOK

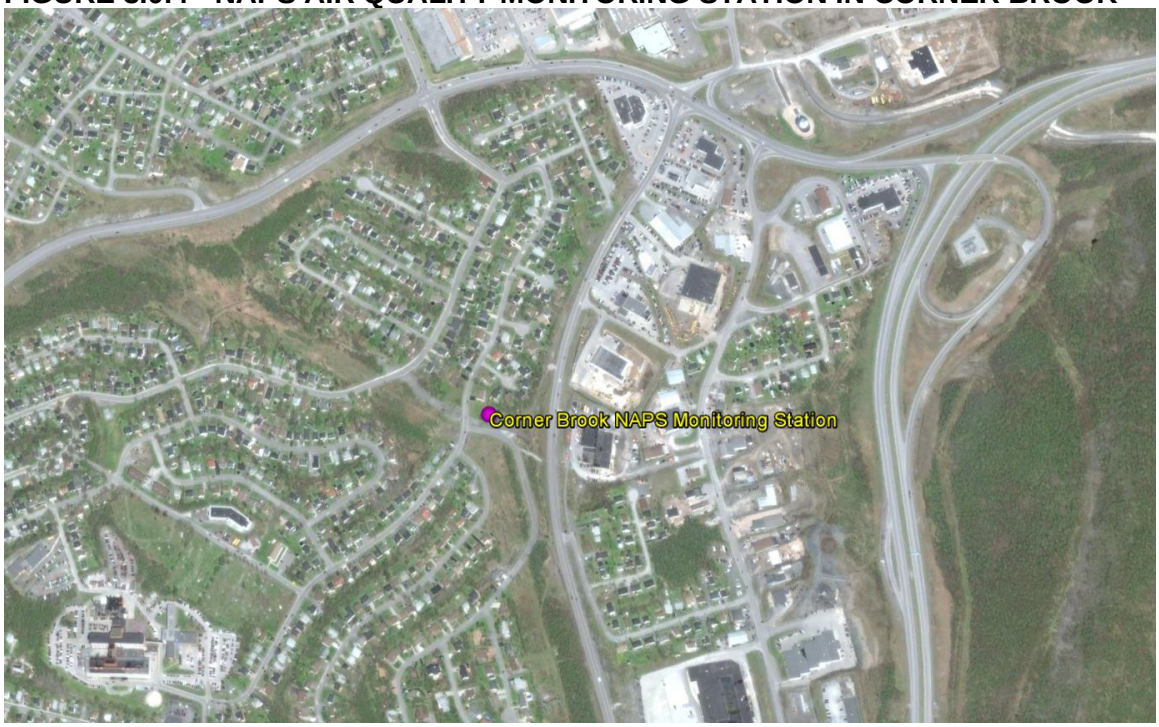


FIGURE 3.0.5 - NAPS AIR QUALITY MONITORING STATION IN PORT AUX CHOIX

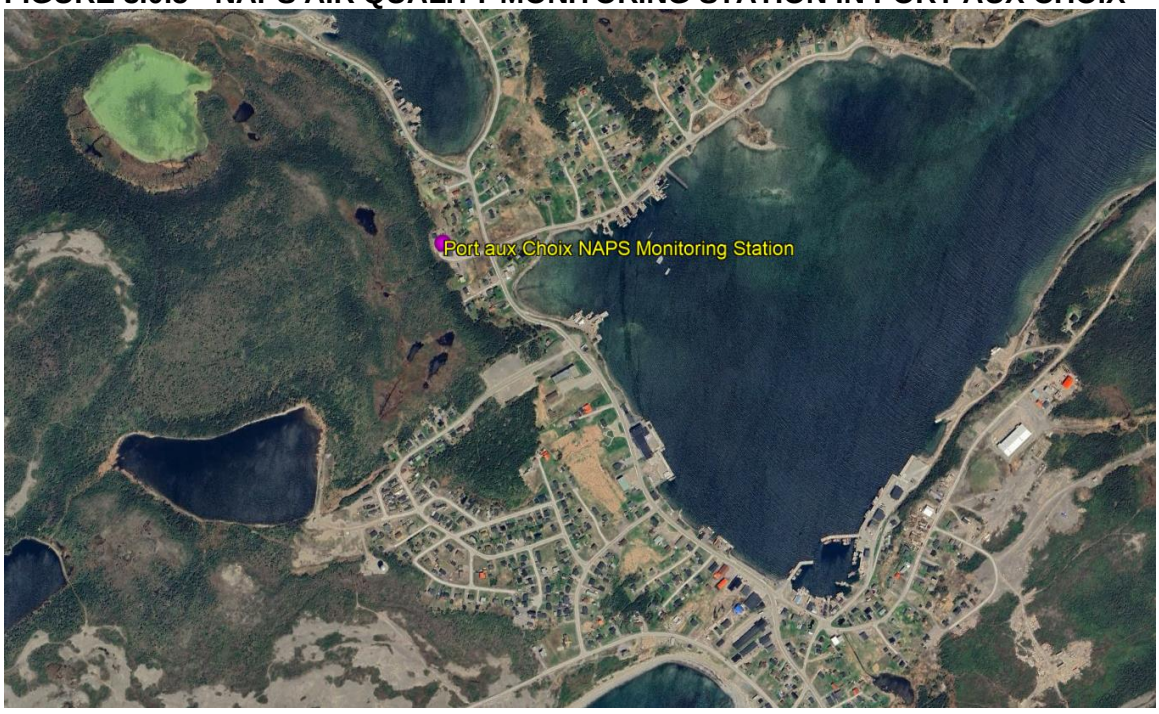
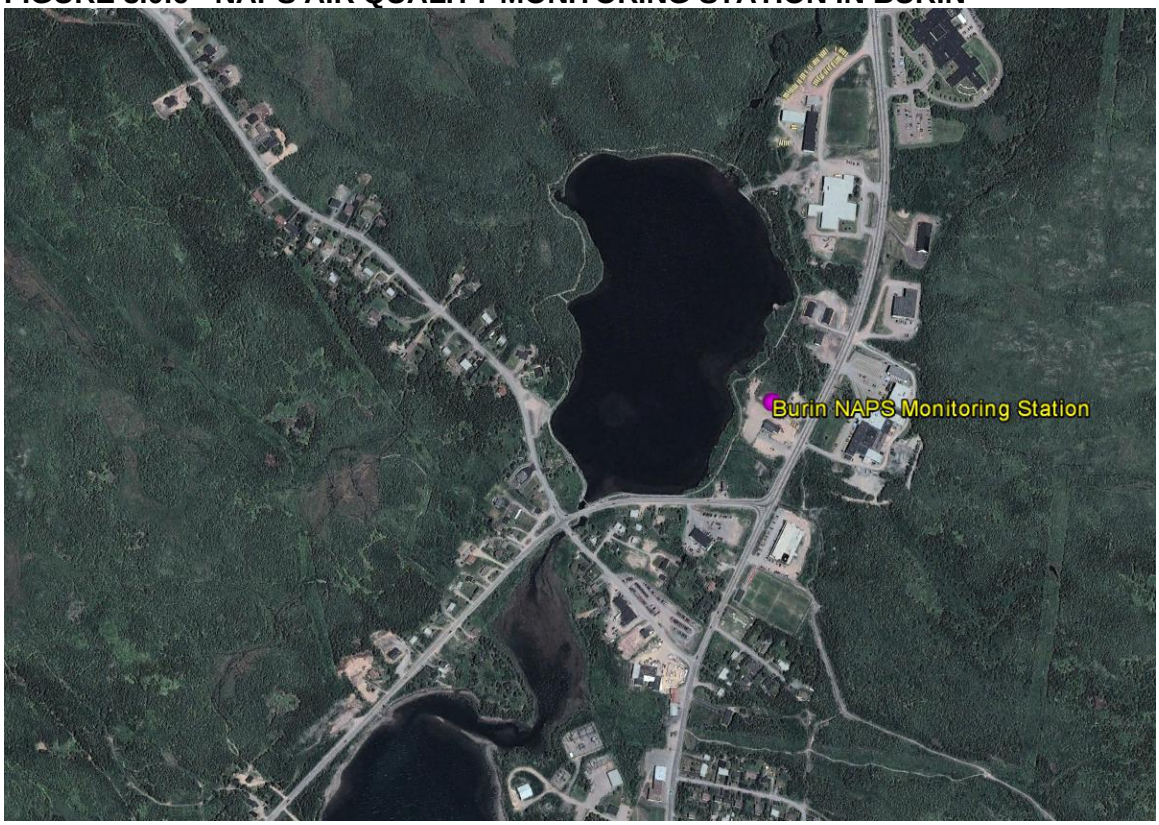


FIGURE 3.0.6 - NAPS AIR QUALITY MONITORING STATION IN BURIN



3.1 St. John's

The St. John's NAPS air quality monitoring station is located on Water Street near the Convention Centre and monitors the levels of SO_2, NO_x / NO_2, CO, O_3, $PM_{2.5}$ and PM_{10} on a continuous basis. Air quality monitoring for PM_{10} was introduced to the station in September 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 SO_2, NO_x / NO_2, and CO, the air quality standards were not exceeded on any occasion in 2023. The 8-hour O_3 air quality standard was exceeded nine times, with seven of those exceedances occurring in April, one in May and one in October. For PM_{10} and $PM_{2.5}$, there were thirty eight exceedances and sixty five exceedances respectively of the 24-hour air quality standard as measured hourly. For both pollutants, the exceedances were related to wildfire smoke from Quebec (June) and northern Alberta / Northwest Territories (September). Additionally there were two exceedances of the PM_{10} 24-hour air quality standard in March owing to localized impacts.

Tables 3.1.1 through 3.1.5 present the summary information on the level of air contaminants measured at the St. John's NAPS station, while Figures 3.1.1 through 3.1.5 provide a graphical representation of the annual trend of each pollutant. Table 3.1.6 provides a summary of the AQHI while Figure 3.1.6 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2023.

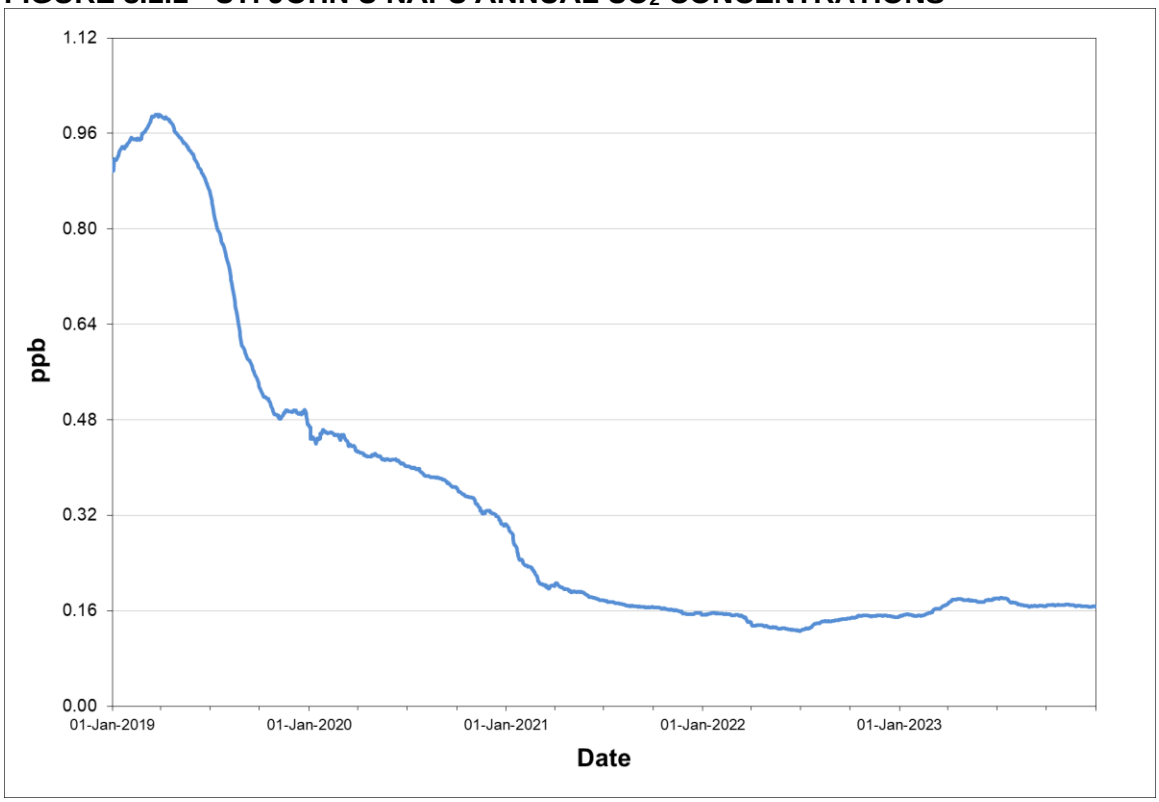
Volatile organic compounds, (VOCs) are also measured on a one-in-six day cycle at the air quality monitoring station however the data is not included in this report.

TABLE 3.1.1 - ST. JOHN'S NAPS SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	663	89.1%	0.1	2.1	1.4	0.5	0	0	0
	February	672	100.0%	0.1	2.7	1.4	0.4	0	0	0
	March	668	89.8%	0.2	4.5	2.2	0.4	0	0	0
	April	718	99.7%	0.1	1.4	0.7	0.2	0	0	0
	May	622	83.6%	0.2	1.8	1.5	0.5	0	0	0
	June	720	100.0%	0.1	1.3	1.0	0.3	0	0	0
	July	717	96.4%	0.3	1.2	1.1	0.6	0	0	0
	August	744	100.0%	0.2	0.8	0.6	0.4	0	0	0
	September	420	58.3%	0.2	0.5	0.4	0.4	0	0	0
	October	514	69.1%	0.2	0.9	0.8	0.4	0	0	0
	November	717	99.6%	0.1	0.7	0.6	0.2	0	0	0
	December	744	100.0%	0.1	1.5	1.0	0.3	0	0	0
Annual		7919	90.4%	0.2	4.5	2.2	0.6	0	0	0
2023	January	742	99.7%	0.2	1.8	1.2	0.4	0	0	0
	February	672	100.0%	0.2	1.2	0.9	0.5	0	0	0
	March	744	100.0%	0.3	3.0	1.9	0.6	0	0	0
	April	717	99.6%	0.2	1.4	1.1	0.6	0	0	0
	May	743	99.9%	0.1	0.6	0.5	0.3	0	0	0
	June	718	99.7%	0.2	1.7	1.5	0.4	0	0	0
	July	740	99.5%	0.2	1.5	1.4	0.4	0	0	0
	August	743	99.9%	0.1	1.5	0.6	0.2	0	0	0
	September	719	99.9%	0.2	1.7	1.4	0.5	0	0	0
	October	741	99.6%	0.2	0.8	0.6	0.5	0	0	0
	November	717	99.6%	0.1	1.2	0.8	0.3	0	0	0
	December	741	99.6%	0.1	1.0	0.8	0.3	0	0	0
Annual		8737	99.7%	0.2	3.0	1.9	0.6	0	0	0

Observations in ppb

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



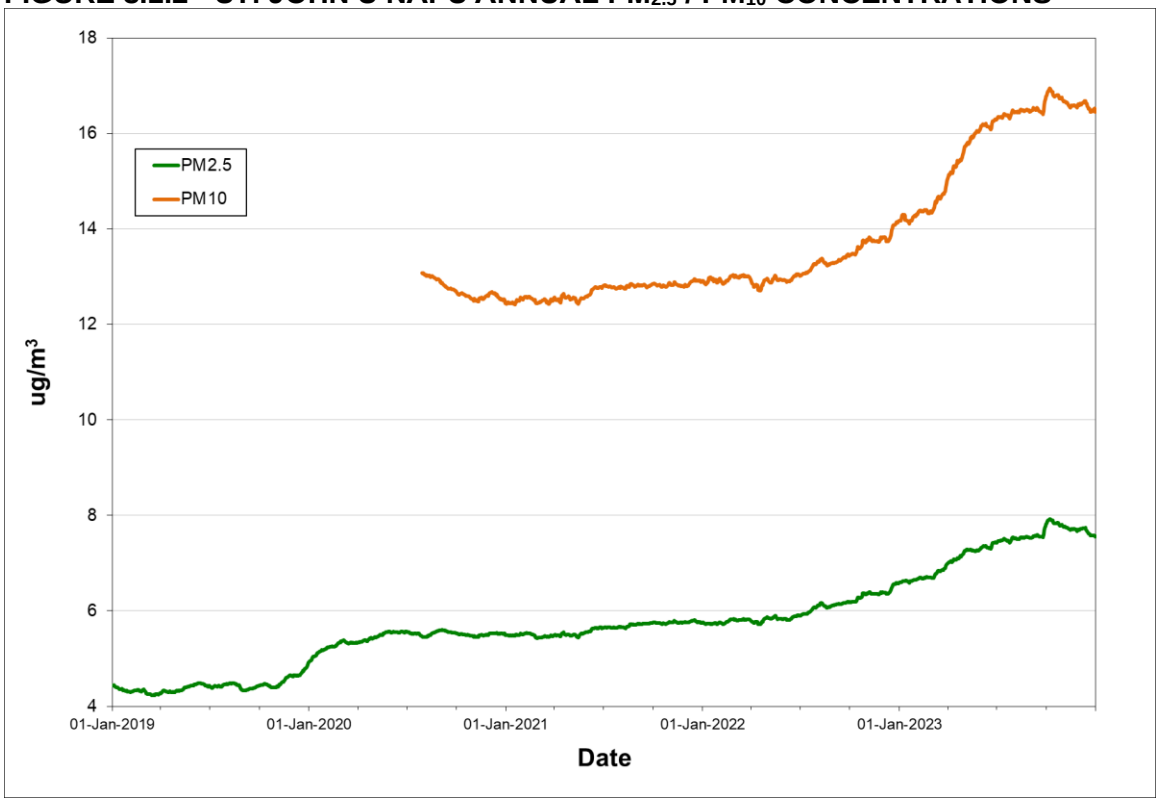
Rolling annual average of hourly concentrations

TABLE 3.1.2 - ST. JOHN'S NAPS $PM_{2.5}$ / PM_{10} SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average		24-Hour Maximum		Regulatory Exceedances	
				$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$ (>25)	PM_{10} (>50)
2022	January	663	89.1%	6.2	15.7	13.6	43.8	0	0
	February	672	100.0%	5.8	13.6	12.0	30.4	0	0
	March	668	89.8%	6.5	15.5	11.4	30.1	0	0
	April	719	99.9%	7.6	16.3	17.4	36.1	0	0
	May	684	91.9%	5.9	12.9	11.8	23.0	0	0
	June	720	100.0%	6.0	12.1	11.1	24.8	0	0
	July	718	96.5%	7.1	12.6	14.3	22.2	0	0
	August	744	100.0%	6.6	12.2	13.4	21.7	0	0
	September	544	75.6%	5.7	12.1	15.0	33.9	0	0
	October	699	94.0%	7.0	14.2	17.3	31.4	0	0
	November	717	99.6%	6.5	14.4	16.9	36.7	0	0
	December	744	100.0%	7.9	18.1	18.5	39.9	0	0
Annual		8292	94.7%	6.6	14.2	18.5	43.8	0	0
2023	January	741	99.6%	6.9	16.2	16.5	45.9	0	0
	February	672	100.0%	6.5	15.1	13.3	32.4	0	0
	March	744	100.0%	9.9	23.1	22.9	50.3	0	2
	April	717	99.6%	10.0	22.6	22.7	44.8	0	0
	May	744	100.0%	7.1	18.9	17.0	44.2	0	0
	June	720	100.0%	7.5	14.2	32.6	50.3	21	2
	July	742	99.7%	8.4	14.8	18.3	27.2	0	0
	August	743	99.9%	6.5	12.0	12.7	20.2	0	0
	September	720	100.0%	9.6	17.4	45.3	72.4	44	34
	October	744	100.0%	6.6	13.5	20.6	31.5	0	0
	November	718	99.7%	5.5	13.1	11.1	31.8	0	0
	December	744	100.0%	6.2	16.3	16.2	31.3	0	0
Annual		8749	99.9%	7.6	16.4	45.3	72.4	65	38

Observations in $\mu g/m^3$

FIGURE 3.1.2 - ST. JOHN'S NAPS ANNUAL $PM_{2.5}$ / PM_{10} CONCENTRATIONS



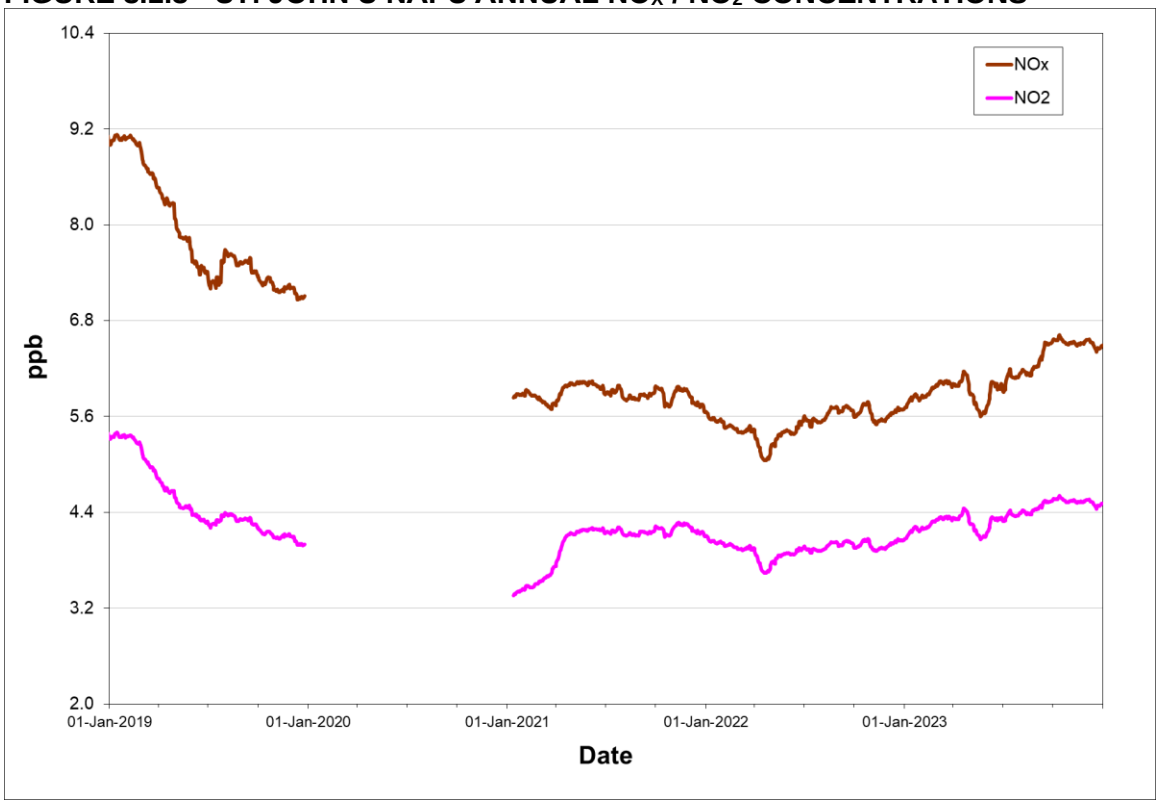
Rolling annual average of daily concentrations

TABLE 3.1.3 - ST. JOHN'S NAPS NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	663	89.1%	4.8	3.6	115.8	37.3	16.0	10.4	0	0
	February	672	100.0%	4.0	3.2	31.7	23.5	10.2	7.9	0	0
	March	668	89.8%	5.4	4.1	51.0	26.3	12.2	8.6	0	0
	April	718	99.7%	6.3	4.7	104.4	41.1	25.8	17.3	0	0
	May	684	91.9%	7.2	5.1	74.1	34.1	23.6	17.0	0	0
	June	720	100.0%	6.9	4.1	107.4	36.9	30.4	13.6	0	0
	July	717	96.4%	5.1	3.1	95.8	34.1	35.5	16.5	0	0
	August	744	100.0%	5.7	3.8	80.0	19.9	18.1	10.2	0	0
	September	543	75.4%	4.2	3.1	31.8	22.8	16.1	11.6	0	0
	October	706	94.9%	6.2	4.4	64.8	26.3	12.9	9.4	0	0
	November	717	99.6%	6.1	4.8	40.3	21.1	9.4	7.0	0	0
	December	744	100.0%	5.8	4.4	50.4	22.1	15.0	9.9	0	0
Annual		8296	94.7%	5.7	4.1	115.8	41.1	35.5	17.3	0	0
2023	January	740	99.5%	6.5	5.1	49.7	36.6	16.1	13.0	0	0
	February	672	100.0%	6.0	4.7	44.9	29.8	11.6	8.7	0	0
	March	744	100.0%	5.7	4.4	79.1	35.4	16.1	13.3	0	0
	April	716	99.4%	5.3	4.1	69.2	33.2	23.2	15.1	0	0
	May	743	99.9%	4.4	3.1	55.5	32.6	19.0	11.5	0	0
	June	718	99.7%	10.0	6.4	115.3	43.3	40.0	21.4	0	0
	July	741	99.6%	7.2	4.0	103.4	28.6	24.4	11.0	0	0
	August	742	99.7%	6.8	4.4	107.2	27.9	18.8	10.8	0	0
	September	719	99.9%	8.7	4.9	114.6	29.3	28.8	14.8	0	0
	October	741	99.6%	5.8	4.3	59.1	29.8	19.5	11.1	0	0
	November	717	99.6%	6.4	4.8	80.1	33.3	14.8	10.2	0	0
	December	741	99.6%	5.2	4.1	72.5	33.9	15.0	12.3	0	0
Annual		8734	99.7%	6.5	4.5	115.3	43.3	40.0	21.4	0	0

Observations in ppb

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



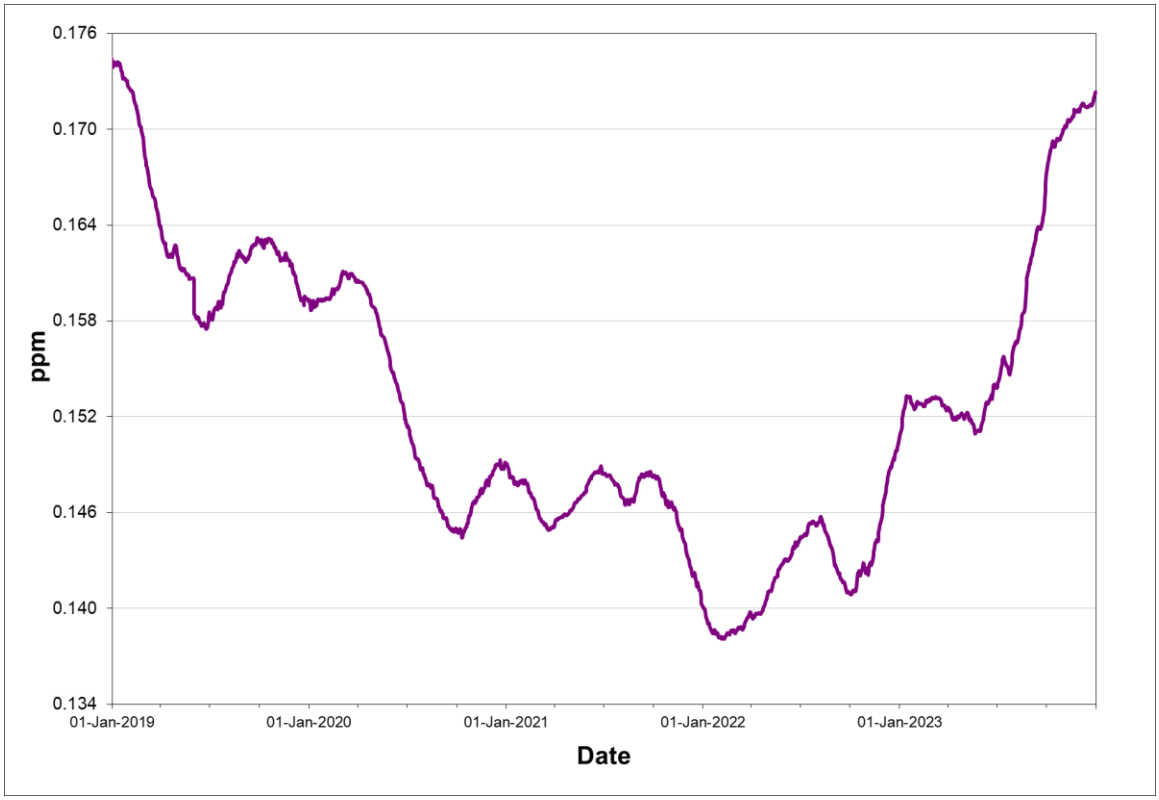
Rolling annual average of hourly concentrations

TABLE 3.1.4 - ST. JOHN'S NAPS CO SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>30.582)	Regulatory Exceedances 8-Hour (>13.107)
2022	January	663	89.1%	0.1	0.5	0.3	0	0
	February	672	100.0%	0.1	0.5	0.2	0	0
	March	668	89.8%	0.2	0.3	0.2	0	0
	April	718	99.7%	0.2	0.6	0.3	0	0
	May	684	91.9%	0.2	0.5	0.3	0	0
	June	720	100.0%	0.1	1.3	0.4	0	0
	July	718	96.5%	0.1	0.4	0.3	0	0
	August	744	100.0%	0.1	0.4	0.2	0	0
	September	543	75.4%	0.1	0.3	0.2	0	0
	October	705	94.8%	0.2	0.5	0.4	0	0
	November	716	99.4%	0.2	0.5	0.3	0	0
	December	744	100.0%	0.2	0.6	0.4	0	0
Annual		8295	94.7%	0.2	1.3	0.4	0	0
2023	January	741	99.6%	0.2	0.6	0.3	0	0
	February	671	99.9%	0.1	0.5	0.3	0	0
	March	744	100.0%	0.2	0.4	0.3	0	0
	April	717	99.6%	0.2	0.3	0.2	0	0
	May	743	99.9%	0.2	0.3	0.2	0	0
	June	717	99.6%	0.2	0.5	0.4	0	0
	July	739	99.3%	0.2	0.5	0.3	0	0
	August	741	99.6%	0.2	0.6	0.4	0	0
	September	718	99.7%	0.2	0.5	0.4	0	0
	October	740	99.5%	0.2	0.4	0.3	0	0
	November	716	99.4%	0.2	0.5	0.4	0	0
	December	740	99.5%	0.2	0.6	0.3	0	0
Annual		8727	99.6%	0.2	0.6	0.4	0	0

Observations in ppm

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



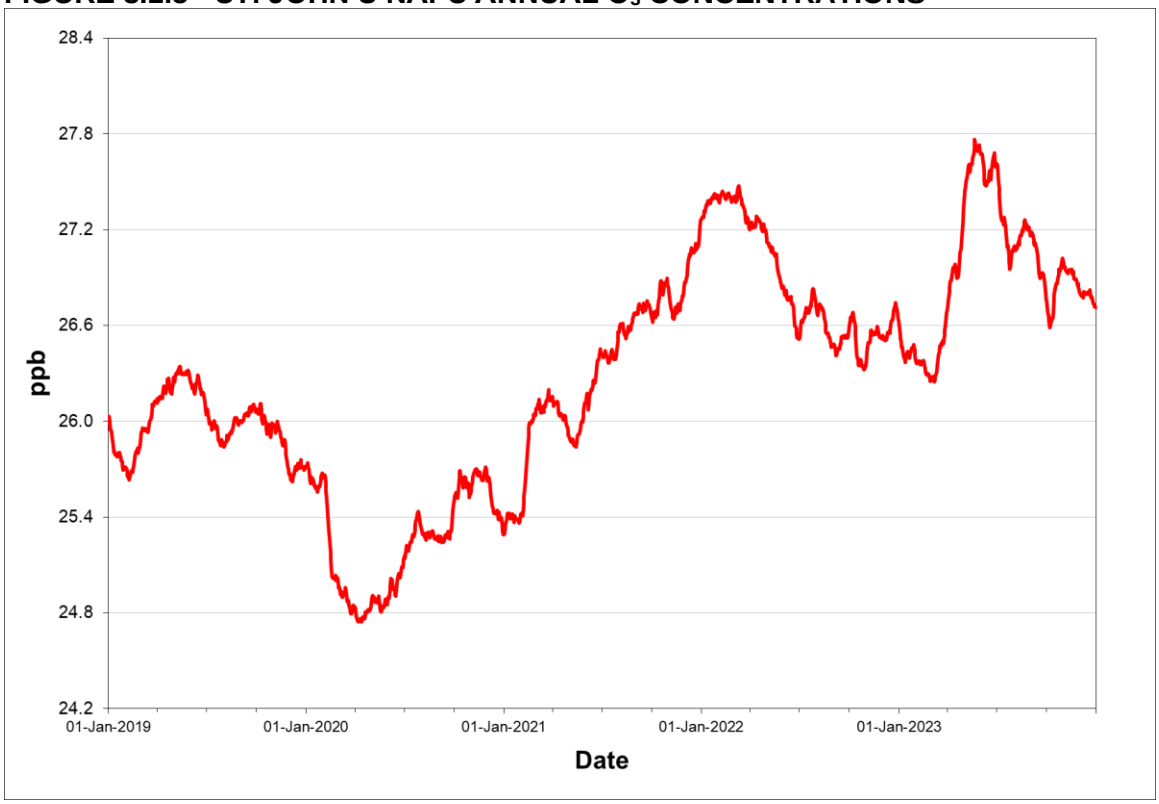
Rolling annual average of hourly concentrations

TABLE 3.1.5 - ST. JOHN'S NAPS O_3 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>82)	Regulatory Exceedances 8-Hour (>44)
2022	January	662	89.0%	32.2	40.7	39.4	0	0
	February	672	100.0%	34.0	43.0	41.2	0	0
	March	668	89.8%	33.8	43.2	42.3	0	0
	April	718	99.7%	31.4	46.5	43.4	0	0
	May	684	91.9%	26.8	48.1	42.1	0	0
	June	720	100.0%	21.0	39.6	35.2	0	0
	July	718	96.5%	21.6	50.2	44.9	0	1
	August	744	100.0%	18.8	44.5	37.4	0	0
	September	421	58.5%	20.5	29.7	28.3	0	0
	October	518	69.6%	19.0	38.9	33.4	0	0
	November	56	7.8%	27.1	40.0	35.4	0	0
	December	537	72.2%	32.2	40.9	39.6	0	0
Annual		7118	81.3%	26.6	50.2	44.9	0	1
2023	January	741	99.6%	29.5	40.8	39.7	0	0
	February	671	99.9%	32.3	42.8	40.4	0	0
	March	744	100.0%	37.3	45.7	43.6	0	0
	April	717	99.6%	37.9	50.1	48.9	0	7
	May	742	99.7%	30.5	46.7	45.3	0	1
	June	718	99.7%	20.0	35.2	31.2	0	0
	July	738	99.2%	16.5	43.9	35.8	0	0
	August	742	99.7%	20.0	39.8	36.4	0	0
	September	718	99.7%	18.7	36.2	34.1	0	0
	October	741	99.6%	23.9	46.7	44.1	0	1
	November	717	99.6%	24.9	40.2	38.4	0	0
	December	740	99.5%	29.4	40.8	39.5	0	0
Annual		8729	99.6%	26.7	50.1	48.9	0	9

Observations in ppb

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

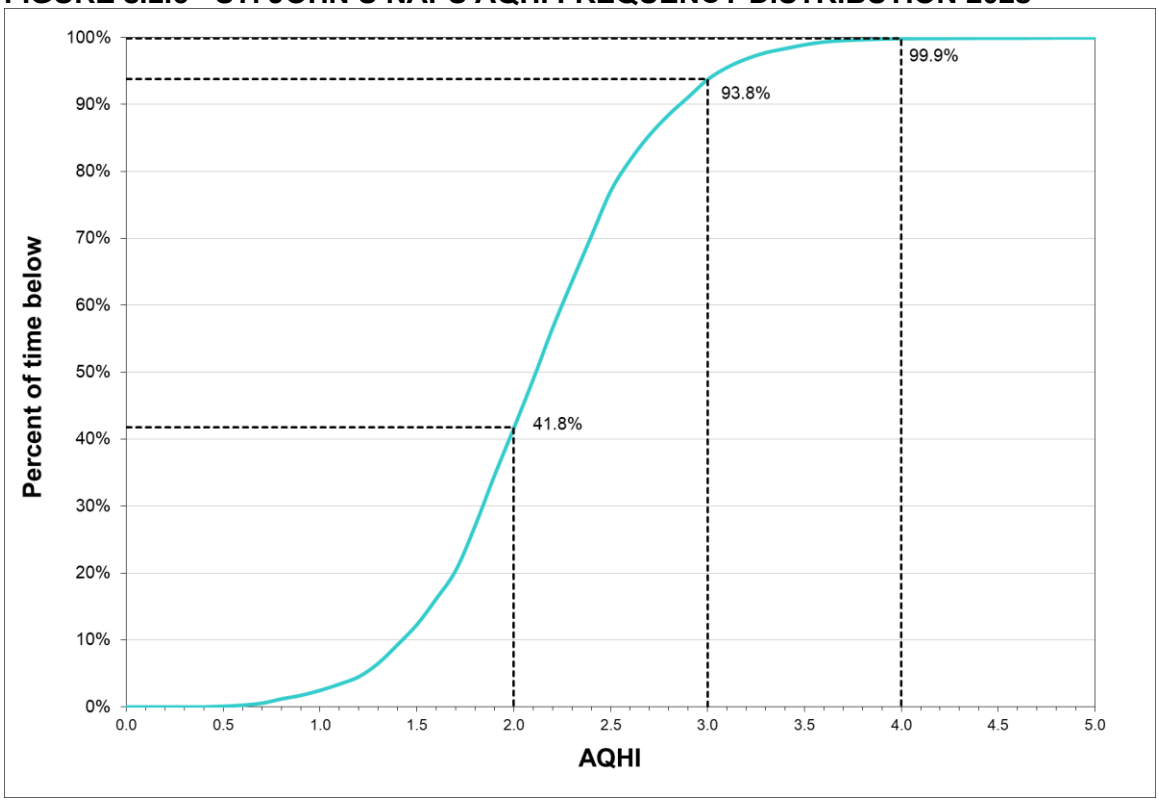


Rolling annual average of hourly concentrations

TABLE 3.1.6 - ST. JOHN'S NAPS AQHI SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2022	January	661	88.8%	2.3	3.5
	February	672	100.0%	2.3	3.0
	March	668	89.8%	2.4	3.8
	April	717	99.6%	2.4	3.9
	May	684	91.9%	2.1	3.7
	June	720	100.0%	1.7	3.6
	July	715	96.1%	1.7	3.5
	August	744	100.0%	1.6	2.7
	September	421	58.5%	1.6	2.8
	October	505	67.9%	1.7	3.8
	November	57	7.9%	2.1	2.5
	December	538	72.3%	2.4	3.6
Annual		7102	81.1%	2.0	3.9
2023	January	741	99.6%	2.3	4.0
	February	672	100.0%	2.4	3.9
	March	744	100.0%	2.8	4.3
	April	717	99.6%	2.8	3.9
	May	744	100.0%	2.2	3.3
	June	720	100.0%	1.9	4.8
	July	739	99.3%	1.6	3.2
	August	744	100.0%	1.7	3.1
	September	720	100.0%	1.8	4.0
	October	744	100.0%	1.9	2.9
	November	716	99.4%	2.0	3.4
	December	744	100.0%	2.2	3.4
Annual		8745	99.8%	2.1	4.8

FIGURE 3.1.6 - ST. JOHN'S NAPS AQHI FREQUENCY DISTRIBUTION 2023



e.g. 93.8% of the time the AQHI recorded was below 3.0

3.2 Mt. Pearl

The Mt. Pearl NAPS air quality monitoring station is located on Old Placentia Road near Admiralty House and monitors the levels of SO_2, NO_x / NO_2, CO, O_3, $PM_{2.5}$ and PM_{10} on a continuous basis. Air quality 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, and CO, the air quality standards were not exceeded on any occasion in 2023. For O_3, the 8-hour air quality standard was exceed on forty eight occasions in 2023, specifically twenty six times in March, twenty one times in April and once in October. For PM_{10} and $PM_{2.5}$ there were twenty eight and thirty nine hourly exceedances of the respective 24-hour air quality standard, with all exceedances attributable to wildfire smoke emanating from northern Alberta and the Northwest Territories in September.

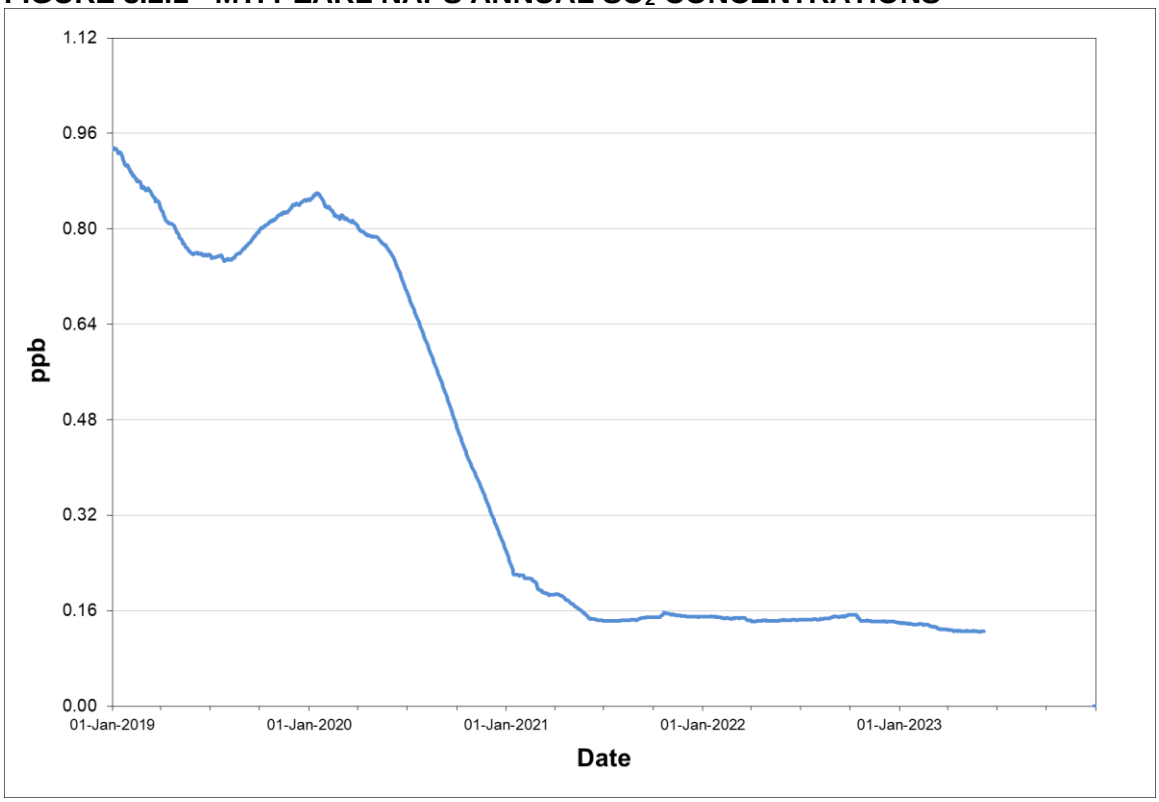
Tables 3.2.1 through 3.2.5 present the summary information on the level of air contaminants measured at the Mt. Pearl NAPS station, while Figures 3.2.1 through 3.2.5 provide a graphical representation of the annual trend of each pollutant. Table 3.2.6 provides a summary of the AQHI while Figure 3.2.6 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2023.

TABLE 3.2.1 - MT. PEARL NAPS SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	739	99.3%	0.1	0.6	0.4	0.3	0	0	0
	February	672	100.0%	0.1	2.9	1.3	0.4	0	0	0
	March	740	99.5%	0.1	5.0	1.9	0.5	0	0	0
	April	656	91.1%	0.1	0.8	0.5	0.3	0	0	0
	May	701	94.2%	0.1	0.5	0.4	0.2	0	0	0
	June	639	88.8%	0.1	0.6	0.4	0.2	0	0	0
	July	700	94.1%	0.1	0.8	0.5	0.3	0	0	0
	August	744	100.0%	0.2	1.0	0.6	0.3	0	0	0
	September	720	100.0%	0.2	0.9	0.5	0.4	0	0	0
	October	744	100.0%	0.1	0.9	0.4	0.2	0	0	0
	November	714	99.2%	0.1	1.0	0.5	0.3	0	0	0
	December	744	100.0%	0.1	1.0	0.6	0.2	0	0	0
Annual		8513	97.2%	0.1	5.0	1.9	0.5	0	0	0
2023	January	741	99.6%	0.1	1.5	0.8	0.2	0	0	0
	February	672	100.0%	0.1	1.1	0.4	0.2	0	0	0
	March	744	100.0%	0.1	1.1	0.5	0.2	0	0	0
	April	716	99.4%	0.1	2.7	1.1	0.2	0	0	0
	May	105	14.1%	0.1	1.0	0.4	0.2	0	0	0
	June	180	25.0%	0.1	0.7	0.7	0.4	0	0	0
	July	737	99.1%	0.1	2.7	2.0	0.5	0	0	0
	August	743	99.9%	0.1	0.4	0.2	0.1	0	0	0
	September	718	99.7%	0.1	0.6	0.3	0.2	0	0	0
	October	742	99.7%	0.1	0.4	0.4	0.2	0	0	0
	November	712	98.9%	0.1	1.1	0.5	0.3	0	0	0
	December	741	99.6%	0.1	0.8	0.4	0.2	0	0	0
Annual		7551	86.2%	0.1	2.7	2.0	0.5	0	0	0

Observations in ppb

FIGURE 3.2.1 - MT. PEARL NAPS ANNUAL SO_2 CONCENTRATIONS



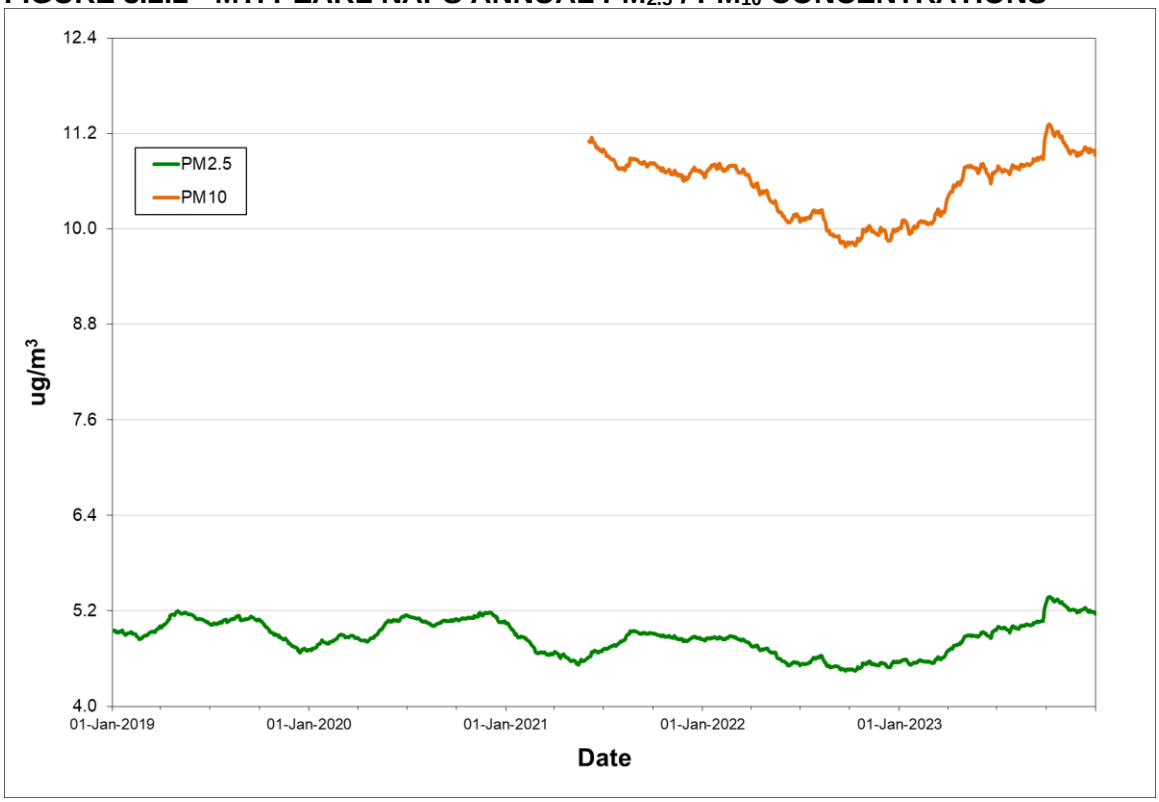
Rolling annual average of hourly concentrations

TABLE 3.2.2 - MT. PEARL NAPS $PM_{2.5}$ / PM_{10} SUMMARY 2022 & 2023

Year	Month	# Valid Days	% Valid Days	Average $PM_{2.5}$	Average PM_{10}	24-Hour Maximum $PM_{2.5}$	24-Hour Maximum PM_{10}	Regulatory Exceedances $PM_{2.5}$ (>25)	Regulatory Exceedances PM_{10} (>50)
2022	January	741	99.6%	5.1	11.4	11.0	25.4	0	0
	February	672	100.0%	4.6	10.1	8.3	19.8	0	0
	March	741	99.6%	4.8	11.2	7.3	22.6	0	0
	April	657	91.3%	4.5	9.8	9.6	19.3	0	0
	May	702	94.4%	3.8	8.8	6.6	14.0	0	0
	June	639	88.8%	3.8	9.0	8.8	24.4	0	0
	July	703	94.5%	5.1	9.6	11.2	16.9	0	0
	August	744	100.0%	4.4	8.8	9.6	16.0	0	0
	September	720	100.0%	3.8	8.5	13.2	32.0	0	0
	October	744	100.0%	4.8	10.6	11.5	25.4	0	0
	November	719	99.9%	4.9	10.8	10.4	22.8	0	0
	December	744	100.0%	5.0	11.4	12.1	26.4	0	0
Annual		8526	97.3%	4.6	10.0	13.2	32.0	0	0
2023	January	743	99.9%	4.9	11.2	9.1	36.7	0	0
	February	672	100.0%	4.8	11.2	9.9	21.7	0	0
	March	744	100.0%	6.4	14.7	14.1	31.9	0	0
	April	719	99.9%	6.3	13.3	13.0	24.9	0	0
	May	743	99.9%	4.5	9.8	11.0	24.8	0	0
	June	713	99.0%	4.7	8.6	23.0	36.2	0	0
	July	742	99.7%	5.6	10.6	14.5	23.3	0	0
	August	744	100.0%	4.5	8.9	9.7	16.9	0	0
	September	720	100.0%	7.3	13.5	40.2	67.0	39	28
	October	744	100.0%	4.7	9.5	15.5	26.0	0	0
	November	719	99.9%	3.7	8.7	7.6	16.3	0	0
	December	744	100.0%	4.7	11.1	13.6	31.7	0	0
Annual		8747	99.9%	5.2	10.9	40.2	67.0	39	28

Observations in $\mu g/m^3$

FIGURE 3.2.2 - MT. PEARL NAPS ANNUAL $PM_{2.5}$ / PM_{10} CONCENTRATIONS



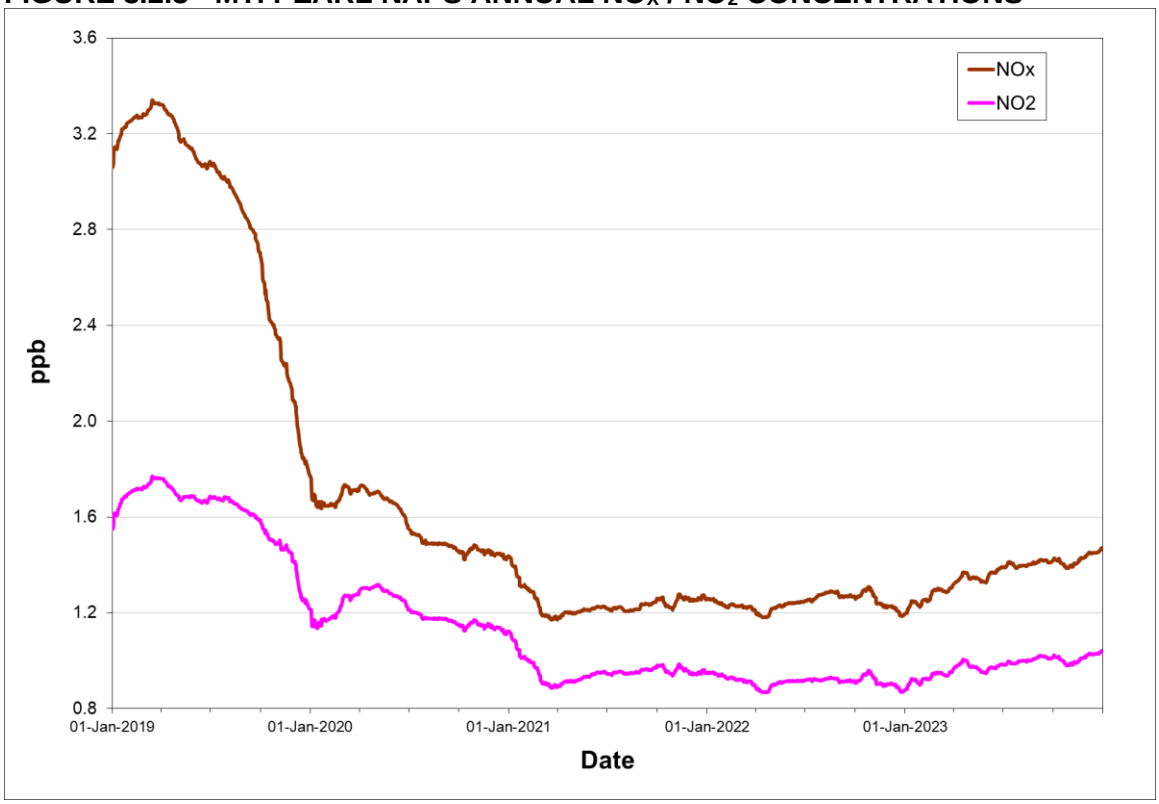
Rolling annual average of daily concentrations

TABLE 3.2.3 - MT. PEARL NAPS NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	739	99.3%	1.3	1.1	13.9	13.5	3.5	3.0	0	0
	February	672	100.0%	1.3	0.9	40.8	12.6	4.8	2.2	0	0
	March	739	99.3%	1.2	0.9	19.7	8.8	2.8	2.4	0	0
	April	656	91.1%	1.4	1.1	16.0	10.6	5.0	3.6	0	0
	May	702	94.4%	1.3	1.1	10.5	10.4	2.6	2.3	0	0
	June	639	88.8%	0.9	0.7	7.3	4.6	1.9	1.5	0	0
	July	701	94.2%	1.1	0.5	17.7	10.9	3.9	2.9	0	0
	August	744	100.0%	0.9	0.6	25.8	9.5	2.8	1.0	0	0
	September	720	100.0%	0.9	0.6	11.8	6.9	2.4	1.6	0	0
	October	744	100.0%	1.7	1.3	19.4	13.4	3.5	2.9	0	0
	November	716	99.4%	1.2	1.0	13.1	10.7	3.5	2.8	0	0
	December	744	100.0%	1.1	0.9	10.7	9.4	2.7	2.4	0	0
Annual		8516	97.2%	1.2	0.9	40.8	13.5	5.0	3.6	0	0
2023	January	742	99.7%	1.7	1.4	16.3	15.9	7.2	6.5	0	0
	February	672	100.0%	2.1	1.4	135.6	40.2	7.7	3.4	0	0
	March	744	100.0%	1.4	1.0	18.3	17.5	3.7	3.0	0	0
	April	716	99.4%	1.7	1.2	31.9	19.0	4.6	3.5	0	0
	May	741	99.6%	1.2	0.8	22.9	20.9	4.5	3.5	0	0
	June	717	99.6%	1.7	1.1	12.1	11.0	4.3	3.4	0	0
	July	740	99.5%	1.2	0.8	14.5	10.5	3.1	2.3	0	0
	August	743	99.9%	1.1	0.7	15.9	7.1	3.0	2.2	0	0
	September	718	99.7%	1.1	0.7	15.1	6.7	2.8	2.4	0	0
	October	742	99.7%	1.3	0.9	21.2	12.5	4.4	3.2	0	0
	November	714	99.2%	1.7	1.3	14.7	13.0	3.8	3.4	0	0
	December	741	99.6%	1.6	1.2	13.3	10.7	3.6	3.1	0	0
Annual		8730	99.7%	1.5	1.0	135.6	40.2	7.7	6.5	0	0

Observations in ppb

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



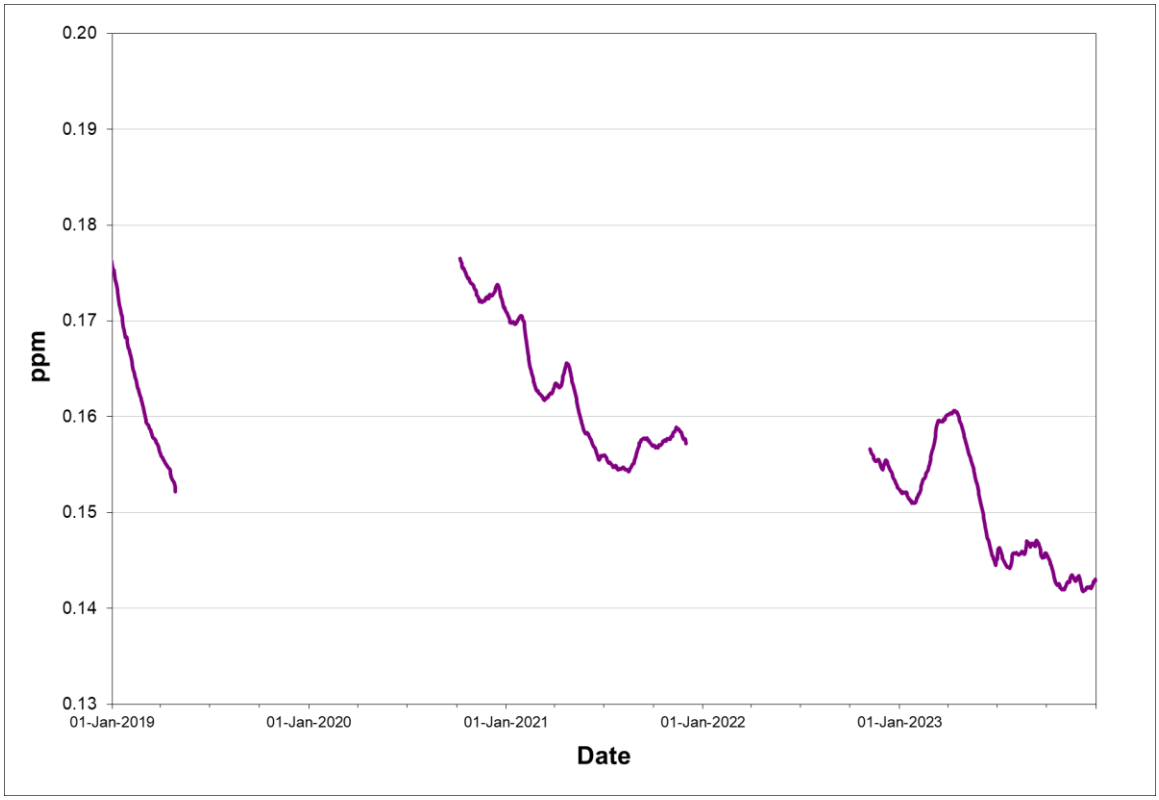
Rolling annual average of hourly concentrations

TABLE 3.2.4 - MT. PEARL NAPS CO SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>30.582)	Regulatory Exceedances 8-Hour (>13.107)
2022	January	105	14.1%	0.2	0.4	0.2	0	0
	February	672	100.0%	0.1	0.3	0.2	0	0
	March	742	99.7%	0.1	0.3	0.2	0	0
	April	657	91.3%	0.1	0.3	0.2	0	0
	May	702	94.4%	0.2	0.4	0.3	0	0
	June	639	88.8%	0.2	0.3	0.3	0	0
	July	702	94.4%	0.1	0.3	0.3	0	0
	August	743	99.9%	0.1	0.3	0.2	0	0
	September	720	100.0%	0.2	0.5	0.3	0	0
	October	744	100.0%	0.2	0.4	0.2	0	0
	November	717	99.6%	0.1	0.7	0.3	0	0
	December	743	99.9%	0.1	0.3	0.3	0	0
Annual		7886	90.0%	0.2	0.7	0.3	0	0
2023	January	742	99.7%	0.1	0.5	0.3	0	0
	February	672	100.0%	0.2	0.9	0.3	0	0
	March	742	99.7%	0.2	0.5	0.4	0	0
	April	713	99.0%	0.1	0.3	0.2	0	0
	May	688	92.5%	0.1	0.3	0.2	0	0
	June	716	99.4%	0.1	1.0	0.8	0	0
	July	735	98.8%	0.2	0.9	0.7	0	0
	August	741	99.6%	0.1	0.3	0.3	0	0
	September	717	99.6%	0.1	0.4	0.3	0	0
	October	742	99.7%	0.1	0.3	0.2	0	0
	November	706	98.1%	0.1	0.6	0.2	0	0
	December	739	99.3%	0.1	1.2	0.4	0	0
Annual		8653	98.8%	0.1	1.2	0.8	0	0

Observations in ppm

FIGURE 3.2.4 - MT. PEARL NAPS ANNUAL CO CONCENTRATIONS



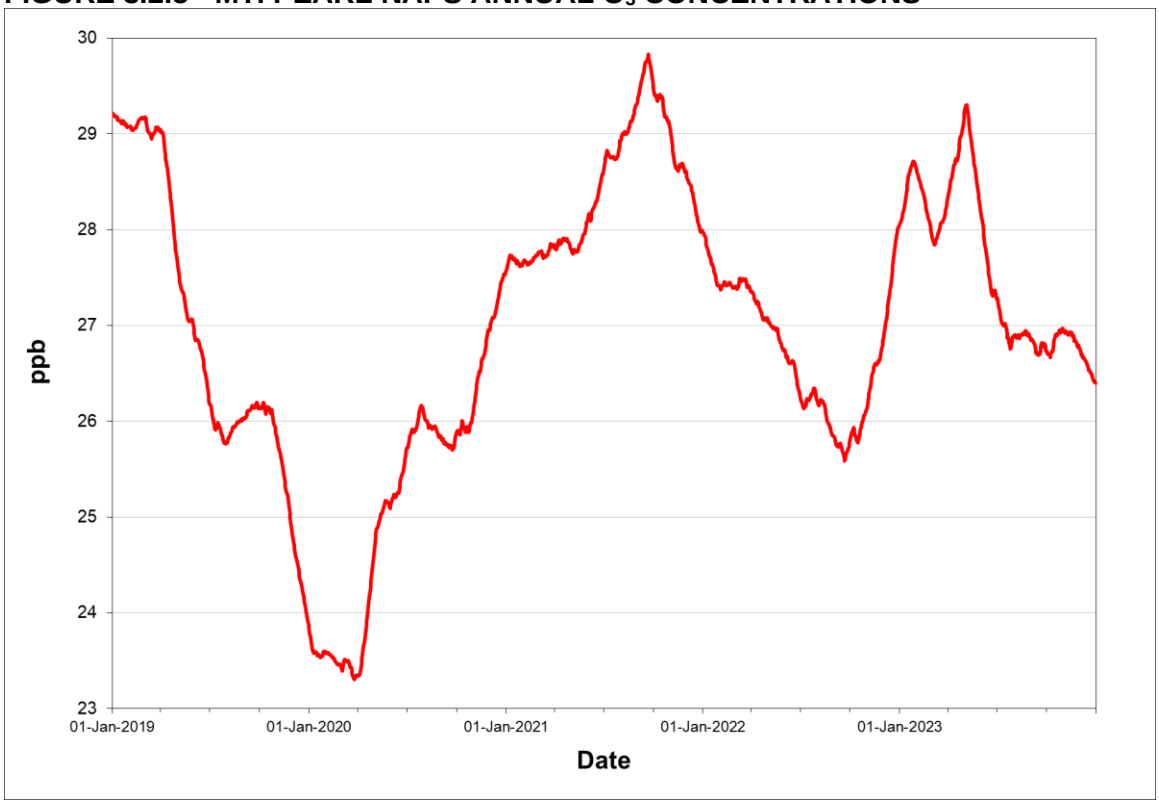
Rolling annual average of hourly concentrations

TABLE 3.2.5 - MT. PEARL NAPS O_3 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>82)	Regulatory Exceedances 8-Hour (>44)
2022	January	740	99.5%	25.4	41.8	39.9	0	0
	February	672	100.0%	35.9	43.2	41.4	0	0
	March	739	99.3%	36.4	44.0	43.1	0	0
	April	656	91.1%	33.2	45.3	42.9	0	0
	May	702	94.4%	28.9	48.5	41.4	0	0
	June	639	88.8%	23.0	36.5	33.1	0	0
	July	702	94.4%	22.2	48.1	41.3	0	0
	August	744	100.0%	21.6	48.7	39.6	0	0
	September	720	100.0%	22.2	35.4	34.2	0	0
	October	744	100.0%	22.8	39.8	37.8	0	0
	November	717	99.6%	29.8	41.0	37.3	0	0
	December	744	100.0%	35.3	43.2	42.2	0	0
Annual		8519	97.2%	28.0	48.7	43.1	0	0
2023	January	464	62.4%	34.4	63.3	43.2	0	0
	February	0	0.0%					
	March	609	81.9%	42.4	49.3	48.4	0	26
	April	716	99.4%	41.5	52.3	51.6	0	21
	May	741	99.6%	19.1	44.6	43.7	0	0
	June	717	99.6%	13.8	33.8	31.4	0	0
	July	739	99.3%	18.5	43.0	37.7	0	0
	August	742	99.7%	21.4	40.8	35.4	0	0
	September	718	99.7%	20.7	35.5	33.7	0	0
	October	742	99.7%	25.1	48.7	44.7	0	1
	November	714	99.2%	27.9	40.4	39.0	0	0
	December	740	99.5%	31.5	40.6	39.7	0	0
Annual		7642	87.2%	26.4	63.3	51.6	0	48

Observations in ppb

FIGURE 3.2.5 - MT. PEARL NAPS ANNUAL O_3 CONCENTRATIONS

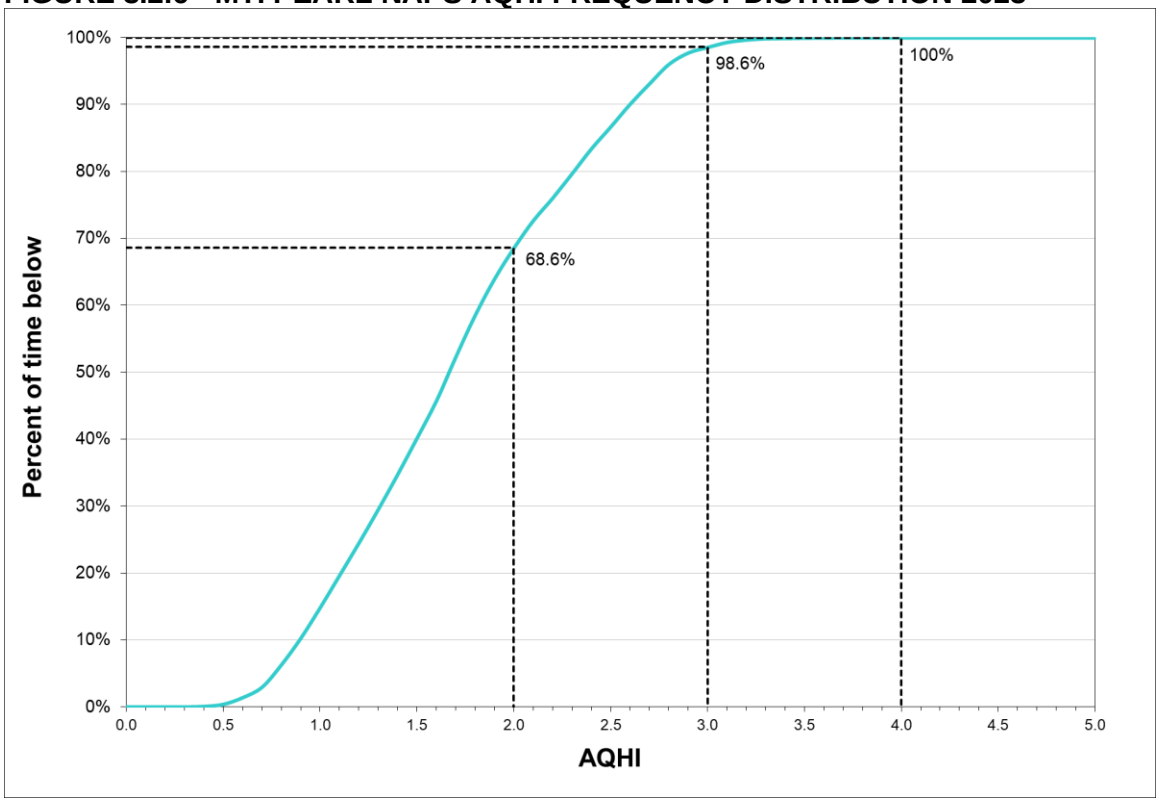


Rolling annual average of hourly concentrations

TABLE 3.2.6 - MT. PEARL NAPS AQHI SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2022	January	739	99.3%	1.7	3.2
	February	672	100.0%	2.2	2.7
	March	742	99.7%	2.2	2.7
	April	656	91.1%	2.0	2.9
	May	702	94.4%	1.8	2.7
	June	639	88.8%	1.4	2.1
	July	701	94.2%	1.4	2.9
	August	744	100.0%	1.4	2.6
	September	720	100.0%	1.4	2.5
	October	744	100.0%	1.5	2.8
	November	717	99.6%	1.9	3.0
	December	744	100.0%	2.2	2.8
Annual		8520	97.3%	1.7	3.2
2023	January	466	62.6%	2.1	3.0
	February	0	0.0%		
	March	609	81.9%	2.6	3.3
	April	717	99.6%	2.6	3.5
	May	744	100.0%	1.3	3.0
	June	713	99.0%	1.0	2.6
	July	742	99.7%	1.3	2.9
	August	744	100.0%	1.4	2.3
	September	720	100.0%	1.5	3.8
	October	744	100.0%	1.6	2.7
	November	717	99.6%	1.7	2.5
	December	742	99.7%	2.0	2.8
Annual		7658	87.4%	1.7	3.8

FIGURE 3.2.6 - MT. PEARL NAPS AQHI FREQUENCY DISTRIBUTION 2023



e.g. 98.6% of the time the AQHI recorded was below 3.0

3.3 Grand Falls-Windsor

The Grand Falls-Windsor NAPS air quality monitoring station is located on Scott Avenue and monitors the levels of NO_x / NO_2, CO, O_3, $PM_{2.5}$ and PM_{10} on a continuous basis. The air quality monitoring station used to measure SO_2 as well, however such monitoring is being phased out within the NAPS network. 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 air quality standard was exceeded on thirty one occasions in 2023, specifically twenty two times in both April and nine times in May. The 24-hour PM_{10} air quality standard as measured hourly was exceeded one hundred and twenty six times in 2023, with twenty one of those exceedances occurring in January, eighty two in June and twenty three in September. The 24-hour $PM_{2.5}$ air quality standard as measured hourly was exceeded sixty nine times in June and twenty five times in September for a total of ninety four hours. For the other pollutants, the air quality standards were not exceeded on any occasion in 2023.

The PM_{10} and $PM_{2.5}$ exceedances in June and September stem from the long-range transport of particulate from wildfires in Quebec (June) and northern Alberta / Northwest Territories (September). The January PM_{10} exceedances were attributable to a very localized event.

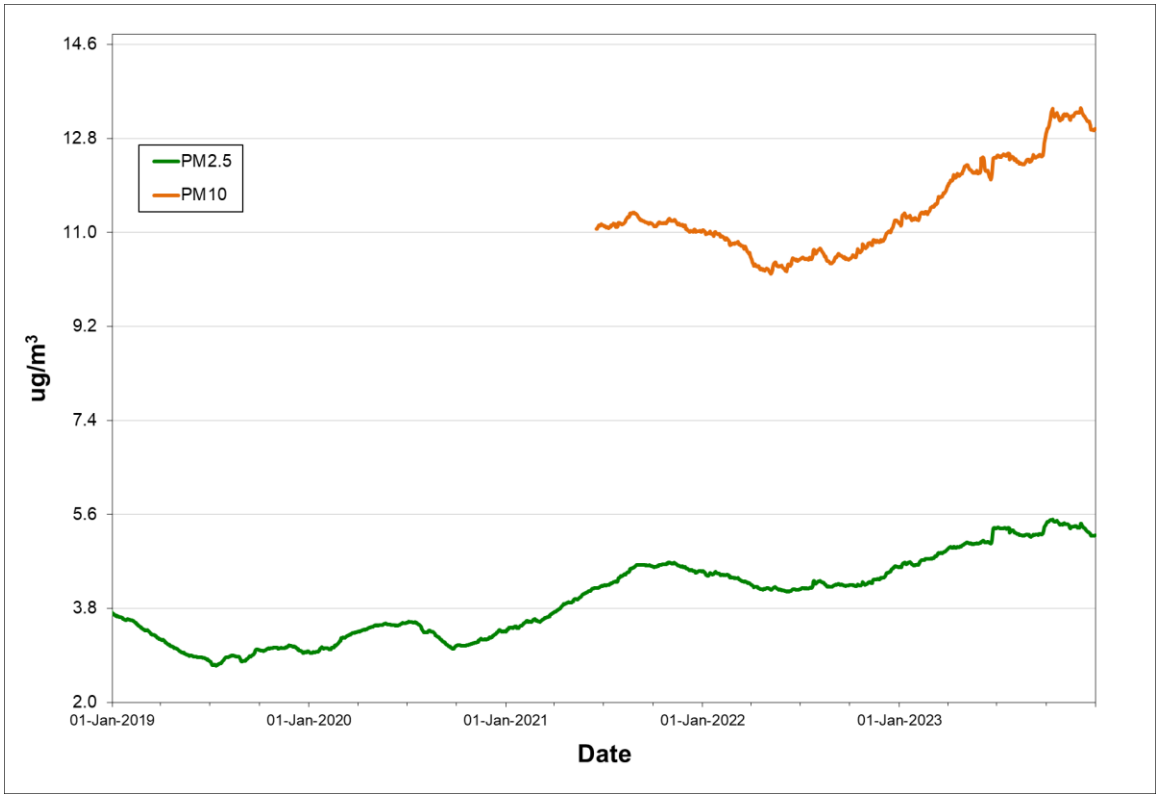
Tables 3.3.1 through 3.3.4 present the summary information on the level of air contaminants measured at the Grand Falls-Windsor NAPS station, while Figures 3.3.1 through 3.3.4 provides a graphical representation of the annual trend of each pollutant. Table 3.3.5 provides a summary of the AQHI while Figure 3.3.5 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2023.

TABLE 3.3.1 - GRAND FALLS-WINDSOR NAPS $PM_{2.5}$ / PM_{10} SUMMARY 2022 & 2023

Year	Month	# Valid Days	% Valid Days	Average $PM_{2.5}$	Average PM_{10}	24-Hour Maximum $PM_{2.5}$	24-Hour Maximum PM_{10}	Regulatory Exceedances $PM_{2.5}$ (>25)	Regulatory Exceedances PM_{10} (>50)
2022	January	654	87.9%	5.0	10.9	20.7	30.1	0	0
	February	672	100.0%	4.0	9.2	8.0	22.5	0	0
	March	739	99.3%	4.1	10.1	8.1	22.7	0	0
	April	714	99.2%	4.2	9.9	9.6	24.1	0	0
	May	742	99.7%	3.5	10.7	5.8	24.5	0	0
	June	719	99.9%	4.2	14.1	9.0	62.3	0	18
	July	743	99.9%	5.7	12.7	35.2	50.7	23	8
	August	734	98.7%	5.1	11.7	10.9	23.3	0	0
	September	717	99.6%	3.3	9.5	8.1	21.3	0	0
	October	741	99.6%	4.7	12.7	12.4	29.2	0	0
	November	720	100.0%	5.0	9.8	23.5	35.5	0	0
	December	700	94.1%	6.2	13.1	13.9	32.4	0	0
Annual		8595	98.1%	4.6	11.2	35.2	62.3	23	26
2023	January	742	99.7%	5.6	12.2	25.0	67.8	0	21
	February	671	99.9%	5.5	11.7	18.4	29.2	0	0
	March	743	99.9%	6.3	15.0	13.4	33.3	0	0
	April	719	99.9%	5.1	13.6	9.4	27.0	0	0
	May	742	99.7%	3.9	10.4	8.7	24.1	0	0
	June	717	99.6%	7.6	17.4	45.4	82.1	69	82
	July	744	100.0%	5.2	12.8	13.8	22.8	0	0
	August	744	100.0%	3.8	10.5	6.8	19.9	0	0
	September	719	99.9%	6.2	16.0	37.5	70.2	25	23
	October	743	99.9%	4.5	15.9	11.9	42.1	0	0
	November	720	100.0%	4.3	11.2	12.5	41.5	0	0
	December	743	99.9%	4.4	9.4	20.3	29.9	0	0
Annual		8747	99.9%	5.2	13.0	45.4	82.1	94	126

Observations in $\mu g/m^3$

FIGURE 3.3.1 - GRAND FALLS-WINDSOR NAPS ANNUAL $PM_{2.5}$ / PM_{10} CONCENTRATIONS



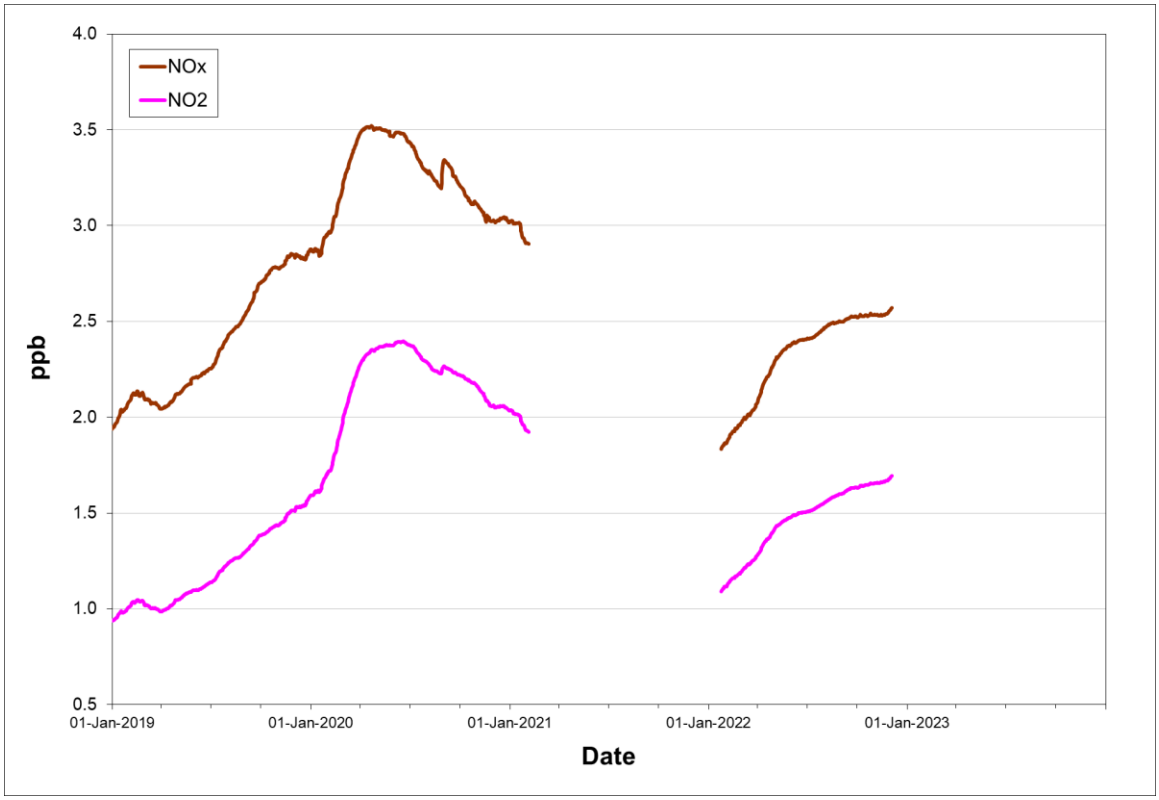
Rolling annual average of daily concentrations

TABLE 3.3.2 - GRAND FALLS-WINDSOR NAPS NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	741	99.6%	3.2	2.2	27.8	12.2	7.0	4.6	0	0
	February	672	100.0%	3.2	2.0	14.7	8.3	6.3	3.9	0	0
	March	740	99.5%	3.0	2.0	19.9	6.8	5.1	3.7	0	0
	April	710	98.6%	3.9	2.6	14.8	8.4	6.2	4.3	0	0
	May	743	99.9%	2.7	1.8	16.8	8.1	4.8	3.5	0	0
	June	719	99.9%	2.2	1.4	31.0	4.4	3.8	2.0	0	0
	July	379	50.9%	2.0	1.2	13.1	4.5	3.1	1.5	0	0
	August	731	98.3%	1.8	1.2	8.7	4.7	2.4	1.8	0	0
	September	720	100.0%	1.8	1.2	10.5	4.5	2.6	1.6	0	0
	October	659	88.6%	2.5	1.6	23.2	8.4	3.9	2.3	0	0
	November	0	0.0%								
	December	562	75.5%	3.1	2.5	32.0	7.0	4.1	3.2	0	0
Annual		7376	84.2%	2.7	1.8	32.0	12.2	7.0	4.6	0	0
2023	January	742	99.7%	3.2	2.5	67.2	13.9	5.7	4.3	0	0
	February	669	99.6%	4.3	3.1	61.8	23.2	7.2	5.0	0	0
	March	744	100.0%	2.6	2.2	22.4	11.3	4.5	3.6	0	0
	April	719	99.9%	2.5	2.2	10.2	5.4	3.1	2.7	0	0
	May	744	100.0%	2.6	2.2	10.1	5.9	3.4	3.0	0	0
	June	717	99.6%	2.2	1.6	22.3	8.4	4.1	3.5	0	0
	July	743	99.9%	1.1	0.6	29.8	7.8	2.1	1.2	0	0
	August	738	99.2%	2.1	0.9	14.2	5.0	3.7	1.6	0	0
	September	410	56.9%	2.3	1.4	24.0	6.6	4.5	2.2	0	0
	October	325	43.7%	3.6	1.9	45.1	14.5	9.3	3.1	0	0
	November	0	0.0%								
	December	0	0.0%								
Annual		6551	74.8%			67.2	23.2	9.3	5.0	0	0

Observations in ppb

FIGURE 3.3.2 - GRAND FALLS-WINDSOR NAPS ANNUAL NO_X / NO_2 CONCENTRATIONS



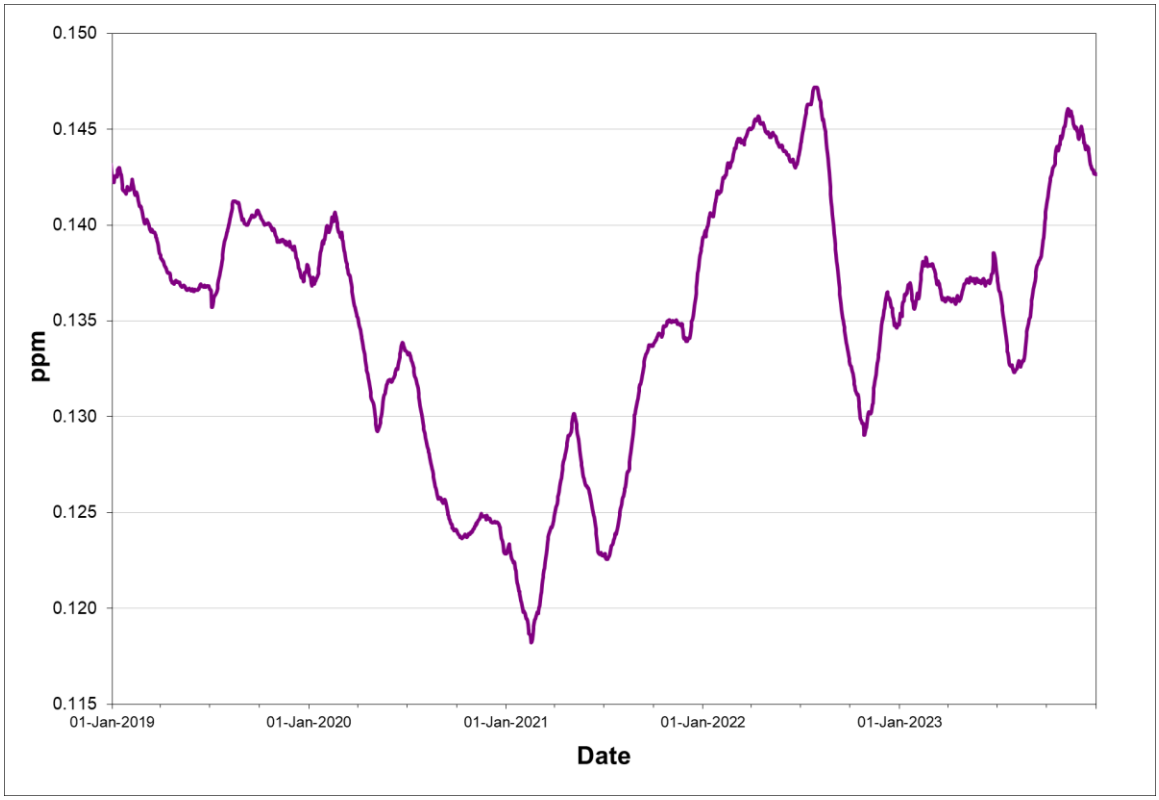
Rolling annual average of hourly concentrations

TABLE 3.3.3 - GRAND FALLS-WINDSOR NAPS CO SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>30.582)	Regulatory Exceedances 8-Hour (>13.107)
2022	January	596	80.1%	0.2	0.8	0.3	0	0
	February	671	99.9%	0.2	0.4	0.3	0	0
	March	736	98.9%	0.2	0.5	0.3	0	0
	April	711	98.8%	0.1	0.5	0.3	0	0
	May	742	99.7%	0.1	0.2	0.2	0	0
	June	672	93.3%	0.1	0.3	0.2	0	0
	July	0	0.0%					
	August	696	93.5%	0.1	0.5	0.3	0	0
	September	718	99.7%	0.1	0.2	0.1	0	0
	October	742	99.7%	0.1	0.3	0.2	0	0
	November	618	85.8%	0.2	0.8	0.5	0	0
	December	701	94.2%	0.2	0.4	0.3	0	0
Annual		7603	86.8%	0.1	0.8	0.5	0	0
2023	January	741	99.6%	0.2	0.6	0.5	0	0
	February	668	99.4%	0.2	0.6	0.4	0	0
	March	742	99.7%	0.2	0.5	0.3	0	0
	April	717	99.6%	0.1	0.3	0.2	0	0
	May	742	99.7%	0.1	0.2	0.2	0	0
	June	715	99.3%	0.1	0.7	0.4	0	0
	July	743	99.9%	0.1	0.2	0.2	0	0
	August	741	99.6%	0.1	0.2	0.2	0	0
	September	490	68.1%	0.1	0.4	0.3	0	0
	October	742	99.7%	0.1	0.4	0.3	0	0
	November	718	99.7%	0.2	0.6	0.4	0	0
	December	743	99.9%	0.2	0.7	0.4	0	0
Annual		8502	97.1%	0.1	0.7	0.5	0	0

Observations in ppm

FIGURE 3.3.3 - GRAND FALLS-WINDSOR NAPS ANNUAL CO CONCENTRATIONS



Rolling annual average of hourly concentrations

TABLE 3.3.4 - GRAND FALLS-WINDSOR NAPS O_3 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>82)	Regulatory Exceedances 8-Hour (>44)
2022	January	686	92.2%	36.7	46.7	43.4	0	0
	February	0	0.0%					
	March	375	50.4%	33.8	44.4	42.1	0	0
	April	709	98.5%	34.7	47.9	44.7	0	3
	May	743	99.9%	31.1	52.8	48.4	0	3
	June	719	99.9%	24.5	40.4	37.9	0	0
	July	379	50.9%	19.5	50.0	33.8	0	0
	August	727	97.7%	20.3	42.3	36.0	0	0
	September	720	100.0%	22.2	44.7	37.9	0	0
	October	744	100.0%	20.8	41.0	34.7	0	0
	November	717	99.6%	27.9	41.6	36.9	0	0
	December	701	94.2%	31.4	41.2	40.2	0	0
Annual		7220	82.4%	27.5	52.8	48.4	0	6
2023	January	647	87.0%	32.9	42.8	40.9	0	0
	February	670	99.7%	33.5	41.3	40.9	0	0
	March	741	99.6%	35.9	41.8	41.4	0	0
	April	716	99.4%	40.3	52.0	51.2	0	22
	May	744	100.0%	34.7	51.8	46.9	0	9
	June	362	50.3%	22.7	40.2	37.3	0	0
	July	493	66.3%	22.4	53.7	38.0	0	0
	August	742	99.7%	20.3	52.3	35.7	0	0
	September	717	99.6%	19.9	40.4	35.7	0	0
	October	741	99.6%	21.8	45.3	37.8	0	0
	November	718	99.7%	28.4	46.2	41.9	0	0
	December	743	99.9%	33.7	43.3	42.3	0	0
Annual		8034	91.7%	29.3	53.7	51.2	0	31

Observations in ppb

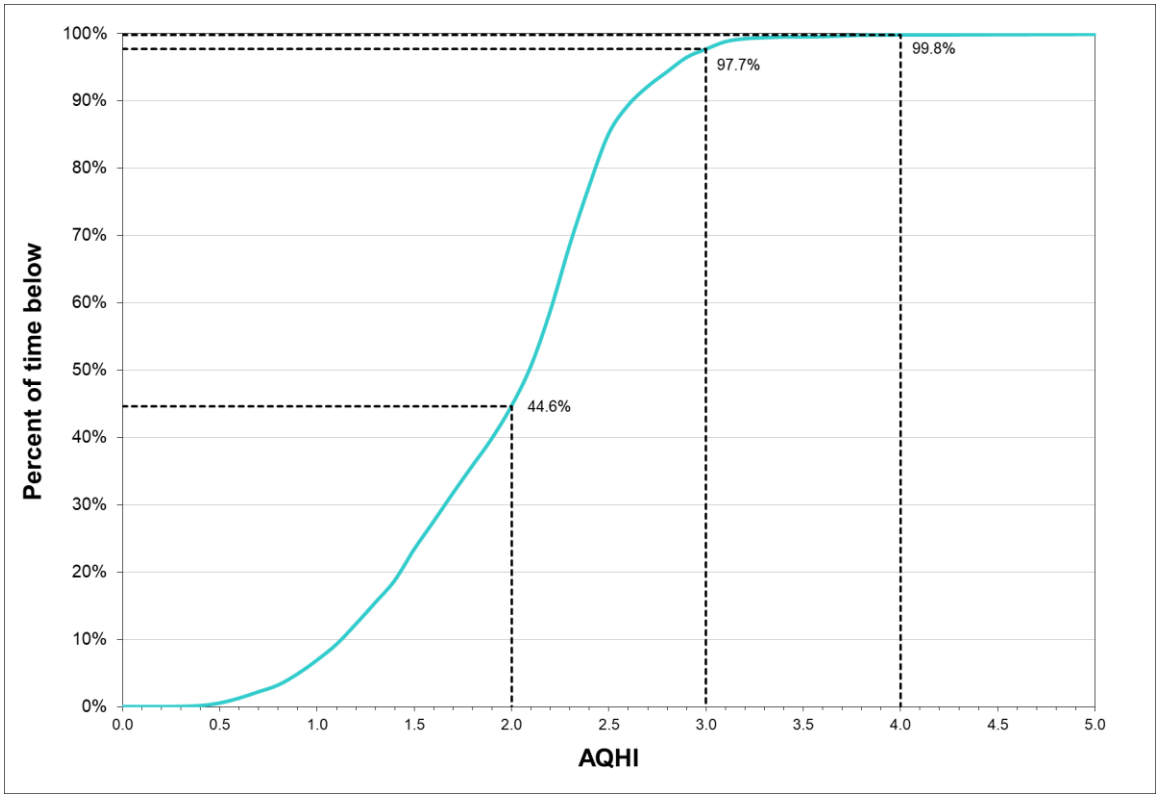
FIGURE 3.3.4 - GRAND FALLS-WINDSOR NAPS ANNUAL O_3 CONCENTRATIONS

Rolling annual average of hourly concentrations

TABLE 3.3.5 - GRAND FALLS-WINDSOR NAPS AQHI SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2022	January	595	80.0%	2.4	5.5
	February	0	0.0%		
	March	374	50.3%	2.1	3.7
	April	707	98.2%	2.2	3.2
	May	742	99.7%	1.9	3.1
	June	720	100.0%	1.6	2.4
	July	379	50.9%	1.3	4.1
	August	726	97.6%	1.4	2.6
	September	717	99.6%	1.4	2.4
	October	658	88.4%	1.4	2.7
	November	0	0.0%		
	December	562	75.5%	2.2	2.9
Annual		6180	70.5%	1.8	5.5
2023	January	647	87.0%	2.1	3.7
	February	668	99.4%	2.3	3.9
	March	742	99.7%	2.3	4.4
	April	716	99.4%	2.5	3.3
	May	744	100.0%	2.2	3.1
	June	361	50.1%	1.9	7.7
	July	492	66.1%	1.5	2.9
	August	739	99.3%	1.3	2.3
	September	407	56.5%	1.5	3.2
	October	324	43.5%	1.4	2.3
	November				
	December				
Annual		5840	66.7%	2.0	7.7

FIGURE 3.3.5 - GRAND FALLS-WINDSOR NAPS AQHI FREQUENCY DISTRIBUTION 2023



e.g. 97.7% of the time the AQHI recorded was below 3.0

3.4 Corner Brook

The Corner Brook NAPS air quality monitoring station is located on MacPherson Avenue near Confederation Drive and monitors the levels of SO_2, NO_x / NO_2, CO, O_3, $PM_{2.5}$ and PM_{10} 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, and $PM_{2.5}$ the air quality standards were not exceeded on any occasion in 2023. The 8-hour O_3 air quality standard was exceeded on fifteen occasions in 2023, specifically four times in March and eleven times in April. The 24-hour PM_{10} air quality standard was exceeded on seventeen hours in March, due to localized impacts.

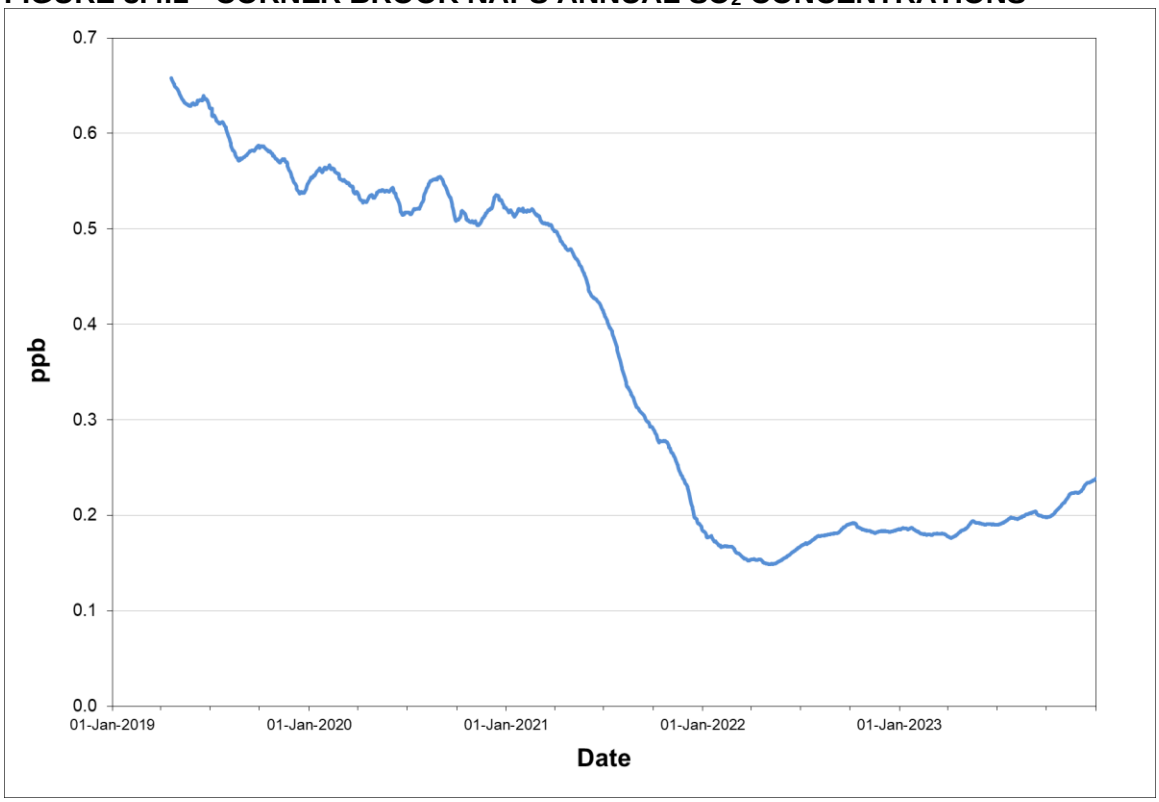
Tables 3.4.1 through 3.4.5 present the summary information on the level of air contaminants measured at the Corner Brook NAPS station, while Figures 3.4.1 through 3.4.5 provide a graphical representation of the annual trend of each pollutant. Table 3.4.6 provides a summary of the AQHI while Figure 3.4.6 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2023.

TABLE 3.4.1 - CORNER BROOK NAPS SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	744	100.0%	0.3	1.5	0.8	0.5	0	0	0
	February	670	99.7%	0.2	0.7	0.5	0.3	0	0	0
	March	743	99.9%	0.2	0.4	0.4	0.3	0	0	0
	April	708	98.3%	0.1	0.4	0.3	0.3	0	0	0
	May	744	100.0%	0.2	0.8	0.5	0.3	0	0	0
	June	720	100.0%	0.2	1.7	1.5	0.4	0	0	0
	July	744	100.0%	0.2	0.7	0.5	0.3	0	0	0
	August	740	99.5%	0.2	0.5	0.3	0.2	0	0	0
	September	689	95.7%	0.2	0.7	0.6	0.4	0	0	0
	October	686	92.2%	0.1	0.5	0.5	0.2	0	0	0
	November	717	99.6%	0.1	0.4	0.4	0.3	0	0	0
	December	320	43.0%	0.1	0.3	0.2	0.2	0	0	0
Annual		8225	93.9%	0.2	1.7	1.5	0.5	0	0	0
2023	January	677	91.0%	0.3	0.6	0.5	0.4	0	0	0
	February	652	97.0%	0.1	0.4	0.3	0.2	0	0	0
	March	526	70.7%	0.2	0.7	0.5	0.3	0	0	0
	April	719	99.9%	0.2	0.7	0.4	0.3	0	0	0
	May	736	98.9%	0.3	0.5	0.5	0.4	0	0	0
	June	700	97.2%	0.2	0.5	0.4	0.3	0	0	0
	July	618	83.1%	0.3	1.5	1.0	0.5	0	0	0
	August	740	99.5%	0.2	0.7	0.6	0.3	0	0	0
	September	593	82.4%	0.2	0.3	0.3	0.2	0	0	0
	October	744	100.0%	0.3	0.6	0.5	0.4	0	0	0
	November	571	79.3%	0.3	1.7	1.3	0.5	0	0	0
	December	744	100.0%	0.3	1.3	0.7	0.5	0	0	0
Annual		8020	91.6%	0.2	1.7	1.3	0.5	0	0	0

Observations in ppb

FIGURE 3.4.1 - CORNER BROOK NAPS ANNUAL SO_2 CONCENTRATIONS



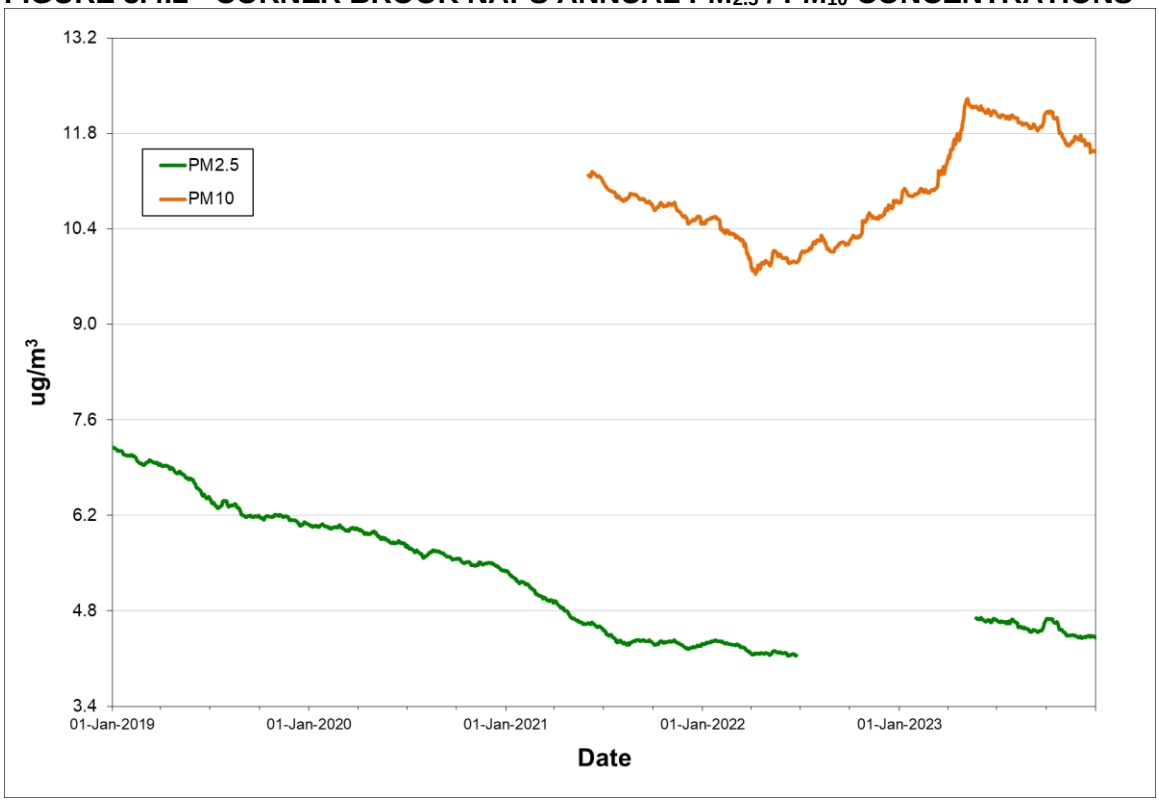
Rolling annual average of hourly concentrations

TABLE 3.4.2 - CORNER BROOK NAPS $PM_{2.5}$ / PM_{10} SUMMARY 2022 & 2023

Year	Month	# Valid Days	% Valid Days	Average $PM_{2.5}$	Average PM_{10}	24-Hour Maximum $PM_{2.5}$	24-Hour Maximum PM_{10}	Regulatory Exceedances $PM_{2.5}$ (>25)	Regulatory Exceedances PM_{10} (>50)
2022	January	741	99.6%	4.4	8.4	7.1	13.8	0	0
	February	672	100.0%	4.2	9.0	6.0	20.1	0	0
	March	743	99.9%	4.0	10.8	8.5	47.1	0	0
	April	718	99.7%	3.8	14.0	7.8	33.8	0	0
	May	444	59.7%	4.0	13.7	8.3	30.9	0	0
	June	63	8.8%	5.8	14.1	6.6	18.9	0	0
	July	741	99.6%	5.4	10.7	11.0	18.1	0	0
	August	744	100.0%	5.2	10.0	24.4	35.5	0	0
	September	688	95.6%	3.2	8.9	6.7	15.6	0	0
	October	684	91.9%	5.6	12.6	21.6	40.3	0	0
	November	719	99.9%	4.5	9.9	10.0	19.5	0	0
	December	744	100.0%	3.8	11.1	8.7	39.5	0	0
Annual		7701	87.9%	4.4	10.8	24.4	47.1	0	0
2023	January	680	91.4%	4.1	9.7	8.4	38.3	0	0
	February	653	97.2%	4.5	9.3	7.4	14.3	0	0
	March	743	99.9%	5.0	15.5	11.3	56.4	0	17
	April	718	99.7%	5.6	20.3	10.4	39.9	0	0
	May	742	99.7%	4.5	14.9	8.3	40.6	0	0
	June	700	97.2%	4.5	11.3	12.0	27.4	0	0
	July	744	100.0%	5.3	10.3	14.7	21.8	0	0
	August	743	99.9%	3.3	8.0	6.5	13.6	0	0
	September	594	82.5%	5.4	11.5	23.3	40.4	0	0
	October	744	100.0%	3.7	8.6	11.4	19.2	0	0
	November	719	99.9%	3.4	9.4	6.3	28.1	0	0
	December	744	100.0%	3.8	9.1	9.2	23.5	0	0
Annual		8524	97.3%	4.4	11.5	23.3	56.4	0	17

Observations in $\mu g/m^3$

FIGURE 3.4.2 - CORNER BROOK NAPS ANNUAL $PM_{2.5}$ / PM_{10} CONCENTRATIONS



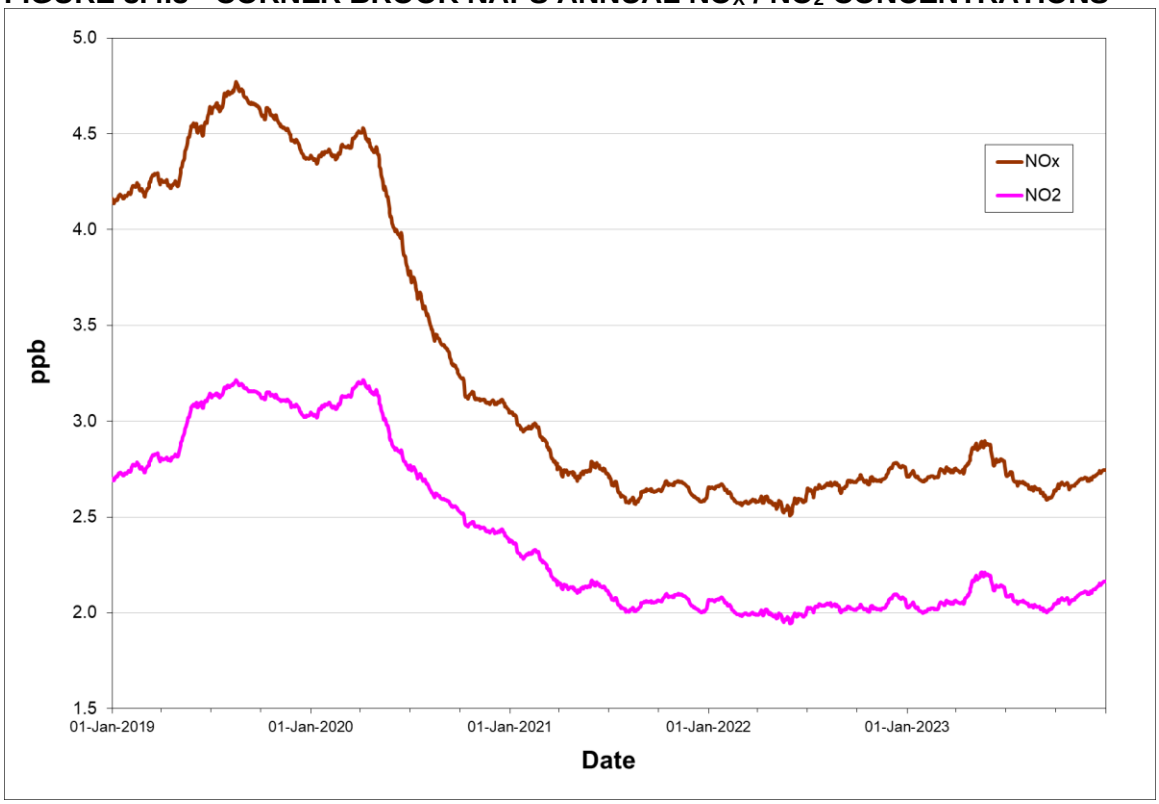
Rolling annual average of daily concentrations

TABLE 3.4.3 - CORNER BROOK NAPS NO_X / NO_2 SUMMARY 2022 & 2023

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 (>213)	Exceedances 24-Hour (>106)
2022	January	744	100.0%	2.7	2.3	22.8	21.1	5.3	4.5	0	0
	February	671	99.9%	2.8	2.3	29.3	23.2	6.5	5.4	0	0
	March	743	99.9%	3.0	2.4	19.3	10.7	4.9	3.6	0	0
	April	717	99.6%	2.5	2.0	28.3	26.3	11.2	8.6	0	0
	May	744	100.0%	3.2	2.3	36.4	29.3	11.1	7.4	0	0
	June	720	100.0%	3.8	2.5	46.3	25.9	12.8	8.4	0	0
	July	741	99.6%	2.6	1.7	31.2	19.9	10.7	6.6	0	0
	August	744	100.0%	2.4	1.6	29.7	17.8	6.2	4.7	0	0
	September	689	95.7%	2.5	1.6	43.1	15.0	7.7	4.5	0	0
	October	686	92.2%	2.8	2.1	42.0	34.0	8.6	6.8	0	0
	November	717	99.6%	2.3	1.8	20.4	15.8	6.9	5.7	0	0
	December	744	100.0%	2.0	1.6	17.5	16.0	5.1	4.3	0	0
Annual		8660	98.9%	2.7	2.0	46.3	34.0	12.8	8.6	0	0
2023	January	740	99.5%	2.4	2.0	17.9	14.8	4.9	4.3	0	0
	February	653	97.2%	3.2	2.6	46.8	30.3	7.8	6.2	0	0
	March	743	99.9%	3.4	2.8	34.8	23.3	10.3	8.0	0	0
	April	720	100.0%	3.8	3.2	29.7	24.5	9.8	7.6	0	0
	May	742	99.7%	3.4	2.7	23.6	19.1	9.3	6.2	0	0
	June	706	98.1%	2.2	1.4	19.9	19.2	9.1	6.1	0	0
	July	742	99.7%	1.9	1.2	21.3	16.3	5.3	3.6	0	0
	August	743	99.9%	2.0	1.3	24.8	14.5	7.5	4.6	0	0
	September	593	82.4%	2.4	1.7	15.0	13.1	5.1	3.2	0	0
	October	744	100.0%	3.0	2.4	33.5	24.8	8.7	6.7	0	0
	November	718	99.7%	2.6	2.2	12.6	9.1	4.7	4.2	0	0
	December	744	100.0%	2.7	2.4	29.4	22.5	6.7	5.8	0	0
Annual		8588	98.0%	2.7	2.2	46.8	30.3	10.3	8.0	0	0

Observations in ppb

FIGURE 3.4.3 - CORNER BROOK NAPS ANNUAL NO_X / NO_2 CONCENTRATIONS



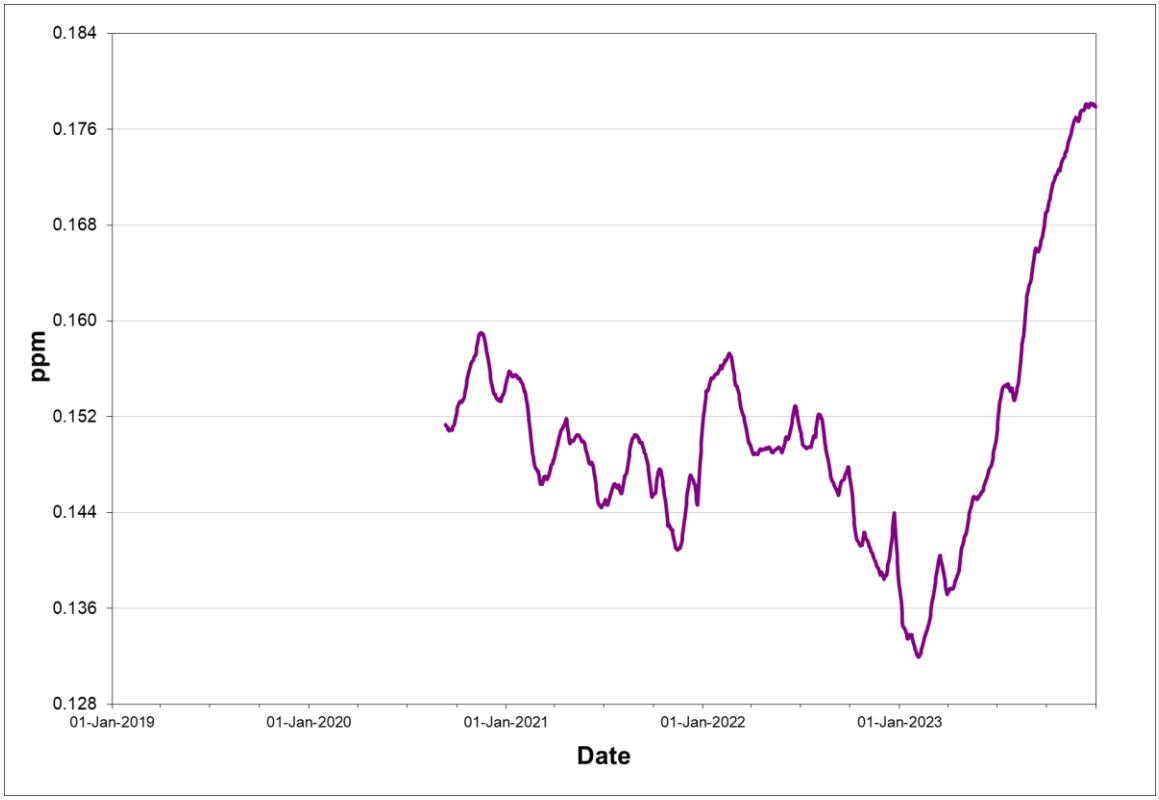
Rolling annual average of hourly concentrations

TABLE 3.4.4 - CORNER BROOK NAPS CO SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>30.582)	Regulatory Exceedances 8-Hour (>13.107)
2022	January	740	99.5%	0.2	0.5	0.4	0	0
	February	667	99.3%	0.1	0.4	0.2	0	0
	March	738	99.2%	0.1	0.2	0.2	0	0
	April	715	99.3%	0.2	0.3	0.3	0	0
	May	738	99.2%	0.2	0.5	0.2	0	0
	June	718	99.7%	0.1	0.2	0.2	0	0
	July	657	88.3%	0.1	0.3	0.2	0	0
	August	533	71.6%	0.1	0.3	0.2	0	0
	September	522	72.5%	0.1	0.3	0.1	0	0
	October	685	92.1%	0.1	0.3	0.2	0	0
	November	714	99.2%	0.1	0.5	0.3	0	0
	December	742	99.7%	0.2	0.4	0.3	0	0
Annual		8169	93.3%	0.1	0.5	0.4	0	0
2023	January	738	99.2%	0.1	0.4	0.3	0	0
	February	630	93.8%	0.1	0.4	0.2	0	0
	March	741	99.6%	0.1	0.5	0.3	0	0
	April	717	99.6%	0.3	0.5	0.4	0	0
	May	738	99.2%	0.2	0.3	0.3	0	0
	June	697	96.8%	0.2	0.3	0.2	0	0
	July	743	99.9%	0.1	0.4	0.3	0	0
	August	742	99.7%	0.2	0.4	0.3	0	0
	September	593	82.4%	0.2	0.4	0.3	0	0
	October	744	100.0%	0.2	0.4	0.2	0	0
	November	718	99.7%	0.2	0.4	0.2	0	0
	December	744	100.0%	0.2	0.5	0.4	0	0
Annual		8545	97.5%	0.2	0.5	0.4	0	0

Observations in ppm

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 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>82)	Regulatory Exceedances 8-Hour (>44)
2022	January	744	100.0%	35.7	43.1	42.5	0	0
	February	672	100.0%	37.7	48.9	47.4	0	1
	March	743	99.9%	37.3	45.9	43.9	0	0
	April	717	99.6%	35.3	49.4	48.0	0	2
	May	744	100.0%	31.2	54.6	47.7	0	2
	June	720	100.0%	23.3	45.2	40.5	0	0
	July	741	99.6%	22.3	50.5	38.6	0	0
	August	743	99.9%	17.9	41.3	36.9	0	0
	September	689	95.7%	19.5	39.7	35.4	0	0
	October	654	87.9%	19.6	37.5	31.2	0	0
	November	719	99.9%	21.8	32.3	29.1	0	0
	December	608	81.7%	31.1	41.6	40.9	0	0
Annual		8494	97.0%	27.7	54.6	48.0	0	5
2023	January	741	99.6%	32.7	42.2	39.6	0	0
	February	653	97.2%	34.6	42.2	41.2	0	0
	March	744	100.0%	38.3	46.3	45.5	0	4
	April	719	99.9%	38.4	53.6	50.1	0	11
	May	742	99.7%	30.7	44.7	42.7	0	0
	June	720	100.0%	22.9	40.6	35.9	0	0
	July	744	100.0%	18.7	41.1	33.9	0	0
	August	743	99.9%	20.1	37.9	33.3	0	0
	September	593	82.4%	18.1	34.0	29.3	0	0
	October	742	99.7%	20.5	37.2	31.6	0	0
	November	719	99.9%	27.9	45.0	42.4	0	0
	December	744	100.0%	32.0	41.3	40.6	0	0
Annual		8604	98.2%	28.0	53.6	50.1	0	15

Observations in ppb

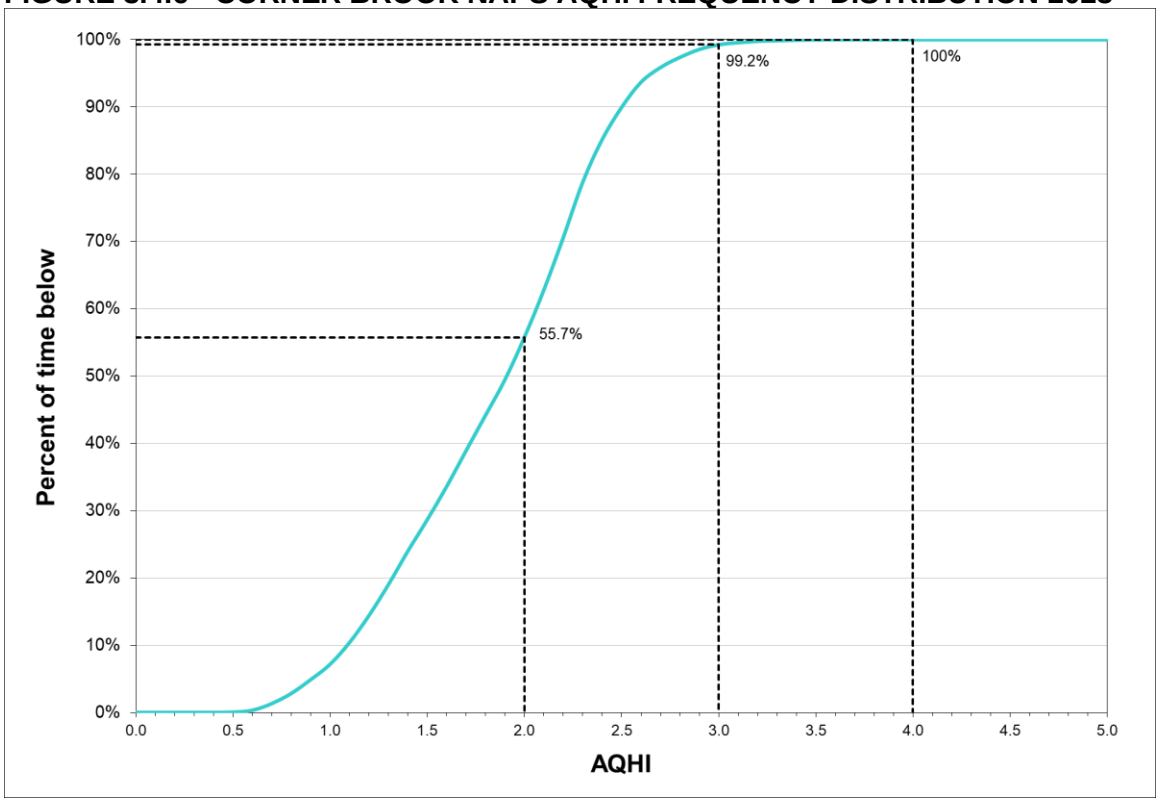
FIGURE 3.4.5 - CORNER BROOK NAPS ANNUAL O_3 CONCENTRATIONS

Rolling annual average of hourly concentrations

TABLE 3.4.6 - CORNER BROOK NAPS AQHI SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2022	January	744	100.0%	2.3	2.8
	February	672	100.0%	2.4	3.0
	March	744	100.0%	2.3	2.9
	April	714	99.2%	2.2	3.3
	May	445	59.8%	2.1	4.0
	June	62	8.6%	1.6	2.7
	July	739	99.3%	1.6	3.1
	August	744	100.0%	1.3	3.6
	September	690	95.8%	1.3	2.3
	October	653	87.8%	1.5	4.1
	November	718	99.7%	1.5	2.1
	December	608	81.7%	1.9	2.6
Annual		7533	86.0%	1.8	4.1
2023	January	674	90.6%	2.1	2.8
	February	654	97.3%	2.2	3.4
	March	744	100.0%	2.5	3.5
	April	718	99.7%	2.5	3.6
	May	740	99.5%	2.0	2.8
	June	688	95.6%	1.5	2.9
	July	742	99.7%	1.3	2.7
	August	744	100.0%	1.3	2.3
	September	591	82.1%	1.3	2.4
	October	742	99.7%	1.4	2.2
	November	720	100.0%	1.8	2.4
	December	744	100.0%	2.0	2.5
Annual		8501	97.0%	1.8	3.6

FIGURE 3.4.6 - CORNER BROOK NAPS AQHI FREQUENCY DISTRIBUTION 2023



e.g. 99.2% of the time the AQHI recorded was below 3.0

3.5 Burin

The Burin NAPS air quality monitoring station is located near the Highway Depot in Burin and monitors the levels of NO_x / NO_2, CO, O_3, $PM_{2.5}$ and PM_{10} on a continuous basis. The air quality standards for NO_x / NO_2, and CO were not exceeded in 2023. For 8-hour O_3, the air quality standard was exceeded thirty two times in 2023, specifically six times in March, twenty one times in April, three times in May, once in July and once in October. The 24-hour air quality standards, as measured hourly, for both PM_{10} and $PM_{2.5}$ were exceeded twenty two times and thirty six times respectively in 2023. All PM_{10} and $PM_{2.5}$ exceedances were attributable to long-range wildfire smoke from Quebec in June and northern Alberta / Northwest Territories in September.

In July 2018 a new Teledyne API T640 was installed at the site, capable of simultaneously measuring PM_{10} and $PM_{2.5}$. For determination of compliance with the Canadian Ambient Air Quality Standards (CAAQS), this monitor replaced the Met One BAMs, however the BAMs remained in place until August 2023 when they were permanently removed. Only the data from the T640 is captured in this annual report though data from the BAMs is available.

Tables 3.5.1 through 3.5.4 provide summary information on the level of each air contaminant measured at the Burin site while Figures 3.5.1 through 3.5.4 provide a graphical representation of the annual trend for each pollutant.

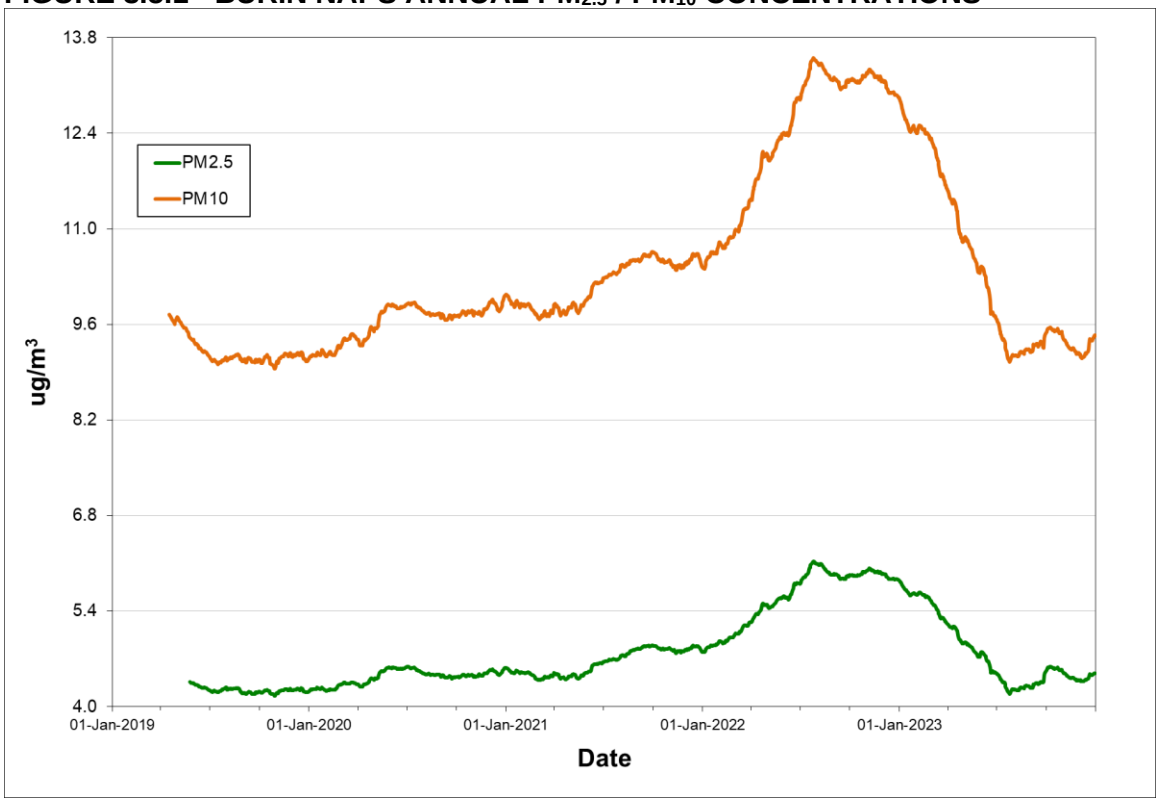
Table 3.5.5 provides a summary of the AQHI, while Figure 3.5.5 provides a graphical representation of the AQHI frequency based on all data collected in Burin in 2023.

TABLE 3.5.1 - BURIN NAPS $PM_{2.5}$ / PM_{10} SUMMARY 2022 & 2023

Year	Month	# Valid Days	% Valid Days	Average $PM_{2.5}$	Average PM_{10}	24-Hour Maximum $PM_{2.5}$	24-Hour Maximum PM_{10}	Regulatory Exceedances $PM_{2.5}$ (>25)	Regulatory Exceedances PM_{10} (>50)
2022	January	741	99.6%	5.8	13.2	11.3	32.6	0	0
	February	496	73.8%	5.6	11.9	12.2	25.5	0	0
	March	662	89.0%	8.9	20.6	14.0	32.4	0	0
	April	716	99.4%	8.1	19.1	22.1	54.0	0	6
	May	744	100.0%	6.9	15.5	13.3	30.2	0	0
	June	719	99.9%	7.4	16.1	26.3	65.7	14	26
	July	742	99.7%	7.5	14.9	17.7	37.0	0	0
	August	744	100.0%	3.7	7.2	7.7	14.3	0	0
	September	720	100.0%	4.1	9.8	15.9	38.8	0	0
	October	743	99.9%	4.4	9.4	10.7	20.7	0	0
	November	717	99.6%	4.7	10.4	9.5	20.4	0	0
	December	742	99.7%	3.5	7.6	9.5	21.3	0	0
Annual		8486	96.9%	5.9	12.9	26.3	65.7	14	32
2023	January	742	99.7%	3.4	7.5	11.0	23.6	0	0
	February	672	100.0%	4.4	10.7	9.6	23.3	0	0
	March	744	100.0%	4.5	10.9	10.0	30.0	0	0
	April	719	99.9%	4.6	10.0	8.8	20.0	0	0
	May	744	100.0%	5.1	10.7	20.9	33.4	0	0
	June	720	100.0%	4.0	7.2	25.7	38.6	4	0
	July	743	99.9%	4.8	8.6	12.5	19.9	0	0
	August	741	99.6%	4.1	8.2	10.9	18.1	0	0
	September	719	99.9%	6.9	12.8	43.7	69.8	32	22
	October	743	99.9%	4.3	8.9	12.0	20.1	0	0
	November	719	99.9%	3.2	7.3	8.8	20.6	0	0
	December	743	99.9%	4.6	10.6	18.0	42.3	0	0
Annual		8749	99.9%	4.5	9.4	43.7	69.8	36	22

Observations in $\mu g/m^3$

FIGURE 3.5.1 - BURIN NAPS ANNUAL $PM_{2.5}$ / PM_{10} CONCENTRATIONS



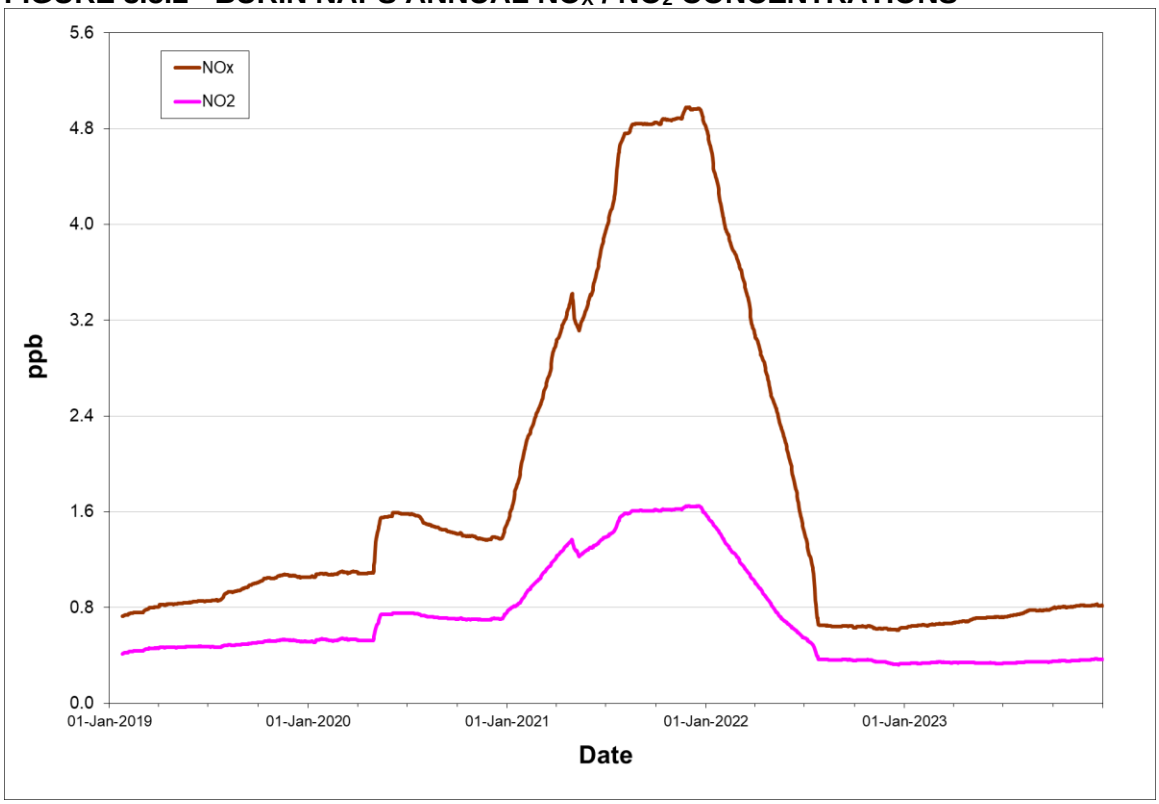
Rolling annual average of hourly concentrations

TABLE 3.5.2 - BURIN NAPS NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	731	98.3%	0.5	0.3	5.5	4.9	1.1	0.9	0	0
	February	507	75.4%	0.7	0.4	16.1	11.6	1.9	1.3	0	0
	March	661	88.8%	0.7	0.5	11.0	4.0	1.2	0.8	0	0
	April	717	99.6%	0.6	0.3	12.4	6.2	1.3	0.8	0	0
	May	742	99.7%	0.6	0.3	6.8	2.9	1.1	0.7	0	0
	June	718	99.7%	0.7	0.4	21.2	4.7	1.6	0.8	0	0
	July	741	99.6%	0.6	0.2	5.6	1.4	0.9	0.4	0	0
	August	741	99.6%	0.5	0.2	3.6	1.7	0.9	0.5	0	0
	September	718	99.7%	0.5	0.3	9.5	3.0	2.0	0.8	0	0
	October	742	99.7%	0.7	0.4	15.3	4.9	2.5	1.3	0	0
	November	716	99.4%	0.7	0.3	12.5	5.1	1.6	0.8	0	0
	December	742	99.7%	0.8	0.3	54.0	27.2	4.3	1.8	0	0
Annual		8476	96.8%	0.6	0.3	54.0	27.2	4.3	1.8	0	0
2023	January	740	99.5%	0.7	0.4	11.3	5.2	1.5	0.9	0	0
	February	671	99.9%	0.8	0.5	20.5	11.7	2.1	1.6	0	0
	March	741	99.6%	0.9	0.5	14.8	8.4	2.0	1.3	0	0
	April	716	99.4%	0.8	0.3	2.7	1.9	1.3	0.7	0	0
	May	741	99.6%	0.9	0.3	8.5	3.4	1.9	0.9	0	0
	June	717	99.6%	0.7	0.3	5.5	2.6	1.3	0.8	0	0
	July	739	99.3%	0.9	0.3	4.9	1.8	1.3	0.5	0	0
	August	679	91.3%	0.9	0.3	13.0	3.2	1.9	0.6	0	0
	September	719	99.9%	0.8	0.3	12.2	4.3	1.9	0.9	0	0
	October	743	99.9%	0.8	0.4	21.8	7.0	2.2	0.9	0	0
	November	235	32.6%	1.0	0.5	13.0	5.6	2.7	1.2	0	0
	December	582	78.2%	0.8	0.4	5.2	2.8	1.5	0.7	0	0
Annual		8023	91.6%	0.8	0.4	21.8	11.7	2.7	1.6	0	0

Observations in ppb

FIGURE 3.5.2 - BURIN NAPS ANNUAL NO_X / NO_2 CONCENTRATIONS



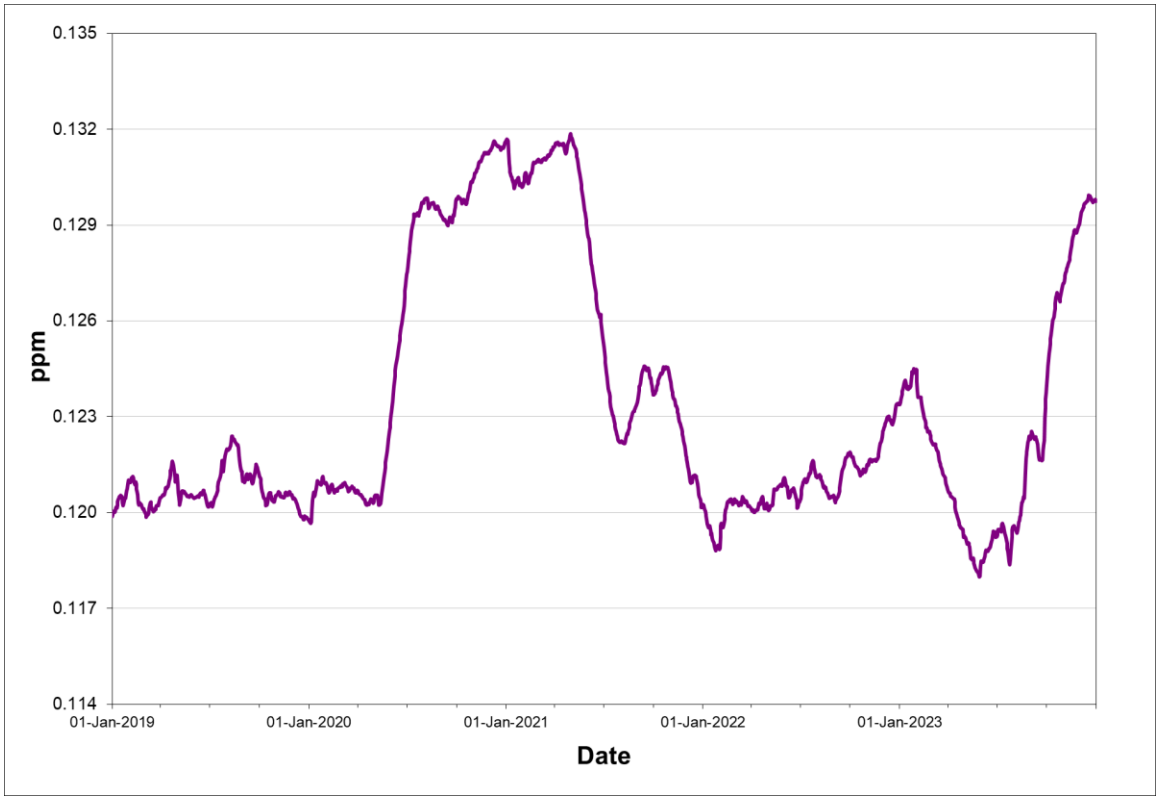
Rolling annual average of hourly concentrations

TABLE 3.5.3 - BURIN NAPS CO SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>30.582)	Regulatory Exceedances 8-Hour (>13.107)
2022	January	740	99.5%	0.1	0.4	0.2	0	0
	February	511	76.0%	0.2	0.4	0.4	0	0
	March	662	89.0%	0.1	0.2	0.2	0	0
	April	691	96.0%	0.1	0.6	0.2	0	0
	May	466	62.6%	0.1	0.3	0.2	0	0
	June	718	99.7%	0.1	0.2	0.1	0	0
	July	741	99.6%	0.1	0.2	0.1	0	0
	August	744	100.0%	0.1	0.2	0.2	0	0
	September	720	100.0%	0.1	0.2	0.2	0	0
	October	741	99.6%	0.1	0.2	0.2	0	0
	November	720	100.0%	0.1	0.2	0.2	0	0
	December	742	99.7%	0.1	0.3	0.2	0	0
Annual		8196	93.6%	0.1	0.6	0.4	0	0
2023	January	656	88.2%	0.1	0.4	0.3	0	0
	February	0	0.0%					
	March	60	8.1%	0.1	0.2	0.1	0	0
	April	631	87.6%	0.1	0.2	0.1	0	0
	May	742	99.7%	0.1	0.3	0.3	0	0
	June	718	99.7%	0.1	0.2	0.2	0	0
	July	707	95.0%	0.1	0.2	0.2	0	0
	August	679	91.3%	0.2	0.3	0.2	0	0
	September	718	99.7%	0.2	0.4	0.4	0	0
	October	743	99.9%	0.1	0.4	0.2	0	0
	November	717	99.6%	0.1	0.2	0.2	0	0
	December	742	99.7%	0.1	0.3	0.2	0	0
Annual		7113	81.2%	0.1	0.4	0.4	0	0

Observations in ppm

FIGURE 3.5.3 - BURIN NAPS ANNUAL CO CONCENTRATIONS



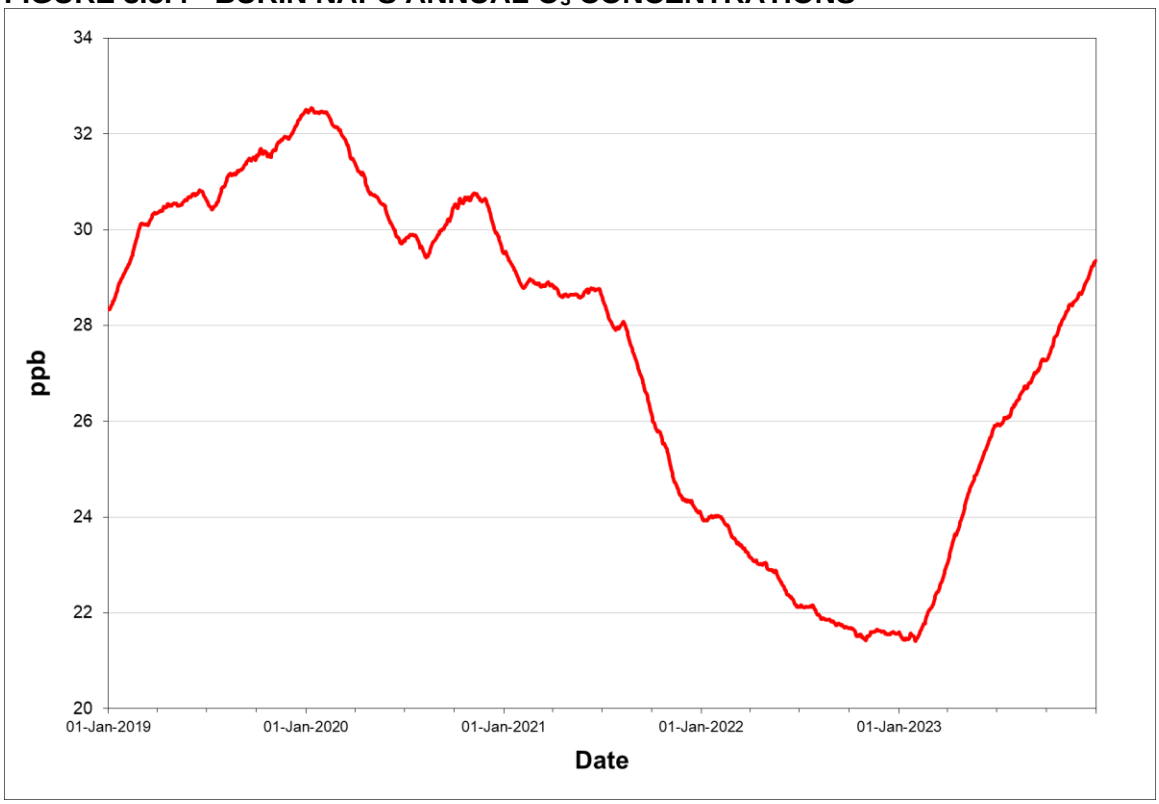
Rolling annual average of hourly concentrations

TABLE 3.5.4 - BURIN NAPS O_3 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>82)	Regulatory Exceedances 8-Hour (>44)
2022	January	726	97.6%	28.2	37.1	36.0	0	0
	February	513	76.3%	29.3	41.7	40.8	0	0
	March	662	89.0%	29.7	39.1	37.7	0	0
	April	717	99.6%	27.4	45.9	42.6	0	0
	May	741	99.6%	22.1	34.5	33.3	0	0
	June	718	99.7%	15.3	26.8	22.4	0	0
	July	742	99.7%	15.8	33.4	29.3	0	0
	August	744	100.0%	15.4	34.8	27.1	0	0
	September	718	99.7%	14.7	26.8	24.1	0	0
	October	742	99.7%	15.8	27.8	24.7	0	0
	November	719	99.9%	23.3	33.7	32.3	0	0
	December	744	100.0%	25.3	34.7	32.8	0	0
Annual		8486	96.9%	21.6	45.9	42.6	0	0
2023	January	546	73.4%	28.0	41.3	40.4	0	0
	February	660	98.2%	36.0	44.9	43.8	0	0
	March	742	99.7%	39.6	46.8	45.1	0	6
	April	716	99.4%	40.3	52.1	47.6	0	21
	May	742	99.7%	33.6	51.2	46.6	0	3
	June	718	99.7%	25.0	38.5	35.1	0	0
	July	740	99.5%	20.0	54.4	46.0	0	1
	August	739	99.3%	21.4	42.2	39.0	0	0
	September	718	99.7%	20.2	39.0	34.8	0	0
	October	742	99.7%	25.7	49.4	46.4	0	1
	November	717	99.6%	29.6	47.1	42.7	0	0
	December	741	99.6%	33.3	43.9	43.4	0	0
Annual		8521	97.3%	29.4	54.4	47.6	0	32

Observations in ppb

FIGURE 3.5.4 - BURIN NAPS ANNUAL O_3 CONCENTRATIONS

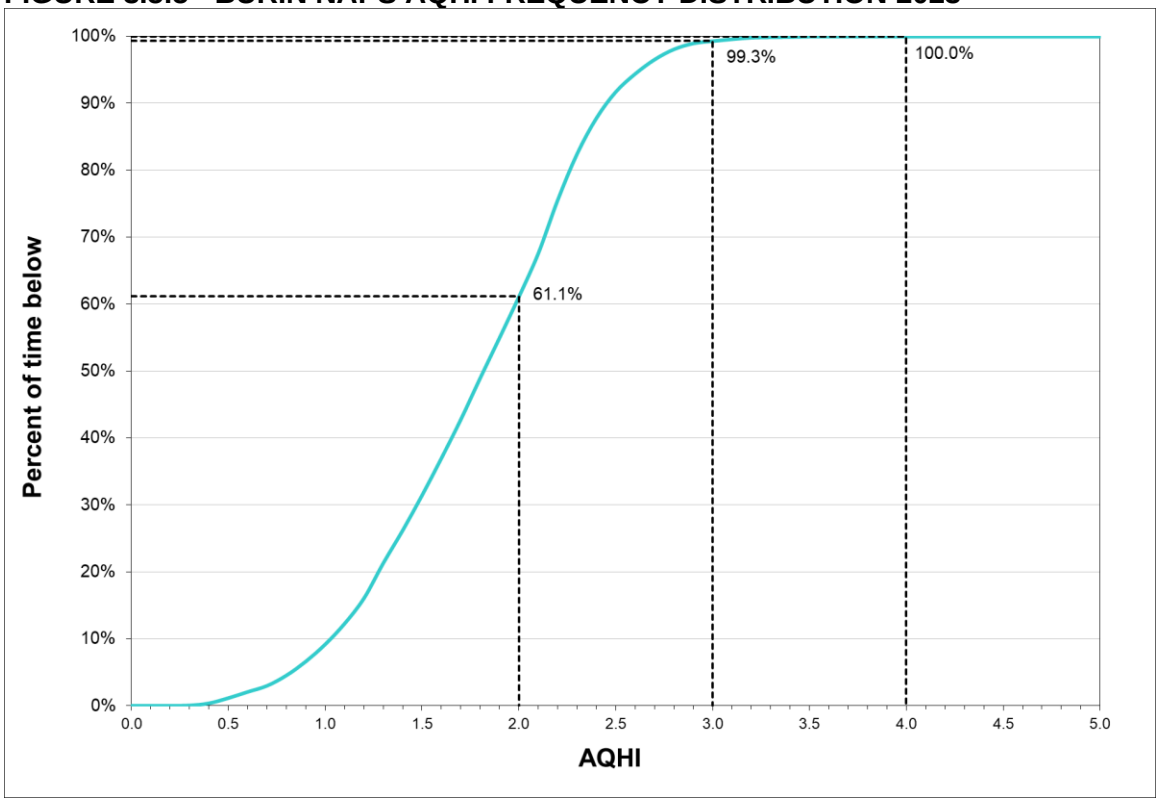


Rolling annual average of hourly concentrations

TABLE 3.5.5 - BURIN NAPS AQHI SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2022	January	722	97.0%	1.8	2.6
	February	490	72.9%	1.8	2.8
	March	661	88.8%	2.0	3.0
	April	713	99.0%	1.8	3.2
	May	742	99.7%	1.5	2.6
	June	720	100.0%	1.2	2.6
	July	740	99.5%	1.2	2.3
	August	743	99.9%	1.0	1.9
	September	718	99.7%	1.0	2.5
	October	741	99.6%	1.1	1.8
	November	717	99.6%	1.5	2.1
	December	742	99.7%	1.5	2.5
Annual		8449	96.4%	1.4	3.2
2023	January	546	73.4%	1.6	2.6
	February	660	98.2%	2.1	2.9
	March	744	100.0%	2.3	2.9
	April	715	99.3%	2.3	2.9
	May	742	99.7%	2.0	3.5
	June	718	99.7%	1.5	2.7
	July	739	99.3%	1.3	3.2
	August	679	91.3%	1.3	2.7
	September	718	99.7%	1.4	3.4
	October	744	100.0%	1.6	3.0
	November	236	32.8%	1.8	2.5
	December	581	78.1%	2.1	3.2
Annual		7822	89.3%	1.8	3.5

FIGURE 3.5.5 - BURIN NAPS AQHI FREQUENCY DISTRIBUTION 2023



e.g. 99.3% of the time the AQHI recorded was below 3.0

3.6 Port aux Choix

The Port aux Choix NAPS air quality monitoring station is located at the Town Depot and monitors the levels of O_3 on a continuous basis. There were twenty recorded O_3 exceedances of the 8-hour air quality standard at this station in 2023, with five exceedances occurring in March and fifteen in April.

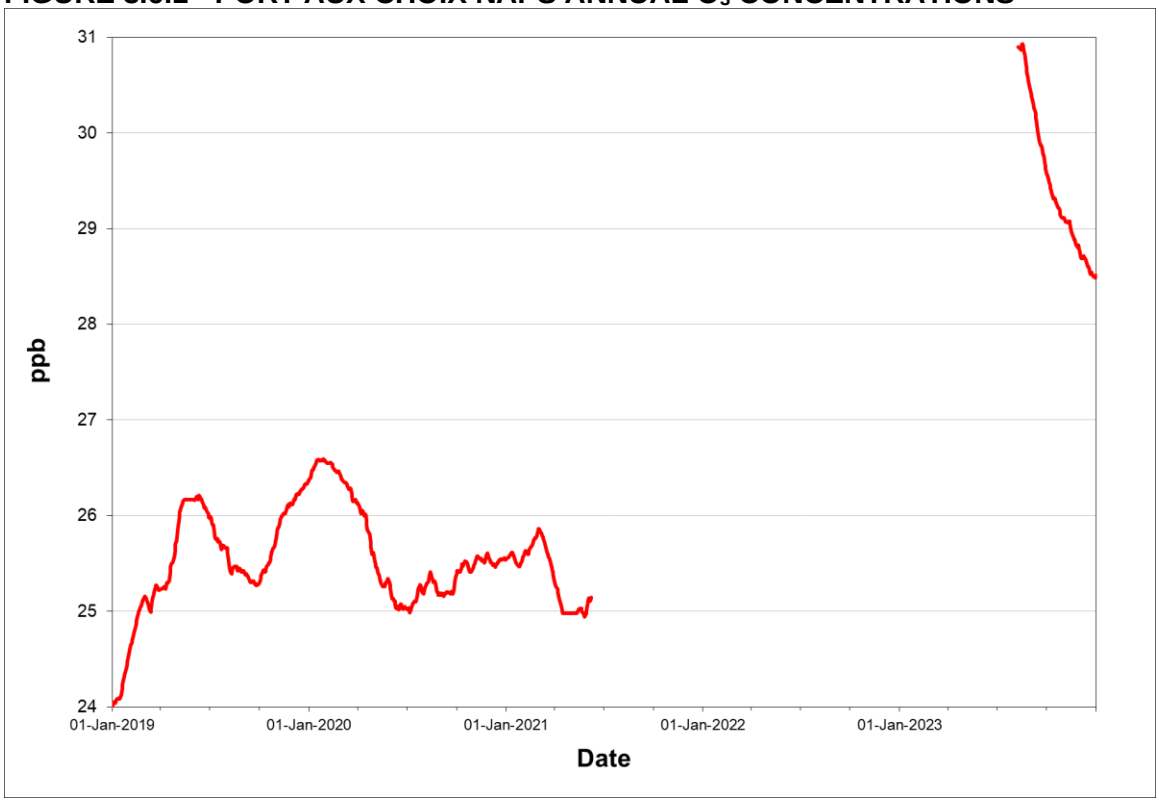
Table 3.6.1 presents the summary information on the level of O_3 measured at the Port aux Choix NAPS station while Figure 3.6.1 presents a graphical representation of the annual trend of O_3.

TABLE 3.6.1 - PORT AUX CHOIX NAPS O_3 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>82)	Regulatory Exceedances 8-Hour (>44)
2022	January	711	95.6%	34.8	41.4	39.4	0	0
	February	672	100.0%	36.2	47.4	43.5	0	0
	March	228	30.6%	37.7	42.9	42.4	0	0
	April	0						
	May	0						
	June	370	51.4%	22.4	39.3	31.6	0	0
	July	163	21.9%	22.7	41.5	39.5	0	0
	August	180	24.2%	19.8	32.5	27.3	0	0
	September	0						
	October	11	1.5%	31.4	33.7	31.3	0	0
	November	719	99.9%	32.4	39.8	38.2	0	0
	December	744	100.0%	34.6	42.3	41.8	0	0
Annual		3798	43.4%		47.4	43.5	0	0
2023	January	581	78.1%	34.8	41.7	40.7	0	0
	February	634	94.3%	36.4	42.2	41.5	0	0
	March	606	81.5%	40.4	46.7	46.0	0	5
	April	699	97.1%	38.7	49.8	47.8	0	15
	May	744	100.0%	29.4	42.0	39.0	0	0
	June	713	99.0%	22.0	37.4	30.2	0	0
	July	738	99.2%	18.4	39.6	34.3	0	0
	August	744	100.0%	21.1	36.9	33.9	0	0
	September	720	100.0%	21.4	32.4	30.5	0	0
	October	744	100.0%	24.1	34.9	32.9	0	0
	November	560	77.8%	28.7	39.0	38.1	0	0
	December	744	100.0%	31.5	38.5	37.1	0	0
Annual		8227	93.9%	28.5	49.8	47.8	0	20

Observations in ppb

FIGURE 3.6.1 - PORT AUX CHOIX NAPS ANNUAL O_3 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.0 Industrial Air Quality 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 air quality 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 air quality monitoring networks operated by industry in 2023 and another four in Labrador. Figures 4.0.1 and 4.0.2 present the locations of these air quality 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 AIR QUALITY MONITORING NETWORK IN NEWFOUNDLAND

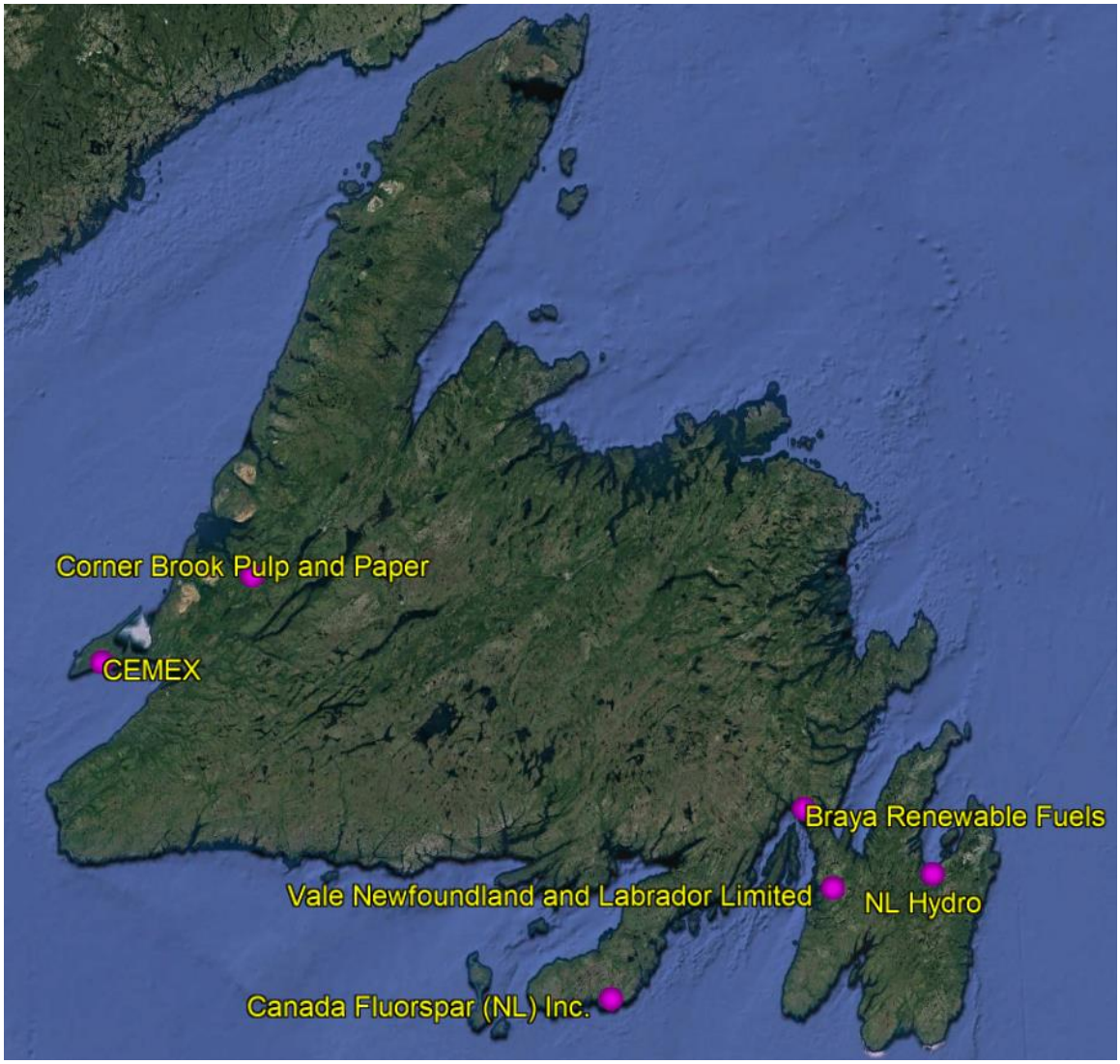
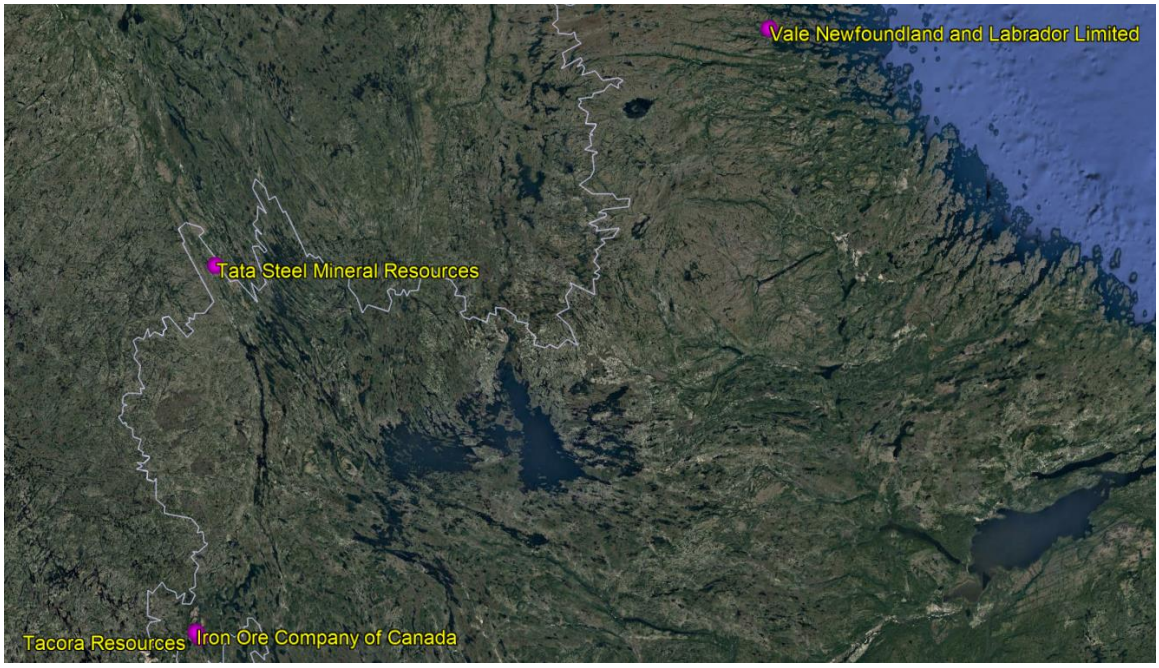


FIGURE 4.0.2 - INDUSTRIAL AIR QUALITY MONITORING NETWORK IN LABRADOR

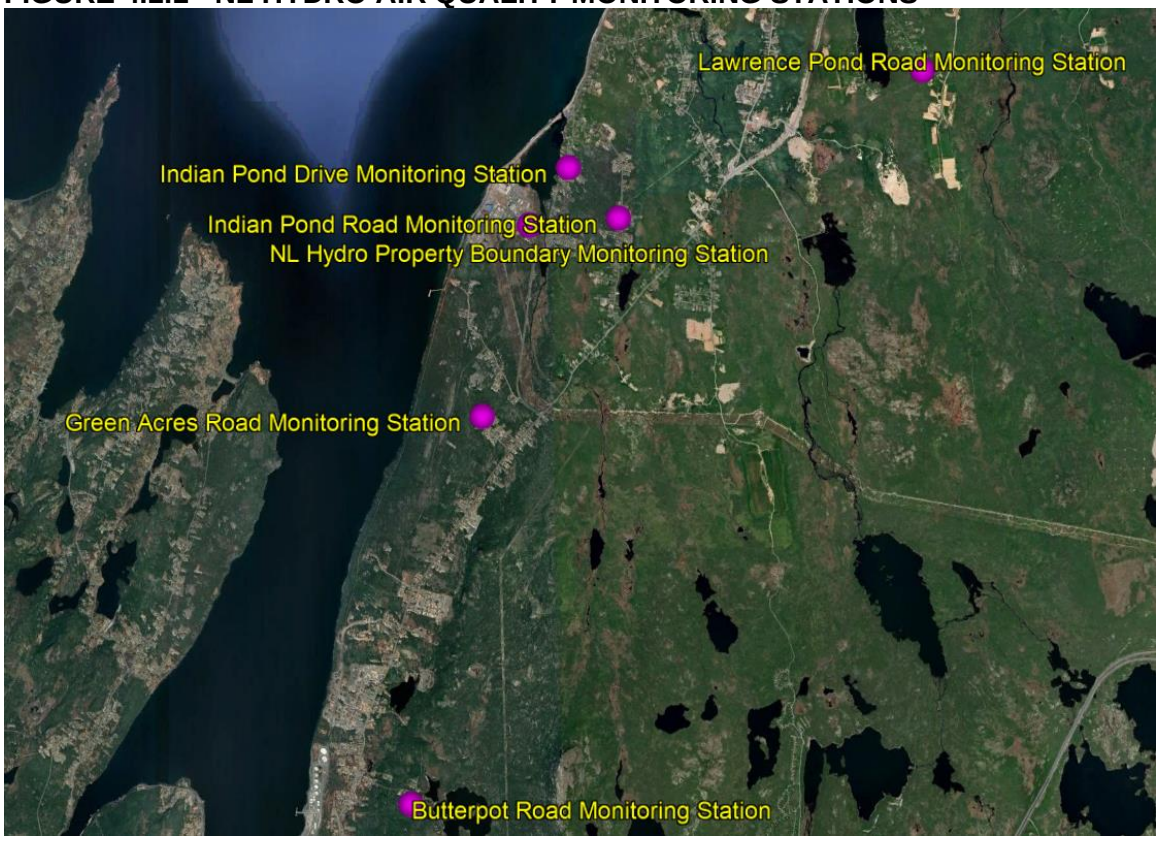


4.1 Newfoundland and Labrador Hydro

In 2023, Newfoundland and Labrador Hydro (NL Hydro) operated air quality monitoring stations at six locations in the Holyrood area. These stations are installed to monitor the air quality near the Holyrood Thermal Generating Station (HTGS) and are located at Butterpot Road, Green Acres Road, Indian Pond Drive, Indian Pond Road, Lawrence Pond, and the NL Hydro HTGS property boundary. Figure 4.1.1 indicates the location of the six air quality monitoring stations operated by NL Hydro.

In 2021 it was announced that NALCOR Energy operations will be moving under Newfoundland and Labrador Hydro. Air quality monitoring results in previous annual reports for this facility were presented under NALCOR Energy however going forward they will be presented under Newfoundland and Labrador Hydro.

FIGURE 4.1.1 - NL HYDRO AIR QUALITY MONITORING STATIONS



4.1.1 Butterpot Road

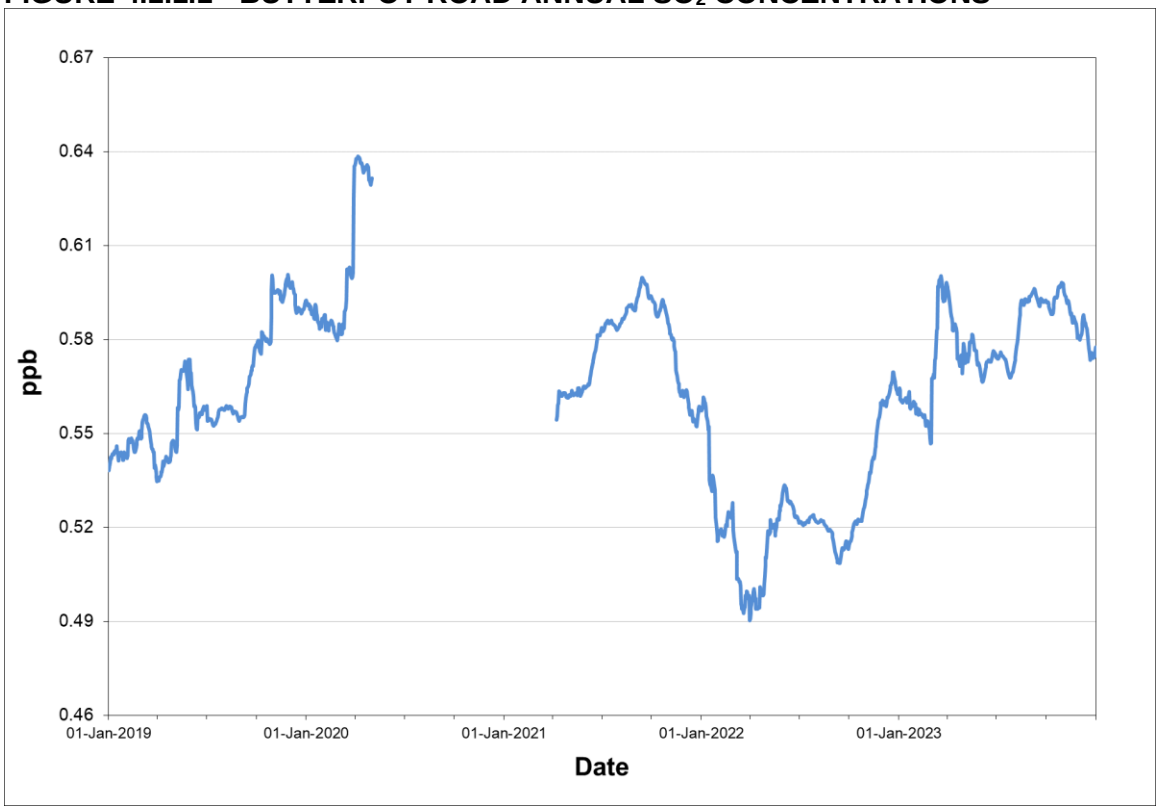
The Butterpot Road station monitors the levels of SO_2, NO_x / NO_2 and $PM_{2.5}$ on a continuous basis. For SO_2 and NO_x / NO_2, the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$ however, the 24-hour air quality standard, as measured hourly, was exceeded on twenty four occasions in September owing to wildfire fire smoke emanating from northern Alberta and the Northwest Territories. 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.

TABLE 4.1.1.1 - BUTTERPOT ROAD SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	711	95.6%	0.5	18.4	13.7	2.6	0	0	0
	February	643	95.7%	0.7	7.4	5.1	1.4	0	0	0
	March	709	95.3%	0.6	14.9	7.4	1.9	0	0	0
	April	689	95.7%	0.8	18.9	15.6	3.2	0	0	0
	May	713	95.8%	0.7	11.2	7.1	1.9	0	0	0
	June	687	95.4%	0.4	1.2	1.0	0.9	0	0	0
	July	713	95.8%	0.4	1.0	0.8	0.8	0	0	0
	August	712	95.7%	0.3	0.7	0.6	0.5	0	0	0
	September	683	94.9%	0.4	0.9	0.8	0.7	0	0	0
	October	713	95.8%	0.5	3.3	1.6	0.7	0	0	0
	November	690	95.8%	0.7	1.6	1.2	1.0	0	0	0
	December	709	95.3%	0.6	6.3	3.3	1.4	0	0	0
Annual		8372	95.6%	0.6	18.9	15.6	3.2	0	0	0
2023	January	711	95.6%	0.5	5.4	1.9	0.9	0	0	0
	February	644	95.8%	0.5	4.0	2.0	1.0	0	0	0
	March	710	95.4%	1.2	39.2	28.8	8.1	0	0	0
	April	685	95.1%	0.5	15.2	9.0	3.1	0	0	0
	May	713	95.8%	0.7	13.8	7.3	2.6	0	0	0
	June	683	94.9%	0.5	1.0	1.0	0.9	0	0	0
	July	707	95.0%	0.3	0.8	0.7	0.6	0	0	0
	August	705	94.8%	0.6	1.3	1.3	1.1	0	0	0
	September	689	95.7%	0.4	1.3	0.8	0.6	0	0	0
	October	684	91.9%	0.5	7.7	3.1	1.1	0	0	0
	November	685	95.1%	0.5	12.7	7.6	1.7	0	0	0
	December	711	95.6%	0.6	1.4	1.2	1.1	0	0	0
Annual		8327	95.1%	0.6	39.2	28.8	8.1	0	0	0

Observations in ppb

FIGURE 4.1.1.1 - BUTTERPOT ROAD ANNUAL SO_2 CONCENTRATIONS



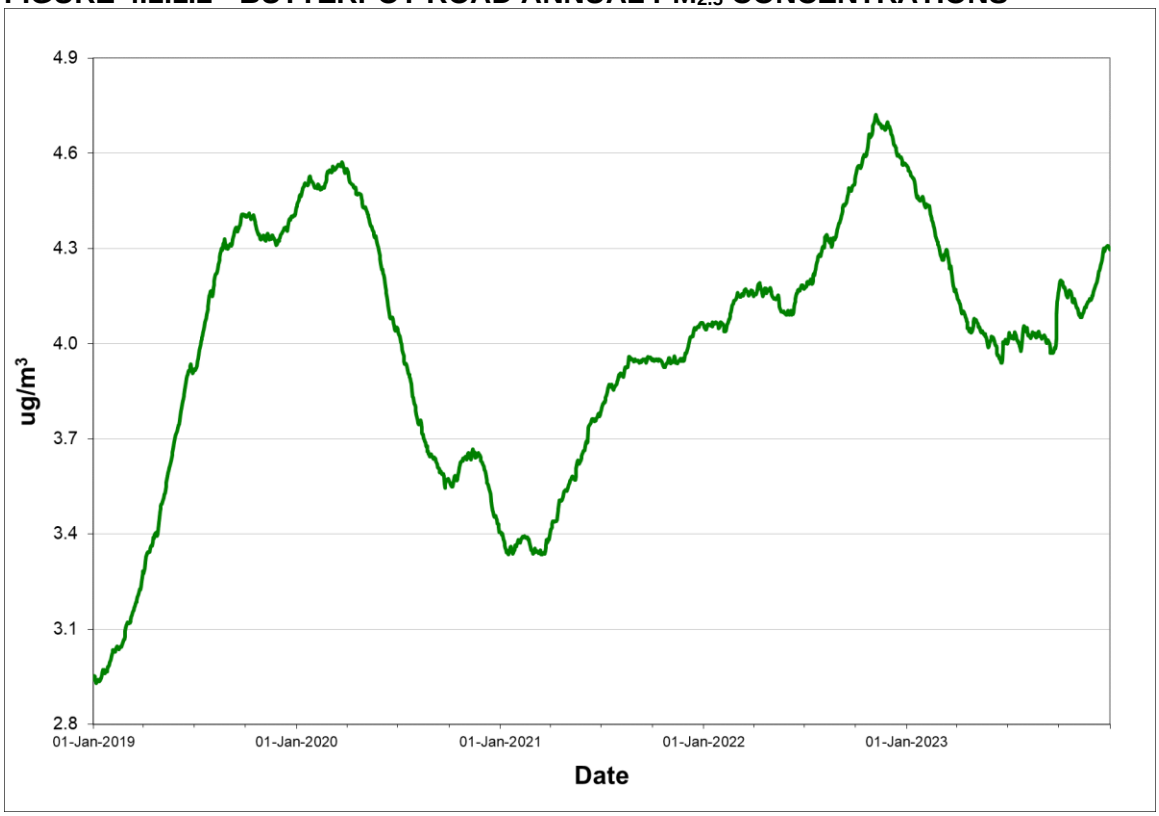
Rolling annual average of hourly concentrations

TABLE 4.1.1.2 - BUTTERPOT ROAD $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	709	95.3%	4.9	10.5	0
	February	672	100.0%	6.1	10.6	0
	March	706	94.9%	6.2	8.8	0
	April	720	100.0%	5.3	8.8	0
	May	684	91.9%	4.0	6.3	0
	June	720	100.0%	4.4	8.5	0
	July	744	100.0%	4.4	7.5	0
	August	744	100.0%	4.1	9.8	0
	September	671	93.2%	4.1	9.1	0
	October	659	88.6%	4.7	10.6	0
	November	720	100.0%	3.8	7.9	0
	December	691	92.9%	2.8	6.2	0
Annual		8440	96.3%	4.6	10.6	0
2023	January	671	90.2%	3.5	7.3	0
	February	552	82.1%	4.3	6.3	0
	March	744	100.0%	4.5	11.1	0
	April	720	100.0%	4.1	8.5	0
	May	726	97.6%	3.5	10.8	0
	June	720	100.0%	4.2	17.6	0
	July	744	100.0%	5.1	11.3	0
	August	709	95.3%	3.6	8.0	0
	September	720	100.0%	5.8	31.3	24
	October	615	82.7%	4.3	11.4	0
	November	720	100.0%	4.1	6.5	0
	December	744	100.0%	4.6	9.2	0
Annual		8385	95.7%	4.3	31.3	24

Observations in µg/m³

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



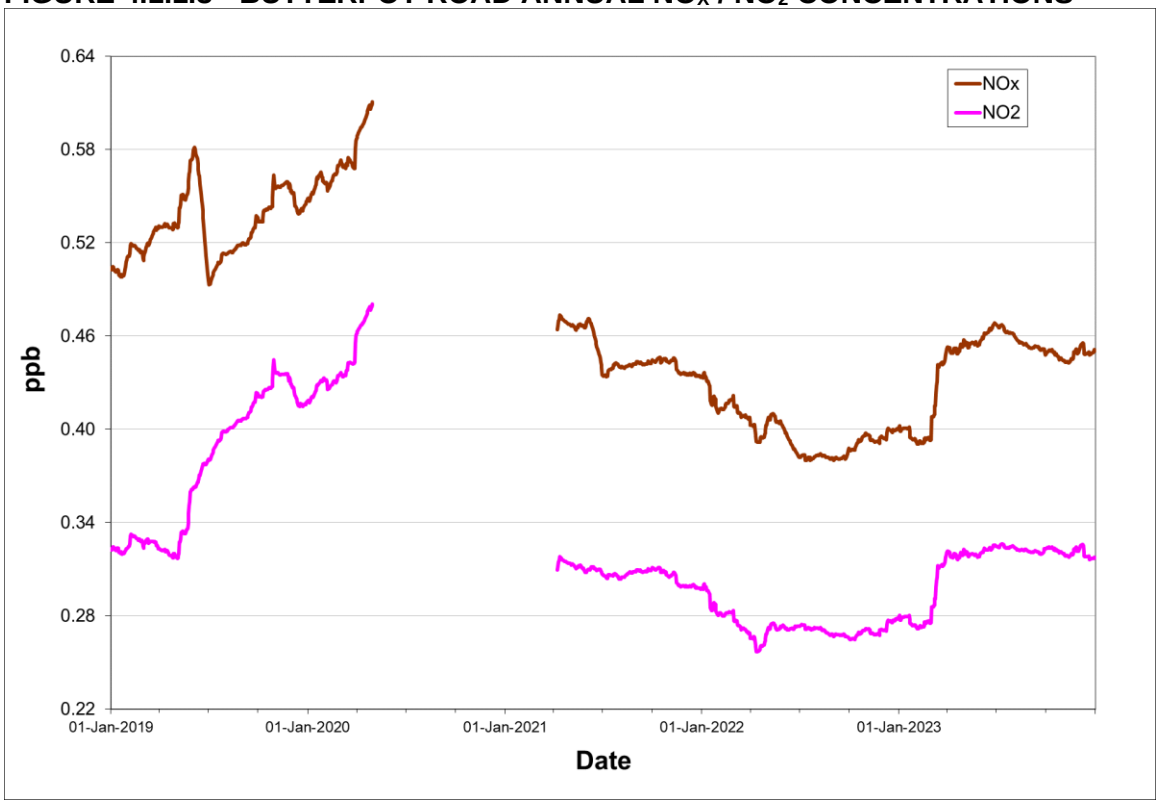
Rolling annual average of daily concentrations

TABLE 4.1.1.3 - BUTTERPOT ROAD NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>103)
2022	January	713	95.8%	0.4	0.3	10.7	7.8	1.7	1.2	0	0
	February	644	95.8%	0.5	0.3	5.2	4.3	1.1	0.9	0	0
	March	707	95.0%	0.4	0.2	7.4	4.9	0.9	0.6	0	0
	April	644	89.4%	0.5	0.4	8.9	6.4	1.6	1.3	0	0
	May	713	95.8%	0.5	0.3	5.2	3.7	1.3	0.9	0	0
	June	686	95.3%	0.3	0.2	10.6	3.0	0.8	0.6	0	0
	July	713	95.8%	0.4	0.2	3.3	1.5	0.7	0.5	0	0
	August	713	95.8%	0.4	0.2	1.8	1.7	0.5	0.3	0	0
	September	595	82.6%	0.4	0.2	1.6	1.2	1.1	0.4	0	0
	October	713	95.8%	0.5	0.3	5.6	4.3	1.0	0.7	0	0
	November	690	95.8%	0.3	0.3	9.0	8.4	1.4	1.3	0	0
	December	711	95.6%	0.4	0.4	8.5	8.2	2.0	1.9	0	0
Annual		8242	94.1%	0.4	0.3	10.7	8.4	2.0	1.9	0	0
2023	January	711	95.6%	0.3	0.2	3.4	3.2	0.8	0.6	0	0
	February	644	95.8%	0.4	0.3	6.1	5.1	1.1	0.9	0	0
	March	711	95.6%	1.0	0.8	26.0	17.3	5.6	3.8	0	0
	April	684	95.0%	0.5	0.4	11.4	11.0	1.9	1.5	0	0
	May	713	95.8%	0.5	0.3	7.5	5.8	1.7	1.5	0	0
	June	685	95.1%	0.5	0.3	3.4	2.5	0.9	0.7	0	0
	July	708	95.2%	0.3	0.2	2.3	2.2	0.6	0.5	0	0
	August	672	90.3%	0.2	0.2	1.1	1.0	0.4	0.3	0	0
	September	690	95.8%	0.3	0.2	5.8	4.7	0.7	0.6	0	0
	October	665	89.4%	0.4	0.3	5.6	3.2	1.1	0.7	0	0
	November	528	73.3%	0.4	0.3	10.1	7.1	1.6	1.2	0	0
	December	710	95.4%	0.4	0.3	4.5	3.2	0.8	0.7	0	0
Annual		8121	92.7%	0.5	0.3	26.0	17.3	5.6	3.8	0	0

Observations in ppb

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

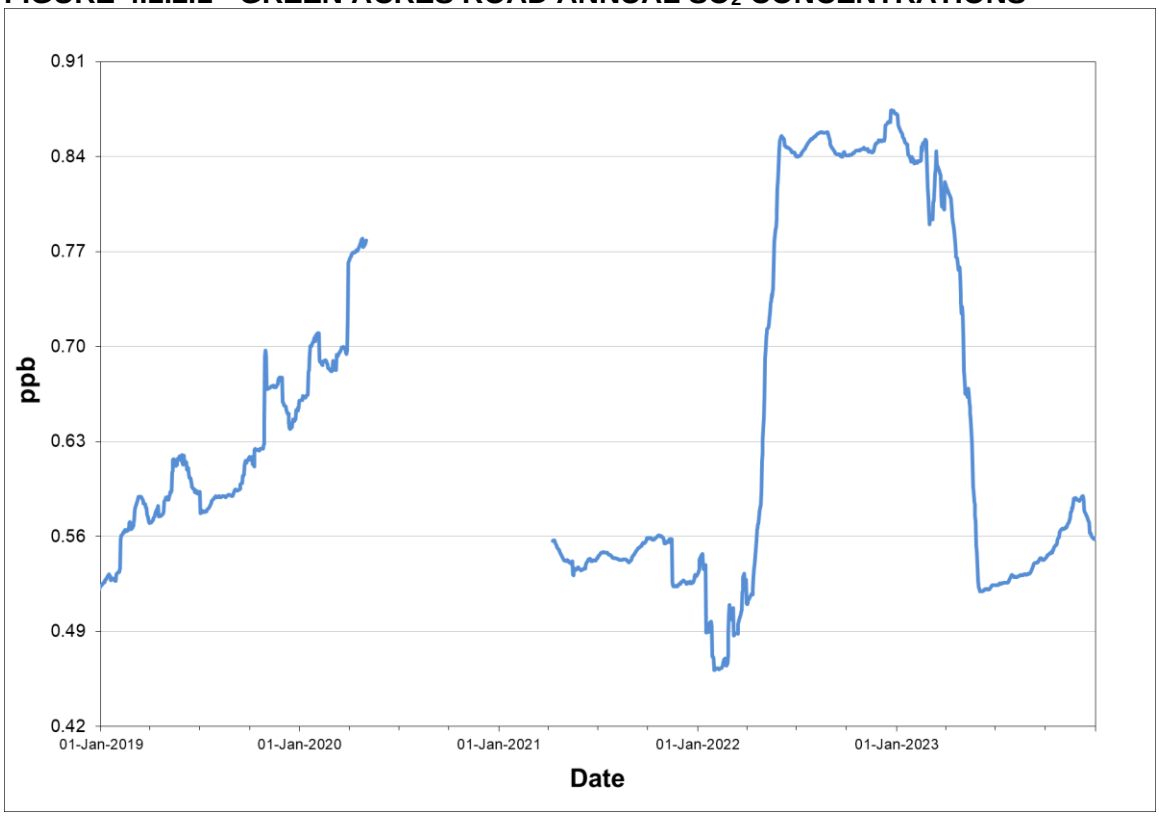
The Green Acres Road station monitors the levels of SO_2, NO_x/ NO_2, $PM_{2.5}$ on a continuous basis and TPM on an one day in six day cycle consistent with the NAPS defined schedule. For SO_2, NO_x/ NO_2, and TPM the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$ however, the 24-hour air quality standard, as measured hourly, was exceeded on twenty nine occasions in September owing to wildfire fire smoke emanating from northern Alberta and the Northwest Territories. 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.

TABLE 4.1.2.1 - GREEN ACRES ROAD SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	713	95.8%	0.7	18.8	13.8	2.4	0	0	0
	February	636	94.6%	1.1	12.2	7.3	5.5	0	0	0
	March	617	82.9%	1.3	51.6	32.1	5.0	0	0	0
	April	422	58.6%	2.4	51.3	24.5	7.7	0	0	0
	May	657	88.3%	3.2	80.2	34.1	9.4	0	0	0
	June	628	87.2%	0.2	0.8	0.7	0.4	0	0	0
	July	704	94.6%	0.4	0.8	0.7	0.5	0	0	0
	August	703	94.5%	0.3	0.6	0.5	0.4	0	0	0
	September	620	86.1%	0.2	0.8	0.5	0.4	0	0	0
	October	707	95.0%	0.3	4.0	1.7	0.5	0	0	0
	November	625	86.8%	0.4	1.1	0.9	0.6	0	0	0
	December	710	95.4%	0.7	15.5	9.9	3.3	0	0	0
Annual		7742	88.4%	0.9	80.2	34.1	9.4	0	0	0
2023	January	708	95.2%	0.4	21.0	8.0	1.7	0	0	0
	February	642	95.5%	0.7	13.6	11.5	4.2	0	0	0
	March	711	95.6%	1.3	71.7	42.6	7.9	0	0	0
	April	620	86.1%	0.6	20.2	10.1	2.7	0	0	0
	May	662	89.0%	0.8	50.9	20.4	4.4	0	0	0
	June	682	94.7%	0.3	1.5	0.5	0.4	0	0	0
	July	710	95.4%	0.4	1.0	0.7	0.6	0	0	0
	August	712	95.7%	0.3	0.8	0.5	0.5	0	0	0
	September	659	91.5%	0.4	1.1	0.7	0.6	0	0	0
	October	709	95.3%	0.5	14.8	9.5	1.8	0	0	0
	November	580	80.6%	0.6	11.0	5.7	1.8	0	0	0
	December	709	95.3%	0.4	2.7	2.3	0.7	0	0	0
Annual		8104	92.5%	0.6	71.7	42.6	7.9	0	0	0

Observations in ppb

FIGURE 4.1.2.1 - GREEN ACRES ROAD ANNUAL SO_2 CONCENTRATIONS



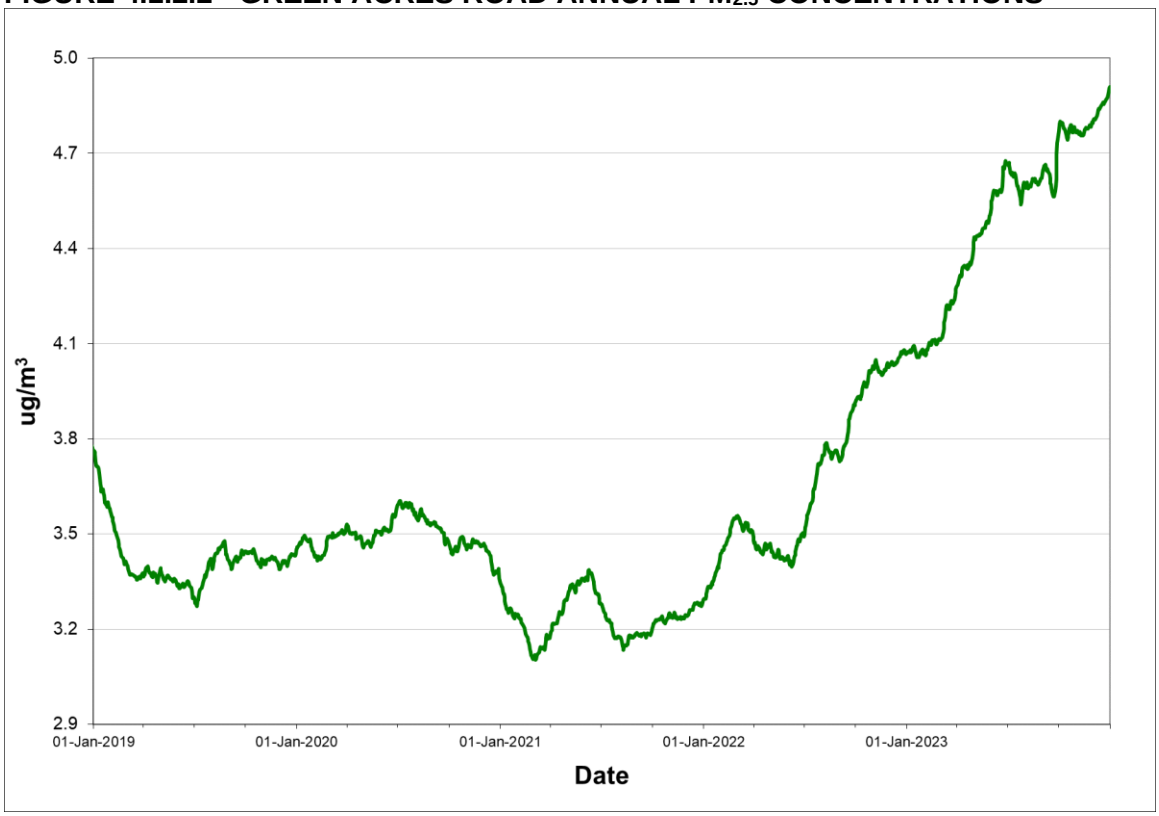
Rolling annual average of hourly concentrations

TABLE 4.1.2.2 - GREEN ACRES ROAD $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	4.1	9.4	0
	February	647	96.3%	3.7	8.9	0
	March	744	100.0%	3.9	7.0	0
	April	720	100.0%	4.2	8.1	0
	May	597	80.2%	3.9	6.2	0
	June	720	100.0%	3.7	7.5	0
	July	744	100.0%	5.2	10.3	0
	August	595	80.0%	3.4	8.8	0
	September	609	84.6%	4.6	9.0	0
	October	659	88.6%	4.3	9.5	0
	November	641	89.0%	3.6	7.3	0
	December	744	100.0%	4.0	8.6	0
Annual		8164	93.2%	4.1	10.3	0
2023	January	681	91.5%	4.0	7.1	0
	February	672	100.0%	4.3	6.1	0
	March	744	100.0%	5.7	12.1	0
	April	720	100.0%	5.6	10.9	0
	May	744	100.0%	5.3	11.2	0
	June	720	100.0%	5.5	18.6	0
	July	744	100.0%	4.5	11.2	0
	August	712	95.7%	3.7	7.7	0
	September	694	96.4%	6.2	33.5	29
	October	654	87.9%	4.4	11.8	0
	November	720	100.0%	4.1	7.1	0
	December	476	64.0%	5.4	8.0	0
Annual		8281	94.5%	4.9	33.5	29

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 2022 & 2023

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	(>213)	(>106)
2022	January	713	95.8%	0.8	0.5	14.6	10.4	2.9	2.1	0	0
	February	621	92.4%	0.9	0.5	11.5	8.1	1.7	1.1	0	0
	March	709	95.3%	0.9	0.5	26.9	13.2	2.9	1.9	0	0
	April	690	95.8%	1.0	0.6	19.1	13.2	3.1	2.0	0	0
	May	668	89.8%	0.9	0.6	21.9	13.6	3.5	2.3	0	0
	June	688	95.6%	0.7	0.4	5.1	3.0	1.3	0.7	0	0
	July	689	92.6%	0.6	0.3	2.2	1.2	0.9	0.5	0	0
	August	705	94.8%	0.5	0.3	2.1	1.3	0.7	0.4	0	0
	September	558	77.5%	0.7	0.3	1.6	0.9	0.8	0.4	0	0
	October	713	95.8%	0.6	0.3	5.1	4.0	1.0	0.7	0	0
	November	626	86.9%	0.7	0.4	9.1	7.2	1.8	1.3	0	0
	December	711	95.6%	0.8	0.5	13.4	9.9	3.3	2.4	0	0
Annual		8091	92.4%	0.7	0.4	26.9	13.6	3.5	2.4	0	0
2023	January	711	95.6%	0.6	0.5	11.8	9.3	1.5	1.3	0	0
	February	644	95.8%	0.9	0.6	22.3	15.7	4.4	3.0	0	0
	March	712	95.7%	1.6	1.0	45.7	23.9	5.9	3.8	0	0
	April	652	90.6%	0.9	0.6	23.6	19.2	3.3	2.5	0	0
	May	713	95.8%	0.9	0.6	24.8	13.7	4.1	3.2	0	0
	June	686	95.3%	0.6	0.4	5.1	4.4	1.1	0.8	0	0
	July	712	95.7%	0.6	0.3	2.3	1.5	0.9	0.6	0	0
	August	713	95.8%	0.5	0.4	4.4	2.3	0.7	0.6	0	0
	September	360	50.0%	0.7	0.3	4.2	2.7	1.0	0.5	0	0
	October	711	95.6%	0.7	0.4	15.9	10.8	1.6	1.0	0	0
	November	503	69.9%	0.7	0.4	10.4	5.4	1.8	1.2	0	0
	December	712	95.7%	0.6	0.4	5.1	3.6	1.4	1.1	0	0
Annual		7829	89.4%	0.8	0.5	45.7	23.9	5.9	3.8	0	0

Observations in ppb

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 2022 & 2023

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	5	100.0%	9.0	11.6	0
	February	5	100.0%	10.8	20.0	0
	March	5	100.0%	7.1	8.8	0
	April	5	100.0%	8.8	18.8	0
	May	5	100.0%	6.2	16.9	0
	June	5	100.0%	9.0	20.0	0
	July	5	100.0%	6.5	8.5	0
	August	5	100.0%	5.3	8.0	0
	September	5	100.0%	5.2	11.7	0
	October	5	100.0%	4.3	8.5	0
	November	5	100.0%	7.2	9.5	0
	December	6	100.0%	9.3	17.3	0
Annual		61	100.0%	7.2	20.0	0
2023	January	5	100.0%	7.4	21.9	0
	February	2	50.0%	10.1	14.8	0
	March	3	50.0%	15.2	31.0	0
	April	5	100.0%	17.8	29.0	0
	May	5	100.0%	9.1	20.3	0
	June	5	100.0%	16.1	63.3	0
	July	5	100.0%	8.3	10.8	0
	August	5	100.0%	9.0	13.8	0
	September	5	100.0%	6.3	26.2	0
	October	5	100.0%	7.1	10.4	0
	November	5	100.0%	12.1	74.3	0
	December	5	100.0%	11.4	19.7	0
Annual		55	91.7%	10.1	74.3	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

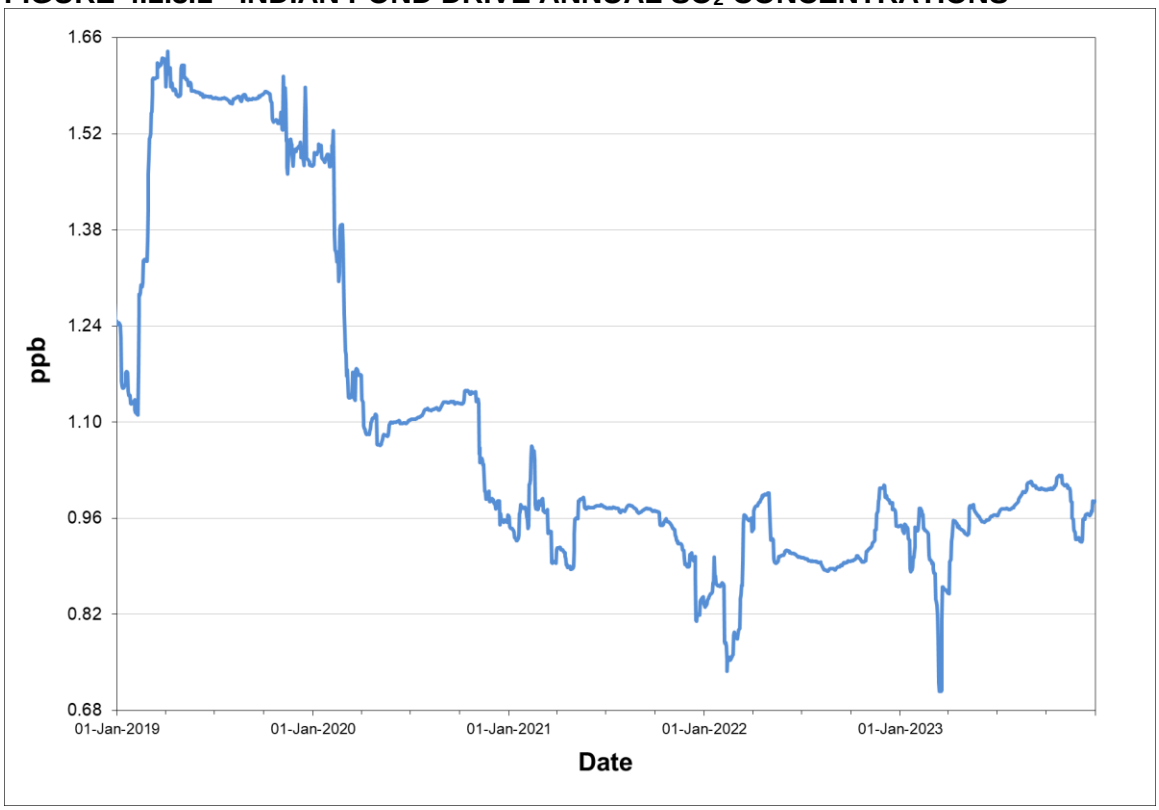
The Indian Pond Drive station monitors the levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on an one day in six day cycle consistent with the NAPS defined schedule. For SO_2 and NO_x / NO_2, the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$ however, the 24-hour air quality standard, as measured hourly, was exceeded on twenty six occasions in September owing to wildfire fire smoke emanating from northern Alberta and the Northwest Territories. The was one TPM exceedance on June 23rd however given the Hydro Generating Station was not in operation, the exceedance is likely related to a localized event. 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 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	705	94.8%	1.4	60.0	32.6	15.6	0	0	0
	February	625	93.0%	1.6	58.8	41.3	10.5	0	0	0
	March	654	87.9%	2.8	70.2	56.9	21.2	0	0	0
	April	679	94.3%	1.0	41.5	30.7	9.1	0	0	0
	May	705	94.8%	0.8	13.1	6.2	3.0	0	0	0
	June	673	93.5%	0.3	0.7	0.7	0.6	0	0	0
	July	710	95.4%	0.3	1.2	0.6	0.6	0	0	0
	August	656	88.2%	0.3	0.8	0.5	0.5	0	0	0
	September	559	77.6%	0.4	1.1	0.7	0.6	0	0	0
	October	703	94.5%	0.5	29.7	16.5	4.4	0	0	0
	November	662	91.9%	1.4	41.6	34.9	8.2	0	0	0
	December	611	82.1%	0.5	7.6	3.9	1.9	0	0	0
Annual		7942	90.7%	0.9	70.2	56.9	21.2	0	0	0
2023	January	659	88.6%	1.4	39.2	35.3	10.2	0	0	0
	February	635	94.5%	1.0	30.2	23.9	7.1	0	0	0
	March	554	74.5%	2.5	77.5	65.9	35.6	0	0	0
	April	682	94.7%	2.1	63.8	58.2	25.1	0	0	0
	May	710	95.4%	1.0	30.1	21.6	8.6	0	0	0
	June	634	88.1%	0.3	0.7	0.6	0.5	0	0	0
	July	631	84.8%	0.4	1.1	0.6	0.6	0	0	0
	August	699	94.0%	0.8	2.8	2.5	2.3	0	0	0
	September	682	94.7%	0.4	1.1	0.6	0.6	0	0	0
	October	671	90.2%	0.6	19.0	14.6	3.4	0	0	0
	November	683	94.9%	0.5	10.5	5.7	1.3	0	0	0
	December	706	94.9%	1.1	31.8	19.8	10.4	0	0	0
Annual		7946	90.7%	1.0	77.5	65.9	35.6	0	0	0

Observations in ppb

FIGURE 4.1.3.1 - INDIAN POND DRIVE ANNUAL SO_2 CONCENTRATIONS



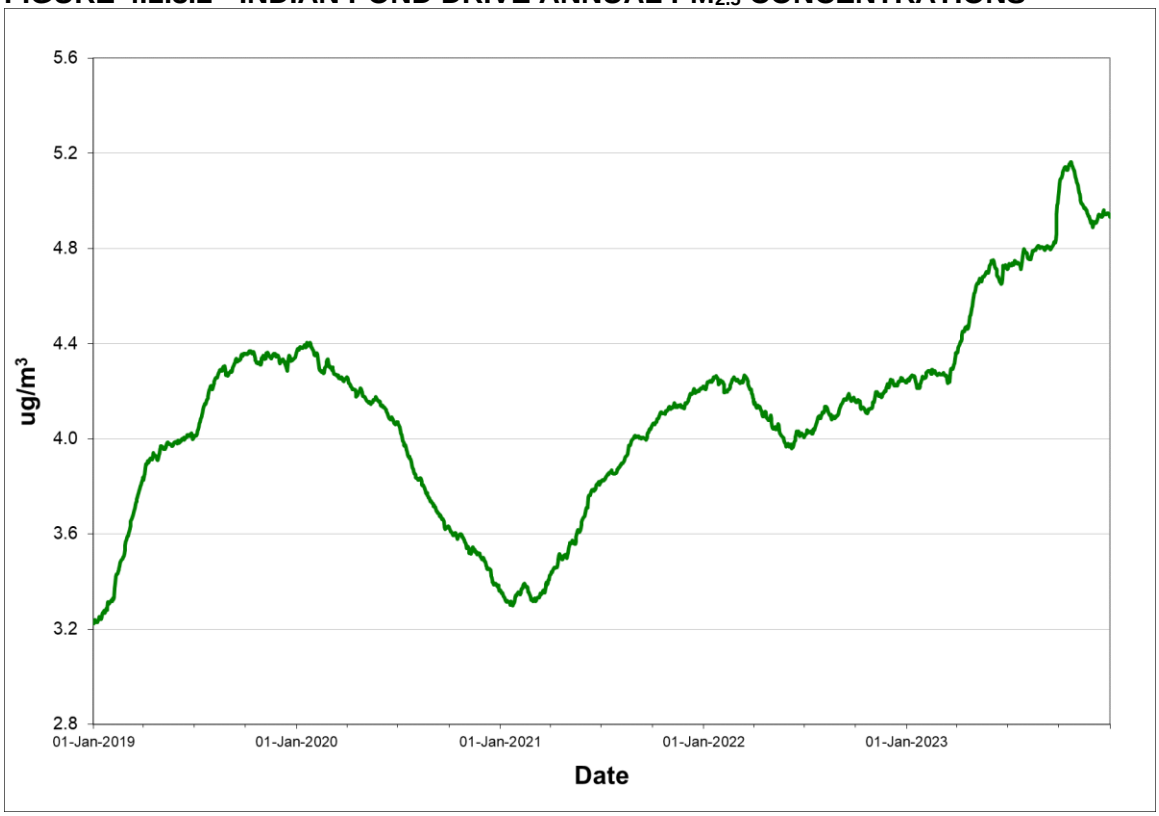
Rolling annual average of hourly concentrations

TABLE 4.1.3.2 - INDIAN POND DRIVE $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	724	97.3%	4.5	10.2	0
	February	632	94.0%	4.1	8.2	0
	March	680	91.4%	4.5	11.3	0
	April	575	79.9%	4.0	8.0	0
	May	744	100.0%	4.2	10.6	0
	June	720	100.0%	4.6	8.9	0
	July	744	100.0%	3.7	7.5	0
	August	674	90.6%	4.0	9.7	0
	September	550	76.4%	3.9	11.0	0
	October	527	70.8%	3.4	8.0	0
	November	720	100.0%	5.1	11.3	0
	December	615	82.7%	4.6	10.4	0
Annual		7905	90.2%	4.2	11.3	0
2023	January	676	90.9%	4.7	9.3	0
	February	650	96.7%	4.4	8.2	0
	March	540	72.6%	5.8	16.7	0
	April	702	97.5%	6.7	13.5	0
	May	744	100.0%	5.7	12.5	0
	June	652	90.6%	4.3	17.3	0
	July	646	86.8%	4.5	10.1	0
	August	654	87.9%	4.2	9.2	0
	September	702	97.5%	6.4	33.1	26
	October	617	82.9%	4.6	12.7	0
	November	720	100.0%	2.9	6.5	0
	December	744	100.0%	4.9	11.0	0
Annual		8047	91.9%	4.9	33.1	26

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 2022 & 2023

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	(>213)	(>106)
2022	January	705	94.8%	0.9	0.5	27.5	8.9	7.1	3.1	0	0
	February	598	89.0%	0.9	0.6	21.8	10.0	3.5	1.8	0	0
	March	607	81.6%	1.8	1.0	31.0	12.6	9.7	4.5	0	0
	April	680	94.4%	1.0	0.6	18.5	10.3	4.0	1.7	0	0
	May	706	94.9%	0.7	0.5	8.8	6.7	1.6	1.1	0	0
	June	675	93.8%	0.5	0.3	3.6	1.8	0.8	0.6	0	0
	July	696	93.5%	0.5	0.3	10.0	3.6	1.0	0.6	0	0
	August	658	88.4%	0.5	0.4	13.5	9.7	2.2	1.6	0	0
	September	559	77.6%	0.5	0.3	5.3	4.4	0.9	0.7	0	0
	October	705	94.8%	0.6	0.4	10.3	4.5	1.9	1.1	0	0
	November	649	90.1%	1.0	0.7	19.2	12.1	6.8	4.4	0	0
	December	611	82.1%	0.5	0.4	7.1	3.3	1.3	0.8	0	0
Annual		7849	89.6%	0.8	0.5	31.0	12.6	9.7	4.5	0	0
2023	January	659	88.6%	1.1	0.6	26.6	8.1	4.7	2.2	0	0
	February	635	94.5%	1.0	0.6	22.0	9.6	7.6	3.8	0	0
	March	556	74.7%	1.6	0.8	37.2	15.5	17.7	7.4	0	0
	April	548	76.1%	1.4	0.9	32.4	13.1	12.8	5.5	0	0
	May	709	95.3%	0.7	0.4	14.6	6.4	4.1	2.0	0	0
	June	634	88.1%	0.6	0.4	5.8	4.3	1.4	1.0	0	0
	July	630	84.7%	0.6	0.3	12.7	7.3	1.8	1.2	0	0
	August	702	94.4%	0.4	0.3	6.3	3.4	0.9	0.7	0	0
	September	684	95.0%	0.5	0.3	4.3	2.3	0.8	0.6	0	0
	October	672	90.3%	0.6	0.4	11.6	5.5	2.3	1.3	0	0
	November	686	95.3%	0.6	0.4	13.7	9.6	2.2	1.5	0	0
	December	711	95.6%	0.9	0.5	17.2	7.0	4.9	2.3	0	0
Annual		7826	89.3%	0.8	0.5	37.2	15.5	17.7	7.4	0	0

Observations in ppb

FIGURE 4.1.3.3 - INDIAN POND DRIVE ANNUAL NO_X / NO_2 CONCENTRATIONS

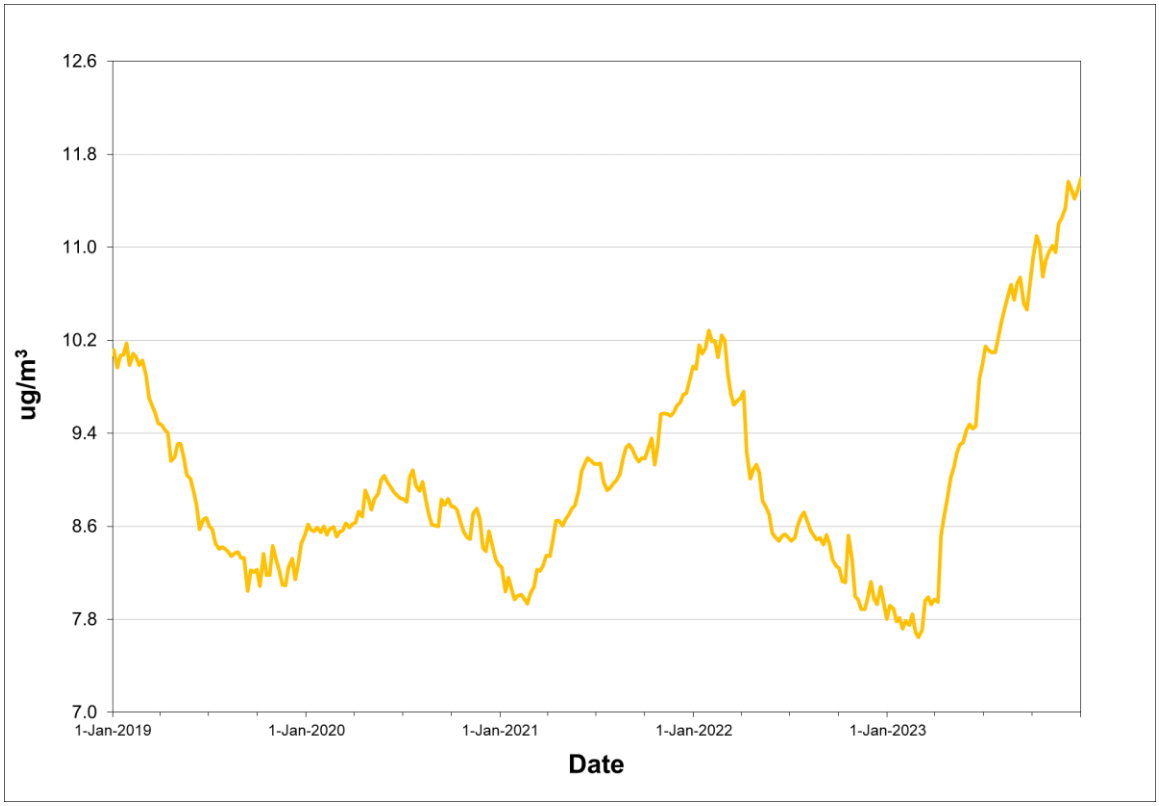
Rolling annual average of hourly concentrations

TABLE 4.1.3.4 - INDIAN POND DRIVE TPM SUMMARY 2022 & 2023

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	5	100.0%	10.1	13.3	0
	February	5	100.0%	10.2	23.5	0
	March	5	100.0%	7.6	21.9	0
	April	5	100.0%	5.9	18.1	0
	May	5	100.0%	5.5	9.9	0
	June	5	100.0%	11.4	13.2	0
	July	5	100.0%	9.1	16.5	0
	August	5	100.0%	6.9	10.4	0
	September	5	100.0%	6.2	11.5	0
	October	5	100.0%	5.7	10.8	0
	November	5	100.0%	8.2	15.6	0
	December	6	100.0%	9.2	28.2	0
Annual		61	100.0%	7.8	28.2	0
2023	January	5	100.0%	8.9	31.8	0
	February	3	75.0%	9.2	10.5	0
	March	5	83.3%	13.2	38.2	0
	April	5	100.0%	25.4	45.2	0
	May	5	100.0%	9.4	11.8	0
	June	5	100.0%	22.5	147.0	1
	July	5	100.0%	12.0	14.6	0
	August	5	100.0%	9.9	15.2	0
	September	5	100.0%	7.2	37.4	0
	October	5	100.0%	7.1	13.3	0
	November	5	100.0%	12.0	30.3	0
	December	5	100.0%	12.5	22.1	0
Annual		58	96.7%	11.6	147.0	1

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

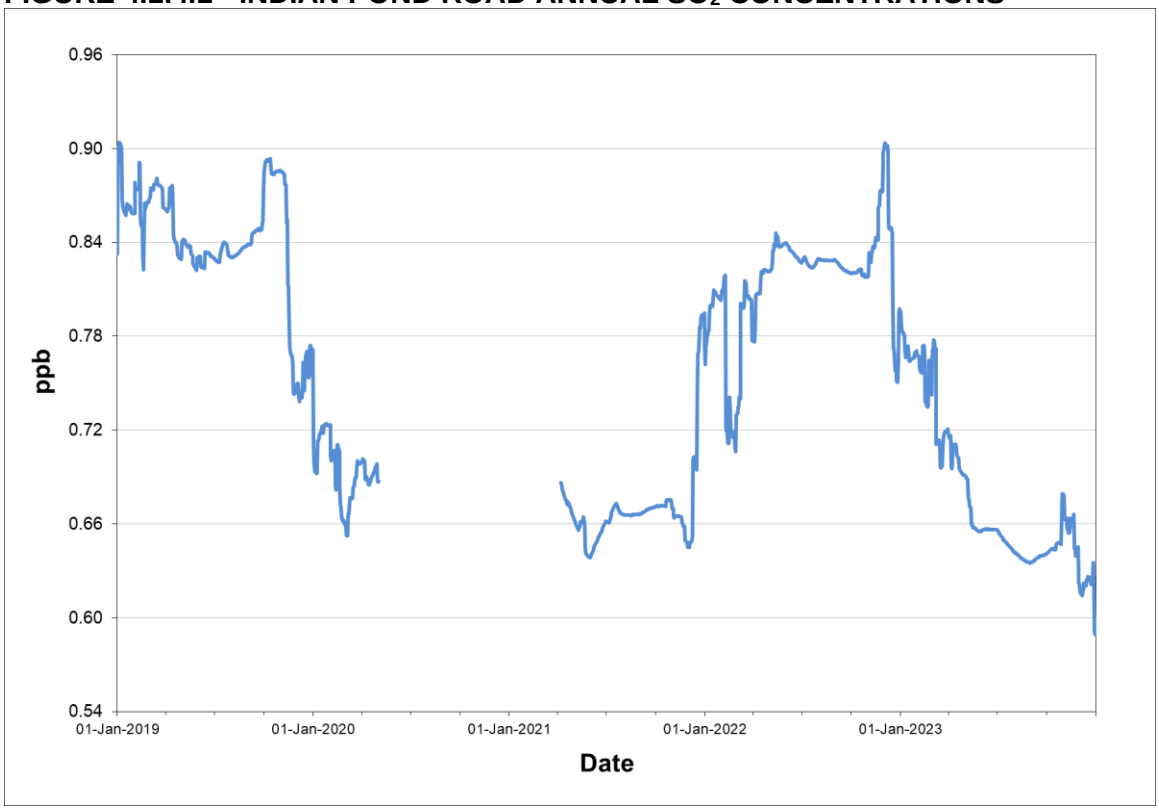
The Indian Pond Road station monitors the levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on an one day in six day consistent with the NAPS defined schedule. For SO_2, NO_x / NO_2, and TPM the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$ however, the 24-hour air quality standard, as measured hourly, was exceeded on thirty occasions in September owing to wildfire fire smoke emanating from northern Alberta and the Northwest Territories.. 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.

TABLE 4.1.4.1 - INDIAN POND ROAD SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	711	95.6%	0.8	24.1	13.8	4.4	0	0	0
	February	640	95.2%	1.3	44.0	35.6	11.8	0	0	0
	March	710	95.4%	1.6	91.6	65.5	22.6	0	0	0
	April	687	95.4%	0.9	33.6	30.8	8.2	0	0	0
	May	699	94.0%	0.7	40.2	22.3	4.0	0	0	0
	June	685	95.1%	0.4	1.0	0.8	0.5	0	0	0
	July	711	95.6%	0.4	0.9	0.7	0.5	0	0	0
	August	713	95.8%	0.3	0.6	0.5	0.4	0	0	0
	September	688	95.6%	0.3	0.4	0.4	0.4	0	0	0
	October	713	95.8%	0.4	6.9	2.7	0.7	0	0	0
	November	663	92.1%	1.4	55.0	32.8	7.7	0	0	0
	December	711	95.6%	1.0	34.8	26.2	11.3	0	0	0
Annual		8331	95.1%	0.8	91.6	65.5	22.6	0	0	0
2023	January	712	95.7%	0.5	16.0	8.6	3.3	0	0	0
	February	643	95.7%	1.3	24.2	20.1	10.5	0	0	0
	March	706	94.9%	1.1	36.7	18.7	11.6	0	0	0
	April	690	95.8%	0.6	34.6	23.5	3.8	0	0	0
	May	710	95.4%	0.3	1.2	0.6	0.4	0	0	0
	June	681	94.6%	0.4	0.6	0.5	0.4	0	0	0
	July	711	95.6%	0.3	0.4	0.4	0.3	0	0	0
	August	701	94.2%	0.2	0.5	0.3	0.3	0	0	0
	September	690	95.8%	0.4	0.6	0.4	0.4	0	0	0
	October	709	95.3%	0.8	30.2	19.1	7.1	0	0	0
	November	682	94.7%	0.7	23.8	9.9	2.1	0	0	0
	December	705	94.8%	0.7	19.9	14.4	3.9	0	0	0
Annual		8340	95.2%	0.6	36.7	23.5	11.6	0	0	0

Observations in ppb

FIGURE 4.1.4.1 - INDIAN POND ROAD ANNUAL SO_2 CONCENTRATIONS



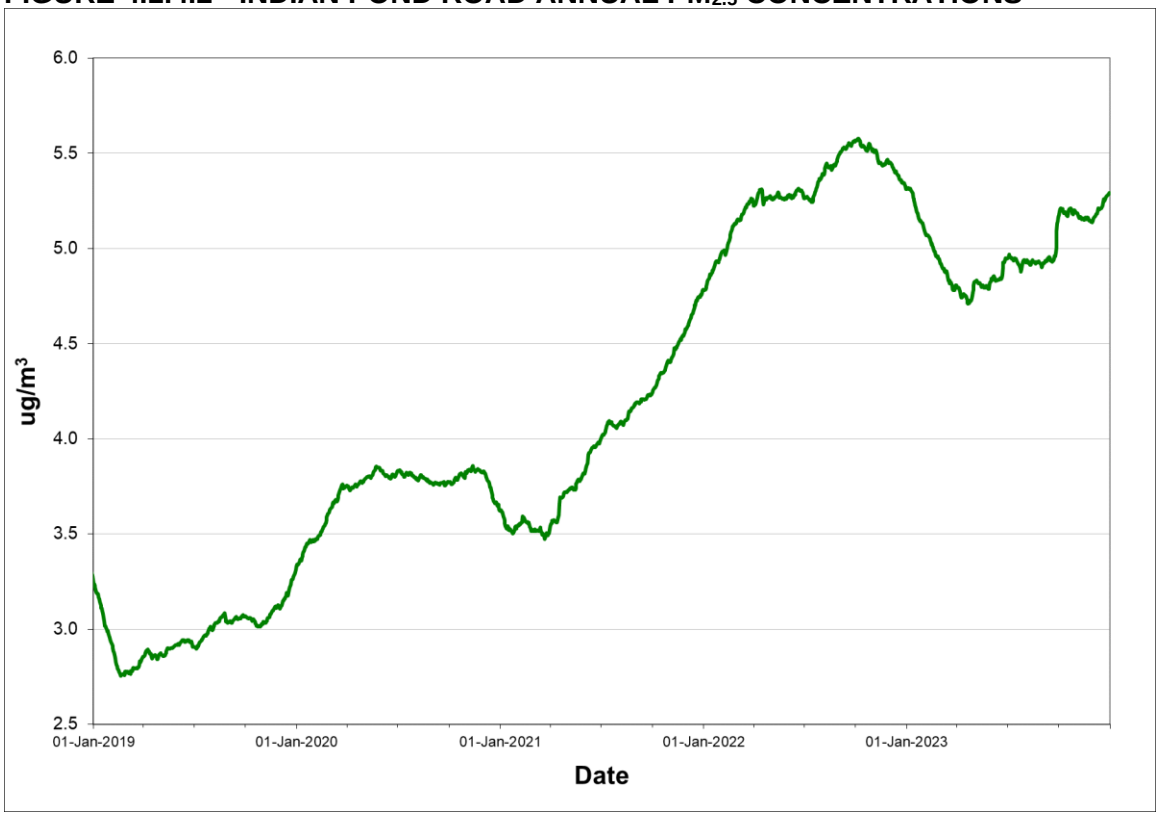
Rolling annual average of hourly concentrations

TABLE 4.1.4.2 - INDIAN POND ROAD $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	6.7	12.8	0
	February	639	95.1%	7.1	11.3	0
	March	744	100.0%	7.0	12.8	0
	April	720	100.0%	6.1	12.2	0
	May	744	100.0%	4.7	7.0	0
	June	720	100.0%	4.2	9.5	0
	July	744	100.0%	4.5	8.3	0
	August	744	100.0%	4.9	10.0	0
	September	720	100.0%	4.0	9.8	0
	October	661	88.8%	4.5	11.5	0
	November	720	100.0%	5.5	8.7	0
	December	744	100.0%	4.7	9.2	0
Annual		8644	98.7%	5.3	12.8	0
2023	January	744	100.0%	4.2	9.0	0
	February	636	94.6%	5.0	10.0	0
	March	697	93.7%	5.4	11.5	0
	April	720	100.0%	5.8	13.8	0
	May	744	100.0%	5.2	14.7	0
	June	720	100.0%	5.7	18.7	0
	July	614	82.5%	4.4	10.5	0
	August	688	92.5%	4.5	10.6	0
	September	720	100.0%	7.1	33.9	30
	October	655	88.0%	4.7	12.7	0
	November	720	100.0%	4.8	9.6	0
	December	710	95.4%	6.5	11.3	0
Annual		8368	95.5%	5.3	33.9	30

Observations in µg/m³

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



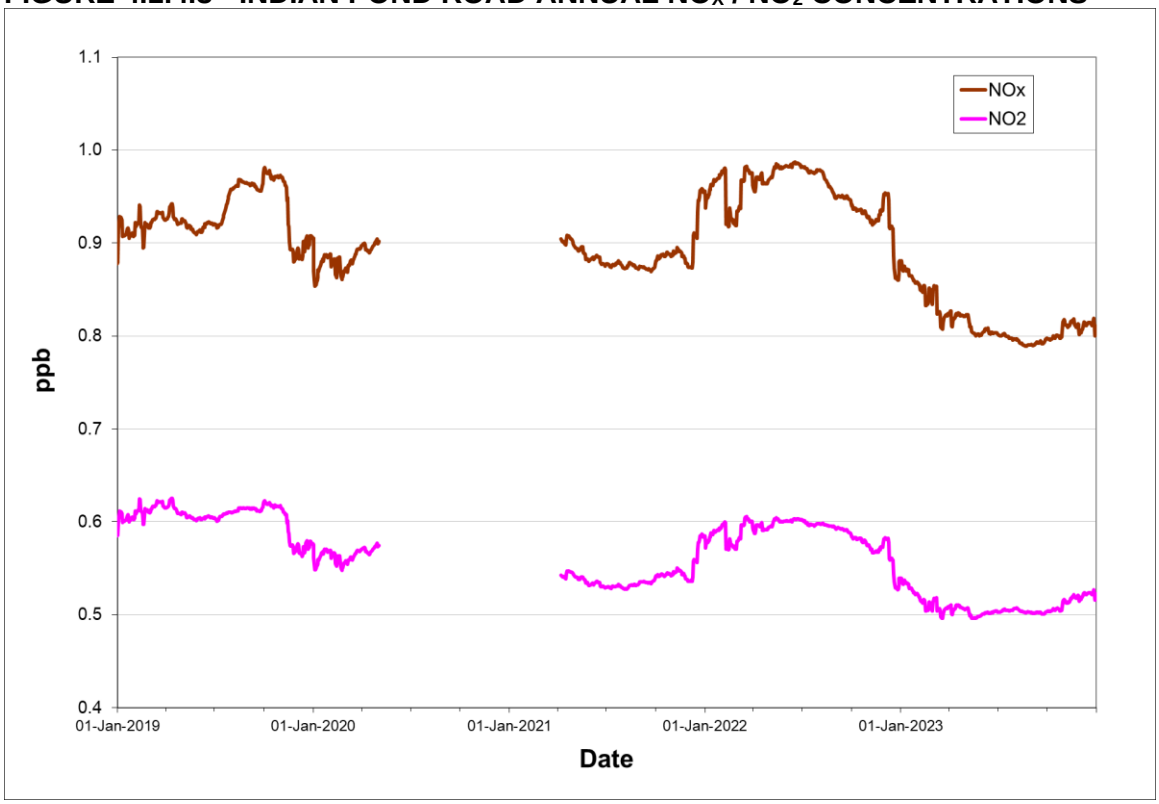
Rolling annual average of daily concentrations

TABLE 4.1.4.3 - INDIAN POND ROAD NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	713	95.8%	1.0	0.7	14.3	9.5	3.0	1.8	0	0
	February	640	95.2%	1.2	0.9	23.7	12.6	6.8	3.9	0	0
	March	711	95.6%	1.4	0.8	44.8	19.0	11.6	5.7	0	0
	April	690	95.8%	0.9	0.6	21.0	11.4	4.8	2.7	0	0
	May	698	93.8%	0.9	0.5	23.4	11.6	2.7	1.5	0	0
	June	682	94.7%	0.7	0.4	11.8	4.9	2.2	0.9	0	0
	July	713	95.8%	0.6	0.3	12.2	3.1	1.3	0.7	0	0
	August	712	95.7%	0.5	0.3	7.4	2.8	0.9	0.5	0	0
	September	687	95.4%	0.6	0.3	10.3	3.4	1.2	0.6	0	0
	October	713	95.8%	0.6	0.4	9.4	3.5	1.2	0.9	0	0
	November	652	90.6%	1.1	0.6	27.6	13.1	4.8	2.4	0	0
	December	710	95.4%	0.9	0.6	15.5	8.9	5.3	3.1	0	0
Annual		8321	95.0%	0.9	0.5	44.8	19.0	11.6	5.7	0	0
2023	January	713	95.8%	0.8	0.5	12.1	7.2	2.5	1.6	0	0
	February	644	95.8%	1.1	0.8	14.8	8.4	5.9	3.5	0	0
	March	707	95.0%	1.1	0.8	19.3	11.5	6.6	4.2	0	0
	April	621	86.3%	0.9	0.6	15.0	10.3	2.8	1.7	0	0
	May	713	95.8%	0.7	0.4	5.2	3.4	1.2	0.9	0	0
	June	637	88.5%	0.7	0.4	5.2	2.4	1.4	0.8	0	0
	July	713	95.8%	0.6	0.4	2.4	2.0	0.8	0.6	0	0
	August	699	94.0%	0.5	0.2	2.7	1.8	0.7	0.4	0	0
	September	690	95.8%	0.7	0.3	6.0	2.1	1.0	0.6	0	0
	October	709	95.3%	0.8	0.5	13.9	8.7	3.3	2.1	0	0
	November	682	94.7%	0.9	0.6	25.6	11.9	2.6	1.5	0	0
	December	711	95.6%	1.0	0.7	18.9	10.7	3.9	2.5	0	0
Annual		8239	94.1%	0.8	0.5	25.6	11.9	6.6	4.2	0	0

Observations in ppb

FIGURE 4.1.4.3 - INDIAN POND ROAD ANNUAL NO_X / NO_2 CONCENTRATIONS



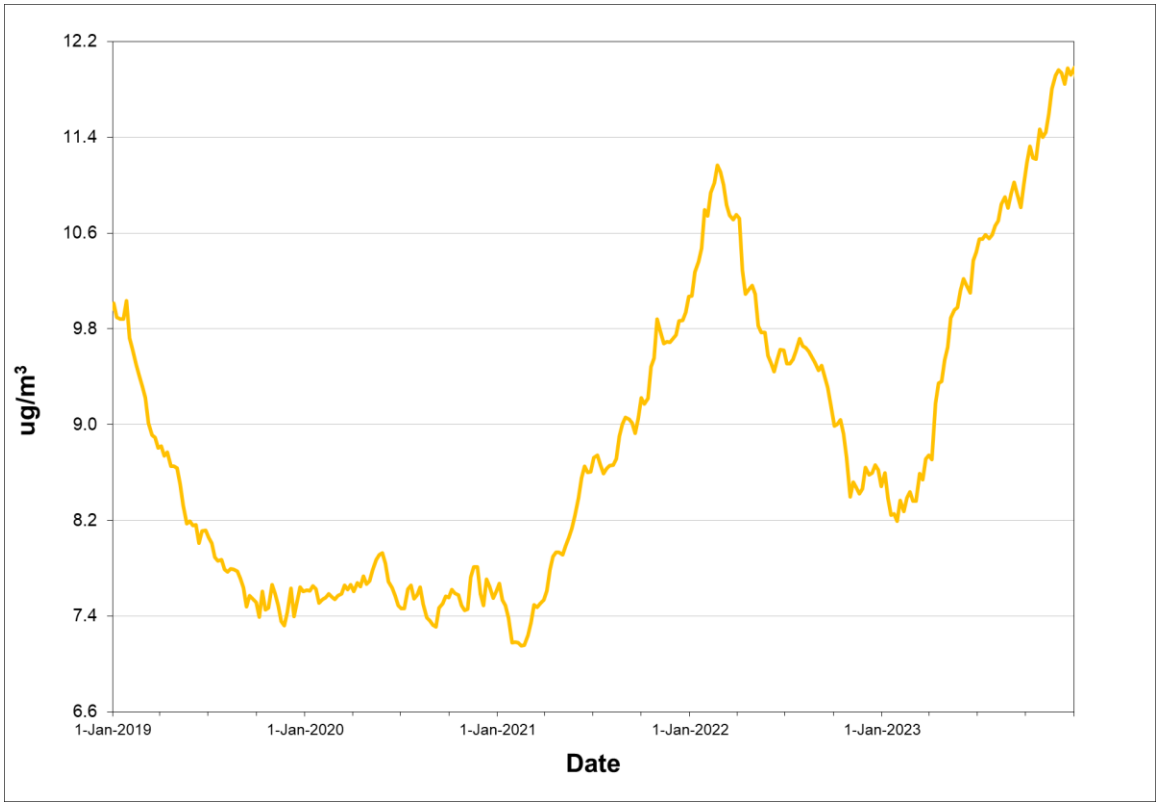
Rolling annual average of hourly concentrations

TABLE 4.1.4.4 - INDIAN POND ROAD TPM SUMMARY 2022 & 2023

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	5	100.0%	11.8	14.6	0
	February	5	100.0%	14.1	31.9	0
	March	5	100.0%	9.0	18.1	0
	April	5	100.0%	6.8	13.1	0
	May	5	100.0%	6.0	17.9	0
	June	5	100.0%	12.1	20.3	0
	July	5	100.0%	8.6	10.3	0
	August	5	100.0%	7.4	10.4	0
	September	5	100.0%	6.0	11.7	0
	October	5	100.0%	5.4	9.0	0
	November	5	100.0%	8.0	11.7	0
	December	6	100.0%	10.9	15.4	0
Annual		61	100.0%	8.5	31.9	0
2023	January	5	100.0%	7.7	28.3	0
	February	4	100.0%	21.5	27.0	0
	March	6	100.0%	14.2	30.4	0
	April	5	100.0%	19.8	48.8	0
	May	5	100.0%	12.3	20.5	0
	June	5	100.0%	17.7	72.8	0
	July	5	100.0%	10.2	11.9	0
	August	5	100.0%	9.5	14.6	0
	September	5	100.0%	7.5	35.1	0
	October	5	100.0%	8.8	12.8	0
	November	5	100.0%	12.7	19.8	0
	December	5	100.0%	11.5	25.5	0
Annual		60	100.0%	12.0	72.8	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

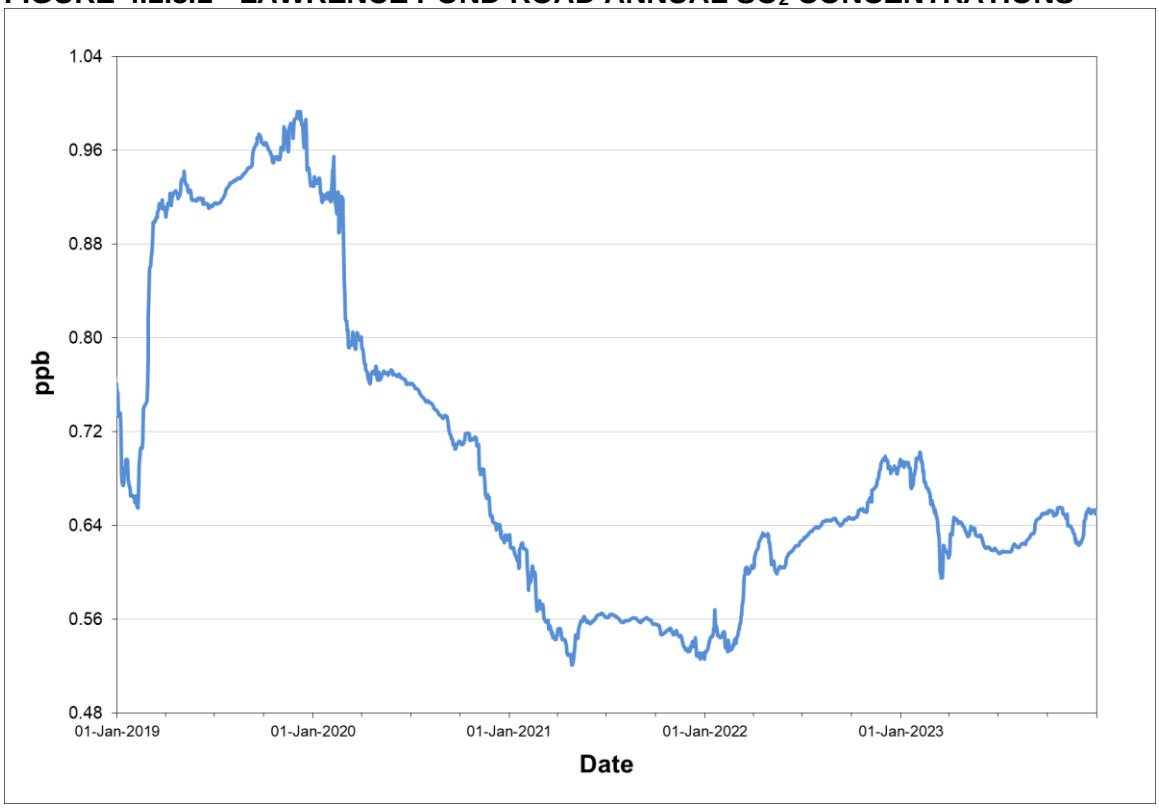
The Lawrence Pond Road station monitors the levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on an one day in six day cycle consistent with the NAPS defined schedule. For SO_2, NO_x / NO_2, and TPM the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$ however, the 24-hour air quality standard, as measured hourly, was exceeded on twenty five occasions in September owing to wildfire fire smoke emanating from northern Alberta and the Northwest Territories. 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 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	713	95.8%	0.8	20.9	14.7	6.6	0	0	0
	February	612	91.1%	1.2	16.7	10.9	4.0	0	0	0
	March	565	75.9%	1.6	17.1	11.3	6.9	0	0	0
	April	690	95.8%	0.7	10.6	6.3	2.1	0	0	0
	May	711	95.6%	0.6	11.1	6.5	1.9	0	0	0
	June	684	95.0%	0.5	1.6	1.2	1.1	0	0	0
	July	706	94.9%	0.4	1.8	0.9	0.6	0	0	0
	August	713	95.8%	0.4	0.9	0.7	0.5	0	0	0
	September	687	95.4%	0.4	1.3	0.9	0.7	0	0	0
	October	706	94.9%	0.5	12.7	8.3	2.3	0	0	0
	November	690	95.8%	0.8	14.1	10.8	3.9	0	0	0
	December	711	95.6%	0.6	13.0	5.5	2.5	0	0	0
Annual		8188	93.5%	0.7	20.9	14.7	6.9	0	0	0
2023	January	713	95.8%	0.8	16.4	13.0	3.8	0	0	0
	February	624	92.9%	0.7	10.7	7.4	2.2	0	0	0
	March	710	95.4%	0.8	23.7	17.3	5.6	0	0	0
	April	686	95.3%	1.0	25.5	11.9	8.5	0	0	0
	May	710	95.4%	0.5	5.3	3.3	2.0	0	0	0
	June	687	95.4%	0.4	1.6	0.8	0.8	0	0	0
	July	707	95.0%	0.5	1.2	0.7	0.7	0	0	0
	August	486	65.3%	0.4	1.1	0.7	0.6	0	0	0
	September	687	95.4%	0.6	1.5	1.4	1.3	0	0	0
	October	678	91.1%	0.5	6.7	5.8	1.6	0	0	0
	November	689	95.7%	0.5	7.9	3.9	1.2	0	0	0
	December	697	93.7%	0.9	12.4	9.8	3.8	0	0	0
Annual		8074	92.2%	0.6	25.5	17.3	8.5	0	0	0

Observations in ppb

FIGURE 4.1.5.1 - LAWRENCE POND ROAD ANNUAL SO_2 CONCENTRATIONS



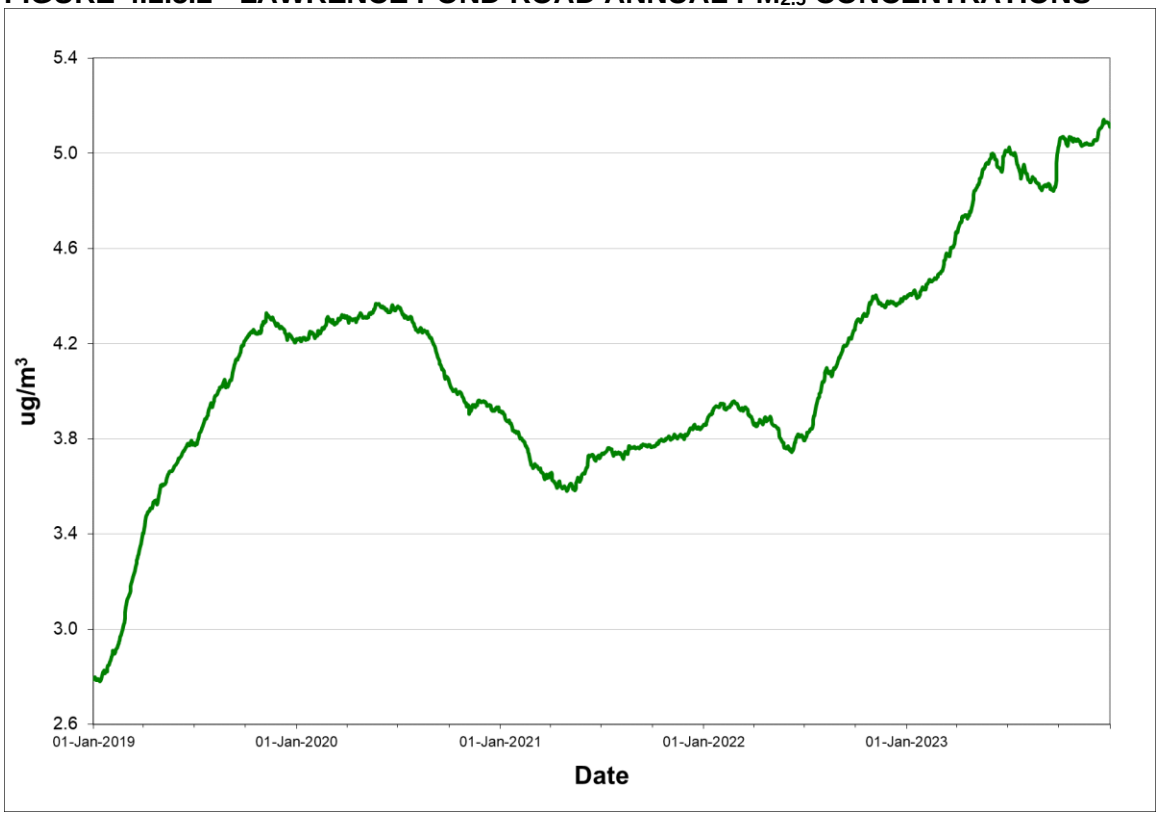
Rolling annual average of hourly concentrations

TABLE 4.1.5.2 - LAWRENCE POND ROAD $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	4.8	9.7	0
	February	672	100.0%	4.4	9.6	0
	March	744	100.0%	4.2	7.4	0
	April	720	100.0%	4.3	8.7	0
	May	744	100.0%	3.4	6.0	0
	June	720	100.0%	4.1	8.3	0
	July	744	100.0%	5.4	10.5	0
	August	744	100.0%	4.6	9.8	0
	September	720	100.0%	4.3	10.4	0
	October	661	88.8%	5.0	10.2	0
	November	720	100.0%	3.9	7.0	0
	December	744	100.0%	4.3	7.9	0
Annual		8677	99.1%	4.4	10.5	0
2023	January	744	100.0%	5.2	8.9	0
	February	639	95.1%	5.3	7.0	0
	March	744	100.0%	6.3	11.6	0
	April	690	95.8%	6.0	11.4	0
	May	744	100.0%	5.4	10.8	0
	June	720	100.0%	4.4	17.5	0
	July	744	100.0%	4.7	10.3	0
	August	733	98.5%	3.4	7.9	0
	September	714	99.2%	6.4	32.0	25
	October	655	88.0%	5.4	12.4	0
	November	720	100.0%	3.7	6.2	0
	December	724	97.3%	5.1	10.1	0
Annual		8571	97.8%	5.1	32.0	25

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 2022 & 2023

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	(>213)	(>106)
2022	January	713	95.8%	0.9	0.7	18.8	13.1	5.1	4.4	0	0
	February	618	92.0%	1.0	0.8	16.3	14.8	2.6	2.2	0	0
	March	711	95.6%	1.1	0.8	11.7	8.6	3.9	3.2	0	0
	April	673	93.5%	0.6	0.4	6.6	4.6	1.1	0.8	0	0
	May	710	95.4%	0.6	0.4	10.7	9.4	1.3	1.1	0	0
	June	660	91.7%	0.6	0.4	3.9	2.2	1.0	0.7	0	0
	July	707	95.0%	0.5	0.3	2.9	1.8	1.0	0.8	0	0
	August	713	95.8%	0.6	0.3	2.1	1.8	0.8	0.4	0	0
	September	688	95.6%	0.5	0.3	5.4	4.3	0.8	0.6	0	0
	October	690	92.7%	0.7	0.4	7.2	4.8	1.6	1.1	0	0
	November	666	92.5%	0.7	0.5	8.8	8.1	2.2	1.7	0	0
	December	711	95.6%	0.7	0.5	9.5	8.6	2.5	2.2	0	0
Annual		8260	94.3%	0.7	0.5	18.8	14.8	5.1	4.4	0	0
2023	January	713	95.8%	0.8	0.7	9.0	8.0	2.4	2.0	0	0
	February	624	92.9%	0.8	0.6	12.3	10.4	2.0	1.7	0	0
	March	711	95.6%	0.8	0.6	16.2	14.1	3.9	3.2	0	0
	April	686	95.3%	1.0	0.8	15.8	11.8	6.7	5.8	0	0
	May	665	89.4%	0.6	0.3	6.5	5.7	1.4	1.0	0	0
	June	619	86.0%	0.9	0.6	2.7	2.0	1.4	1.1	0	0
	July	706	94.9%	0.7	0.4	2.7	1.8	0.9	0.6	0	0
	August	698	93.8%	0.7	0.4	3.3	2.5	1.0	0.6	0	0
	September	687	95.4%	0.5	0.4	2.5	2.1	1.0	0.7	0	0
	October	687	92.3%	0.7	0.5	13.2	6.4	1.6	1.2	0	0
	November	690	95.8%	0.6	0.5	10.6	9.7	1.7	1.5	0	0
	December	703	94.5%	0.9	0.7	12.6	11.5	3.0	2.7	0	0
Annual		8189	93.5%	0.7	0.5	16.2	14.1	6.7	5.8	0	0

Observations in ppb

FIGURE 4.1.5.3 - LAWRENCE POND ROAD ANNUAL NO_X / NO_2 CONCENTRATIONS

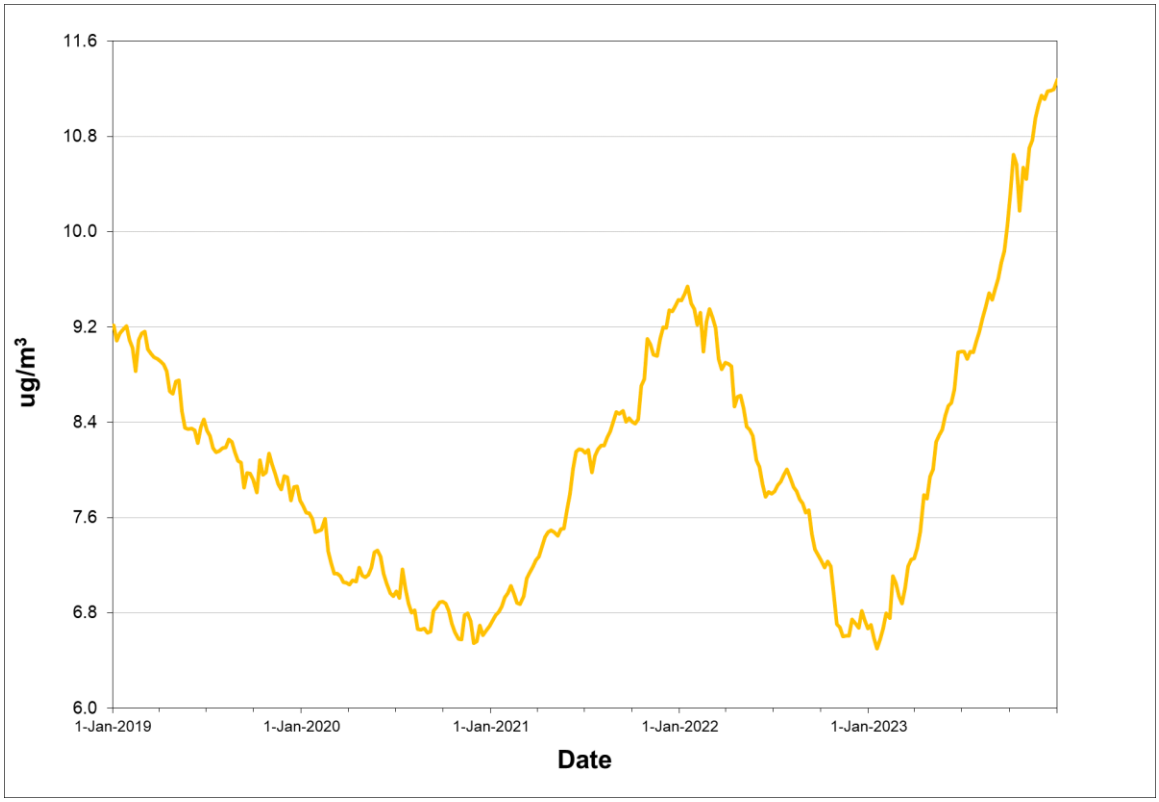
Rolling annual average of hourly concentrations

TABLE 4.1.5.4 - LAWRENCE POND ROAD TPM SUMMARY 2022 & 2023

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	5	100.0%	8.6	12.4	0
	February	5	100.0%	8.0	25.6	0
	March	5	100.0%	6.4	19.7	0
	April	5	100.0%	7.5	15.3	0
	May	5	100.0%	4.9	10.1	0
	June	5	100.0%	8.7	13.0	0
	July	4	80.0%	10.2	14.9	0
	August	5	100.0%	6.1	7.8	0
	September	5	100.0%	4.5	9.9	0
	October	5	100.0%	3.6	9.9	0
	November	5	100.0%	5.8	10.8	0
	December	6	100.0%	9.6	20.2	0
Annual		60	98.4%	6.7	25.6	0
2023	January	5	100.0%	8.6	15.1	0
	February	4	100.0%	15.4	22.2	0
	March	5	83.3%	10.6	23.7	0
	April	5	100.0%	21.8	35.0	0
	May	5	100.0%	10.2	14.0	0
	June	4	80.0%	21.3	106.6	0
	July	4	80.0%	11.7	15.0	0
	August	4	80.0%	9.5	14.4	0
	September	5	100.0%	9.3	33.3	0
	October	5	100.0%	6.2	14.1	0
	November	5	100.0%	10.1	19.0	0
	December	5	100.0%	11.6	27.4	0
Annual		56	93.3%	11.3	106.6	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 NL Hydro Property Boundary

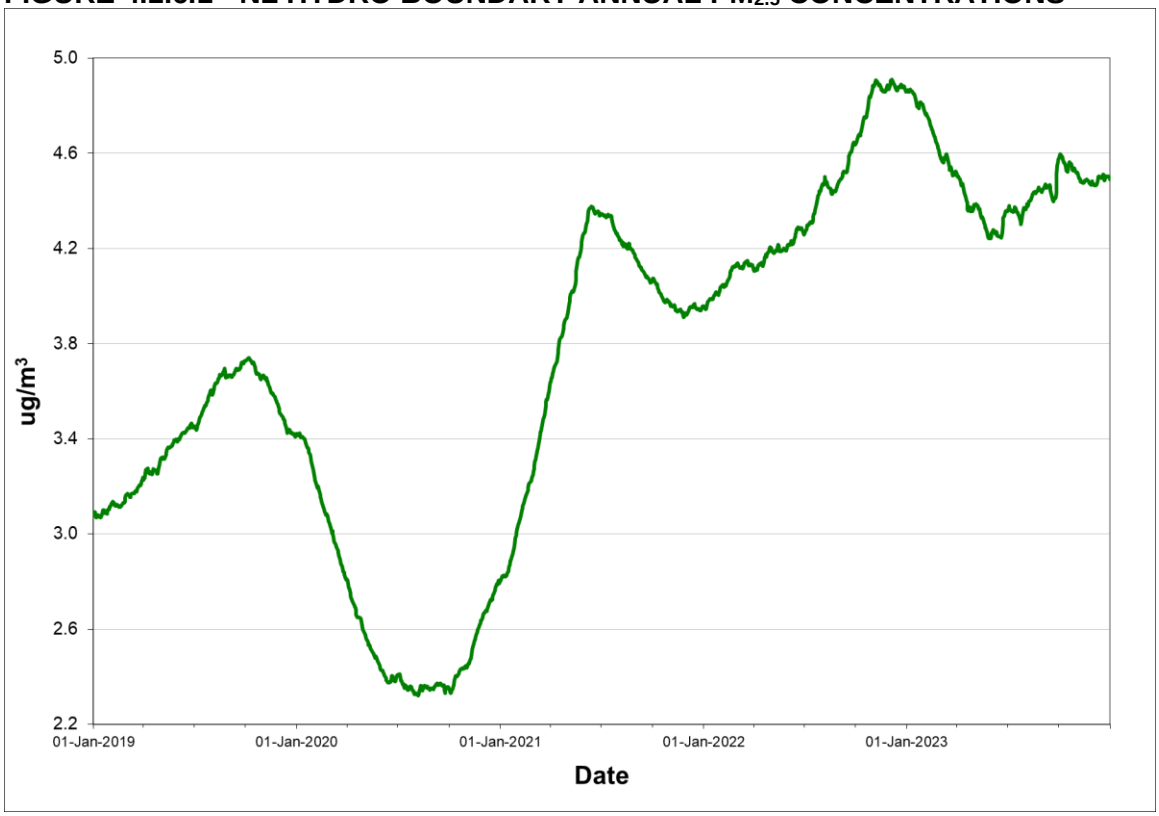
The NL Hydro Property Boundary station monitors the levels of $PM_{2.5}$ on a continuous basis and TPM on an one day in six day cycle consistent with the NAPS defined schedule. For TPM, the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$ however, the 24-hour air quality standard, as measured hourly, was exceeded on twenty five occasions in September owing to wildfire fire smoke emanating from northern Alberta and the Northwest Territories.. Tables 4.1.6.1 through 4.1.6.2 provide summary information on the level of air contaminants measured at NL Hydro 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 - NL HYDRO BOUNDARY $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	721	96.9%	5.3	11.8	0
	February	672	100.0%	5.7	10.7	0
	March	744	100.0%	5.7	10.2	0
	April	720	100.0%	6.2	11.2	0
	May	671	90.2%	5.8	9.3	0
	June	674	93.6%	4.3	9.0	0
	July	744	100.0%	4.2	8.0	0
	August	744	100.0%	3.3	8.8	0
	September	720	100.0%	4.2	9.6	0
	October	658	88.4%	5.3	11.7	0
	November	720	100.0%	4.0	8.3	0
	December	744	100.0%	4.5	10.1	0
Annual		8532	97.4%	4.9	11.8	0
2023	January	701	94.2%	4.4	12.1	0
	February	620	92.3%	3.4	5.2	0
	March	724	97.3%	4.7	12.9	0
	April	720	100.0%	4.4	9.8	0
	May	744	100.0%	4.2	9.2	0
	June	720	100.0%	5.6	18.6	0
	July	744	100.0%	4.4	10.8	0
	August	744	100.0%	4.1	8.7	0
	September	720	100.0%	5.8	32.8	25
	October	654	87.9%	4.7	11.4	0
	November	698	96.9%	3.4	5.9	0
	December	744	100.0%	4.7	10.1	0
Annual		8533	97.4%	4.5	32.8	25

Observations in µg/m³

FIGURE 4.1.6.1 - NL HYDRO BOUNDARY ANNUAL $PM_{2.5}$ CONCENTRATIONS



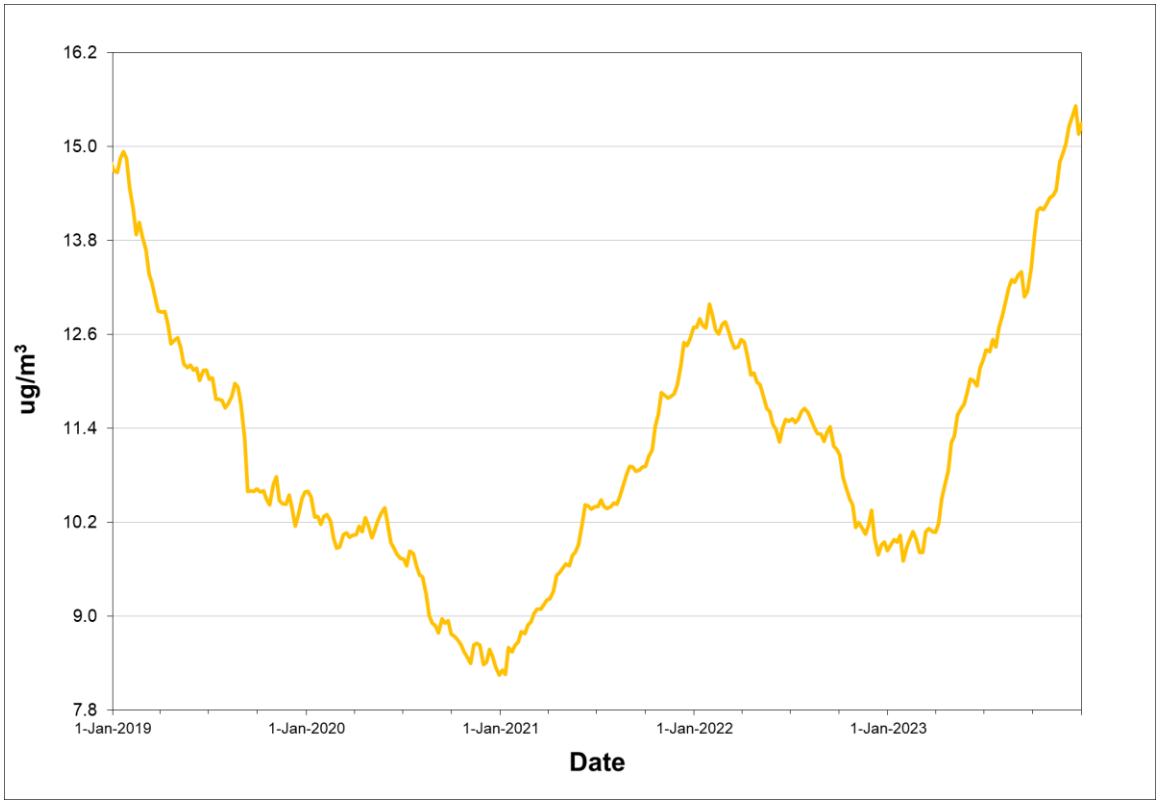
Rolling annual average of daily concentrations

TABLE 4.1.6.2 - NL HYDRO BOUNDARY TPM SUMMARY 2022 & 2023

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	4	80.0%	17.5	51.4	0
	February	4	80.0%	11.5	28.7	0
	March	5	100.0%	11.3	25.1	0
	April	5	100.0%	9.0	13.0	0
	May	5	100.0%	7.8	13.7	0
	June	5	100.0%	12.1	18.6	0
	July	5	100.0%	9.3	12.1	0
	August	5	100.0%	7.3	10.2	0
	September	4	80.0%	8.9	14.3	0
	October	5	100.0%	5.7	9.7	0
	November	5	100.0%	10.7	18.9	0
	December	6	100.0%	12.5	25.4	0
Annual		58	95.1%	9.8	51.4	0
2023	January	4	80.0%	14.4	27.7	0
	February	3	75.0%	18.8	21.8	0
	March	4	66.7%	14.3	40.6	0
	April	5	100.0%	30.2	50.0	0
	May	4	80.0%	15.2	17.8	0
	June	5	100.0%	17.6	52.5	0
	July	5	100.0%	13.3	21.1	0
	August	5	100.0%	12.0	14.4	0
	September	5	100.0%	11.1	48.1	0
	October	5	100.0%	11.1	19.7	0
	November	4	80.0%	18.1	29.4	0
	December	5	100.0%	16.0	32.0	0
Annual		54	90.0%	15.3	52.5	0

Observations in µg/m³

FIGURE 4.1.6.2 - NL HYDRO BOUNDARY ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.2 Braya Renewable Fuels

Braya Renewable Fuels (Braya) operated air quality monitoring stations at four locations in 2023. These stations are installed to monitor the air quality near Braya's refinery in Come-by-Chance and are located at Arnold's Cove, Come-by-Chance, Sunnyside and the Braya property boundary. The locations of these air quality monitoring stations are identified in Figure 4.2.1. In April 2020, the refinery, when under ownership of North Atlantic Refining Limited (NARL), went into warm idle owing to a drop in product demand caused by the Covid-19 pandemic. The refinery was subsequently sold to Braya who are currently in the process of converting the facility from a crude oil refinery to a renewable fuels refinery. By year's end the refinery was not yet in operation.

FIGURE 4.2.1 - BRAYA AIR QUALITY MONITORING STATIONS

4.2.1 Arnold's Cove

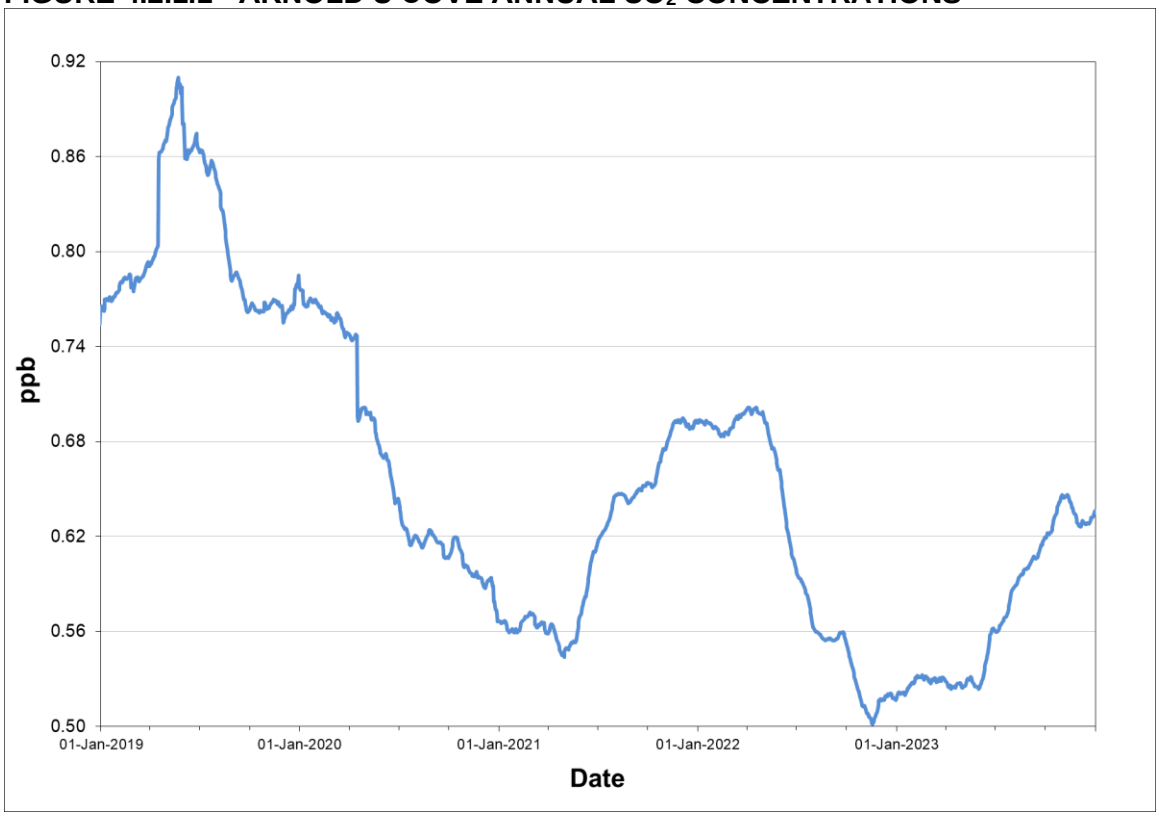
The Arnold's Cove station monitors the levels of SO_2 and $PM_{2.5}$ on a continuous basis and is located near Tricentia Academy School. For SO_2, the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$, the 24-hour air quality standard was exceed for 28 consecutive hours on September 27th / 28th, owing to the long-range transport of wildfire smoke from northern Alberta and the Northwest Territories. 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 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	668	89.8%	0.4	1.3	1.2	0.9	0	0	0
	February	662	98.5%	0.6	4.0	1.6	0.9	0	0	0
	March	730	98.1%	0.6	7.2	2.8	1.2	0	0	0
	April	718	99.7%	0.6	6.7	2.8	1.0	0	0	0
	May	742	99.7%	0.7	3.9	1.5	1.0	0	0	0
	June	704	97.8%	0.4	4.6	2.0	0.8	0	0	0
	July	739	99.3%	0.4	5.4	2.1	0.7	0	0	0
	August	740	99.5%	0.4	1.0	0.7	0.6	0	0	0
	September	713	99.0%	0.5	1.2	1.0	0.8	0	0	0
	October	733	98.5%	0.5	1.1	0.9	0.8	0	0	0
	November	716	99.4%	0.7	7.3	3.0	1.2	0	0	0
	December	734	98.7%	0.5	1.3	1.0	0.8	0	0	0
Annual		8599	98.2%	0.5	7.3	3.0	1.2	0	0	0
2023	January	741	99.6%	0.6	1.2	1.2	1.0	0	0	0
	February	658	97.9%	0.6	2.4	1.9	1.3	0	0	0
	March	736	98.9%	0.6	1.1	1.0	0.9	0	0	0
	April	714	99.2%	0.5	1.2	1.0	0.9	0	0	0
	May	737	99.1%	0.6	2.7	1.5	1.2	0	0	0
	June	706	98.1%	0.8	2.0	1.8	1.5	0	0	0
	July	741	99.6%	0.7	1.6	1.4	1.3	0	0	0
	August	738	99.2%	0.6	1.6	1.1	0.8	0	0	0
	September	714	99.2%	0.7	1.4	1.2	1.1	0	0	0
	October	737	99.1%	0.8	9.1	3.3	1.5	0	0	0
	November	712	98.9%	0.5	1.2	1.1	0.9	0	0	0
	December	292	39.2%	0.6	1.2	1.1	1.0	0	0	0
Annual		8226	93.9%	0.6	9.1	3.3	1.5	0	0	0

Observations in ppb

FIGURE 4.2.1.1 - ARNOLD'S COVE ANNUAL SO_2 CONCENTRATIONS



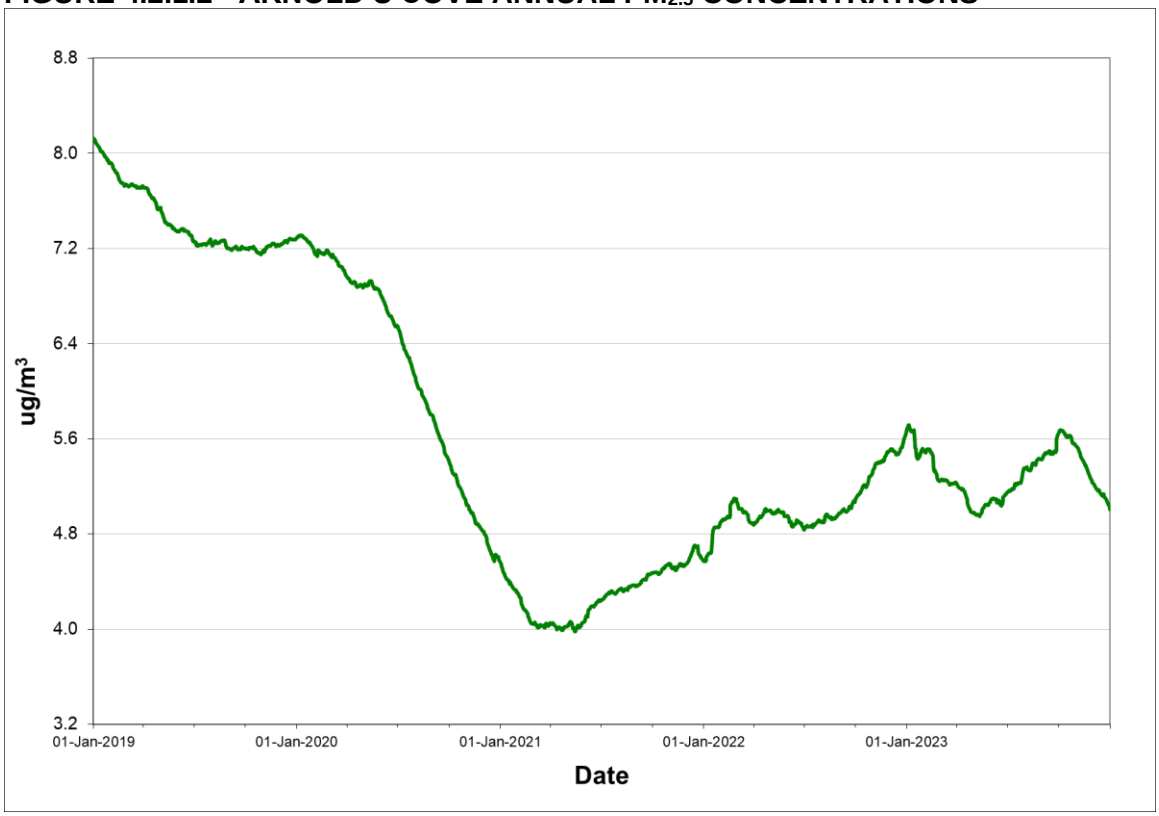
Rolling annual average of hourly concentrations

TABLE 4.2.1.2 - ARNOLD'S COVE $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	6.5	50.0	27
	February	672	100.0%	6.3	38.3	24
	March	325	43.7%	3.0	6.6	0
	April	692	96.1%	7.1	11.7	0
	May	620	83.3%	5.0	7.9	0
	June	632	87.8%	4.2	16.1	0
	July	744	100.0%	4.4	8.6	0
	August	551	74.1%	4.4	11.8	0
	September	717	99.6%	5.0	14.3	0
	October	623	83.7%	6.3	12.8	0
	November	720	100.0%	6.9	10.7	0
	December	744	100.0%	7.2	11.4	0
Annual		7784	88.9%	5.7	50.0	51
2023	January	682	91.7%	4.7	12.6	0
	February	672	100.0%	3.3	9.0	0
	March	620	83.3%	3.8	9.4	0
	April	720	100.0%	4.1	8.5	0
	May	688	92.5%	6.3	14.5	0
	June	720	100.0%	5.0	15.8	0
	July	744	100.0%	6.6	13.6	0
	August	744	100.0%	5.5	13.8	0
	September	720	100.0%	7.5	37.0	28
	October	544	73.1%	4.9	12.2	0
	November	643	89.3%	3.2	7.8	0
	December	744	100.0%	4.7	13.8	0
Annual		8241	94.1%	5.0	37.0	28

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

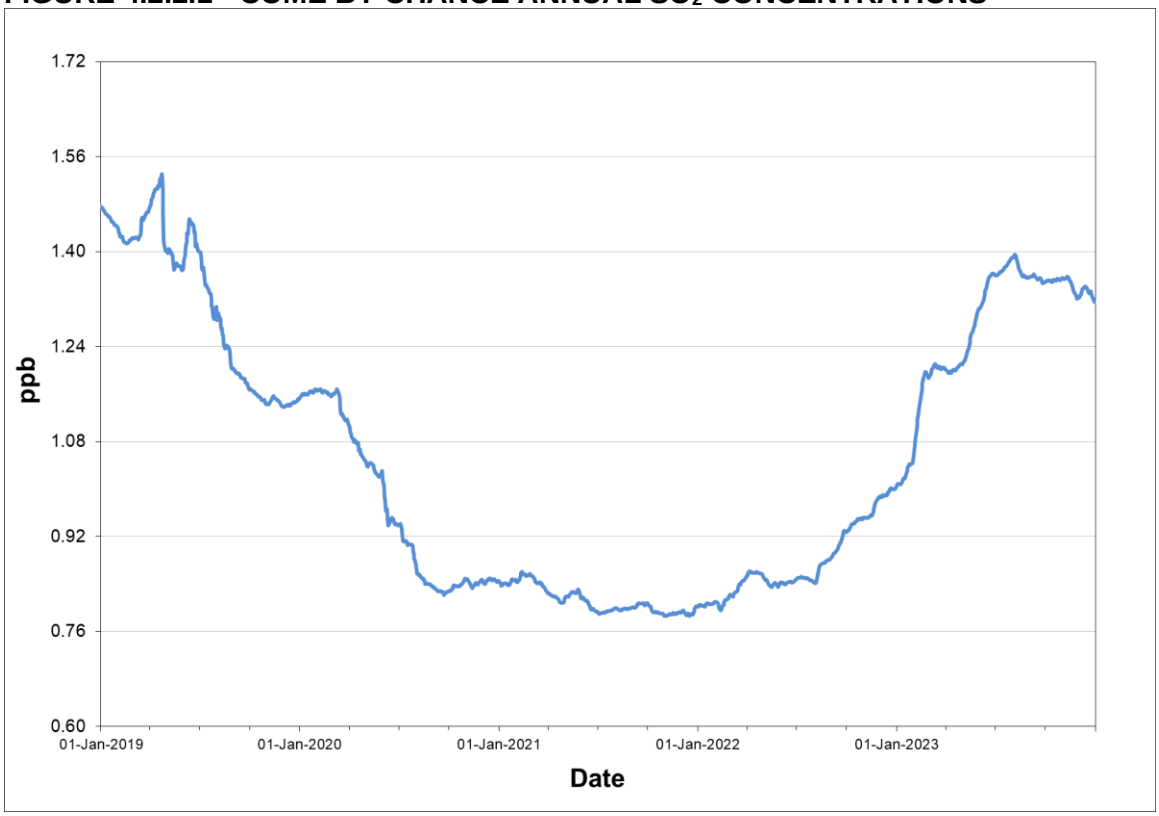
The Come by Chance station, located near the town office, monitors the levels of SO_2 and $PM_{2.5}$ on a continuous basis. For SO_2, the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$, the 24-hour air quality standard was exceed for 22 consecutive hours on September 27th / 28th, owing to the long-range transport of wildfire smoke from northern Alberta and the Northwest Territories. 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 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	742	99.7%	1.0	3.4	2.5	2.0	0	0	0
	February	667	99.3%	1.2	3.9	2.3	1.9	0	0	0
	March	701	94.2%	1.1	7.1	3.6	2.1	0	0	0
	April	715	99.3%	0.7	2.2	1.5	1.3	0	0	0
	May	714	96.0%	0.9	5.0	1.8	1.6	0	0	0
	June	712	98.9%	0.7	4.0	1.8	1.0	0	0	0
	July	742	99.7%	0.7	1.6	1.4	1.3	0	0	0
	August	572	76.9%	1.1	3.1	2.8	2.4	0	0	0
	September	709	98.5%	1.2	2.6	2.5	2.3	0	0	0
	October	739	99.3%	0.9	7.2	1.8	1.4	0	0	0
	November	714	99.2%	1.3	3.0	2.8	2.5	0	0	0
	December	735	98.8%	1.3	3.0	2.3	2.0	0	0	0
Annual		8462	96.6%	1.0	7.2	3.6	2.5	0	0	0
2023	January	741	99.6%	1.5	7.2	2.9	2.6	0	0	0
	February	664	98.8%	3.0	5.9	5.5	4.8	0	0	0
	March	736	98.9%	1.3	2.7	2.2	1.8	0	0	0
	April	712	98.9%	0.8	2.1	1.8	1.4	0	0	0
	May	740	99.5%	1.9	3.4	3.1	2.7	0	0	0
	June	711	98.8%	1.3	3.1	3.0	2.7	0	0	0
	July	740	99.5%	1.0	1.8	1.6	1.3	0	0	0
	August	618	83.1%	0.6	1.9	1.1	1.0	0	0	0
	September	715	99.3%	1.1	2.0	1.7	1.5	0	0	0
	October	735	98.8%	1.0	2.7	2.1	1.6	0	0	0
	November	704	97.8%	0.9	3.7	2.2	1.7	0	0	0
	December	737	99.1%	1.3	2.6	2.2	2.1	0	0	0
Annual		8553	97.6%	1.3	7.2	5.5	4.8	0	0	0

Observations in ppb

FIGURE 4.2.2.1 - COME BY CHANCE ANNUAL SO_2 CONCENTRATIONS



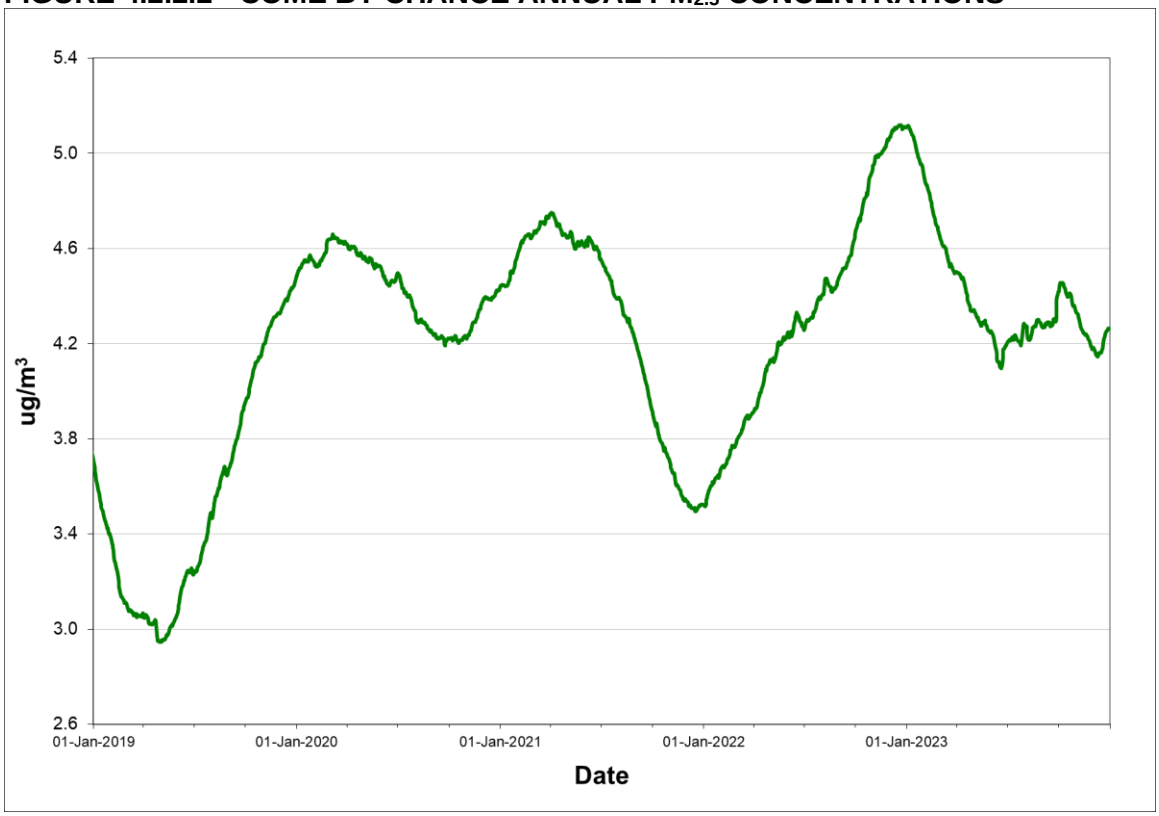
Rolling annual average of hourly concentrations

TABLE 4.2.2.2 - COME BY CHANCE $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	6.5	11.8	0
	February	672	100.0%	6.6	9.8	0
	March	726	97.6%	5.8	12.4	0
	April	720	100.0%	5.7	9.9	0
	May	744	100.0%	5.0	7.0	0
	June	635	88.2%	4.4	11.6	0
	July	744	100.0%	4.4	7.7	0
	August	744	100.0%	4.2	16.6	0
	September	617	85.7%	3.6	11.3	0
	October	738	99.2%	5.2	10.8	0
	November	682	94.7%	4.8	9.9	0
	December	684	91.9%	5.1	8.4	0
Annual		8450	96.5%	5.1	16.6	0
2023	January	580	78.0%	4.1	7.5	0
	February	672	100.0%	3.5	6.3	0
	March	641	86.2%	3.9	7.8	0
	April	720	100.0%	3.7	6.8	0
	May	676	90.9%	4.0	9.6	0
	June	566	78.6%	3.7	14.3	0
	July	744	100.0%	5.3	12.8	0
	August	744	100.0%	4.1	9.9	0
	September	720	100.0%	5.3	32.6	22
	October	744	100.0%	4.3	11.5	0
	November	720	100.0%	2.8	6.8	0
	December	744	100.0%	6.0	13.3	0
Annual		8271	94.4%	4.3	32.6	22

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

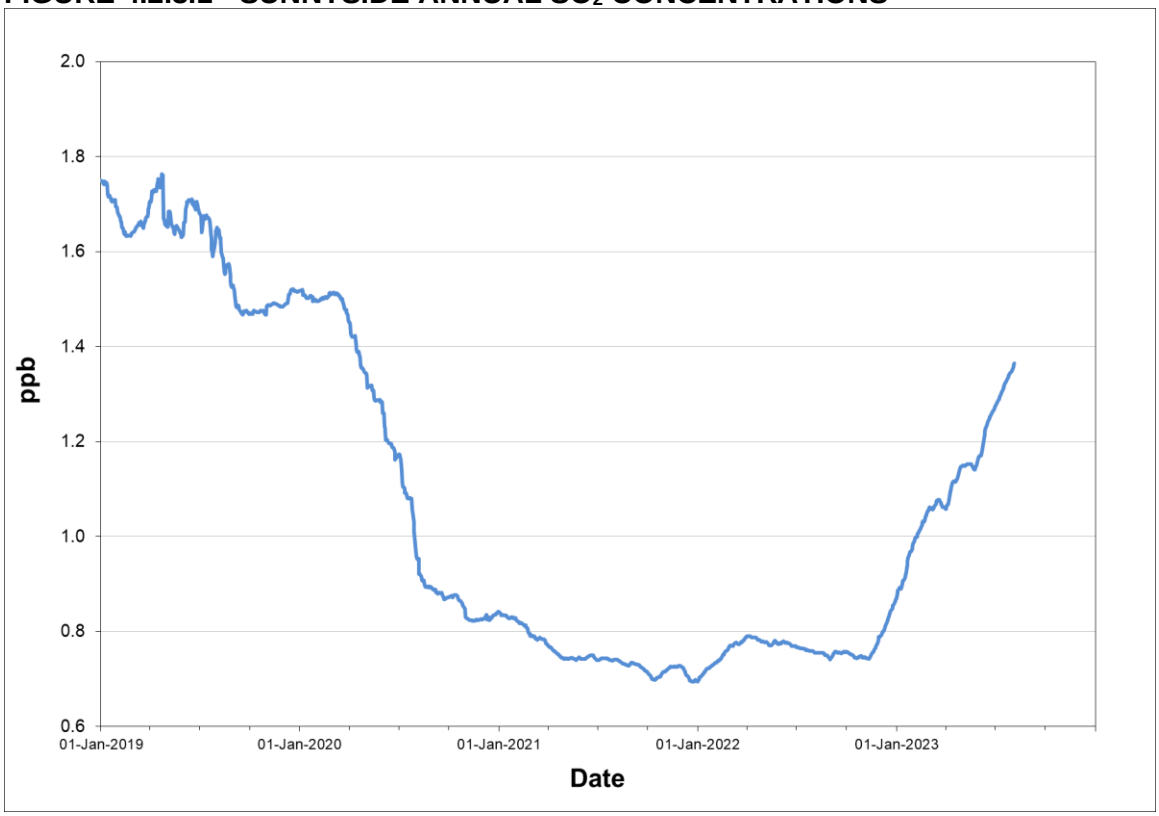
The Sunnyside station monitors are located near the town office and measure the levels of SO_2 and $PM_{2.5}$ on a continuous basis. For SO_2, the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$, the 24-hour air quality standard was exceed for 27 consecutive hours on September 27th / 28th, owing to the long-range transport of wildfire smoke from northern Alberta and the Northwest Territories. 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 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	741	99.6%	0.9	3.8	1.9	1.4	0	0	0
	February	669	99.6%	1.0	4.3	2.2	1.5	0	0	0
	March	723	97.2%	1.0	7.2	3.0	1.5	0	0	0
	April	713	99.0%	0.5	6.0	2.2	1.1	0	0	0
	May	693	93.1%	0.9	4.5	2.6	1.4	0	0	0
	June	711	98.8%	0.8	5.2	2.8	1.5	0	0	0
	July	740	99.5%	0.5	1.2	1.1	0.9	0	0	0
	August	742	99.7%	0.6	2.8	1.4	1.1	0	0	0
	September	712	98.9%	0.7	4.7	2.1	1.4	0	0	0
	October	741	99.6%	0.7	4.3	2.3	1.3	0	0	0
	November	672	93.3%	1.2	3.4	3.3	2.4	0	0	0
	December	727	97.7%	1.6	3.4	3.4	2.4	0	0	0
Annual		8584	98.0%	0.9	7.2	3.4	2.4	0	0	0
2023	January	650	87.4%	2.5	7.2	6.0	4.3	0	0	0
	February	637	94.8%	1.9	6.9	5.0	2.8	0	0	0
	March	612	82.3%	1.1	3.8	3.7	3.1	0	0	0
	April	716	99.4%	1.6	5.4	4.2	3.3	0	0	0
	May	743	99.9%	1.2	4.1	3.1	2.8	0	0	0
	June	466	64.7%	2.4	6.7	5.7	3.7	0	0	0
	July	0	0.0%					0	0	0
	August	557	74.9%	2.1	6.3	5.4	4.3	0	0	0
	September	682	94.7%	1.3	5.7	5.2	4.6	0	0	0
	October	360	48.4%	1.0	2.9	2.8	2.4	0	0	0
	November	0	0.0%							
	December	0	0.0%							
Annual		5423	61.9%		7.2	6.0	4.6	0	0	0

Observations in ppb

FIGURE 4.2.3.1 - SUNNYSIDE ANNUAL SO_2 CONCENTRATIONS



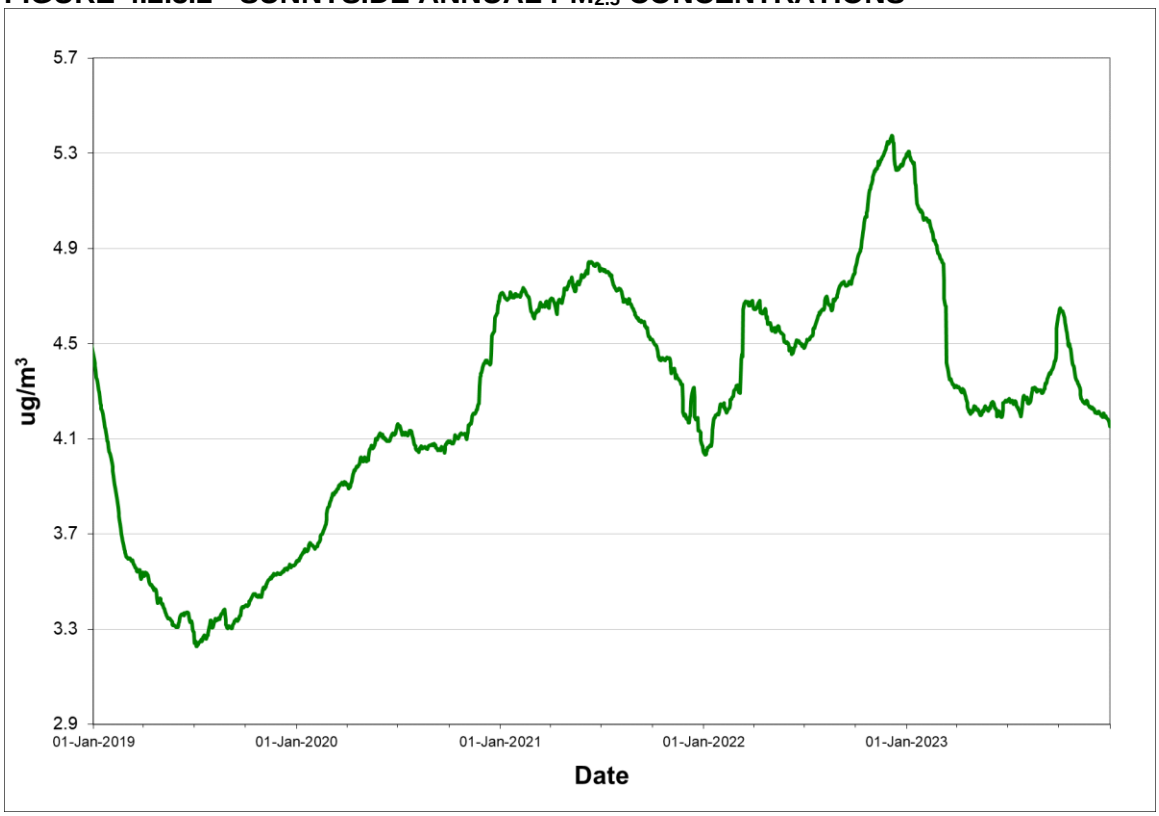
Rolling annual average of hourly concentrations

TABLE 4.2.3.2 - SUNNYSIDE $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	6.5	26.8	14
	February	672	100.0%	5.0	11.9	0
	March	744	100.0%	9.5	80.3	60
	April	720	100.0%	4.8	8.4	0
	May	744	100.0%	3.7	5.9	0
	June	633	87.9%	3.8	9.2	0
	July	744	100.0%	4.4	7.8	0
	August	701	94.2%	4.2	10.3	0
	September	544	75.6%	3.1	10.3	0
	October	467	62.8%	8.0	15.8	0
	November	388	53.9%	6.2	11.8	0
	December	744	100.0%	4.9	8.3	0
Annual		7845	89.6%	5.3	80.3	74
2023	January	678	91.1%	3.5	8.8	0
	February	672	100.0%	3.4	5.6	0
	March	642	86.3%	3.5	7.3	0
	April	720	100.0%	3.7	7.4	0
	May	744	100.0%	3.9	9.8	0
	June	720	100.0%	4.0	14.0	0
	July	744	100.0%	4.6	12.2	0
	August	744	100.0%	4.4	10.4	0
	September	674	93.6%	7.1	36.1	27
	October	744	100.0%	3.9	11.0	0
	November	720	100.0%	3.9	8.1	0
	December	715	96.1%	3.9	10.0	0
Annual		8517	97.2%	4.1	36.1	27

Observations in µg/m³

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



Rolling annual average of daily concentrations

4.2.4 Braya Property Boundary

The Braya Property Boundary station monitors the levels of SO_2 and $PM_{2.5}$. Given its proximity to the process area of Braya, this station historically recorded levels of SO_2 and $PM_{2.5}$ in excess of the air quality standards. In 2023 Braya was still not operational by year's end and as such none of the SO_2 air quality standards were exceeded. For $PM_{2.5}$, the 24-hour air quality standard was exceed for 33 consecutive hours on September 27th / 28th, owing to the long-range wildfire smoke from northern Alberta and the Northwest Territories.

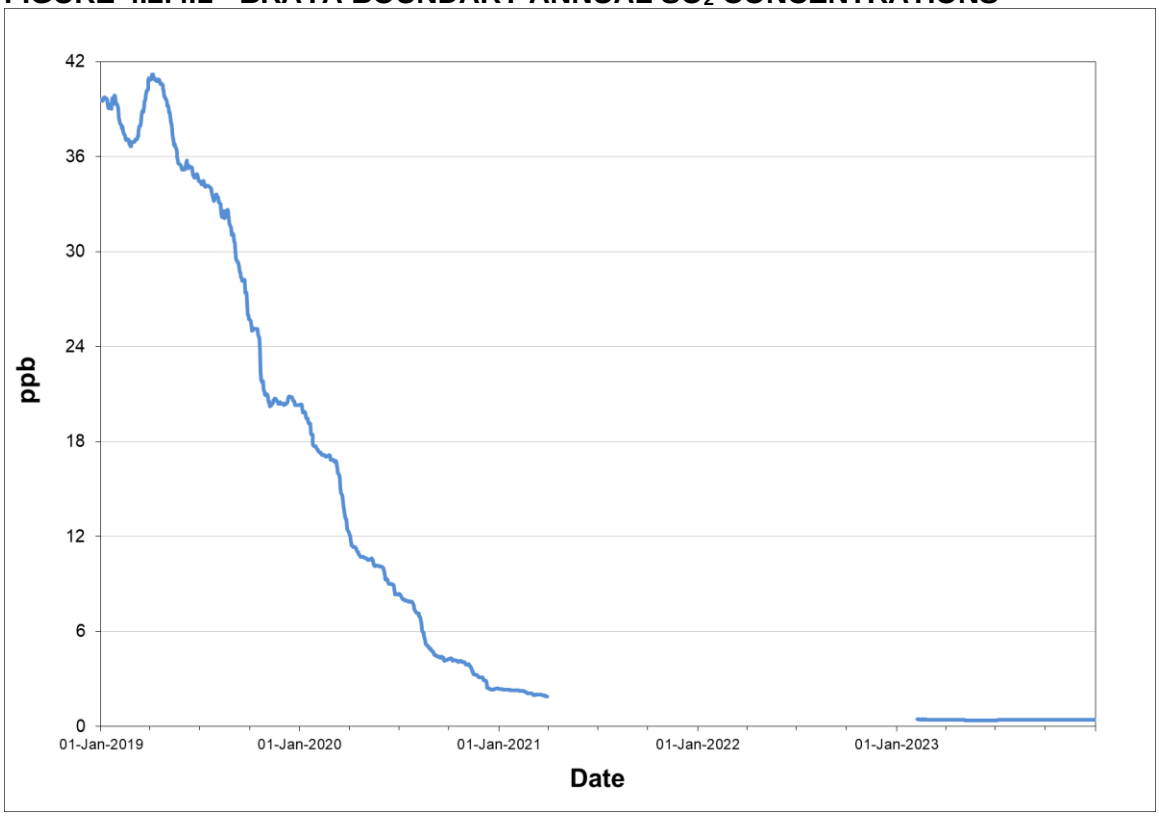
Tables 4.2.4.1 through 4.2.4.2 provide summary information on the level of air contaminants measured at Braya Property Boundary, while Figures 4.2.4.1 and 4.2.4.2 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.2.4.1 - BRAYA BOUNDARY SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	16	2.2%	0.1	0.2	0.1	0.0	0	0	0
	February	0	0.0%							
	March	389	52.3%	0.5	4.4	4.2	1.1	0	0	0
	April	715	99.3%	0.5	10.1	5.1	1.6	0	0	0
	May	741	99.6%	0.8	9.6	4.3	2.3	0	0	0
	June	685	95.1%	0.3	2.4	1.4	0.6	0	0	0
	July	733	98.5%	0.3	0.7	0.6	0.5	0	0	0
	August	739	99.3%	0.5	2.4	1.1	0.6	0	0	0
	September	599	83.2%	0.3	0.9	0.6	0.4	0	0	0
	October	735	98.8%	0.5	1.7	1.6	0.8	0	0	0
	November	712	98.9%	0.4	1.2	0.8	0.6	0	0	0
	December	736	98.9%	0.4	1.1	0.7	0.6	0	0	0
Annual		6800	77.6%		10.1	5.1	2.3	0	0	0
2023	January	741	99.6%	0.5	1.0	0.9	0.8	0	0	0
	February	654	97.3%	0.4	1.3	1.0	0.7	0	0	0
	March	730	98.1%	0.3	0.8	0.6	0.4	0	0	0
	April	712	98.9%	0.3	0.7	0.6	0.5	0	0	0
	May	734	98.7%	0.4	1.1	0.7	0.6	0	0	0
	June	712	98.9%	0.6	1.2	1.0	1.0	0	0	0
	July	732	98.4%	0.5	1.2	0.9	0.6	0	0	0
	August	727	97.7%	0.3	2.1	1.1	0.6	0	0	0
	September	712	98.9%	0.4	1.3	0.7	0.6	0	0	0
	October	731	98.3%	0.4	3.7	0.8	0.7	0	0	0
	November	713	99.0%	0.3	9.2	3.4	0.8	0	0	0
	December	740	99.5%	0.5	1.3	0.9	0.8	0	0	0
Annual		8638	98.6%	0.4	9.2	3.4	1.0	0	0	0

Observations in ppb

FIGURE 4.2.4.1 - BRAYA BOUNDARY ANNUAL SO_2 CONCENTRATIONS



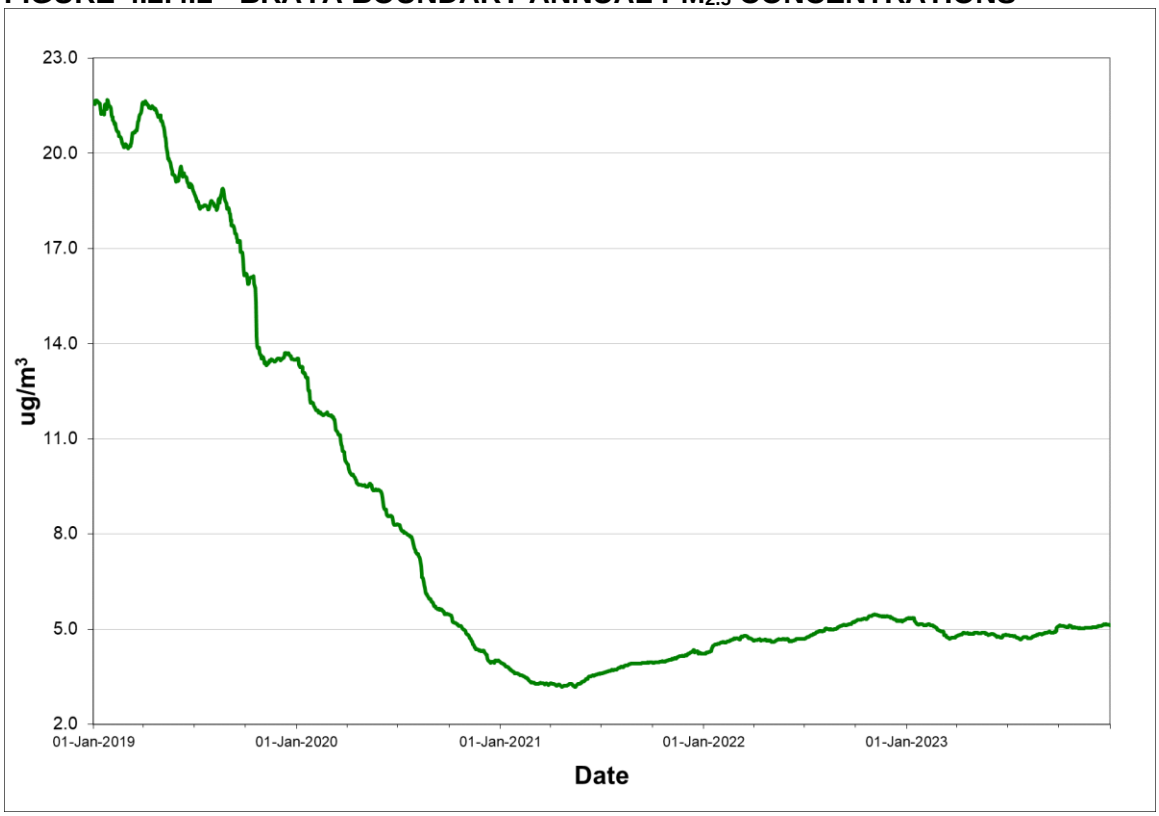
Rolling annual average of hourly concentrations

TABLE 4.2.4.2 - BRAYA BOUNDARY $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	6.5	34.1	19
	February	549	81.7%	5.9	18.3	0
	March	596	80.1%	6.1	40.7	23
	April	558	77.5%	4.9	10.6	0
	May	725	97.4%	5.9	13.1	0
	June	636	88.3%	5.3	14.4	0
	July	729	98.0%	6.0	10.5	0
	August	619	83.2%	4.9	16.0	0
	September	720	100.0%	4.7	12.7	0
	October	660	88.7%	5.0	13.7	0
	November	669	92.9%	4.4	9.3	0
	December	744	100.0%	4.2	7.6	0
Annual		7949	90.7%	5.3	40.7	42
2023	January	654	87.9%	4.2	9.0	0
	February	523	77.8%	3.4	8.2	0
	March	655	88.0%	3.9	7.8	0
	April	692	96.1%	5.9	12.1	0
	May	744	100.0%	5.7	11.6	0
	June	720	100.0%	4.8	17.1	0
	July	744	100.0%	5.3	12.7	0
	August	688	92.5%	6.0	13.3	0
	September	720	100.0%	7.6	37.5	33
	October	744	100.0%	4.5	11.3	0
	November	679	94.3%	4.5	8.4	0
	December	741	99.6%	4.9	13.0	0
Annual		8304	94.8%	5.1	37.5	33

Observations in µg/m³

FIGURE 4.2.4.2 - BRAYA 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 (IOC) operated three air quality monitoring stations in Labrador City in 2023, 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 air quality monitoring stations are identified in Figure 4.3.1. The Dog Park station was formerly known as the Indian Point station.

In 2013, IOC, 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 - IOC AIR QUALITY MONITORING STATIONS

4.3.1 Dog Park

The Dog Park station, previously called the Indian Point station, monitors the levels of SO_2, NO_x / NO_2, $PM_{2.5}$ and TPM on a continuous basis. For SO_2 and NO_x / NO_2, the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$ there were one hundred and eighty three hourly exceedances of the 24-hour air quality standard, while for TPM there were one hundred and fifty two hourly exceedances of the 24-hour air quality standard. In all cases the exceedances were related to either wildfire smoke or localized fugitive emissions. Table 4.3.1 highlights the temporal occurrence of the exceedances.

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 - DOG PARK PARTICULATE EXCEEDANCES 2023

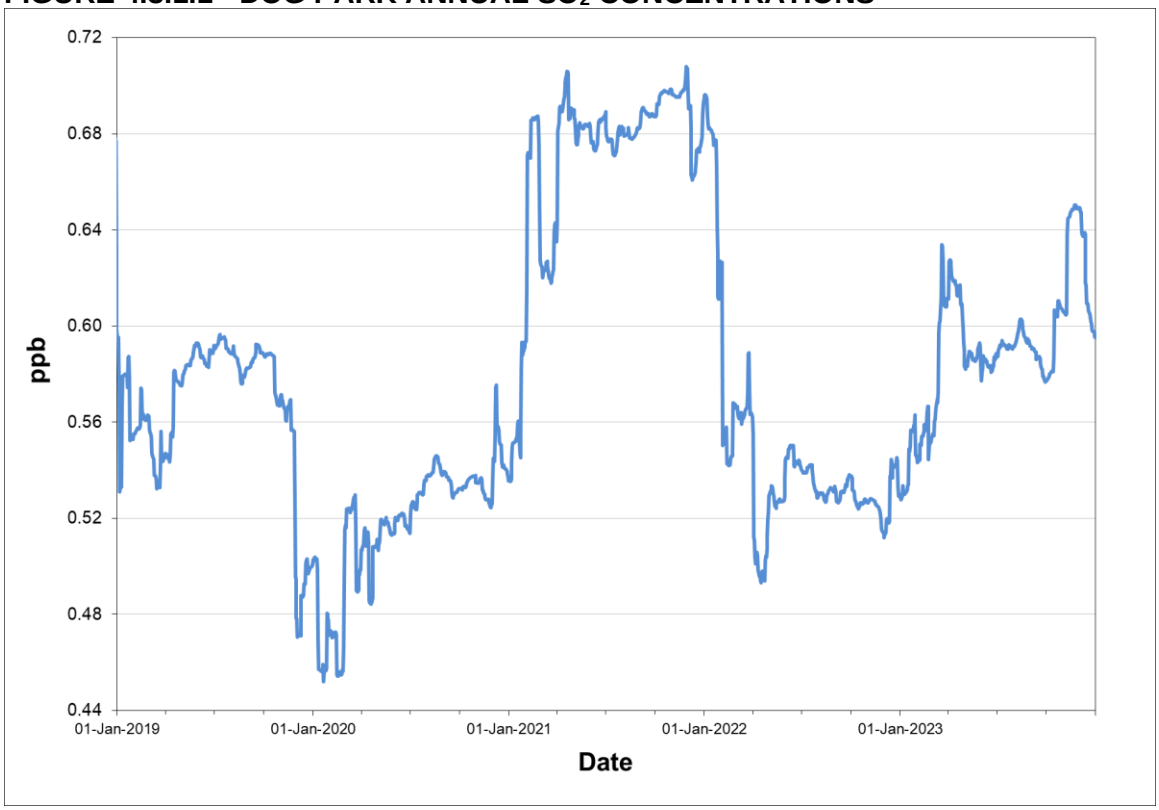
Pollutant	Start Time	End Time	Number of Hours
$PM_{2.5}$	February 04, 08:00	February 05, 07:00	24
	February 14, 08:00	February 14, 11:00	4
	June 14, 04:00	June 14, 16:00	13
	June 21, 20:00	June 21, 20:00	1
	June 22, 03:00	June 25, 02:00	72
	July 12, 22:00	July 14, 06:00	33
	July 15, 17:00	July 16, 08:00	16
	September 6, 05:00	September 7, 00:00	20
TPM	February 04, 07:00	February 04, 16:00	10
	May 24, 04:00	May 24, 12:00	9
	June 6, 11:00	June 6, 21:00	11
	June 22, 14:00	June 22, 15:00	2
	June 22, 19:00	June 24, 14:00	44
	July 4, 15:00	July 6, 17:00	51
	September 6, 13:00	September 7, 13:00	25

TABLE 4.3.1.1 - DOG PARK SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	742	99.7%	0.6	18.8	12.4	5.2	0	0	0
	February	669	99.6%	0.8	44.2	24.6	8.4	0	0	0
	March	737	99.1%	0.7	31.6	25.0	6.5	0	0	0
	April	720	100.0%	0.9	16.0	13.3	3.4	0	0	0
	May	744	100.0%	0.5	16.3	13.1	3.3	0	0	0
	June	699	97.1%	0.5	14.0	9.5	2.9	0	0	0
	July	744	100.0%	0.3	5.4	2.6	0.8	0	0	0
	August	713	95.8%	0.4	7.8	4.5	1.2	0	0	0
	September	707	98.2%	0.4	5.4	3.2	1.4	0	0	0
	October	740	99.5%	0.3	3.5	2.4	0.8	0	0	0
	November	718	99.7%	0.2	2.6	1.6	0.5	0	0	0
	December	744	100.0%	0.8	31.2	23.1	7.1	0	0	0
Annual		8677	99.1%	0.5	44.2	25.0	8.4	0	0	0
2023	January	744	100.0%	0.8	15.7	11.1	6.0	0	0	0
	February	666	99.1%	0.9	22.2	15.0	3.1	0	0	0
	March	744	100.0%	1.4	47.0	34.6	9.3	0	0	0
	April	383	53.2%	0.7	14.9	12.6	5.6	0	0	0
	May	724	97.3%	0.4	11.1	4.3	1.0	0	0	0
	June	685	95.1%	0.5	10.0	7.0	1.9	0	0	0
	July	744	100.0%	0.3	5.6	4.0	1.1	0	0	0
	August	744	100.0%	0.4	3.6	2.1	1.1	0	0	0
	September	702	97.5%	0.2	4.1	2.2	0.5	0	0	0
	October	744	100.0%	0.6	14.6	12.6	5.8	0	0	0
	November	716	99.4%	0.7	33.1	27.6	11.7	0	0	0
	December	744	100.0%	0.2	2.2	1.7	0.6	0	0	0
Annual		8340	95.2%	0.6	47.0	34.6	11.7	0	0	0

Observations in ppb

FIGURE 4.3.1.1 - DOG PARK ANNUAL SO_2 CONCENTRATIONS



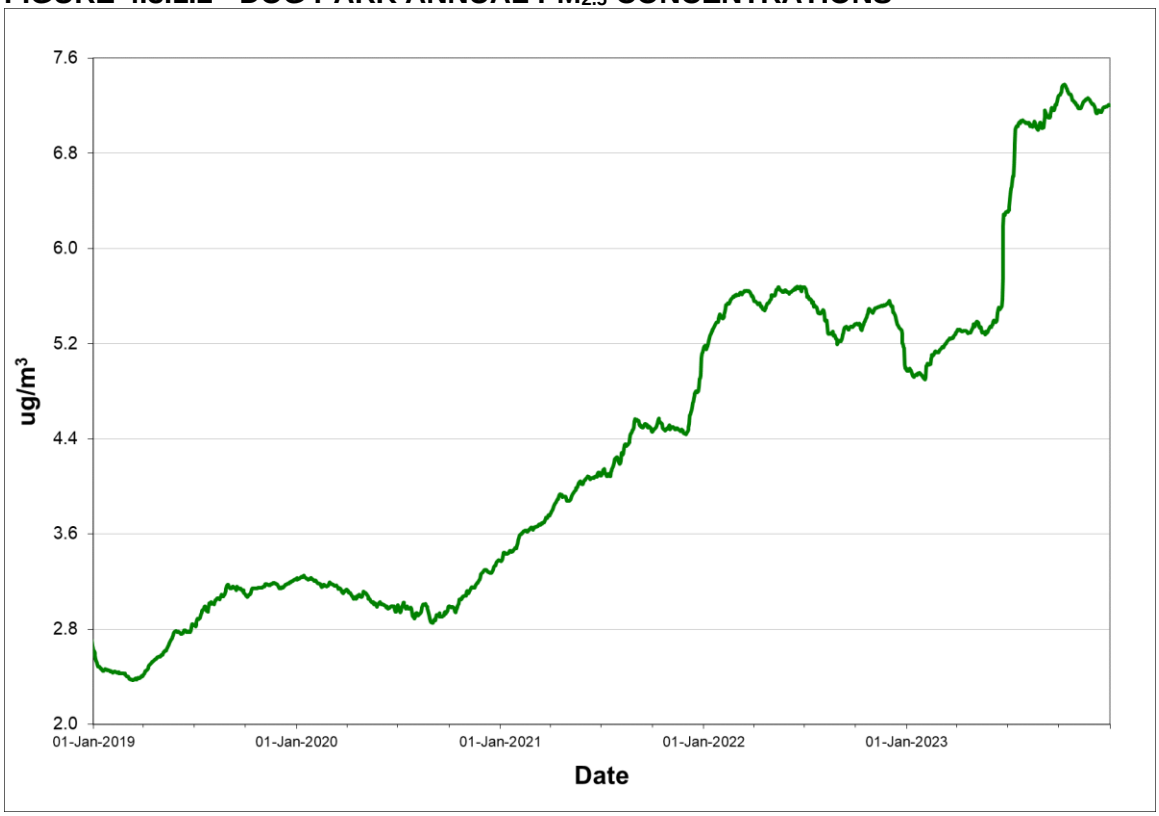
Rolling annual average of hourly concentrations

TABLE 4.3.1.2 - DOG PARK $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	6.8	13.5	0
	February	672	100.0%	6.2	14.1	0
	March	744	100.0%	3.9	7.6	0
	April	637	88.5%	4.6	9.5	0
	May	744	100.0%	5.6	18.1	0
	June	585	81.3%	4.7	16.7	0
	July	744	100.0%	4.4	12.1	0
	August	705	94.8%	5.7	12.5	0
	September	681	94.6%	4.5	12.7	0
	October	715	96.1%	4.7	13.4	0
	November	687	95.4%	3.9	9.2	0
	December	637	85.6%	4.5	18.6	0
Annual		8295	94.7%	5.0	18.6	0
2023	January	744	100.0%	6.0	12.1	0
	February	622	92.6%	9.3	39.7	28
	March	744	100.0%	5.8	9.5	0
	April	720	100.0%	5.3	11.9	0
	May	714	96.0%	5.5	11.5	0
	June	592	82.2%	17.7	156.2	86
	July	700	94.1%	13.1	81.8	49
	August	744	100.0%	5.1	21.2	0
	September	692	96.1%	7.8	29.0	20
	October	706	94.9%	4.0	19.7	0
	November	590	81.9%	3.4	8.4	0
	December	703	94.5%	4.7	13.1	0
Annual		8271	94.4%	7.2	156.2	183

Observations in µg/m³

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



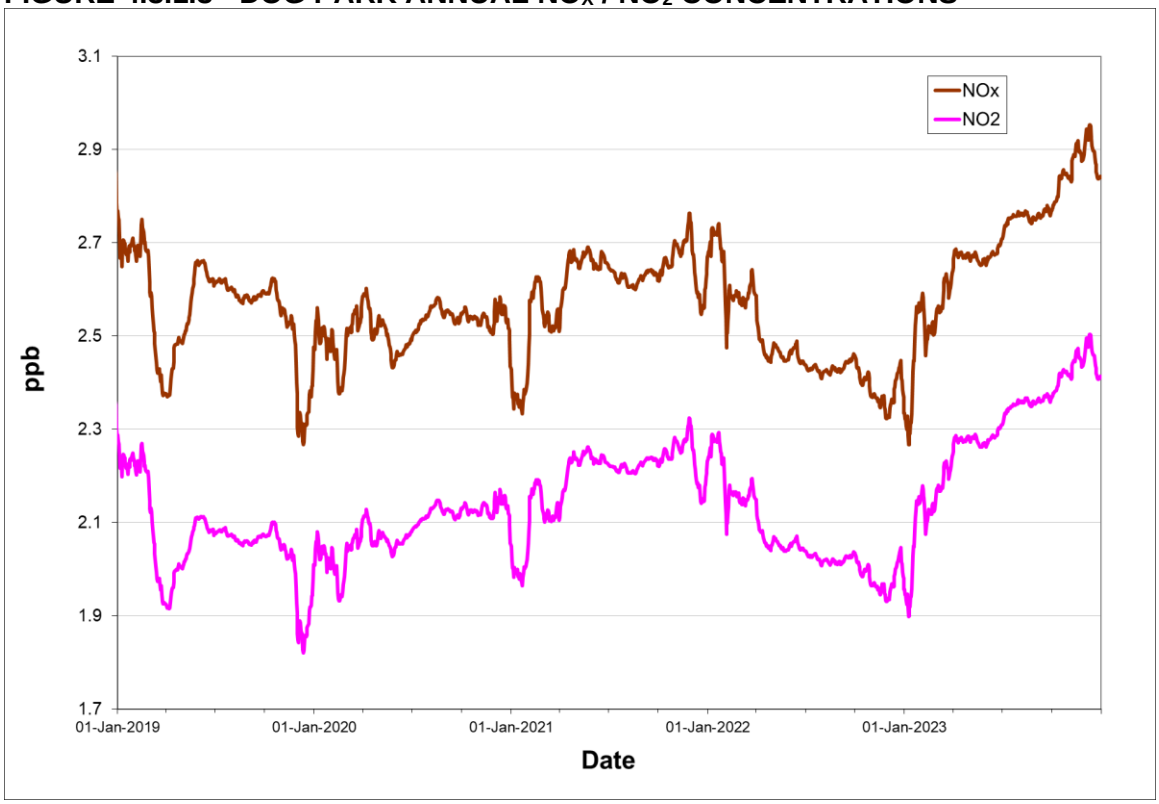
Rolling annual average of hourly concentrations

TABLE 4.3.1.3 - DOG PARK NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	742	99.7%	3.9	3.2	53.6	34.0	17.0	12.5	0	0
	February	669	99.6%	4.3	3.4	43.1	38.1	16.4	13.6	0	0
	March	737	99.1%	3.2	2.6	35.0	21.4	9.3	7.4	0	0
	April	720	100.0%	2.5	2.1	24.3	15.7	5.6	4.5	0	0
	May	744	100.0%	1.7	1.4	19.5	10.8	5.1	3.8	0	0
	June	682	94.7%	1.6	1.3	15.3	13.3	3.6	2.8	0	0
	July	744	100.0%	1.2	1.0	14.3	6.6	2.8	2.2	0	0
	August	713	95.8%	1.6	1.3	14.2	7.8	3.1	2.4	0	0
	September	707	98.2%	1.6	1.3	16.5	8.0	3.7	2.9	0	0
	October	740	99.5%	1.4	1.2	14.3	13.1	5.6	4.0	0	0
	November	718	99.7%	2.0	1.9	20.7	14.5	7.4	6.7	0	0
	December	744	100.0%	3.2	2.8	40.2	24.9	11.0	8.3	0	0
Annual		8660	98.9%	2.3	2.0	53.6	38.1	17.0	13.6	0	0
2023	January	744	100.0%	6.6	5.5	59.0	33.5	21.0	15.7	0	0
	February	667	99.3%	4.0	3.4	39.6	22.8	11.7	8.8	0	0
	March	744	100.0%	4.4	3.6	47.7	31.2	9.6	7.7	0	0
	April	720	100.0%	2.9	2.5	29.6	20.9	6.9	6.0	0	0
	May	742	99.7%	1.4	1.2	15.8	11.2	3.3	2.9	0	0
	June	683	94.9%	2.2	1.9	14.5	11.8	4.9	4.6	0	0
	July	741	99.6%	1.8	1.6	65.2	19.5	4.3	2.8	0	0
	August	744	100.0%	1.4	1.2	11.9	10.6	3.5	3.0	0	0
	September	702	97.5%	1.8	1.5	56.0	21.0	5.0	3.0	0	0
	October	744	100.0%	2.3	1.8	23.7	15.1	9.6	5.9	0	0
	November	717	99.6%	2.6	2.2	41.6	23.9	14.7	9.5	0	0
	December	744	100.0%	2.6	2.4	33.7	29.6	10.9	9.5	0	0
Annual		8692	99.2%	2.8	2.4	65.2	33.5	21.0	15.7	0	0

Observations in ppb

FIGURE 4.3.1.3 - DOG PARK ANNUAL NO_X / NO_2 CONCENTRATIONS



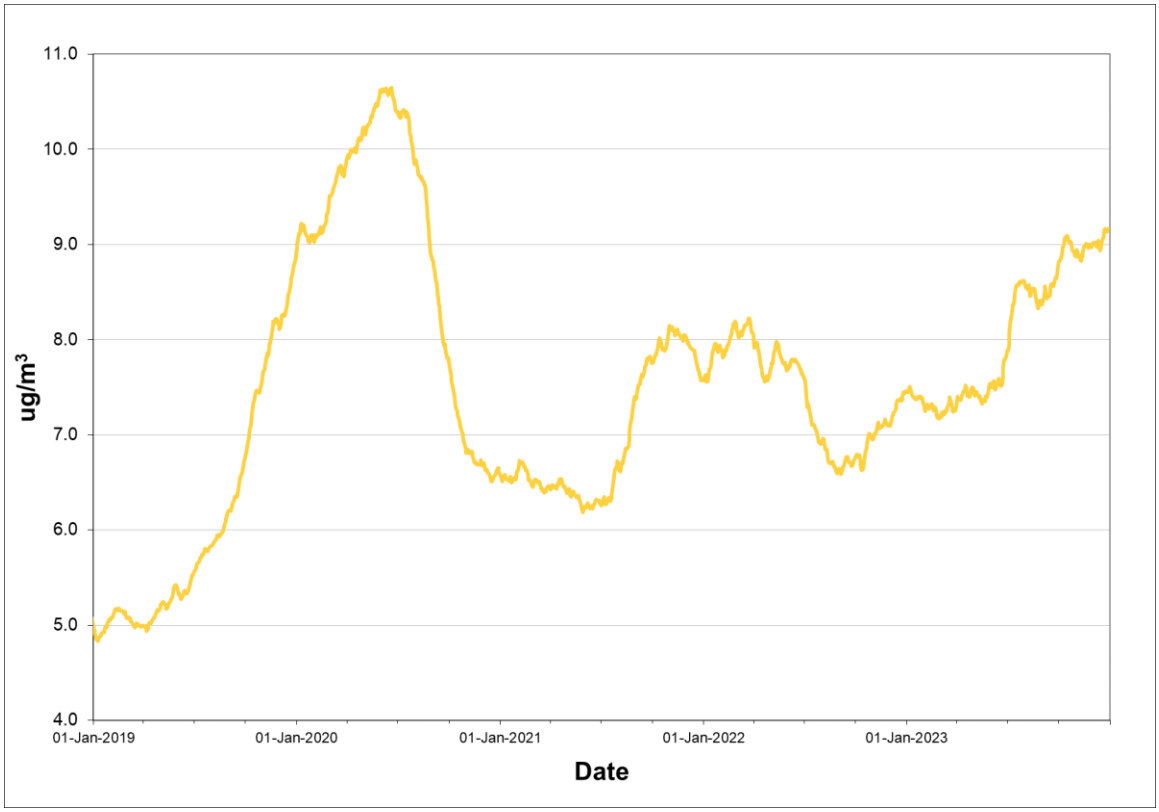
Rolling annual average of hourly concentrations

TABLE 4.3.1.4 - DOG PARK TPM SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	744	100.0%	9.6	68.8	0
	February	672	100.0%	10.0	78.8	0
	March	744	100.0%	8.4	52.5	0
	April	720	100.0%	7.9	84.5	0
	May	744	100.0%	11.5	258.9	34
	June	581	80.7%	9.1	54.8	0
	July	728	97.8%	5.8	30.4	0
	August	679	91.3%	8.4	43.5	0
	September	696	96.7%	5.5	35.2	0
	October	744	100.0%	5.5	22.8	0
	November	720	100.0%	5.5	52.3	0
	December	637	85.6%	5.6	43.0	0
Annual		8409	96.0%	7.4	258.9	34
2023	January	744	100.0%	7.9	36.8	0
	February	672	100.0%	7.6	137.4	10
	March	744	100.0%	10.2	73.5	0
	April	720	100.0%	10.7	53.5	0
	May	667	89.7%	12.8	158.4	9
	June	591	82.1%	17.1	228.0	57
	July	744	100.0%	15.5	198.5	51
	August	722	97.0%	6.2	39.3	0
	September	671	93.2%	10.0	198.0	25
	October	711	95.6%	5.9	37.4	0
	November	593	82.4%	5.9	77.8	0
	December	744	100.0%	7.4	31.6	0
Annual		8323	95.0%	9.2	228.0	152

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 levels of SO_2, NO_x / NO_2, $PM_{2.5}$, PM_{10}, TPM and O_3 on a continuous basis. In September 2021, the $PM_{2.5}$ BAM was replaced with a Teledyne API T640 capable of measuring both $PM_{2.5}$ and PM_{10}. This replacement was made for consistency with other NAPS stations. For SO_2 and NO_x / NO_2, the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$ there were two hundred and sixty six hourly exceedances of the 24-hour air quality standard, and for PM_{10} there were six hundred and forty eight hourly exceedances of the 24-hour air quality standard. For TPM there were four hundred and sixty hourly exceedances of the 24-hour air quality standard, while for O_3 there were one hundred and forty exceedances of the 8-hour air quality standard, while noting that the O_3 monitor was offline for the first thirty nine days of the year due to operational issues. The $PM_{2.5}$, PM_{10} and TPM exceedances were all related to either wildfire smoke or localized fugitive emissions. In the case of fugitive emissions, there were numerous days where the atmospheric conditions were conducive to surface dust lift-off from sources in the general area. Table 4.3.2 highlights the temporal occurrence of the particulate exceedances. The O_3 exceedances are due to long-range transport

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 2023. 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 2023.

TABLE 4.3.2 – HUDSON DRIVE (FIREHALL) PARTICULATE EXCEEDANCES 2023

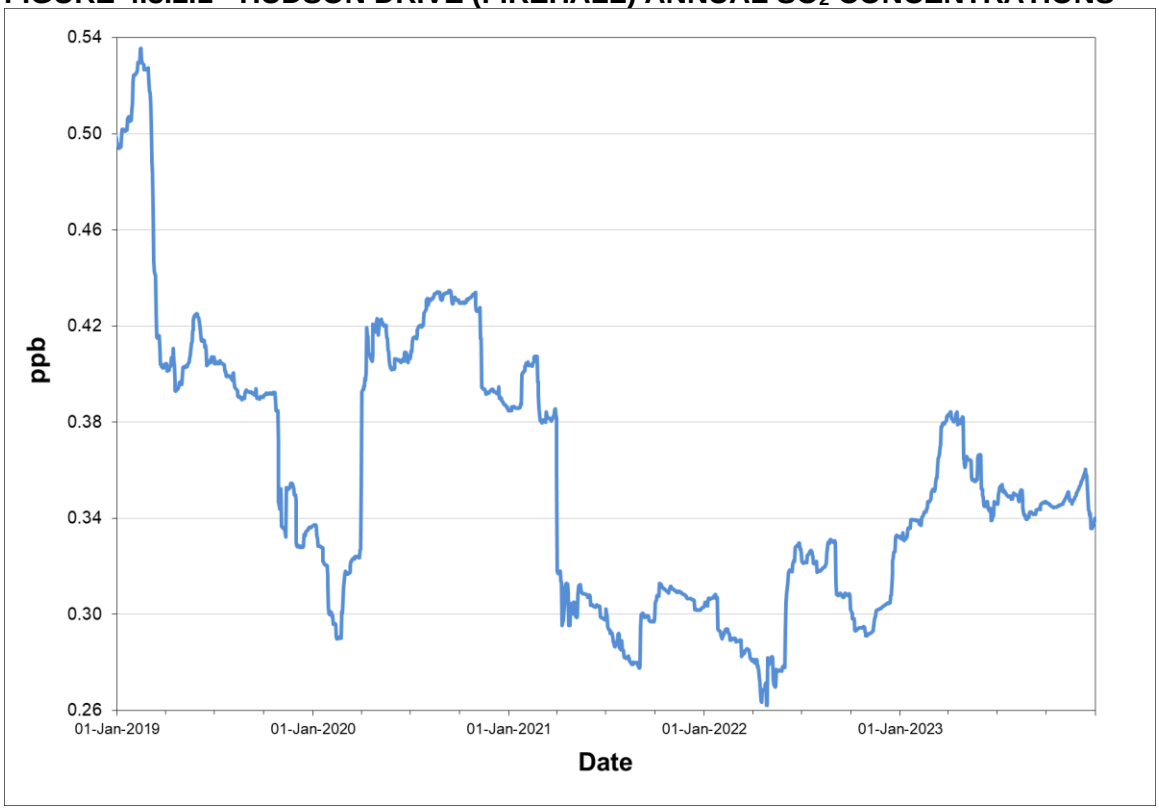
Pollutant	Start Time	End Time	Number of Hours
$PM_{2.5}$	June 13, 20:00	June 14, 21:00	26
	June 21, 07:00	June 25, 03:00	93
	June 27, 12:00	June 27, 13:00	2
	July 7, 05:00	July 7, 22:00	18
	July 12, 21:00	July 14, 13:00	41
	July 15, 16:00	July 17, 03:00	36
	September 4, 08:00	September 5, 01:00	18
	September 5, 19:00	September 7, 02:00	32
PM_{10}	March 12, 06:00	March 14, 08:00	51
	March 17, 07:00	March 18, 04:00	22
	March 30, 05:00	March 31, 05:00	25
	March 31, 21:00	April 2, 07:00	35
	April 6, 04:00	April 7, 03:00	24
	April 22, 11:00	April 27, 15:00	125
	April 28, 12:00	May 2, 08:00	93
	May 11, 21:00	May 12, 22:00	26
	May 31, 21:00	June 1, 06:00	10
	June 1, 13:00	June 2, 13:00	25
	June 5, 11:00	June 6, 08:00	22
	June 13, 21:00	June 14, 18:00	22
	June 21, 15:00	June 25, 02:00	84
	July 12, 22:00	July 14, 07:00	34
	July 15, 17:00	July 16, 23:00	31
	September 6, 05:00	September 6, 23:00	19
TPM	March 12, 07:00	March 14, 09:00	51
	March 17, 09:00	March 18, 09:00	25
	March 18, 20:00	March 18, 22:00	3
	March 30, 05:00	March 31, 05:00	25
	April 1, 05:00	April 2, 06:00	26
	April 6, 06:00	April 7, 01:00	20
	April 22, 13:00	April 24, 11:00	47
	April 25, 06:00	April 27, 14:00	57
	April 28, 18:00	May 2, 12:00	91
	May 12, 12:00	May 12, 23:00	12
	May 24, 04:00	May 24, 12:00	9
	June 1, 14:00	June 3, 10:00	45
	June 5, 15:00	June 5, 17:00	3
	June 22, 13:00	June 22, 13:00	1
	June 22, 18:00	June 24, 14:00	45

TABLE 4.3.2.1 - HUDSON DRIVE (FIREHALL) SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	742	99.7%	0.2	9.2	4.4	1.2	0	0	0
	February	668	99.4%	0.2	4.1	2.9	0.7	0	0	0
	March	741	99.6%	0.2	3.1	1.5	0.5	0	0	0
	April	720	100.0%	0.6	36.9	27.1	7.1	0	0	0
	May	744	100.0%	0.3	10.6	7.8	2.6	0	0	0
	June	699	97.1%	0.8	32.8	20.8	5.9	0	0	0
	July	744	100.0%	0.2	6.7	4.8	1.2	0	0	0
	August	645	86.7%	0.3	11.2	6.5	1.6	0	0	0
	September	707	98.2%	0.2	2.9	1.9	0.6	0	0	0
	October	740	99.5%	0.2	0.5	0.3	0.2	0	0	0
	November	718	99.7%	0.3	9.0	4.7	1.0	0	0	0
	December	744	100.0%	0.5	24.5	10.0	2.2	0	0	0
Annual		8612	98.3%	0.3	36.9	27.1	7.1	0	0	0
2023	January	744	100.0%	0.3	8.4	6.4	1.5	0	0	0
	February	656	97.6%	0.4	14.9	6.5	1.3	0	0	0
	March	744	100.0%	0.6	11.2	8.8	2.9	0	0	0
	April	720	100.0%	0.3	7.5	2.9	1.1	0	0	0
	May	738	99.2%	0.3	16.6	10.1	2.5	0	0	0
	June	655	91.0%	0.6	21.9	14.5	4.0	0	0	0
	July	742	99.7%	0.3	9.3	4.9	1.5	0	0	0
	August	744	100.0%	0.2	8.7	4.8	1.5	0	0	0
	September	702	97.5%	0.2	7.9	4.7	1.2	0	0	0
	October	744	100.0%	0.2	2.5	1.1	0.3	0	0	0
	November	717	99.6%	0.2	3.7	2.2	0.6	0	0	0
	December	744	100.0%	0.1	2.7	1.2	0.3	0	0	0
Annual		8650	98.7%	0.3	21.9	14.5	4.0	0	0	0

Observations in ppb

FIGURE 4.3.2.1 - HUDSON DRIVE (FIREHALL) ANNUAL SO_2 CONCENTRATIONS



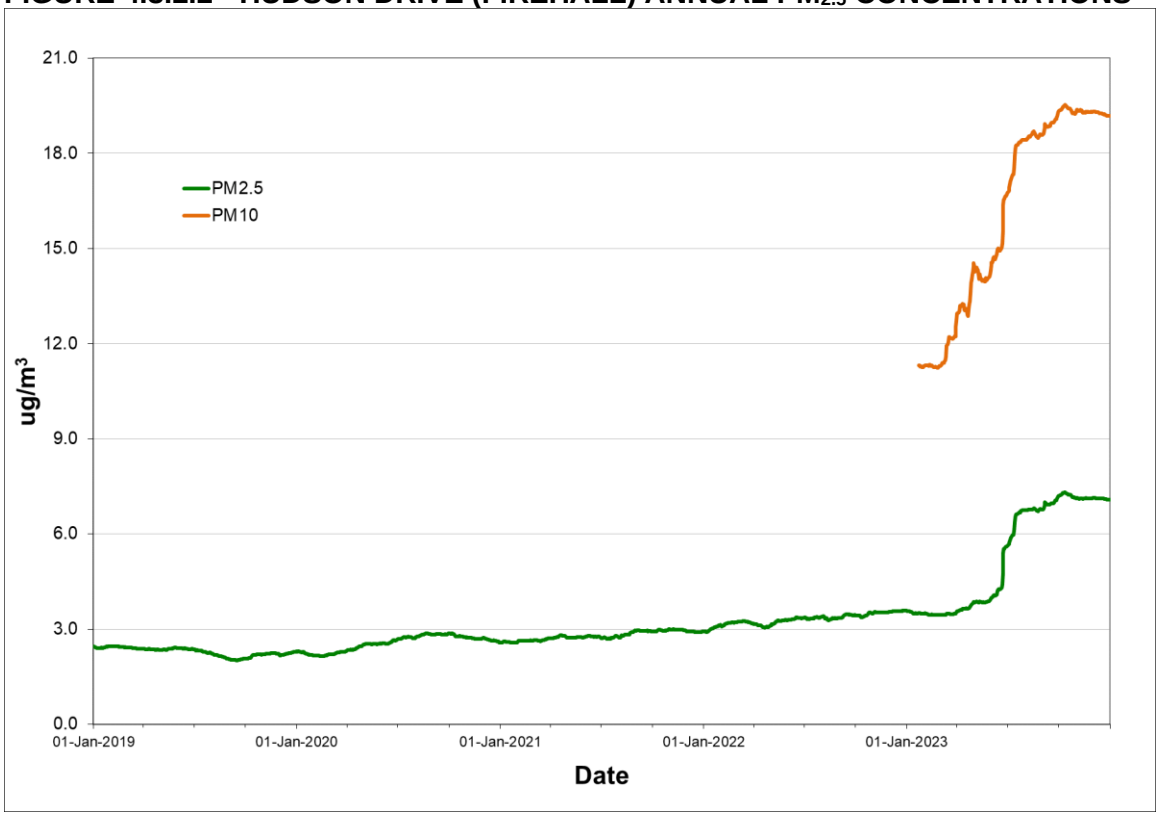
Rolling annual average of hourly concentrations

TABLE 4.3.2.2 - HUDSON DRIVE (FIREHALL) $PM_{2.5}$ / PM_{10} SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average $PM_{2.5}$	Average PM_{10}	24-Hour Maximum $PM_{2.5}$	24-Hour Maximum PM_{10}	Regulatory Exceedances $PM_{2.5}$ (>25)	Regulatory Exceedances PM_{10} (>50)
2022	January	644	86.6%	4.7	10.2	9.7	17.0	0	0
	February	672	100.0%	4.3	11.3	9.5	15.1	0	0
	March	744	100.0%	2.9	8.6	7.0	36.5	0	0
	April	720	100.0%	2.8	19.4	7.5	74.8	0	70
	May	744	100.0%	4.0	24.4	13.2	106.0	0	86
	June	698	96.9%	4.0	13.8	8.9	35.1	0	0
	July	744	100.0%	4.0	8.6	12.7	21.2	0	0
	August	744	100.0%	4.9	11.2	12.4	28.0	0	0
	September	696	96.7%	3.1	7.3	12.0	25.1	0	0
	October	744	100.0%	3.7	8.5	16.8	30.1	0	0
	November	720	100.0%	2.2	6.3	9.2	19.4	0	0
	December	744	100.0%	2.5	6.3	6.7	13.4	0	0
Annual		8614	98.3%	3.6	11.3	16.8	106.0	0	156
2023	January	744	100.0%	3.6	9.9	11.5	35.7	0	0
	February	642	95.5%	3.8	11.3	6.0	22.4	0	0
	March	617	82.9%	3.9	27.8	11.7	136.3	0	101
	April	700	97.2%	6.6	40.7	16.2	135.5	0	241
	May	744	100.0%	5.4	23.0	18.4	87.6	0	62
	June	698	96.9%	24.3	42.3	252.7	295.9	121	160
	July	744	100.0%	16.9	27.8	121.4	176.2	95	65
	August	744	100.0%	5.1	12.9	21.2	34.4	0	0
	September	695	96.5%	8.4	16.1	35.3	56.0	50	19
	October	744	100.0%	2.9	7.7	15.0	30.6	0	0
	November	720	100.0%	2.1	6.9	6.1	34.7	0	0
	December	744	100.0%	2.0	5.0	4.4	8.9	0	0
Annual		8536	97.4%	7.1	19.1	252.7	295.9	266	648

Observations in $\mu g/m^3$

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



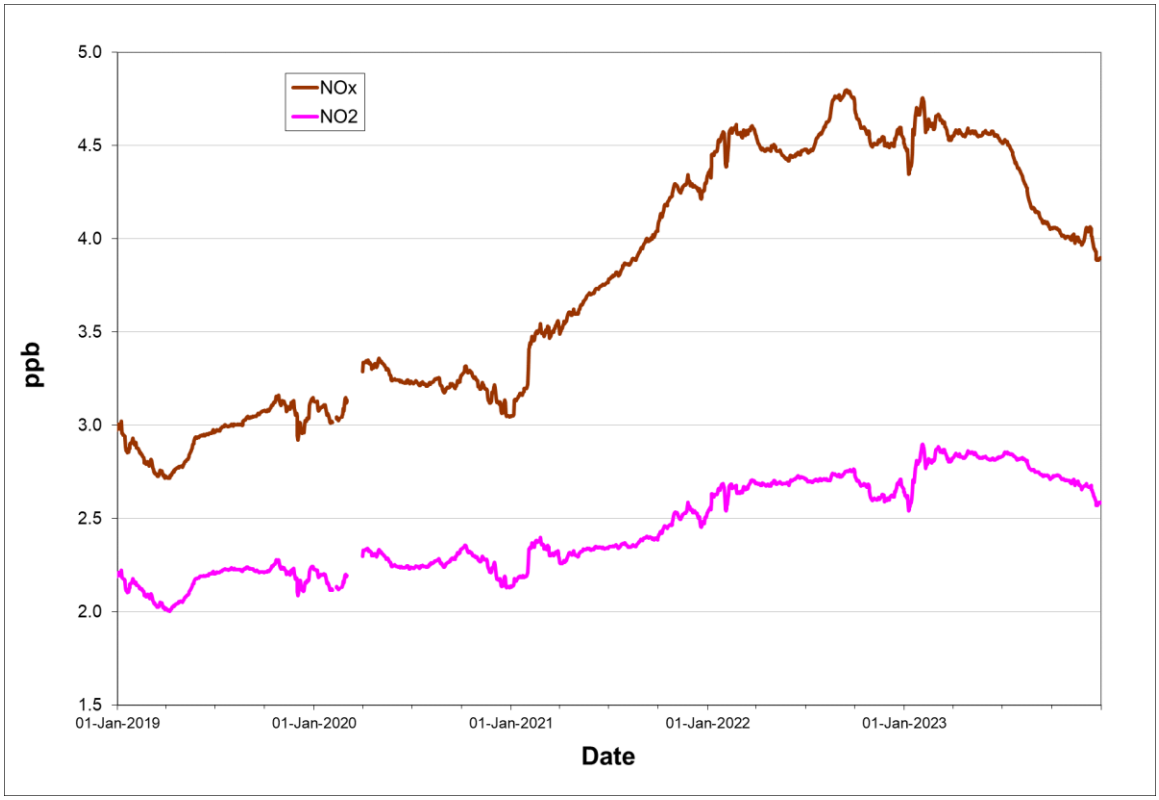
Rolling annual average of hourly concentrations

TABLE 4.3.2.3 - HUDSON DRIVE (FIREHALL) NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	742	99.7%	7.6	4.6	118.5	42.1	26.9	17.2	0	0
	February	657	97.8%	7.6	4.4	82.4	35.7	24.9	17.0	0	0
	March	741	99.6%	5.2	3.4	74.6	37.7	14.9	10.4	0	0
	April	720	100.0%	3.1	2.2	50.3	24.6	11.4	6.5	0	0
	May	743	99.9%	2.0	1.6	27.0	17.9	5.3	3.9	0	0
	June	700	97.2%	3.6	1.9	38.4	19.4	7.9	4.7	0	0
	July	687	92.3%	4.1	1.6	23.5	12.3	6.7	3.4	0	0
	August	741	99.6%	5.5	2.1	44.3	17.3	11.4	6.3	0	0
	September	706	98.1%	3.7	2.0	41.1	12.9	7.5	4.4	0	0
	October	736	98.9%	2.9	1.6	36.3	12.9	7.7	4.5	0	0
	November	714	99.2%	3.8	2.8	50.6	23.8	11.0	7.5	0	0
	December	743	99.9%	5.1	3.6	53.1	28.6	17.0	10.5	0	0
Annual		8630	98.5%	4.5	2.6	118.5	42.1	26.9	17.2	0	0
2023	January	742	99.7%	9.9	7.0	129.5	45.2	50.0	25.6	0	0
	February	652	97.0%	6.9	4.7	222.3	31.8	20.2	11.7	0	0
	March	744	100.0%	4.0	2.8	41.1	24.9	10.0	6.7	0	0
	April	720	100.0%	3.5	2.6	34.9	26.8	10.2	7.6	0	0
	May	738	99.2%	2.1	1.3	36.5	11.9	5.2	4.2	0	0
	June	703	97.6%	2.9	1.9	52.8	14.0	6.0	4.4	0	0
	July	742	99.7%	2.5	1.5	80.0	11.9	5.9	3.0	0	0
	August	744	100.0%	2.8	1.3	48.3	15.6	5.0	2.2	0	0
	September	702	97.5%	2.6	1.6	93.1	30.9	8.0	3.5	0	0
	October	744	100.0%	2.4	1.5	59.9	10.8	5.8	4.0	0	0
	November	716	99.4%	3.6	2.4	90.8	26.7	11.9	7.9	0	0
	December	737	99.1%	4.0	2.9	110.0	24.2	10.5	9.8	0	0
Annual		8684	99.1%	3.9	2.6	222.3	45.2	50.0	25.6	0	0

Observations in ppb

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



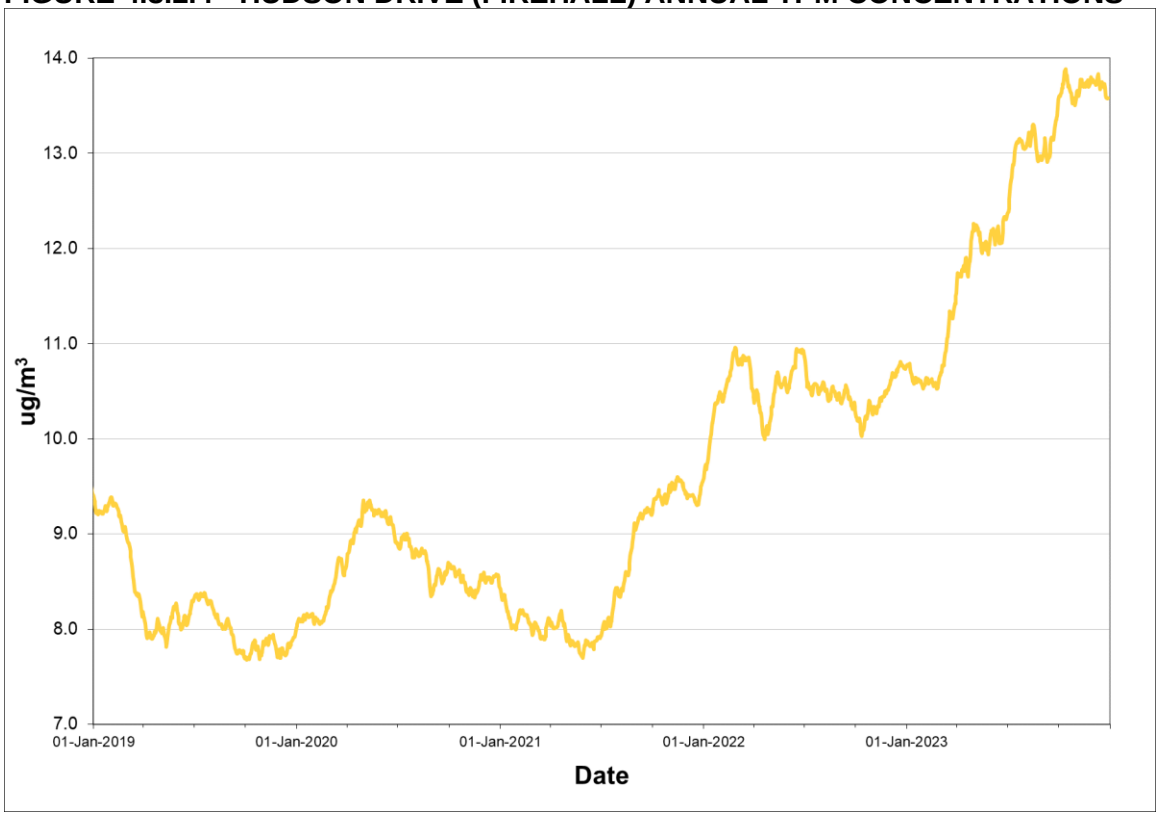
Rolling annual average of hourly concentrations

TABLE 4.3.2.4 - HUDSON DRIVE (FIREHALL) TPM SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	744	100.0%	12.2	49.4	0
	February	672	100.0%	11.5	72.6	0
	March	744	100.0%	9.3	97.6	0
	April	720	100.0%	17.1	177.2	83
	May	744	100.0%	22.0	256.6	91
	June	551	76.5%	21.1	127.1	9
	July	744	100.0%	9.7	38.1	0
	August	744	100.0%	11.1	67.3	0
	September	696	96.7%	6.0	47.8	0
	October	744	100.0%	7.7	45.5	0
	November	720	100.0%	6.8	76.7	0
	December	714	96.0%	7.7	57.0	0
Annual		8537	97.5%	10.8	256.6	183
2023	January	664	89.2%	9.6	72.9	0
	February	654	97.3%	12.7	114.1	0
	March	718	96.5%	23.7	262.9	104
	April	720	100.0%	33.7	245.0	204
	May	594	79.8%	23.1	207.3	58
	June	697	96.8%	23.3	241.9	94
	July	744	100.0%	17.9	106.3	0
	August	705	94.8%	9.9	59.0	0
	September	693	96.3%	10.7	81.3	0
	October	701	94.2%	7.3	45.7	0
	November	615	85.4%	7.6	91.0	0
	December	744	100.0%	6.5	29.7	0
Annual		8249	94.2%	13.5	262.9	460

Observations in µg/m³

FIGURE 4.3.2.4 - HUDSON DRIVE (FIREHALL) ANNUAL TPM CONCENTRATIONS



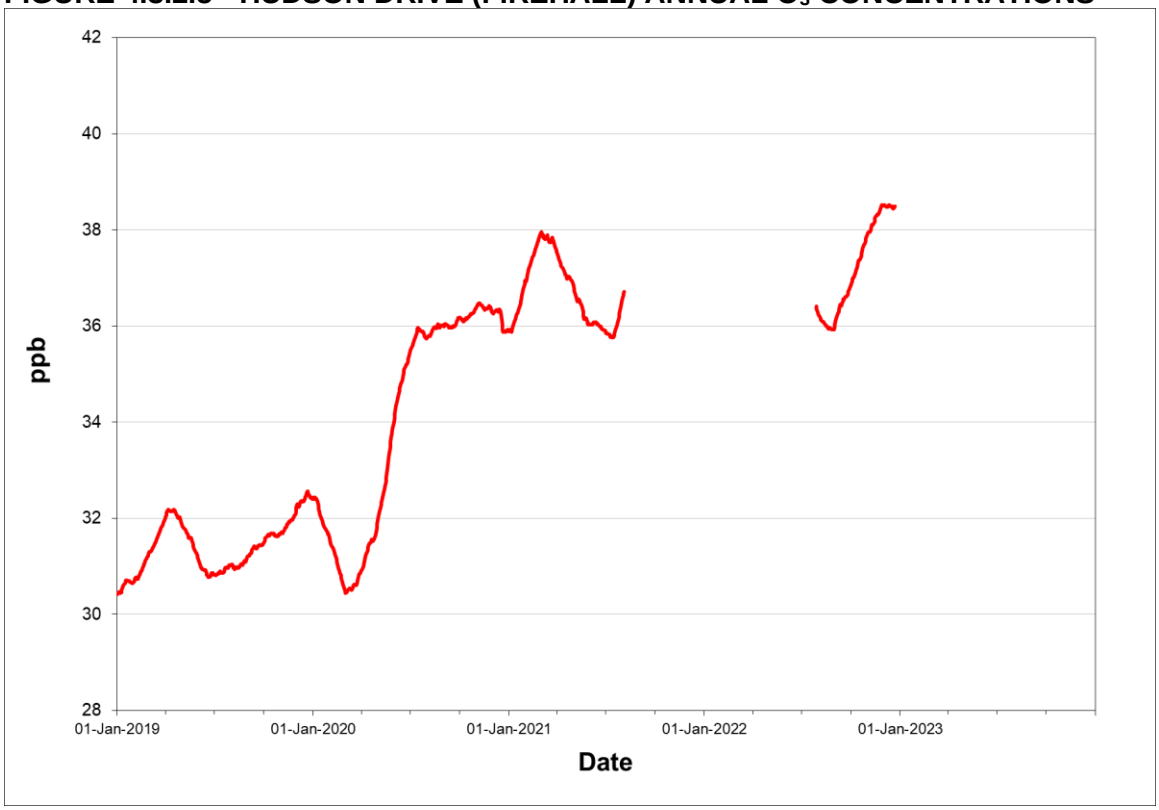
Rolling annual average of hourly concentrations

TABLE 4.3.2.5 - HUDSON DRIVE (FIREHALL) O_3 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>82)	Regulatory Exceedances 8-Hour (>44)
2022	January	742	99.7%	37.4	51.9	50.8	0	15
	February	672	100.0%	41.2	54.4	53.1	0	37
	March	739	99.3%	41.0	55.8	53.7	0	44
	April	720	100.0%	46.4	59.1	55.2	0	62
	May	744	100.0%	46.4	67.9	65.5	0	57
	June	704	97.8%	35.3	63.6	57.6	0	13
	July	744	100.0%	28.9	53.0	44.7	0	1
	August	743	99.9%	32.4	61.3	56.4	0	6
	September	707	98.2%	33.4	54.4	44.9	0	1
	October	744	100.0%	42.6	63.0	58.3	0	35
	November	387	53.8%	40.7	59.6	51.5	0	14
	December	0	0.0%					
Annual		7646	87.3%		67.9	65.5	0	285
2023	January	0	0.0%					
	February	492	73.2%	33.2	48.7	44.0	0	0
	March	744	100.0%	40.8	52.9	49.3	0	35
	April	720	100.0%	41.8	63.3	61.9	0	50
	May	742	99.7%	38.8	68.8	59.8	0	21
	June	704	97.8%	32.1	80.3	62.2	0	10
	July	744	100.0%	32.3	59.5	50.0	0	8
	August	744	100.0%	29.3	51.6	42.9	0	0
	September	702	97.5%	23.4	47.9	40.3	0	0
	October	632	84.9%	27.9	44.1	39.8	0	0
	November	719	99.9%	33.4	47.0	46.2	0	1
	December	744	100.0%	37.0	50.4	49.7	0	15
Annual		7687	87.8%	33.8	80.3	62.2	0	140

Observations in ppb

FIGURE 4.3.2.5 - HUDSON DRIVE (FIREHALL) ANNUAL O_3 CONCENTRATIONS

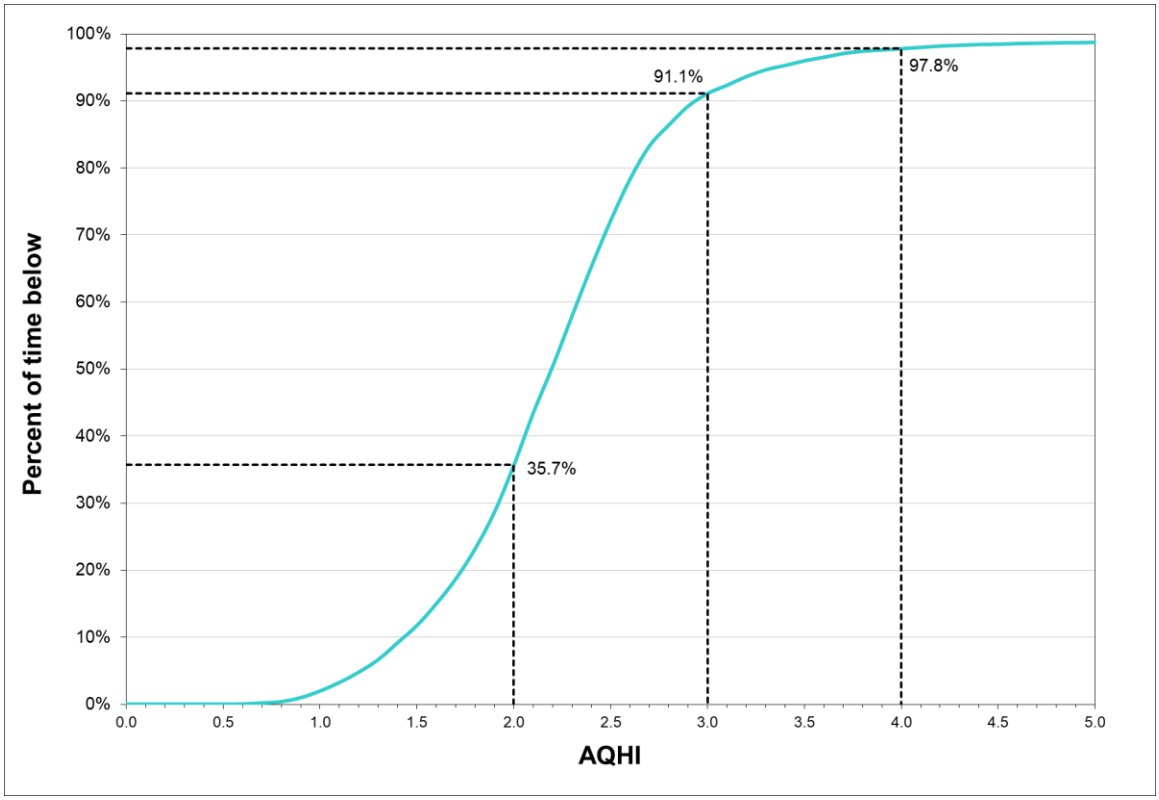


Rolling annual average of hourly concentrations

TABLE 4.3.2.6 - HUDSON DRIVE (FIREHALL) AQHI SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2022	January	658	88.4%	2.6	4.2
	February	657	97.8%	2.7	4.4
	March	738	99.2%	2.6	3.7
	April	720	100.0%	2.7	4.2
	May	744	100.0%	2.7	4.3
	June	695	96.5%	2.2	4.0
	July	688	92.5%	1.9	3.1
	August	742	99.7%	2.1	3.8
	September	707	98.2%	2.1	3.2
	October	736	98.9%	2.5	4.0
	November	387	53.8%	2.4	3.3
	December	0			
Annual		7472	85.3%	2.4	4.4
2023	January	0	0.0%		
	February	491	73.1%	2.2	3.2
	March	628	84.4%	2.5	3.7
	April	711	98.8%	2.7	4.9
	May	738	99.2%	2.4	4.9
	June	702	97.5%	3.0	20.5
	July	742	99.7%	2.6	11.9
	August	744	100.0%	1.9	3.6
	September	702	97.5%	1.7	5.3
	October	632	84.9%	1.7	2.6
	November	716	99.4%	2.0	2.9
	December	739	99.3%	2.3	2.9
Annual		7545	86.1%	2.3	20.5

FIGURE 4.3.2.6 - HUDSON DRIVE (FIREHALL) AQHI FREQUENCY DISTRIBUTION 2023



e.g. 91.1% of the time the AQHI recorded was below 3.0

4.3.3 Smokey Mountain II

The Smokey Mountain II station monitors the levels of SO_2, NO_x / NO_2, $PM_{2.5}$ and TPM on a continuous basis. For SO_2 and NO_x / NO_2, the air quality standards were not exceeded on any occasion in 2023. For $PM_{2.5}$ there were two hundred and thirty one hourly exceedances of the 24-hour air quality standard, while for TPM there were one hundred and thirty eight hourly exceedances of the 24-hour air quality standard. In all cases the exceedances were related to either wildfire smoke or localized fugitive emissions including activities related to mining from Moss Pit. Table 4.3.3 highlights the temporal occurrence of the exceedances.

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 – SMOKEY MOUNTAIN II PARTICULATE EXCEEDANCES 2023

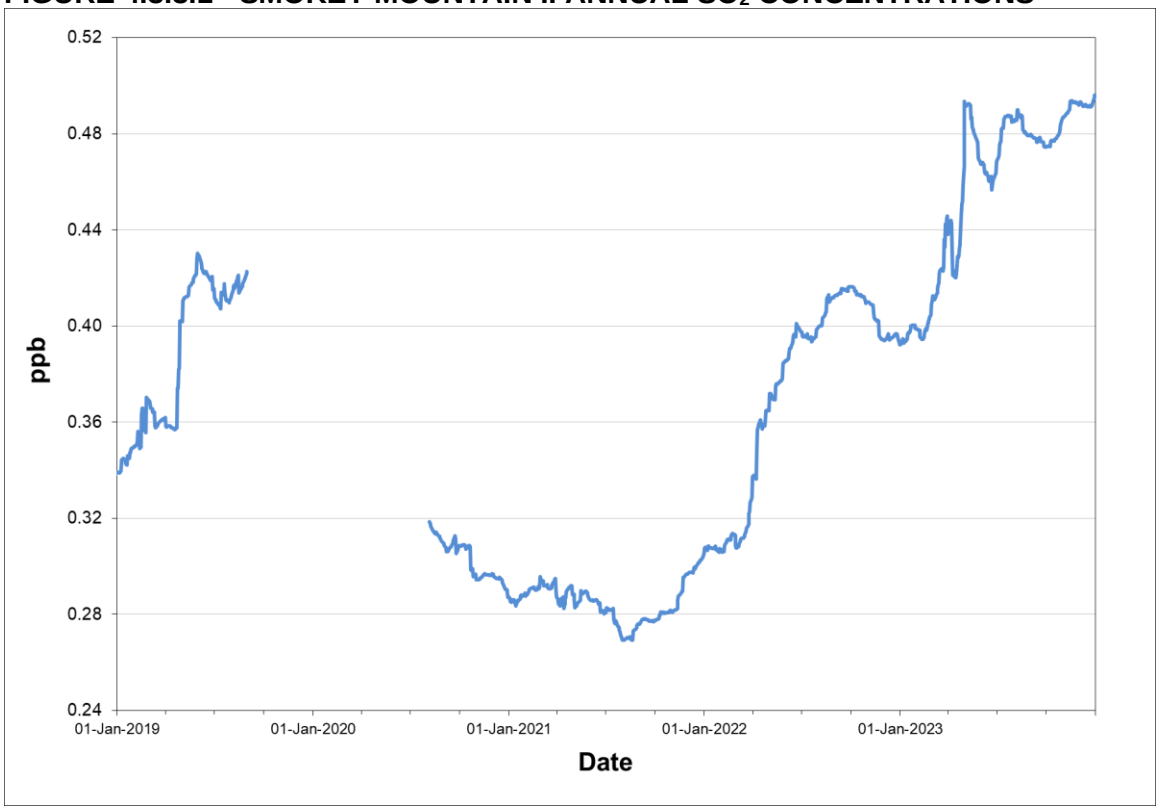
Pollutant	Start Time	End Time	Number of Hours
$PM_{2.5}$	February 04, 06:00	February 05, 05:00	24
	February 9, 16:00	February 10, 05:00	14
	February 10, 07:00	February 10, 07:00	1
	February 10, 11:00	February 11, 10:00	24
	June 21, 18:00	June 25, 02:00	81
	July 12, 22:00	July 14, 06:00	33
	July 15, 17:00	July 16, 22:00	30
	September 6, 01:00	September 7, 00:00	24
TPM	February 03, 23:00	February 04, 22:00	24
	March 5, 16:00	March 6, 05:00	14
	May 31, 04:00	May 31, 16:00	13
	June 21, 11:00	June 24, 15:00	77
	October 31, 16:00	November 1, 02:00	10

TABLE 4.3.3.1 - SMOKEY MOUNTAIN II SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	744	100.0%	0.3	3.7	2.9	0.9	0	0	0
	February	667	99.3%	0.3	11.8	7.3	1.3	0	0	0
	March	739	99.3%	0.6	18.9	7.5	3.6	0	0	0
	April	719	99.9%	0.7	17.9	12.2	4.6	0	0	0
	May	744	100.0%	0.6	17.7	12.3	2.7	0	0	0
	June	700	97.2%	0.4	12.6	6.2	2.5	0	0	0
	July	744	100.0%	0.3	13.8	5.5	1.2	0	0	0
	August	743	99.9%	0.4	11.1	10.0	2.0	0	0	0
	September	693	96.3%	0.4	8.9	4.7	1.1	0	0	0
	October	739	99.3%	0.2	0.9	0.4	0.3	0	0	0
	November	718	99.7%	0.2	4.7	2.1	0.5	0	0	0
	December	744	100.0%	0.3	0.6	0.5	0.4	0	0	0
Annual		8694	99.2%	0.4	18.9	12.3	4.6	0	0	0
2023	January	744	100.0%	0.4	7.8	4.3	1.1	0	0	0
	February	664	98.8%	0.5	7.6	5.9	1.9	0	0	0
	March	744	100.0%	1.0	22.3	13.0	4.9	0	0	0
	April	720	100.0%	1.1	35.2	21.8	3.7	0	0	0
	May	666	89.5%	0.6	39.1	30.2	9.9	0	0	0
	June	703	97.6%	0.4	8.8	6.5	1.8	0	0	0
	July	716	96.2%	0.5	12.0	5.8	2.0	0	0	0
	August	744	100.0%	0.4	11.7	7.5	1.8	0	0	0
	September	634	88.1%	0.3	0.5	0.5	0.4	0	0	0
	October	744	100.0%	0.3	9.9	5.9	1.0	0	0	0
	November	717	99.6%	0.3	7.5	5.2	1.4	0	0	0
	December	744	100.0%	0.3	4.6	2.1	0.5	0	0	0
Annual		8540	97.5%	0.5	39.1	30.2	9.9	0	0	0

Observations in ppb

FIGURE 4.3.3.1 - SMOKEY MOUNTAIN II ANNUAL SO_2 CONCENTRATIONS



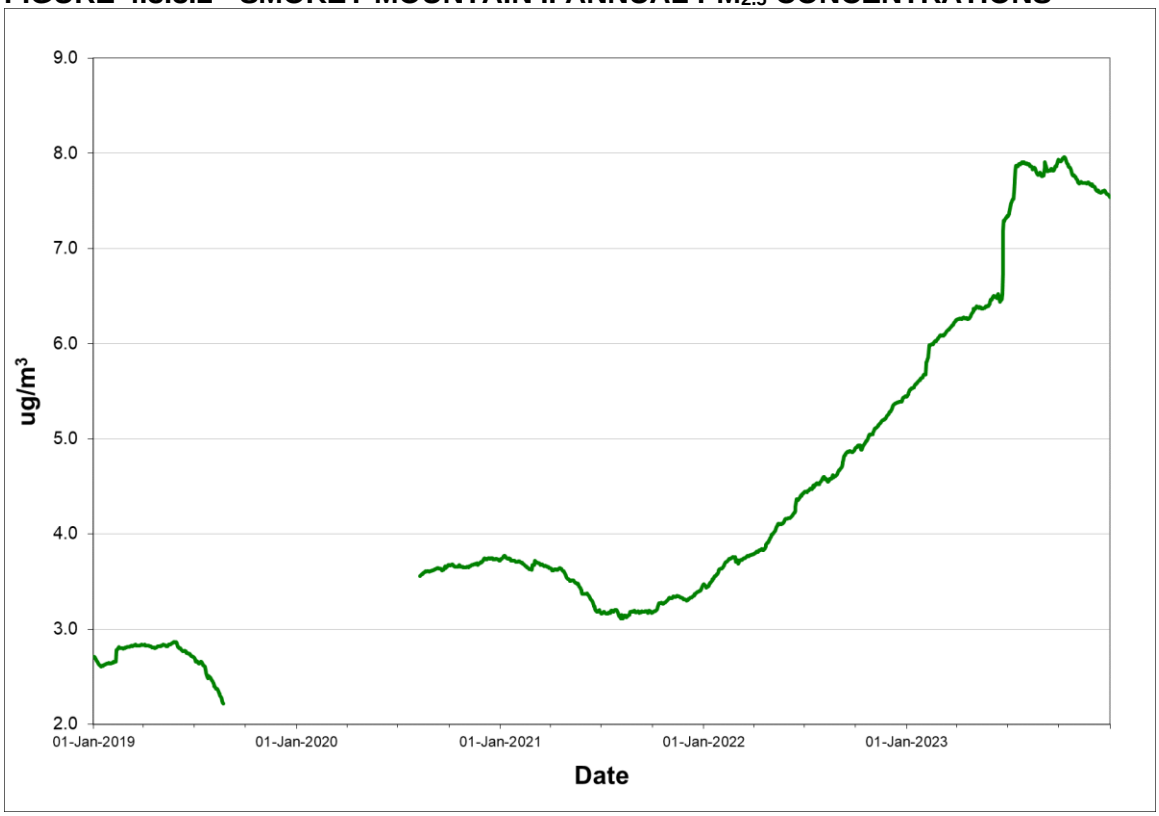
Rolling annual average of hourly concentrations

TABLE 4.3.3.2 - SMOKEY MOUNTAIN II $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	4.2	7.2	0
	February	672	100.0%	4.1	7.5	0
	March	744	100.0%	4.7	7.3	0
	April	720	100.0%	5.1	7.7	0
	May	744	100.0%	5.2	9.5	0
	June	583	81.0%	6.2	21.0	0
	July	720	96.8%	5.0	11.2	0
	August	744	100.0%	6.2	11.1	0
	September	665	92.4%	6.7	15.2	0
	October	744	100.0%	6.6	14.8	0
	November	720	100.0%	5.4	11.1	0
	December	711	95.6%	6.1	11.6	0
Annual		8511	97.2%	5.4	21.0	0
2023	January	664	89.2%	7.0	11.1	0
	February	672	100.0%	9.1	48.4	63
	March	744	100.0%	6.7	10.1	0
	April	720	100.0%	6.2	11.6	0
	May	635	85.3%	6.6	17.1	0
	June	696	96.7%	16.8	159.6	81
	July	701	94.2%	11.6	63.5	63
	August	744	100.0%	4.5	15.4	0
	September	623	86.5%	8.8	29.3	24
	October	744	100.0%	4.6	13.1	0
	November	629	87.4%	3.9	6.8	0
	December	744	100.0%	4.9	8.2	0
Annual		8316	94.9%	7.5	159.6	231

Observations in µg/m³

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



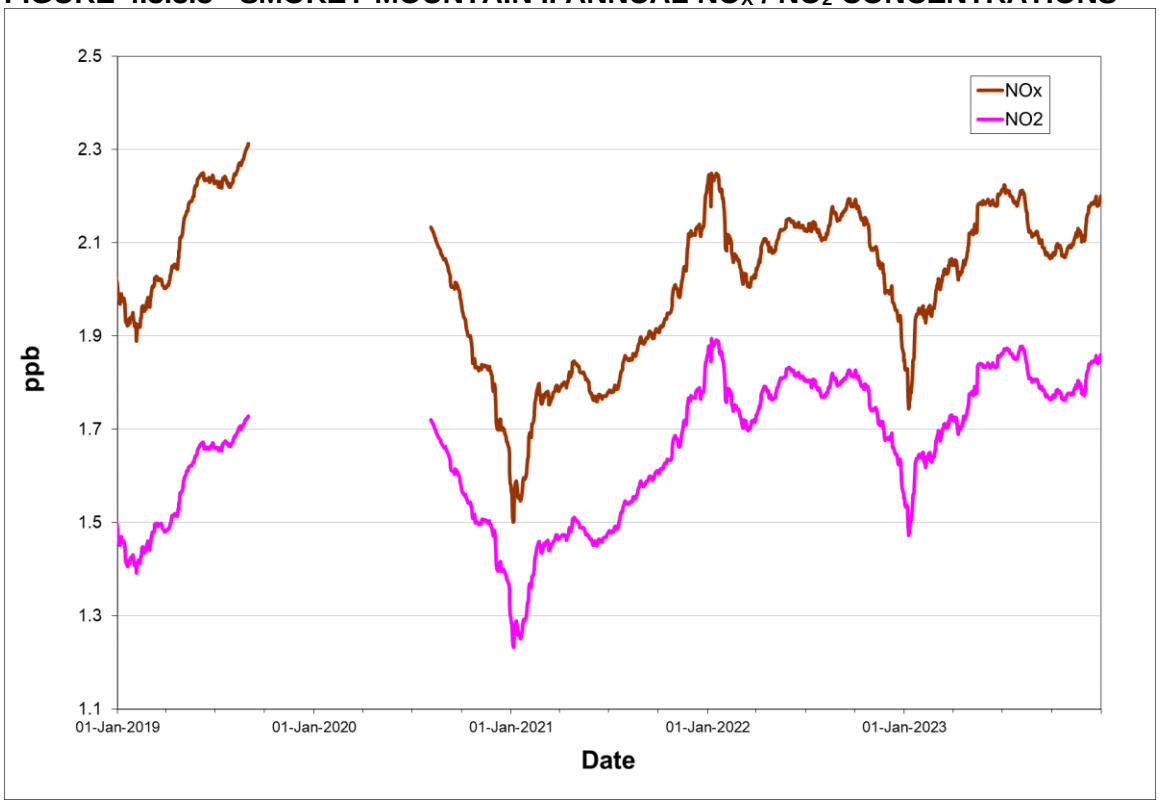
Rolling annual average of hourly concentrations

TABLE 4.3.3.3 - SMOKEY MOUNTAIN II NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	744	100.0%	2.9	2.4	66.6	37.9	22.4	15.8	0	0
	February	670	99.7%	2.2	1.9	26.2	18.8	9.5	8.1	0	0
	March	739	99.3%	2.1	1.7	55.3	33.0	9.8	7.7	0	0
	April	719	99.9%	2.3	2.0	30.4	25.2	7.8	6.5	0	0
	May	744	100.0%	1.6	1.5	15.7	15.7	5.1	4.4	0	0
	June	702	97.5%	1.1	0.9	18.3	12.7	3.6	2.7	0	0
	July	744	100.0%	1.6	1.1	136.9	23.8	6.6	3.0	0	0
	August	743	99.9%	2.1	1.7	33.0	18.3	4.9	4.1	0	0
	September	693	96.3%	1.8	1.4	62.3	14.7	5.6	3.0	0	0
	October	741	99.6%	1.3	1.1	29.1	21.6	6.2	5.0	0	0
	November	719	99.9%	1.8	1.7	23.3	21.7	5.5	5.3	0	0
	December	743	99.9%	1.3	1.2	35.4	22.6	6.4	5.2	0	0
Annual		8701	99.3%	1.8	1.6	136.9	37.9	22.4	15.8	0	0
2023	January	744	100.0%	4.2	3.5	54.5	33.0	20.1	14.3	0	0
	February	662	98.5%	2.8	2.3	25.2	22.1	8.2	7.6	0	0
	March	744	100.0%	2.7	2.2	35.4	20.6	6.3	5.3	0	0
	April	720	100.0%	2.8	2.4	37.4	27.7	7.4	6.6	0	0
	May	738	99.2%	2.7	2.4	63.3	45.2	21.0	20.8	0	0
	June	702	97.5%	1.4	1.3	20.6	16.4	6.0	5.9	0	0
	July	716	96.2%	1.3	1.1	22.7	15.6	3.9	2.9	0	0
	August	744	100.0%	1.3	1.0	19.3	11.8	4.1	2.9	0	0
	September	636	88.3%	1.2	0.9	24.4	9.6	3.1	2.5	0	0
	October	744	100.0%	1.5	1.2	27.5	20.1	5.3	3.9	0	0
	November	716	99.4%	2.0	1.7	27.1	21.8	6.4	5.9	0	0
	December	744	100.0%	2.5	2.2	20.7	16.5	8.3	7.9	0	0
Annual		8610	98.3%	2.2	1.9	63.3	45.2	21.0	20.8	0	0

Observations in ppb

FIGURE 4.3.3.3 - SMOKEY MOUNTAIN II ANNUAL NO_X / NO_2 CONCENTRATIONS



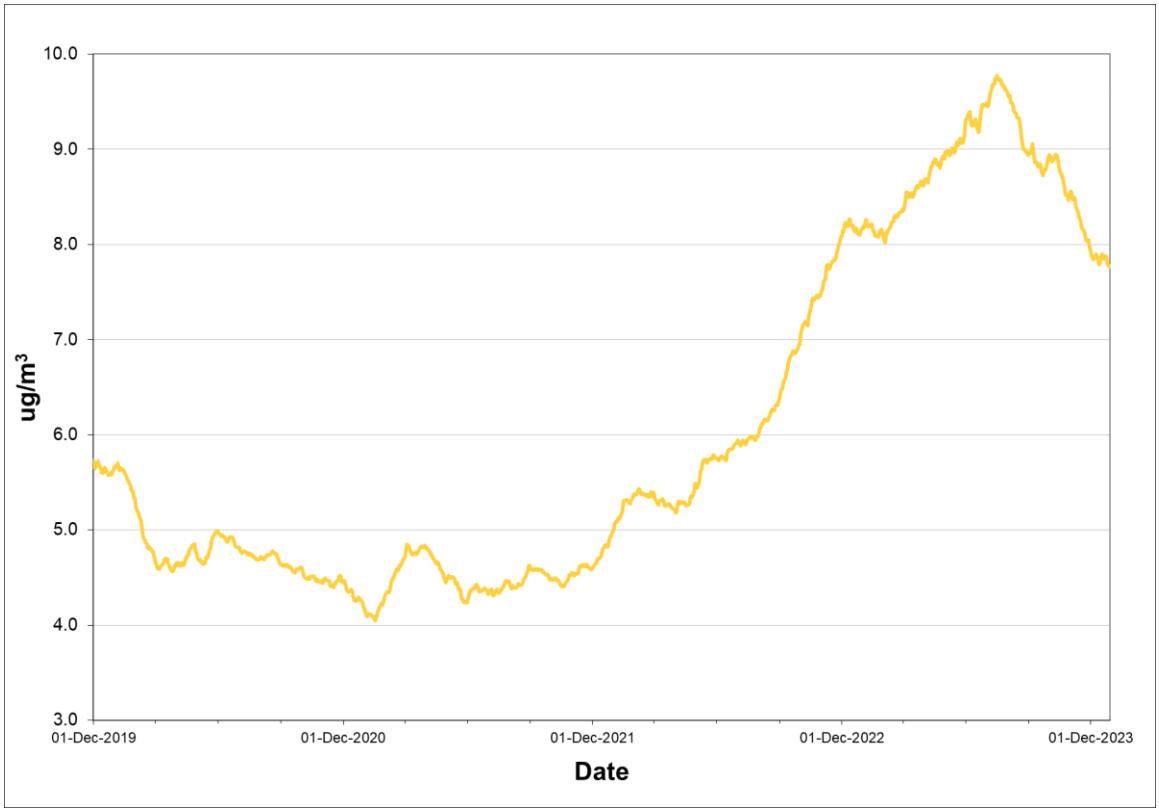
Rolling annual average of hourly concentrations

TABLE 4.3.3.4 - SMOKEY MOUNTAIN II TPM SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	744	100.0%	8.5	59.5	0
	February	672	100.0%	8.1	51.9	0
	March	696	93.5%	6.5	56.9	0
	April	720	100.0%	6.5	118.1	0
	May	744	100.0%	7.5	91.0	0
	June	572	79.4%	10.3	57.0	0
	July	744	100.0%	8.3	20.4	0
	August	744	100.0%	12.9	48.5	0
	September	669	92.9%	7.1	20.7	0
	October	744	100.0%	8.2	56.6	0
	November	620	86.1%	10.0	219.7	39
	December	711	95.6%	6.5	33.9	0
Annual		8380	95.7%	8.2	219.7	39
2023	January	666	89.5%	7.2	56.5	0
	February	672	100.0%	12.7	199.1	24
	March	744	100.0%	9.5	131.8	14
	April	677	94.0%	9.4	57.5	0
	May	635	85.3%	12.7	275.6	13
	June	697	96.8%	12.7	386.1	77
	July	704	94.6%	9.5	75.9	0
	August	744	100.0%	5.8	42.9	0
	September	623	86.5%	7.0	46.5	0
	October	744	100.0%	5.0	129.3	8
	November	631	87.6%	3.8	121.3	2
	December	653	87.8%	4.8	48.6	0
Annual		8190	93.5%	7.7	386.1	138

Observations in µg/m³

FIGURE 4.3.3.4 - SMOKEY MOUNTAIN II ANNUAL TPM CONCENTRATIONS

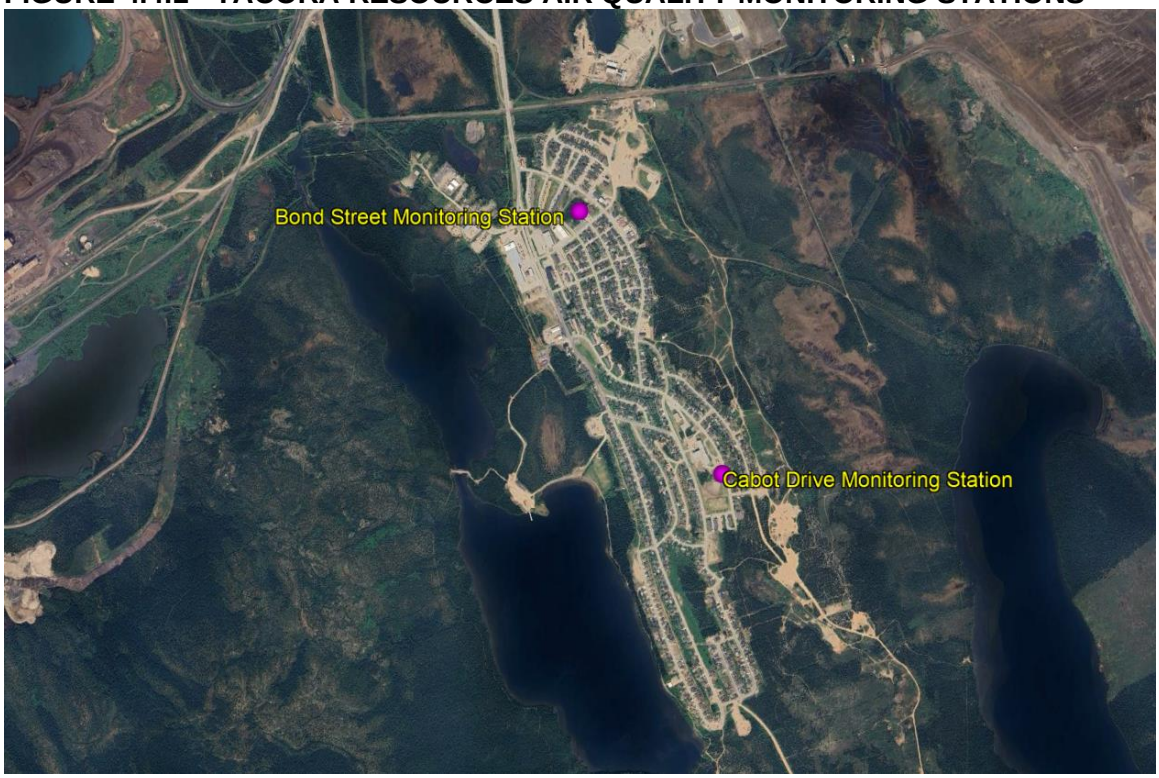


Rolling annual average of hourly concentrations

4.4 Tacora Resources

In 2023 there were two air quality 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 Tacora iron ore mine, concentrator / processing facility and the tailings near Wabush. The location of these air quality monitoring stations are identified in Figure 4.4.1.

FIGURE 4.4.1 - TACORA RESOURCES AIR QUALITY MONITORING STATIONS



4.4.1 Bond Street

The Bond Street air quality monitoring station is located near the Provincial Building and measured SO_2, $PM_{2.5}$ and TPM on a continuous basis in 2023. For SO_2 there were no exceedances of the associated air quality standards were recorded on any occasion during the year. For $PM_{2.5}$ there were one hundred and thirty eight hourly exceedances of the 24-hour air quality standard, while for TPM there were eighty one hourly exceedances of the 24-hour air quality standard in May. All $PM_{2.5}$ and TPM exceedances were attributable to several fugitive dust episode stemming from mining operations in the vicinity, enhanced by high winds and low humidity, as well as smoke from wildfires in other jurisdictions, particularly Quebec. Of the $PM_{2.5}$ exceedances, eighty seven occurred in June, twenty nine in July, two in August and twenty in September. The TPM exceedances occurred nine times in May and seventy two times in June.

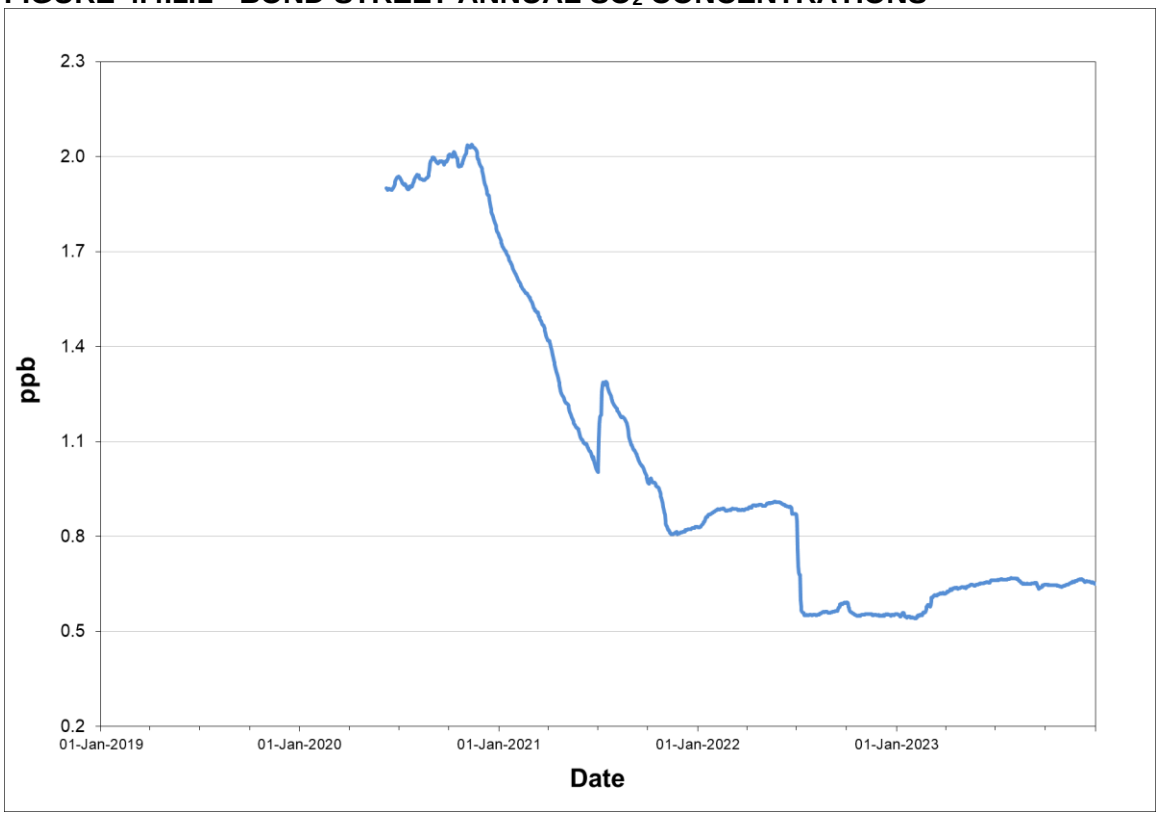
Tables 4.4.1.1 to 4.4.1.3 provide summary information of air contaminants measured at Bond Street, while Figures 4.4.1.1 to 4.4.1.3 provide a graphical representation of the annual trend of SO_2, $PM_{2.5}$ and TPM respectively.

TABLE 4.4.1.1 - BOND STREET SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	720	96.8%	0.9	20.5	8.4	3.1	0	0	0
	February	608	90.5%	0.6	11.1	4.5	1.2	0	0	0
	March	681	91.5%	0.6	13.5	9.5	1.9	0	0	0
	April	714	99.2%	0.4	19.4	7.9	2.4	0	0	0
	May	743	99.9%	0.5	10.2	4.6	1.4	0	0	0
	June	675	93.8%	0.4	3.8	2.4	1.2	0	0	0
	July	740	99.5%	0.5	3.8	2.3	0.9	0	0	0
	August	733	98.5%	0.6	12.4	6.3	2.0	0	0	0
	September	696	96.7%	0.8	9.7	6.9	2.6	0	0	0
	October	736	98.9%	0.4	3.7	2.9	0.9	0	0	0
	November	718	99.7%	0.4	3.8	2.8	1.0	0	0	0
	December	666	89.5%	0.6	12.2	8.2	2.3	0	0	0
Annual		8430	96.2%	0.6	20.5	9.5	3.1	0	0	0
2023	January	643	86.4%	0.8	13.5	12.0	2.8	0	0	0
	February	635	94.5%	1.1	29.4	13.9	3.5	0	0	0
	March	742	99.7%	1.0	23.7	21.8	6.6	0	0	0
	April	700	97.2%	0.7	8.7	6.5	2.2	0	0	0
	May	710	95.4%	0.6	9.2	4.8	1.6	0	0	0
	June	694	96.4%	0.5	4.9	3.7	1.7	0	0	0
	July	711	95.6%	0.5	2.6	1.5	0.8	0	0	0
	August	671	90.2%	0.4	5.4	4.1	1.0	0	0	0
	September	706	98.1%	0.7	8.2	5.8	1.9	0	0	0
	October	734	98.7%	0.3	5.0	3.4	0.8	0	0	0
	November	711	98.8%	0.7	4.7	3.1	1.3	0	0	0
	December	720	96.8%	0.4	11.5	4.6	1.3	0	0	0
Annual		8377	95.6%	0.7	29.4	21.8	6.6	0	0	0

Observations in ppb

FIGURE 4.4.1.1 - BOND STREET ANNUAL SO_2 CONCENTRATIONS



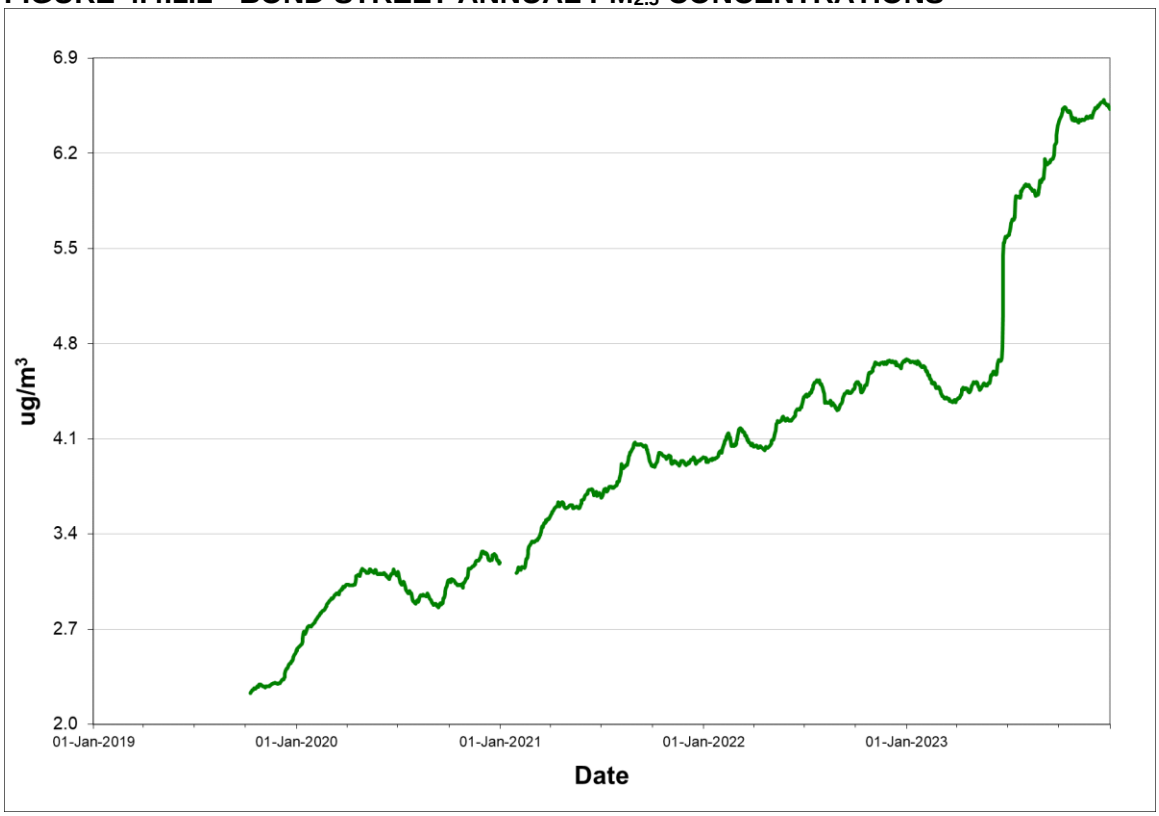
Rolling annual average of daily concentrations

TABLE 4.4.1.2 - BOND STREET $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	96	12.9%	4.4	7.2	0
	February	583	86.8%	6.8	16.1	0
	March	669	89.9%	4.5	14.5	0
	April	720	100.0%	3.1	8.4	0
	May	744	100.0%	4.5	16.5	0
	June	665	92.4%	4.4	9.5	0
	July	657	88.3%	5.2	11.9	0
	August	704	94.6%	5.5	12.3	0
	September	696	96.7%	4.3	7.8	0
	October	744	100.0%	4.8	12.7	0
	November	720	100.0%	4.4	9.4	0
	December	744	100.0%	4.4	12.7	0
Annual		7742	88.4%	4.7	16.5	0
2023	January	661	88.8%	4.0	12.6	0
	February	672	100.0%	4.6	12.6	0
	March	744	100.0%	3.4	8.8	0
	April	690	95.8%	4.6	12.5	0
	May	715	96.1%	5.1	18.8	0
	June	697	96.8%	16.9	163.7	87
	July	603	81.0%	10.2	61.8	29
	August	660	88.7%	5.9	25.1	2
	September	583	81.0%	9.7	31.5	20
	October	744	100.0%	5.2	11.5	0
	November	718	99.7%	4.5	11.1	0
	December	698	93.8%	5.0	13.4	0
Annual		8185	93.4%	6.5	163.7	138

Observations in µg/m³

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



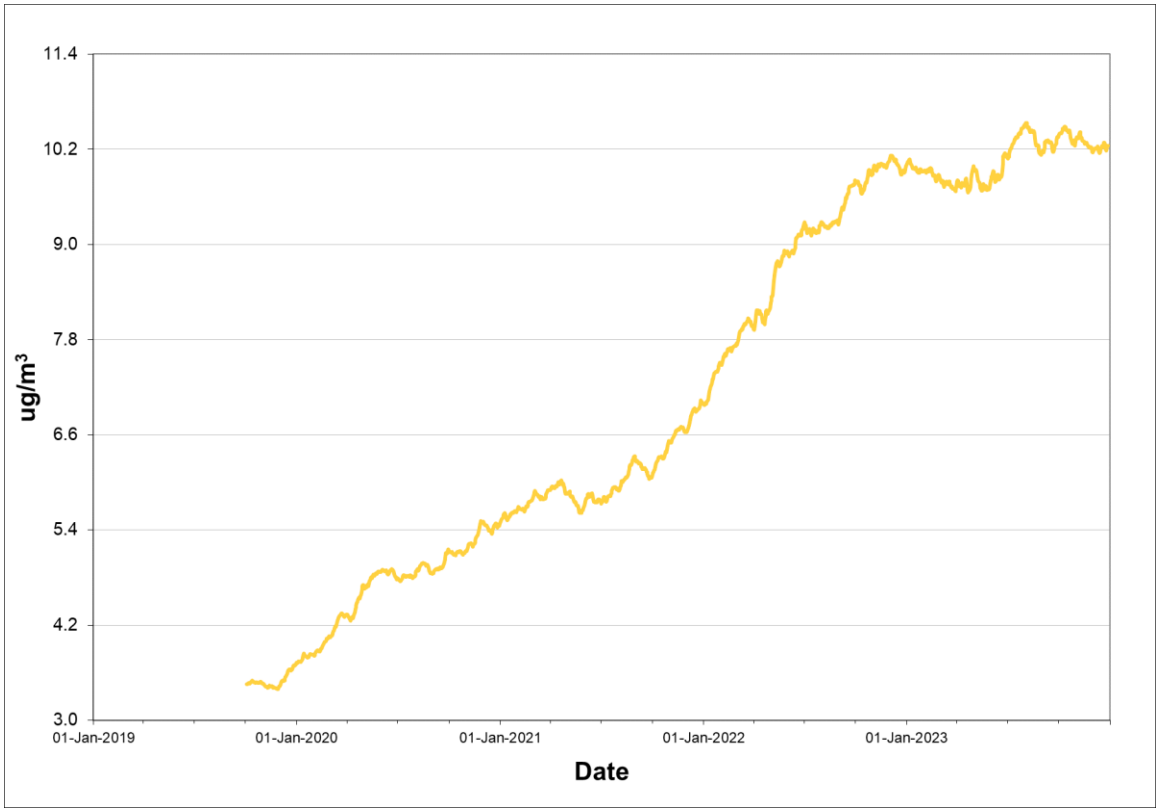
Rolling annual average of daily concentrations

TABLE 4.4.1.3 - BOND STREET TPM SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	744	100.0%	10.0	42.3	0
	February	672	100.0%	11.4	56.9	0
	March	744	100.0%	9.2	50.4	0
	April	720	100.0%	11.8	78.8	0
	May	697	93.7%	19.2	134.5	20
	June	627	87.1%	10.3	40.7	0
	July	744	100.0%	9.7	34.8	0
	August	689	92.6%	11.0	50.0	0
	September	695	96.5%	9.1	30.6	0
	October	725	97.4%	9.0	67.2	0
	November	720	100.0%	7.2	32.3	0
	December	672	90.3%	6.5	51.5	0
Annual		8449	96.4%	10.0	134.5	20
2023	January	637	85.6%	9.1	29.6	0
	February	672	100.0%	10.6	40.2	0
	March	744	100.0%	7.8	70.5	0
	April	690	95.8%	15.9	104.8	0
	May	691	92.9%	15.7	126.8	9
	June	697	96.8%	14.5	286.3	72
	July	702	94.4%	15.4	77.8	0
	August	616	82.8%	7.1	38.5	0
	September	637	88.5%	11.5	77.0	0
	October	717	96.4%	8.4	92.1	0
	November	720	100.0%	6.3	109.0	0
	December	744	100.0%	6.7	37.4	0
Annual		8267	94.4%	10.2	286.3	81

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 air quality monitoring station is located near the J.R. Smallwood School. The station measures $PM_{2.5}$ and TPM on a continuous basis. The $PM_{2.5}$ monitors recorded one hundred and ninety one hourly exceedances of the 24-hour air quality standard during the year while the TPM monitor recorded fifty eight hourly exceedances of the 24-hour air quality standard. As with the monitoring results recorded at Bond Street, and western Labrador in general, the area experienced the effects of wildfire smoke originating in Quebec, as well as dry and windy conditions which suspended fugitive dust from local mining operations. Of the $PM_{2.5}$ exceedances, seventy three occurred in June, sixty five in July, forty three in September, seven in October and three in November. The TPM exceedances occurred once in May, fifty one times in June, five times in October and once in November.

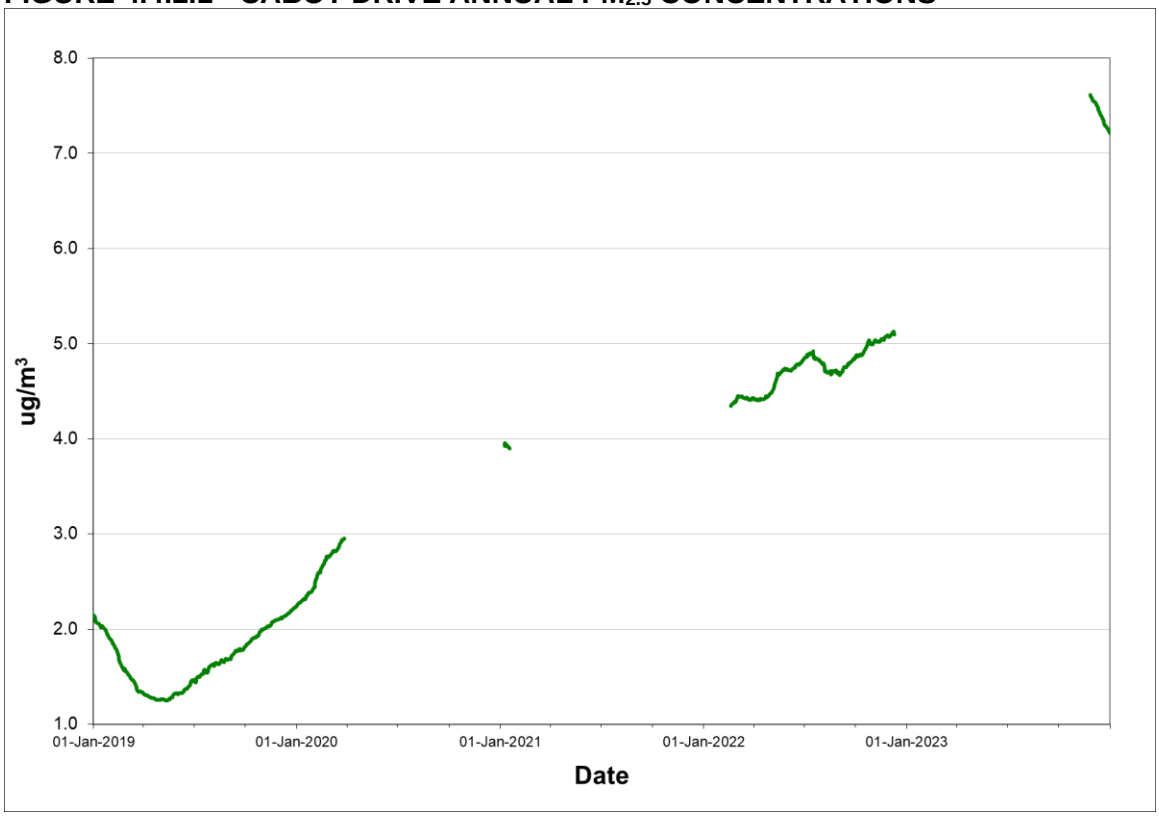
Tables 4.4.2.1 and 4.4.2.2 provide summary information of air contaminants measured at Cabot Drive while figures 4.4.2.1 and 4.4.2.2 present the annual trend of $PM_{2.5}$ and TPM respectively.

TABLE 4.4.2.1 - CABOT DRIVE $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	712	95.7%	6.1	11.0	0
	February	654	97.3%	6.1	12.5	0
	March	744	100.0%	4.4	15.1	0
	April	679	94.3%	3.5	7.0	0
	May	716	96.2%	5.5	15.4	0
	June	642	89.2%	4.6	8.9	0
	July	498	66.9%	5.9	15.2	0
	August	720	96.8%	6.1	18.1	0
	September	356	49.4%	4.6	10.5	0
	October	257	34.5%	5.1	11.0	0
	November	571	79.3%	4.5	10.5	0
	December	0	0.0%			
Annual		6549	74.8%		18.1	0
2023	January	0	0.0%			
	February	591	87.9%	4.3	10.8	0
	March	721	96.9%	5.3	20.0	0
	April	720	100.0%	4.4	13.9	0
	May	682	91.7%	4.4	12.7	0
	June	642	89.2%	16.3	158.8	73
	July	655	88.0%	14.0	89.9	65
	August	744	100.0%	5.6	20.0	0
	September	660	91.7%	11.1	34.9	43
	October	725	97.4%	6.6	28.2	7
	November	718	99.7%	4.5	26.3	3
	December	725	97.4%	3.9	9.1	0
Annual		7583	86.6%	7.2	158.8	191

Observations in µg/m³

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



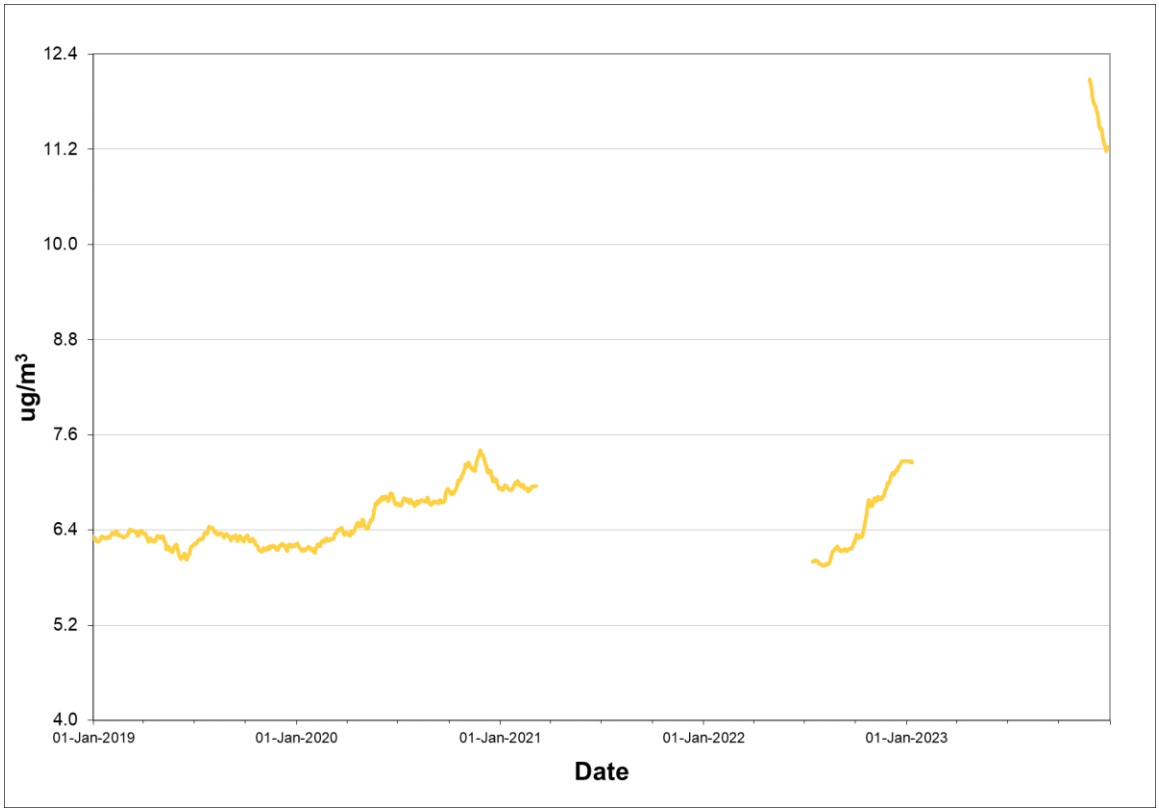
Rolling annual average of daily concentrations

TABLE 4.4.2.2 - CABOT DRIVE TPM SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	561	75.4%	6.7	19.6	0
	February	672	100.0%	5.4	38.7	0
	March	744	100.0%	5.6	39.5	0
	April	679	94.3%	10.0	98.6	0
	May	714	96.0%	13.4	116.8	0
	June	697	96.8%	7.9	37.8	0
	July	611	82.1%	5.9	29.1	0
	August	689	92.6%	8.6	42.8	0
	September	422	58.6%	6.0	22.3	0
	October	256	34.4%	6.3	29.7	0
	November	570	79.2%	5.6	68.4	0
	December	0	0.0%			
Annual		6615	75.5%	7.3	116.8	0
2023	January	0	0.0%			
	February	485	72.2%	9.6	31.6	0
	March	721	96.9%	8.8	78.1	0
	April	720	100.0%	16.6	66.1	0
	May	645	86.7%	19.6	120.9	1
	June	643	89.3%	15.9	303.2	51
	July	661	88.8%	16.8	98.2	0
	August	667	89.7%	10.5	30.8	0
	September	608	84.4%	14.0	67.2	0
	October	682	91.7%	8.5	125.2	5
	November	720	100.0%	6.3	122.9	1
	December	720	96.8%	5.9	43.8	0
Annual		7272	83.0%	11.1	303.2	58

Observations in µg/m³

FIGURE 4.4.2.2 - CABOT DRIVE ANNUAL TPM CONCENTRATIONS

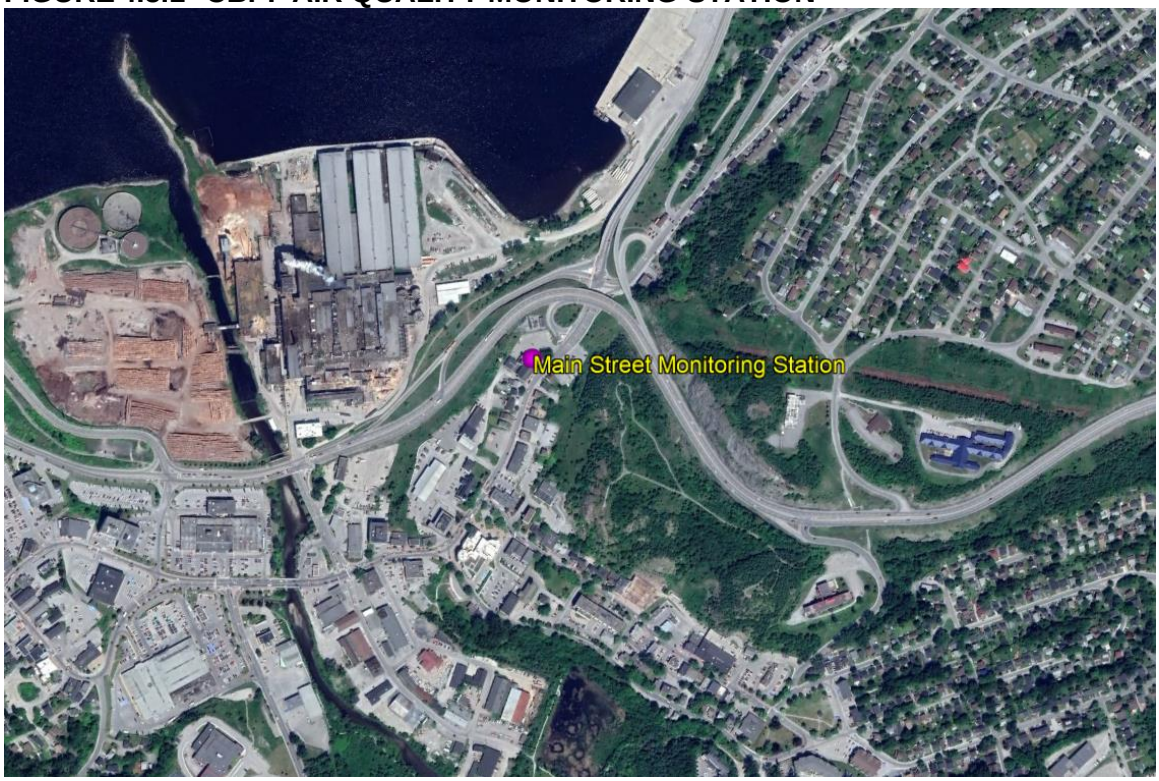


Rolling annual average of daily concentrations

4.5 Corner Brook Pulp and Paper

In 2023, Corner Brook Pulp and Paper (CBPP) operated one air quality monitoring station near CBPP's paper mill operation on Main Street. The location of this air quality monitoring station is identified in Figure 4.5.1.

FIGURE 4.5.1 - CBPP AIR QUALITY MONITORING STATION



4.5.1 Main Street

The Main Street air quality monitoring station is located at Hotel Corner Brook. The station monitors levels of SO_2, $PM_{2.5}$, PM_{10} and TPM on a continuous basis. In December 2023, the station was reconfigured such that the TPM and $PM_{2.5}$ Met One BAMs were replaced with an API T640 capable of measuring $PM_{2.5}$, PM_{10} and TPM simultaneously. During the transition, the station was down for an extended period of time. Additionally the BAM TPM monitor was taken off-line in early February 2022 due to mechanical issues and not repaired / replaced until the new configuration was completed.

For all pollutants there were no recorded exceedances of the associated air quality standards in 2023.

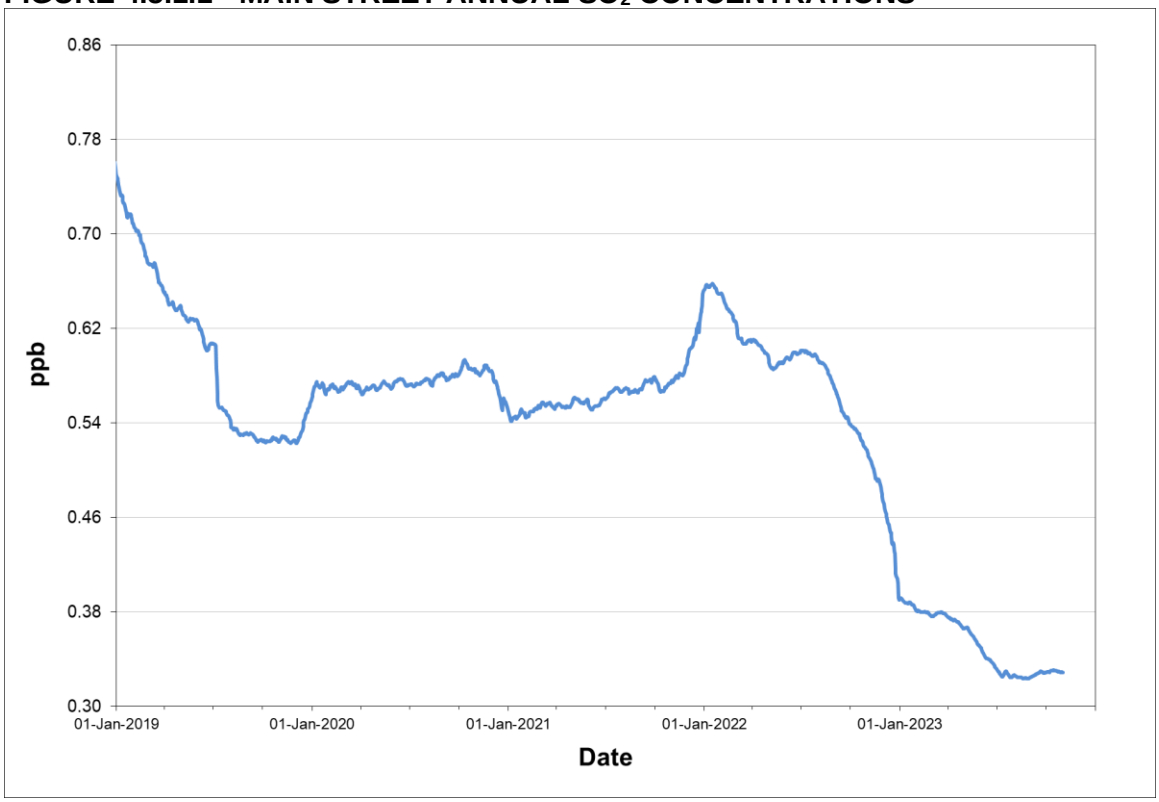
Tables 4.5.1.1 and 4.5.1.2 provide summary information on the level of air contaminants measured at the Main Street Station, while Figures 4.5.1.1 and 4.5.1.2 provide a graphical representation of the annual trend of each pollutant. It is noted that historical versions of this annual report included separate Tables and Figures for $PM_{2.5}$ and TPM. However since $PM_{2.5}$, PM_{10} and TPM are now all measured using the same instrument, the Tables and Figures have been merged accordingly.

TABLE 4.5.1.1 - MAIN STREET SO_2 SUMMARY 2022 & 2023

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>344)	Regulatory Exceedances 3-Hour (>229)	Regulatory Exceedances 24-Hour (>115)
2022	January	247	33.2%	0.6	1.1	1.1	0.7	0	0	0
	February	661	98.4%	0.4	0.8	0.8	0.5	0	0	0
	March	702	94.4%	0.4	1.1	1.1	0.6	0	0	0
	April	595	82.6%	0.3	0.9	0.9	0.6	0	0	0
	May	678	91.1%	0.5	1.7	1.2	0.7	0	0	0
	June	418	58.1%	0.5	2.3	0.9	0.6	0	0	0
	July	701	94.2%	0.4	1.9	1.6	0.7	0	0	0
	August	709	95.3%	0.3	0.6	0.5	0.3	0	0	0
	September	642	89.2%	0.2	0.6	0.4	0.3	0	0	0
	October	731	98.3%	0.3	0.6	0.6	0.5	0	0	0
	November	716	99.4%	0.4	1.0	0.9	0.7	0	0	0
	December	640	86.0%	0.6	1.2	1.1	0.8	0	0	0
Annual		7440	84.9%	0.4	2.3	1.6	0.8	0	0	0
2023	January	710	95.4%	0.3	0.9	0.8	0.6	0	0	0
	February	665	99.0%	0.3	0.6	0.6	0.5	0	0	0
	March	737	99.1%	0.4	0.7	0.6	0.5	0	0	0
	April	694	96.4%	0.2	1.3	0.6	0.5	0	0	0
	May	696	93.5%	0.3	1.4	0.7	0.4	0	0	0
	June	717	99.6%	0.2	0.8	0.6	0.4	0	0	0
	July	719	96.6%	0.3	3.2	2.6	1.0	0	0	0
	August	724	97.3%	0.2	2.7	1.8	0.5	0	0	0
	September	166	23.1%	0.2	0.4	0.4	0.3	0	0	0
	October	0	0.0%							
	November	0	0.0%							
	December	584	78.5%	0.4	0.7	0.7	0.6	0	0	0
Annual		6412	73.2%		3.2	2.6	1.0	0	0	0

Observations in ppb

FIGURE 4.5.1.1 - MAIN STREET ANNUAL SO_2 CONCENTRATIONS



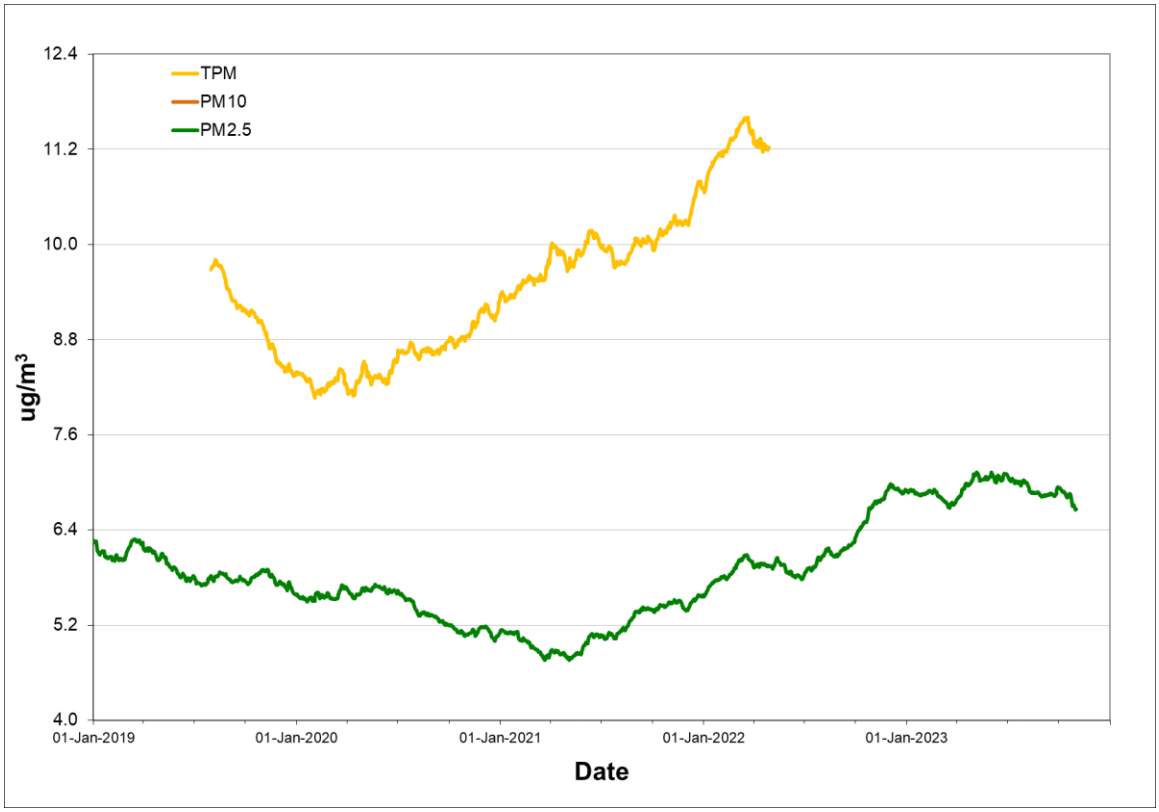
Rolling annual average of hourly concentrations

TABLE 4.5.1.2 - MAIN STREET PARTICULATE SUMMARY 2022 & 2023

Year	Month	# Valid 24 Hour	% Valid 24 Hour	Average			24-Hour Maximum			Regulatory Exceedances		
				$PM_{2.5}$	PM_{10}	TPM	$PM_{2.5}$	PM_{10}	TPM	$PM_{2.5}$ (>25)	PM_{10} (>50)	TPM (>120)
2022	January	744	100.0%	6.8		8.2	14.5		20.5	0		0
	February	672	100.0%	7.5		10.7	15.5		16.1	0		0
	March	744	100.0%	6.8			15.9			0		
	April	720	100.0%	5.0			14.9			0		
	May	408	54.8%	6.5			19.5			0		
	June	441	61.3%	6.3			13.5			0		
	July	744	100.0%	7.8			15.7			0		
	August	744	100.0%	7.3			19.5			0		
	September	614	85.3%	5.9			12.2			0		
	October	744	100.0%	9.6			26.0			10		
	November	720	100.0%	6.9			15.7			0		
	December	664	89.2%	5.5			13.4			0		
Annual		7959	90.9%	6.9			26.0		20.5	10		0
2023	January	573	77.0%	6.3			14.0			0		
	February	653	97.2%	7.2			16.8			0		
	March	744	100.0%	6.3			17.0			0		
	April	720	100.0%	8.3			17.5			0		
	May	686	92.2%	6.9			17.0			0		
	June	720	100.0%	6.6			24.9			0		
	July	744	100.0%	7.0			19.1			0		
	August	731	98.3%	5.0			10.1			0		
	September	246	34.2%	8.1			17.8			0		
	October	0	0.0%									
	November	0	0.0%									
	December	567	76.2%	6.0	12.2	12.6	13.9	26.2	37.0	0	0	0
Annual		6384	72.9%				24.9	26.2	37.0	0	0	0

Observations in $\mu g/m^3$

FIGURE 4.5.1.2 - MAIN STREET ANNUAL PARTICULATE CONCENTRATIONS



Rolling annual average of hourly concentrations

4.6 Vale Newfoundland and Labrador Limited - Voisey's Bay

In 2023, Vale Newfoundland and Labrador Limited operated air quality 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 location of these air quality monitoring stations are identified in Figure 4.6.1.

FIGURE 4.6.1 - VALE / VOISEY'S BAY AIR QUALITY MONITORING STATIONS

4.6.1 Accommodation Unit

The Accommodation Unit station monitors the levels of $PM_{2.5}$ and NO_x / NO_2 on a continuous basis. For NO_x / NO_2, the air quality standards were not exceeded on any occasion in 2023, however for $PM_{2.5}$, the 24-hour air quality standard was exceeded on one hundred and twenty one reporting hours: sixteen times in February, twenty three times in June, sixty four times in July and eighteen times in December. The February exceedances were likely attributable to interferences from snowfall. The June and July exceedances were the result of long-range transport of smoke from Quebec wildfires. In December, the exceedances appear to be related to general dusting due to dry and windy conditions at the site.

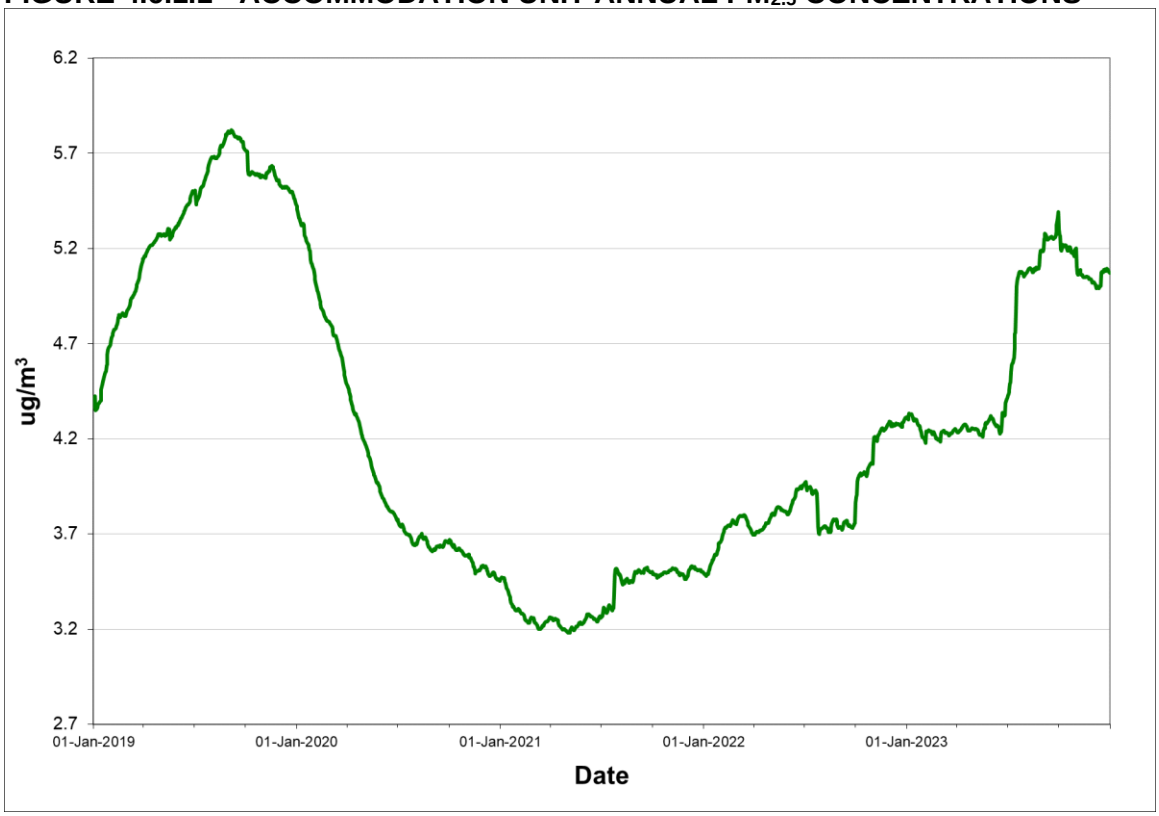
Tables 4.6.1.1 through 4.6.1.2 provide summary information on the level of air contaminants measured at the Accommodation Unit, while Figures 4.6.1.1 through 4.6.1.2 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.6.1.1 - ACCOMMODATION UNIT $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	4.9	11.0	0
	February	672	100.0%	5.1	9.2	0
	March	674	90.6%	3.5	6.1	0
	April	663	92.1%	3.2	6.2	0
	May	744	100.0%	3.3	7.7	0
	June	720	100.0%	4.8	9.5	0
	July	744	100.0%	3.6	6.0	0
	August	744	100.0%	4.1	10.2	0
	September	720	100.0%	3.7	8.7	0
	October	587	78.9%	6.8	36.0	39
	November	688	95.6%	5.4	50.8	25
	December	605	81.3%	3.8	10.7	0
Annual		8305	94.8%	4.3	50.8	64
2023	January	744	100.0%	3.7	9.2	0
	February	672	100.0%	5.0	29.0	16
	March	744	100.0%	4.1	22.6	0
	April	685	95.1%	3.3	5.6	0
	May	728	97.8%	4.0	13.6	0
	June	720	100.0%	5.9	29.6	23
	July	709	95.3%	11.0	65.6	64
	August	595	80.0%	5.7	23.6	0
	September	720	100.0%	6.0	23.8	0
	October	744	100.0%	4.3	16.5	0
	November	720	100.0%	3.3	6.9	0
	December	737	99.1%	4.7	28.9	18
Annual		8518	97.2%	5.1	65.6	121

Observations in µg/m³

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



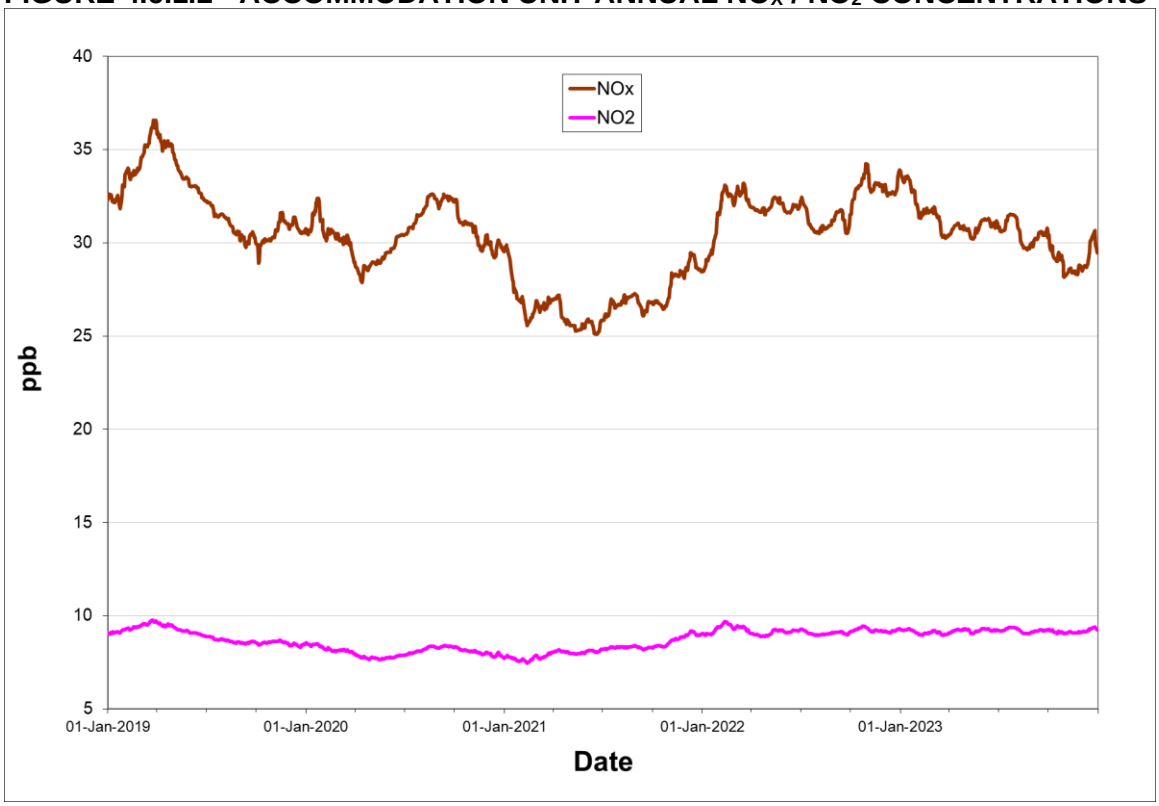
Rolling annual average of daily concentrations

TABLE 4.6.1.2 - ACCOMMODATION UNIT NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	744	100.0%	71.9	17.5	630.5	51.3	232.3	28.0	0	0
	February	672	100.0%	57.9	15.1	447.7	42.3	147.2	28.3	0	0
	March	741	99.6%	38.3	10.3	446.7	49.6	162.7	28.4	0	0
	April	718	99.7%	11.0	4.4	447.3	40.9	81.4	12.6	0	0
	May	740	99.5%	16.2	7.2	203.0	52.3	80.3	28.1	0	0
	June	697	96.8%	21.6	6.4	263.5	30.9	93.1	14.0	0	0
	July	743	99.9%	10.3	3.6	328.3	25.1	84.9	11.2	0	0
	August	742	99.7%	31.0	7.3	398.2	38.9	165.9	23.8	0	0
	September	717	99.6%	27.2	6.6	576.8	33.1	174.6	17.1	0	0
	October	735	98.8%	51.3	10.3	617.8	34.9	231.8	24.0	0	0
	November	720	100.0%	27.8	9.9	409.0	38.7	85.9	19.9	0	0
	December	743	99.9%	42.3	12.9	511.8	41.3	242.9	31.5	0	0
Annual		8712	99.5%	33.9	9.3	630.5	52.3	242.9	31.5	0	0
2023	January	729	98.0%	51.5	15.3	372.9	46.1	107.9	28.8	0	0
	February	667	99.3%	54.7	15.9	437.9	53.5	123.0	26.7	0	0
	March	744	100.0%	21.7	9.3	474.6	41.3	194.3	29.2	0	0
	April	720	100.0%	15.4	7.2	243.7	41.3	45.6	15.1	0	0
	May	724	97.3%	21.1	7.1	432.1	41.5	115.2	21.8	0	0
	June	720	100.0%	16.9	5.2	420.7	41.5	137.3	20.0	0	0
	July	744	100.0%	17.7	5.5	342.1	44.3	121.4	20.8	0	0
	August	742	99.7%	13.9	4.5	388.1	45.3	96.1	19.4	0	0
	September	720	100.0%	30.9	8.1	470.2	39.2	154.0	23.0	0	0
	October	679	91.3%	26.6	8.1	406.8	34.4	87.8	19.3	0	0
	November	223	31.0%	43.3	13.9	393.9	41.8	152.8	26.1	0	0
	December	728	97.8%	51.4	14.3	534.6	46.5	249.2	33.9	0	0
Annual		8140	92.9%	29.4	9.2	534.6	53.5	249.2	33.9	0	0

Observations in ppb

FIGURE 4.6.1.2 - ACCOMMODATION UNIT ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.6.2 Crusher Site

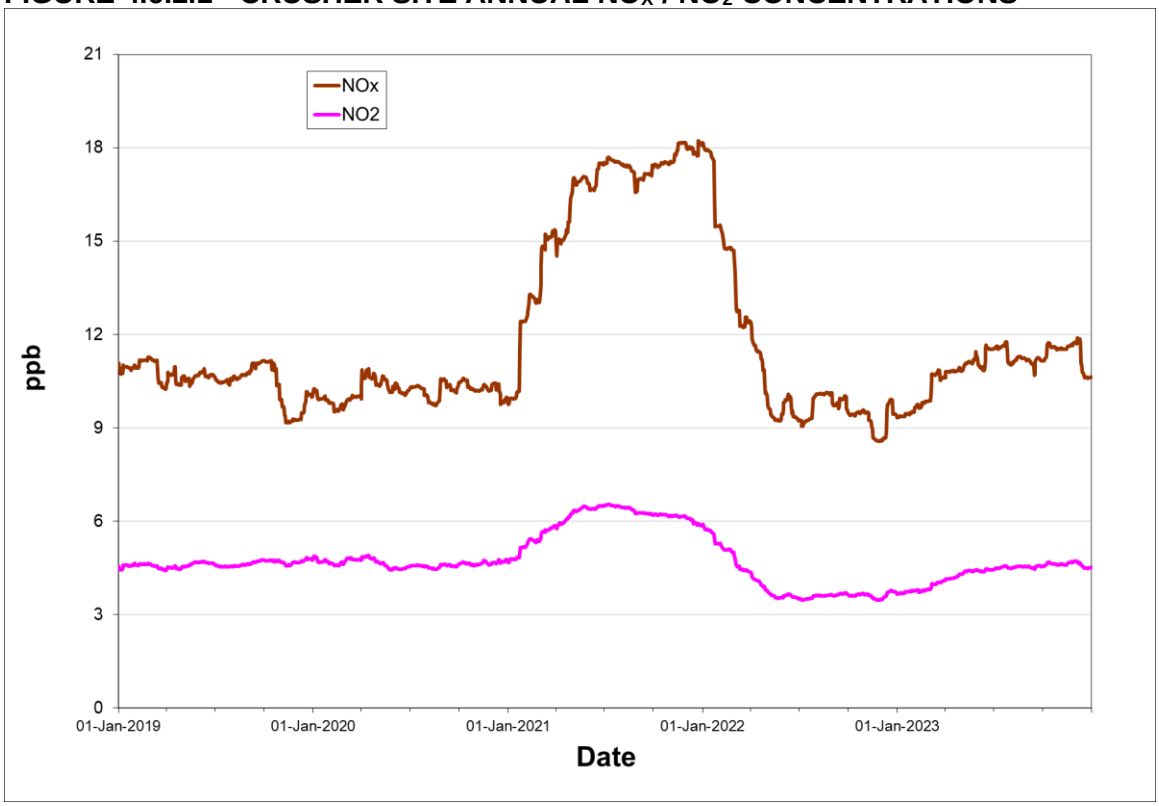
The Crusher Site station monitors the levels of NO_x / NO_2 on a continuous basis. The air quality standards were not exceeded on any occasion in 2023. Table 4.6.2.1 provides summary information on the level of air contaminants measured at the Crusher Site, while Figure 4.6.2.1 provides a graphical representation of the annual trend.

TABLE 4.6.2.1 - CRUSHER SITE NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	744	100.0%	4.3	2.9	113.4	29.7	27.6	14.4	0	0
	February	647	96.3%	5.4	3.4	90.4	36.1	30.1	18.5	0	0
	March	739	99.3%	9.4	3.5	483.4	23.6	114.0	9.2	0	0
	April	717	99.6%	7.9	3.5	200.1	22.3	37.6	7.0	0	0
	May	729	98.0%	6.8	3.0	392.1	23.2	66.7	8.0	0	0
	June	709	98.5%	14.8	5.1	288.5	36.8	72.3	11.1	0	0
	July	744	100.0%	15.4	4.0	310.6	35.0	138.0	18.2	0	0
	August	744	100.0%	6.3	2.8	133.9	18.8	24.0	6.5	0	0
	September	720	100.0%	11.9	4.0	280.5	29.6	99.8	13.5	0	0
	October	740	99.5%	6.4	3.3	131.7	22.8	44.0	13.6	0	0
	November	720	100.0%	3.5	2.7	36.1	23.1	13.8	11.2	0	0
	December	735	98.8%	20.3	6.1	603.1	41.3	253.3	24.7	0	0
Annual		8688	99.2%	9.4	3.7	603.1	41.3	253.3	24.7	0	0
2023	January	703	94.5%	5.4	3.6	160.5	30.9	27.7	15.2	0	0
	February	515	76.6%	9.9	4.1	390.2	41.2	50.4	15.1	0	0
	March	738	99.2%	18.1	7.1	513.1	61.6	165.0	31.0	0	0
	April	652	90.6%	10.5	5.9	514.4	68.3	77.3	16.6	0	0
	May	693	93.1%	12.3	4.6	472.5	37.1	109.9	11.4	0	0
	June	716	99.4%	17.8	5.3	365.3	33.8	152.1	19.8	0	0
	July	739	99.3%	9.9	4.5	237.8	27.5	48.0	8.1	0	0
	August	737	99.1%	7.7	3.4	258.4	35.0	28.9	6.0	0	0
	September	720	100.0%	11.4	4.1	368.8	29.7	137.0	18.0	0	0
	October	693	93.1%	10.6	4.0	354.3	29.1	131.0	16.2	0	0
	November	718	99.7%	5.8	3.8	56.7	26.7	24.8	15.2	0	0
	December	726	97.6%	7.8	3.8	534.4	46.6	77.3	14.4	0	0
Annual		8350	95.3%	10.6	4.5	534.4	68.3	165.0	31.0	0	0

Observations in ppb

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 levels of TPM on a continuous basis. The 24-hour air quality standard was exceeded on one hundred and eighty six reporting hours in 2023. In June the 24-hour air quality standard was exceed twenty one times primarily due to wildfire from Quebec. In September, October and November the exceedances were due, in large part, to construction and associated activities of the new silos in the general vicinity, and general wharf activities, including ship-loading.

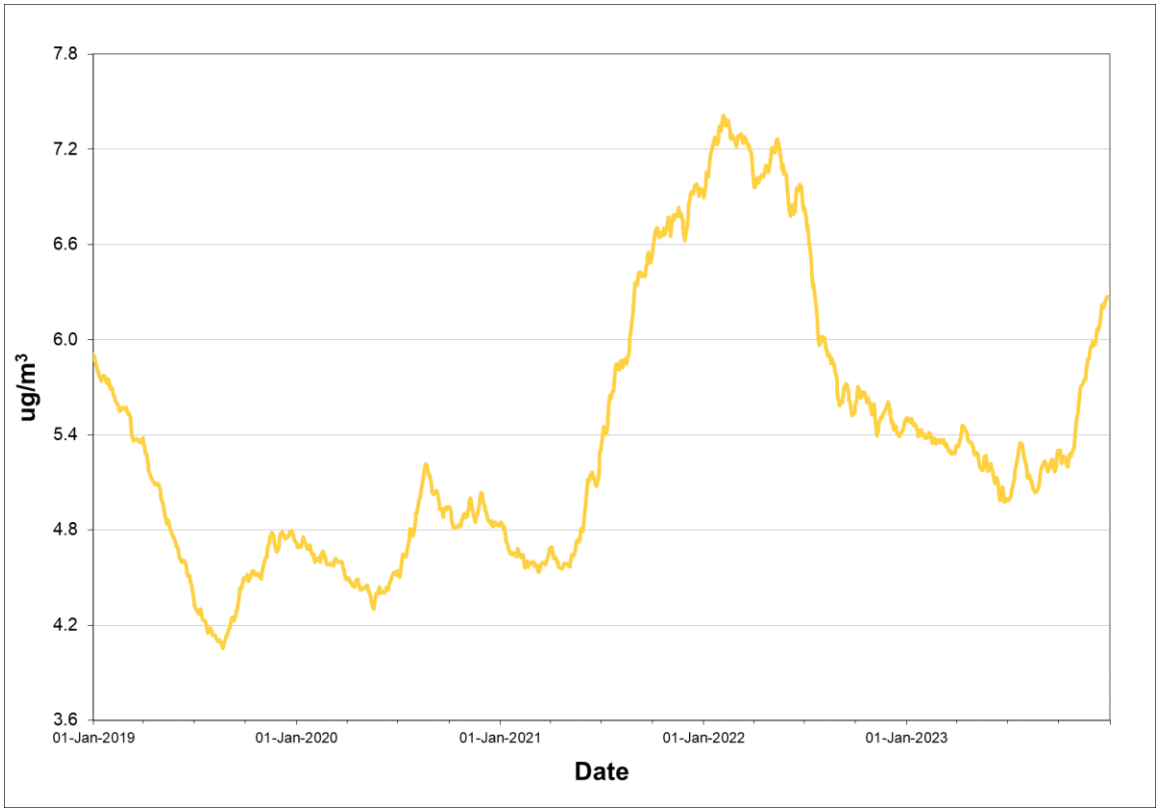
Table 4.6.3.1 provides summary information on the level of air contaminants measured at the Port Site, while Figure 4.6.3.1 provides a graphical representation of the annual trend.

TABLE 4.6.3.1 - PORT SITE TPM SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	744	100.0%	4.9	57.4	0
	February	672	100.0%	3.5	31.5	0
	March	744	100.0%	4.0	16.2	0
	April	720	100.0%	3.7	19.4	0
	May	744	100.0%	5.1	184.2	21
	June	720	100.0%	9.2	165.0	22
	July	744	100.0%	5.1	47.2	0
	August	744	100.0%	9.8	275.5	53
	September	720	100.0%	7.5	149.5	22
	October	607	81.6%	7.0	515.7	70
	November	629	87.4%	6.3	32.6	0
	December	721	96.9%	4.0	46.7	0
Annual		8509	97.1%	5.5	515.7	188
2023	January	744	100.0%	4.0	54.1	0
	February	647	96.3%	3.1	21.4	0
	March	744	100.0%	3.7	23.8	0
	April	720	100.0%	3.6	27.6	0
	May	744	100.0%	4.1	116.6	0
	June	720	100.0%	5.4	159.6	21
	July	744	100.0%	9.2	118.0	0
	August	591	79.4%	9.7	52.5	0
	September	720	100.0%	9.3	293.3	25
	October	744	100.0%	9.2	393.1	44
	November	702	97.5%	19.2	420.5	96
	December	744	100.0%	7.2	113.3	0
Annual		8564	97.8%	6.3	420.5	186

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 an air quality 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 $PM_{2.5}$ and PM_{10}. In 2023, Vale operated two stations; near the Community Centre in Long Harbour, and near the Access Road to the Hydromet facility. Vale had previously operated a third station along the main road in Long Harbour, however that station was decommissioned in August 2021. The location of the air quality monitoring stations is shown in Figure 4.7.1.

FIGURE 4.7.1 - VALE / LONG HARBOUR AIR QUALITY MONITORING STATIONS

4.7.1 Community Centre (AM1)

The Community Centre (AM1) station monitors the levels of $PM_{2.5}$, PM_{10} and NO_x / NO_2 on a continuous basis. The air quality standards for NO_2 were not exceeded in 2023. For $PM_{2.5}$ and PM_{10}, the 24-hour air quality standard was exceed for thirty five and twenty four consecutive hours respectively on September 27th / 28th, owing to the long-range wildfire smoke from northern Alberta and the Northwest Territories.

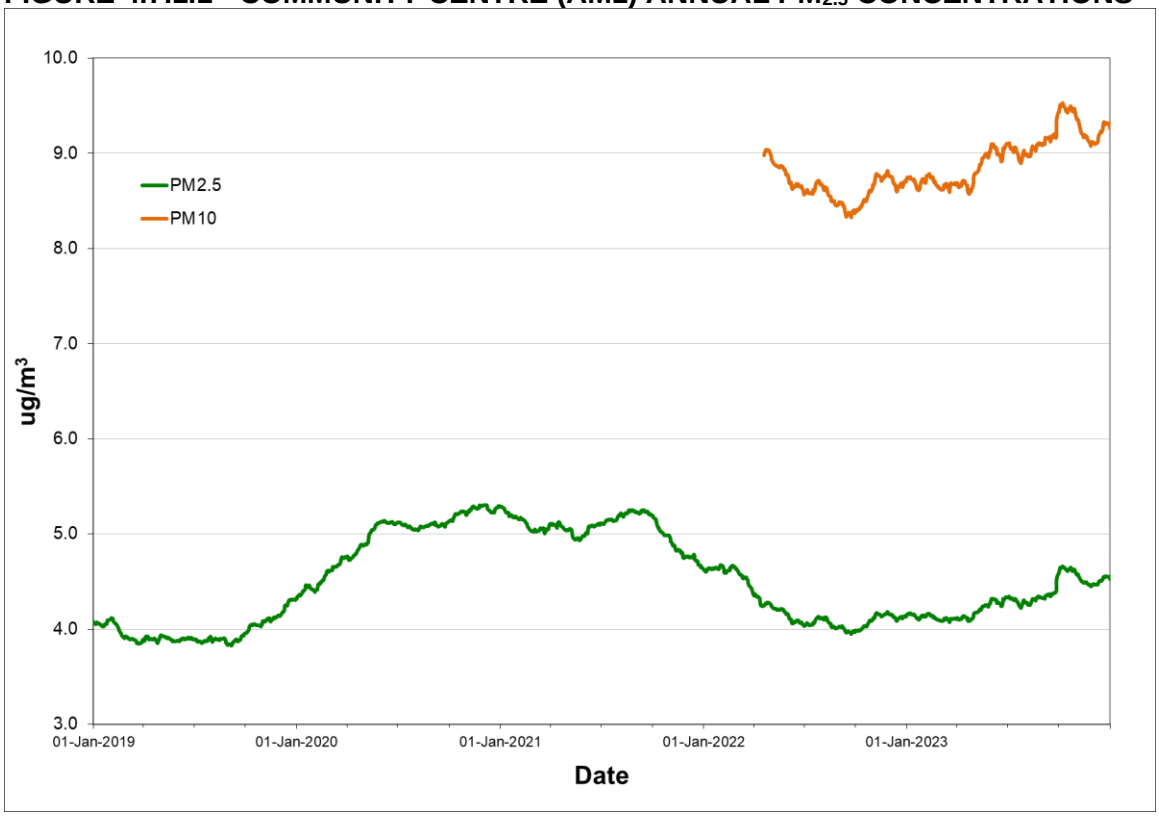
Tables 4.7.1.1 and 4.7.1.2 provide summary information on the level of air contaminants measured at the Community Centre (AM1) site, while Figures 4.7.1.1 and 4.7.1.2 provide a graphical representation of the annual trend of $PM_{2.5}$ / PM_{10} and NO_x / NO_2.

TABLE 4.7.1.1 - COMMUNITY CENTRE (AM1) $PM_{2.5}$ / PM_{10} SUMMARY 2022 & 2023

Year	Month	# Valid 24 Hour	% Valid 24 Hour	Average		24-Hour Maximum		Regulatory Exceedances	
				$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$ (>25)	PM_{10} (>50)
2022	January	744	100.0%	4.3	9.5	11.5	25.7	0	0
	February	672	100.0%	4.4	9.6	12.9	27.3	0	0
	March	744	100.0%	4.4	9.6	8.1	19.2	0	0
	April	720	100.0%	4.1	8.8	9.4	21.3	0	0
	May	744	100.0%	3.4	6.9	7.2	15.9	0	0
	June	720	100.0%	3.6	7.3	9.2	18.1	0	0
	July	744	100.0%	5.2	9.5	11.3	23.0	0	0
	August	744	100.0%	4.1	7.6	9.5	18.3	0	0
	September	720	100.0%	3.8	8.6	12.2	29.3	0	0
	October	744	100.0%	4.4	9.4	10.8	19.7	0	0
	November	720	100.0%	4.4	9.8	11.2	22.1	0	0
	December	690	92.7%	3.7	8.1	9.1	16.8	0	0
Annual		8706	99.4%	4.2	8.7	12.9	29.3	0	0
2023	January	744	100.0%	4.1	9.1	10.9	20.4	0	0
	February	672	100.0%	3.9	8.9	8.9	20.3	0	0
	March	529	71.1%	4.8	10.7	11.3	26.0	0	0
	April	452	62.8%	4.6	9.4	9.9	19.2	0	0
	May	744	100.0%	5.2	11.0	15.0	28.8	0	0
	June	577	80.1%	3.9	7.0	16.5	27.2	0	0
	July	744	100.0%	4.8	8.5	12.2	18.8	0	0
	August	744	100.0%	4.5	8.7	12.6	23.4	0	0
	September	720	100.0%	6.6	12.2	43.7	70.7	35	24
	October	744	100.0%	4.6	9.2	12.6	20.9	0	0
	November	720	100.0%	2.9	6.6	9.6	20.3	0	0
	December	679	91.3%	4.3	9.8	12.1	26.8	0	0
Annual		8069	92.1%	4.5	9.3	43.7	70.7	35	24

Observations in $\mu g/m^3$

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



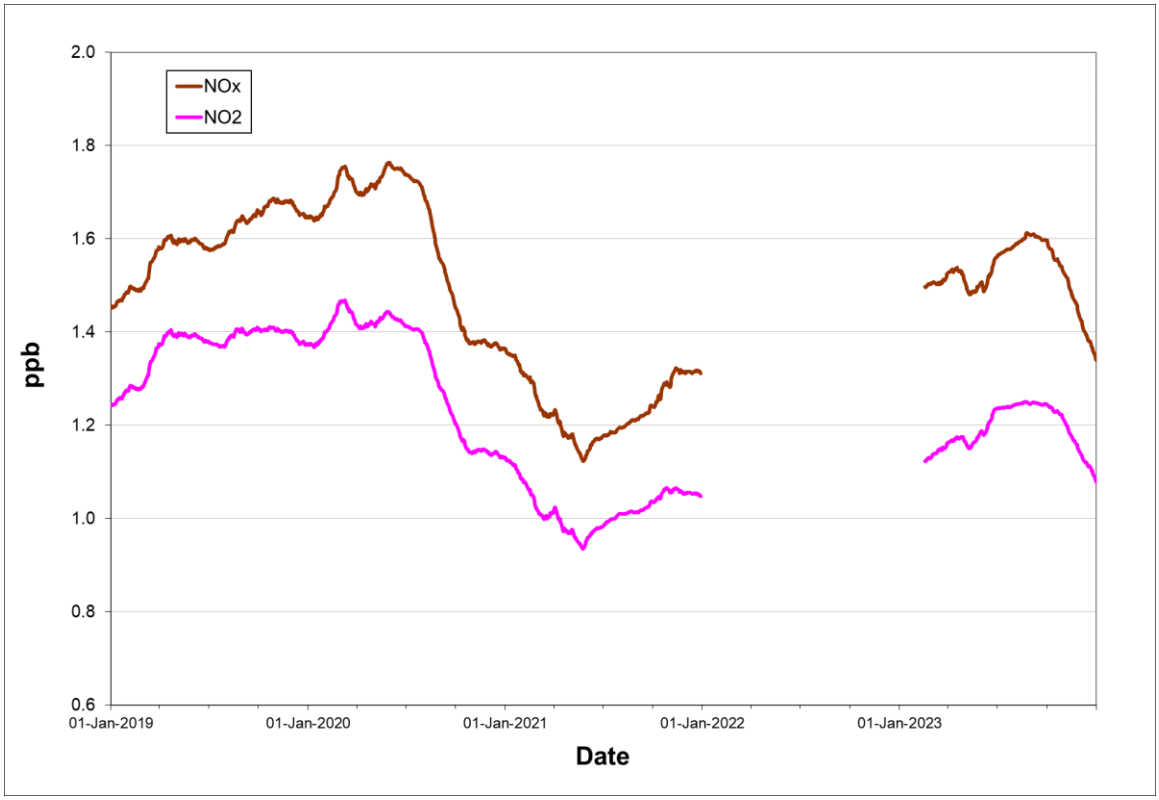
Rolling annual average of daily concentrations

TABLE 4.7.1.2 - COMMUNITY CENTRE (AM1) NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	0	0.0%								
	February	50	7.4%	1.0	0.9	2.0	1.8	1.5	1.4	0	0
	March	105	14.1%	1.6	1.5	5.4	4.4	2.3	2.0	0	0
	April	610	84.7%	1.9	1.4	32.9	5.6	4.6	3.5	0	0
	May	742	99.7%	1.8	1.4	6.7	5.4	3.3	2.7	0	0
	June	719	99.9%	1.2	0.8	10.1	4.6	3.7	2.3	0	0
	July	742	99.7%	0.4	0.3	3.8	2.8	0.7	0.6	0	0
	August	741	99.6%	0.4	0.3	3.8	3.1	0.7	0.5	0	0
	September	718	99.7%	0.6	0.3	5.4	2.8	1.6	0.8	0	0
	October	743	99.9%	1.2	0.7	13.4	4.4	2.8	1.5	0	0
	November	717	99.6%	1.8	1.4	8.4	5.6	4.1	2.2	0	0
	December	699	94.0%	1.9	1.5	8.9	7.1	3.2	2.7	0	0
Annual		6586	75.2%	1.2	0.9	32.9	7.1	4.6	3.5	0	0
2023	January	740	99.5%	3.7	2.9	15.7	9.7	10.3	6.6	0	0
	February	669	99.6%	1.7	1.4	8.6	7.5	5.7	4.7	0	0
	March	741	99.6%	1.8	1.5	4.9	4.2	3.1	2.5	0	0
	April	710	98.6%	1.7	1.5	6.3	5.5	2.7	2.3	0	0
	May	740	99.5%	1.7	1.6	6.8	6.5	3.2	2.8	0	0
	June	718	99.7%	1.9	1.3	13.3	7.1	5.2	3.1	0	0
	July	742	99.7%	0.7	0.4	5.0	4.6	1.1	0.9	0	0
	August	736	98.9%	0.7	0.3	15.0	2.6	4.9	0.7	0	0
	September	718	99.7%	0.5	0.3	4.3	3.4	0.9	0.8	0	0
	October	742	99.7%	0.4	0.4	3.0	1.8	0.7	0.6	0	0
	November	718	99.7%	0.6	0.5	7.7	6.9	1.5	1.3	0	0
	December	688	92.5%	0.7	0.7	7.7	7.0	1.0	1.0	0	0
Annual		8662	98.9%	1.3	1.1	15.7	9.7	10.3	6.6	0	0

Observations in ppb

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



Rolling annual average of hourly concentrations

4.7.2 Access Road (AM3)

The Access Road (AM3) station is installed near the Vale security gate and monitors the levels of $PM_{2.5}$, PM_{10} and NO_x / NO_2 on a continuous basis. The air quality standards for NO_2 were not exceeded in 2023. For $PM_{2.5}$ and PM_{10}, the 24-hour air quality standard was exceed for thirty four and twenty five consecutive hours respectively on September 27th / 28th, owing to the long-range wildfire smoke from northern Alberta and the Northwest Territories.

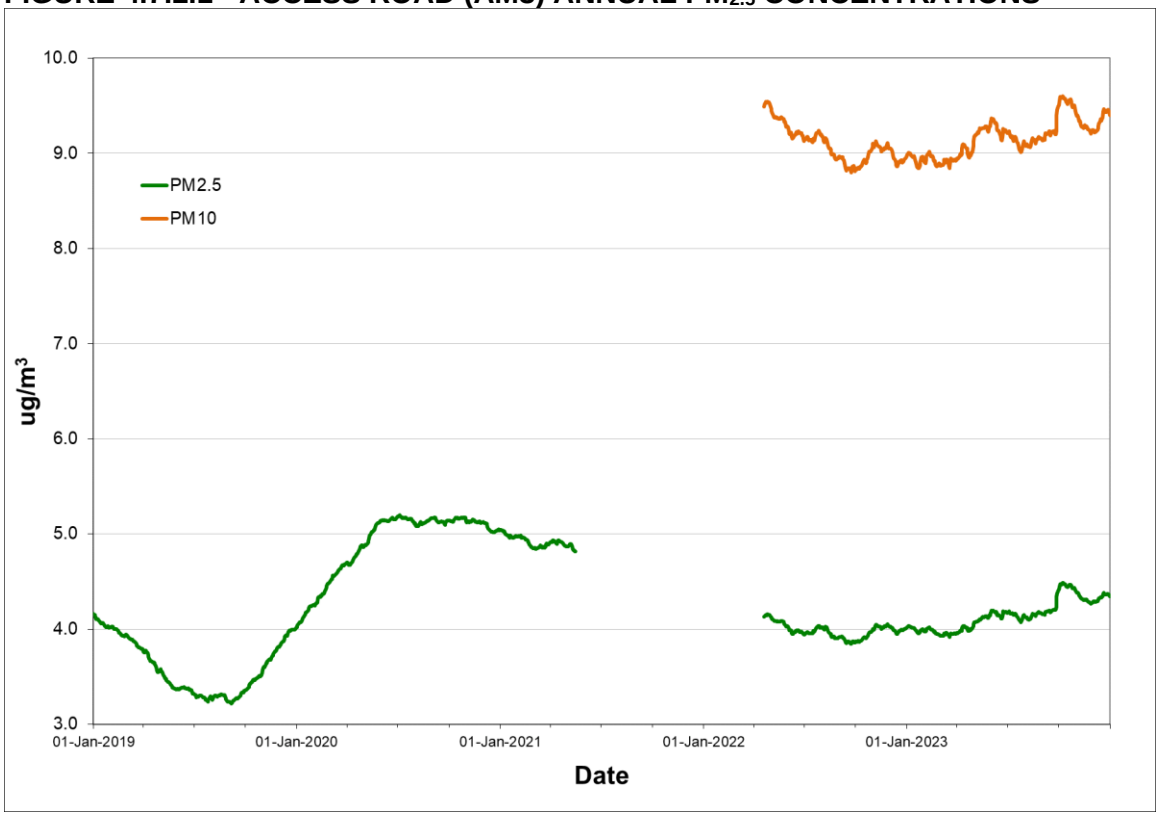
Tables 4.7.3.1 and 4.7.3.2 provide summary information on the level of air contaminants measured at the Access Road (AM3) site while Figures 4.7.3.1 and 4.7.3.2 provide a graphical representation of the annual trend in the data.

TABLE 4.7.2.1 - ACCESS ROAD (AM3) $PM_{2.5}$ / PM_{10} SUMMARY 2022 & 2023

Year	Month	# Valid 24 Hour	% Valid 24 Hour	Average		24-Hour Maximum		Regulatory Exceedances	
				$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$ (>25)	PM_{10} (>50)
2022	January	744	100.0%	4.2	9.7	12.5	28.9	0	0
	February	672	100.0%	4.0	9.0	11.8	25.4	0	0
	March	744	100.0%	4.3	10.0	8.3	18.9	0	0
	April	720	100.0%	3.9	9.1	9.1	21.2	0	0
	May	744	100.0%	3.3	7.5	6.9	15.3	0	0
	June	720	100.0%	3.6	8.2	8.9	19.3	0	0
	July	708	95.2%	5.0	9.6	10.6	21.4	0	0
	August	744	100.0%	4.0	7.8	9.1	17.2	0	0
	September	689	95.7%	3.8	8.8	12.4	30.9	0	0
	October	711	95.6%	4.5	10.3	10.4	23.0	0	0
	November	686	95.3%	4.3	9.8	10.9	21.5	0	0
	December	502	67.5%	3.2	7.3	7.5	17.1	0	0
Annual		8384	95.7%	4.0	8.9	12.5	30.9	0	0
2023	January	663	89.1%	3.8	9.2	8.3	19.5	0	0
	February	672	100.0%	3.5	8.7	8.1	18.2	0	0
	March	552	74.2%	4.6	10.9	10.7	24.5	0	0
	April	720	100.0%	4.9	10.8	10.3	22.8	0	0
	May	716	96.2%	4.9	10.7	13.8	26.5	0	0
	June	720	100.0%	3.5	6.9	14.9	25.8	0	0
	July	744	100.0%	4.6	8.5	11.6	18.1	0	0
	August	744	100.0%	4.3	8.3	11.7	19.3	0	0
	September	720	100.0%	6.5	12.8	43.4	72.0	34	25
	October	744	100.0%	4.4	9.7	12.9	22.3	0	0
	November	720	100.0%	2.9	7.4	8.6	17.8	0	0
	December	744	100.0%	4.3	9.6	12.7	28.4	0	0
Annual		8459	96.6%	4.3	9.4	43.4	72.0	34	25

Observations in $\mu g/m^3$

FIGURE 4.7.2.1 - ACCESS ROAD (AM3) ANNUAL $PM_{2.5}$ CONCENTRATIONS



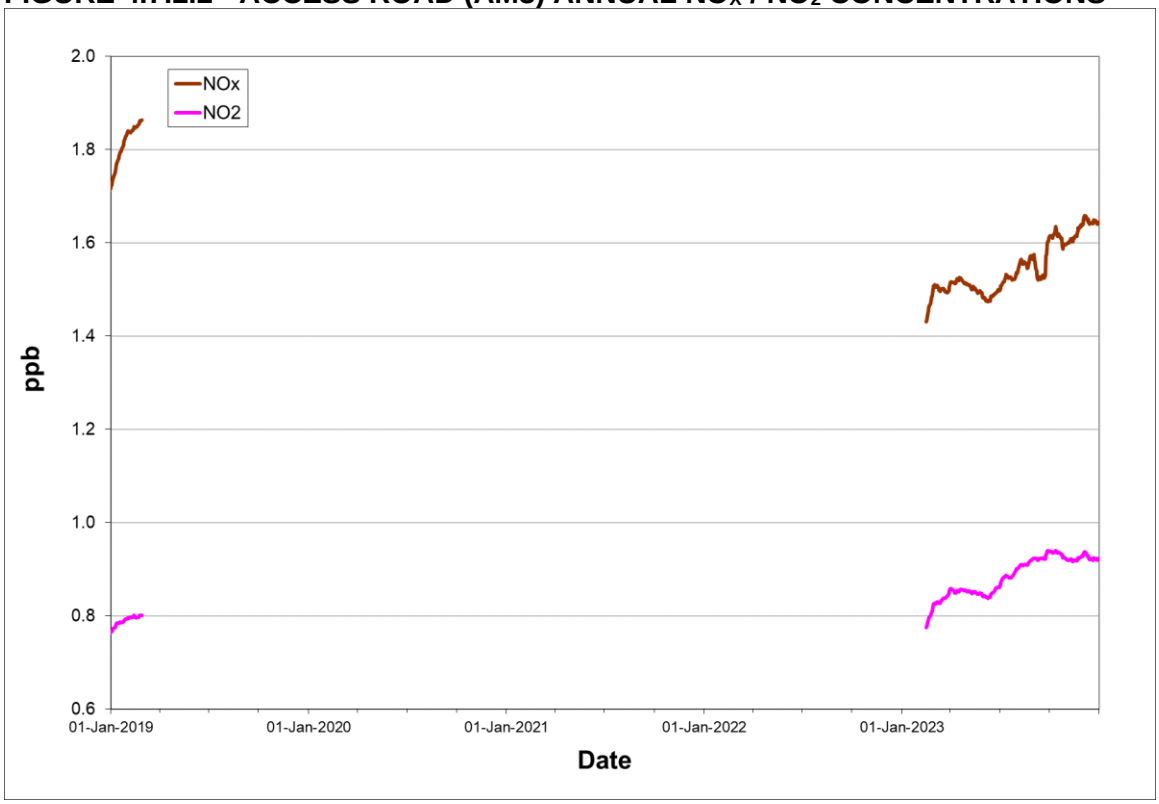
Rolling annual average of daily concentrations

TABLE 4.7.2.2 - ACCESS ROAD (AM3) NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	0	0.0%								
	February	272	40.5%	0.7	0.5	4.4	2.3	1.3	0.8	0	0
	March	0	0.0%								
	April	40	5.6%	2.2	1.6	6.6	5.0	2.6	1.8	0	0
	May	741	99.6%	1.5	0.8	17.2	5.4	4.1	1.9	0	0
	June	717	99.6%	1.3	0.6	13.3	6.8	3.0	1.6	0	0
	July	713	95.8%	0.9	0.5	12.9	4.2	2.5	1.1	0	0
	August	741	99.6%	1.3	0.6	10.9	3.4	3.3	1.1	0	0
	September	698	96.9%	1.9	0.6	13.1	5.5	5.9	1.4	0	0
	October	730	98.1%	1.8	0.9	36.0	5.2	6.7	1.8	0	0
	November	693	96.3%	1.4	0.8	13.3	5.5	3.0	1.5	0	0
	December	492	66.1%	1.4	1.0	10.0	6.6	2.8	1.7	0	0
Annual		5837	66.6%	1.4	0.7	36.0	6.8	6.7	1.9	0	0
2023	January	677	91.0%	1.6	1.1	52.0	11.6	4.4	2.8	0	0
	February	670	99.7%	2.0	1.4	34.3	23.0	4.3	3.0	0	0
	March	739	99.3%	1.6	1.2	13.4	7.0	3.4	2.0	0	0
	April	716	99.4%	1.6	0.9	10.5	6.4	3.2	1.8	0	0
	May	725	97.4%	1.1	0.6	10.4	4.4	3.2	2.0	0	0
	June	717	99.6%	1.5	0.9	11.0	6.9	3.9	2.2	0	0
	July	741	99.6%	1.4	0.9	8.1	5.6	2.4	1.8	0	0
	August	739	99.3%	1.6	0.9	17.1	3.2	4.0	1.5	0	0
	September	718	99.7%	2.4	0.8	128.4	32.4	15.3	3.8	0	0
	October	741	99.6%	1.7	0.7	13.9	4.2	5.1	1.1	0	0
	November	716	99.4%	1.8	0.9	15.5	6.4	4.4	2.2	0	0
	December	741	99.6%	1.5	0.9	17.5	8.1	3.8	2.1	0	0
Annual		8640	98.6%	1.6	0.9	128.4	32.4	15.3	3.8	0	0

Observations in ppb

FIGURE 4.7.2.2 - ACCESS ROAD (AM3) ANNUAL NO_X / NO_2 CONCENTRATIONS



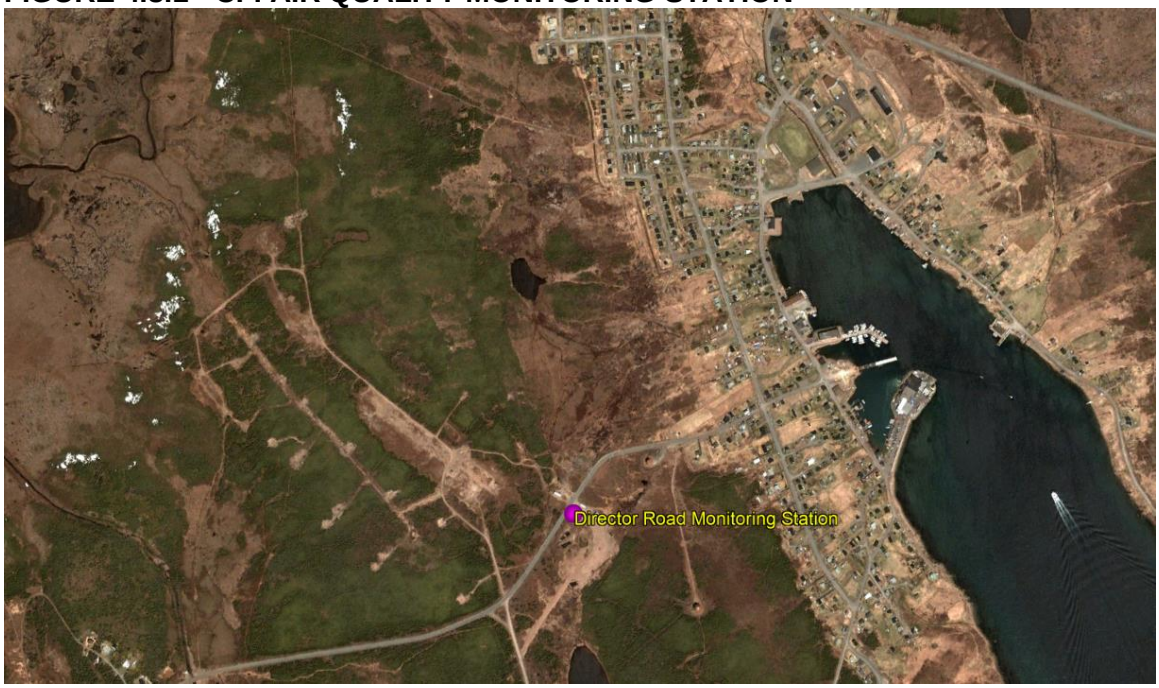
Rolling annual average of hourly concentrations

4.8 Canada Fluorspar (NL) Inc.

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

In February 2022, the facility was placed into receivership, however in June 2023 a new buyer was approved. Activities commenced shortly thereafter to bring production back on-line, but by the end of 2023, the facility was not in full production. The air quality monitoring station remained in operation throughout, however due to receivership process, minimal on-going maintenance was completed at the station, resulting in extended periods of data loss.

FIGURE 4.8.1 - CFI AIR QUALITY 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 air quality standards for NO_2 and TPM during the year, however for $PM_{2.5}$ there were twenty one hourly exceedances of the 24-hour air quality standard in September. These $PM_{2.5}$ exceedances were associated with the long-range transport of wildfire smoke from northern Alberta and the Northwest Territories.

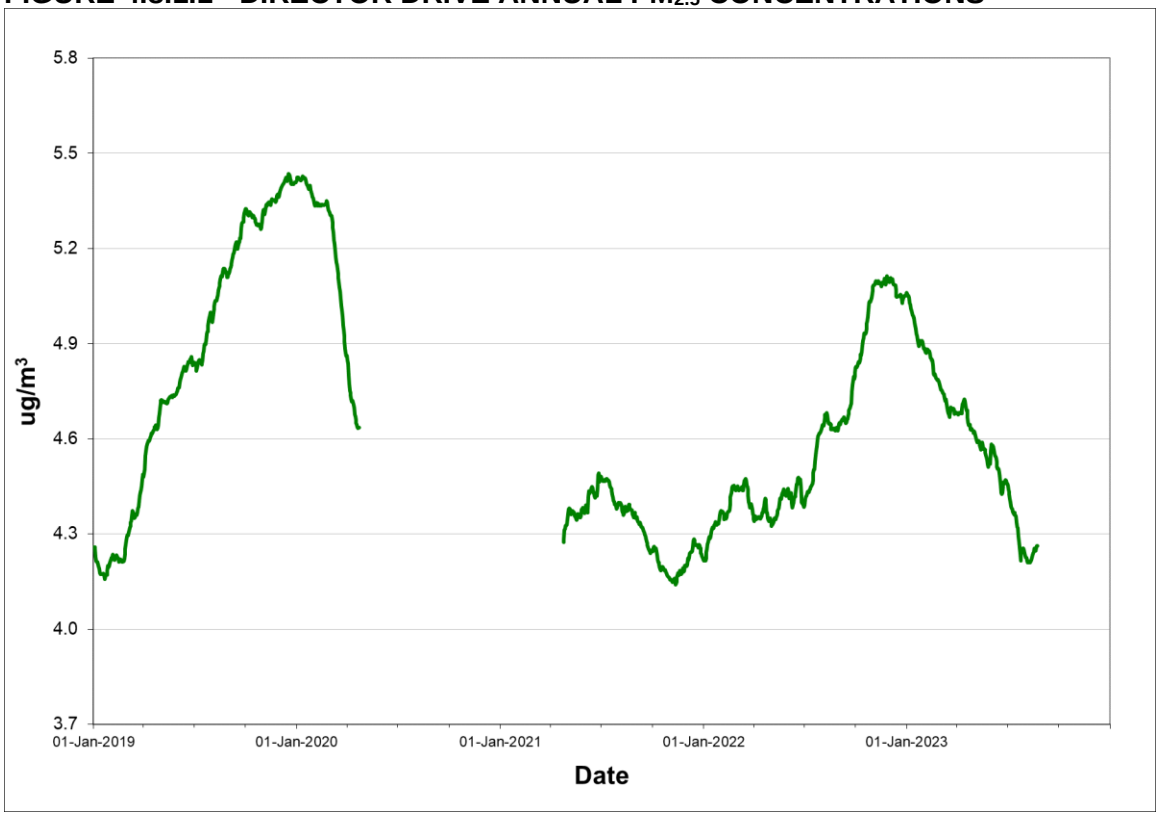
The NO_x / NO_2 monitor experienced continued operational issues during the year, resulting in no valid data collection from mid-April 2022 until late October 2023.

TABLE 4.8.1.1 - DIRECTOR DRIVE $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	744	100.0%	5.5	11.8	0
	February	672	100.0%	4.9	12.6	0
	March	724	97.3%	5.1	11.3	0
	April	667	92.6%	4.6	10.1	0
	May	601	80.8%	6.0	9.5	0
	June	720	100.0%	5.4	14.0	0
	July	744	100.0%	6.0	12.6	0
	August	720	96.8%	3.9	8.1	0
	September	720	100.0%	4.7	16.3	0
	October	744	100.0%	5.5	11.9	0
	November	623	86.5%	5.4	9.5	0
	December	744	100.0%	4.0	9.1	0
Annual		8423	96.2%	5.1	16.3	0
2023	January	580	78.0%	3.1	9.5	0
	February	668	99.4%	3.6	7.9	0
	March	744	100.0%	4.0	8.9	0
	April	691	96.0%	3.9	7.8	0
	May	744	100.0%	5.1	20.4	0
	June	720	100.0%	4.1	23.3	0
	July	451	60.6%	3.0	13.9	0
	August	0	0.0%			
	September	373	51.8%	10.7	34.2	21
	October	377	50.7%	5.0	13.0	0
	November	720	100.0%	3.9	10.2	0
	December	593	79.7%	4.9	15.8	0
Annual		6661	76.0%		34.2	21

Observations in µg/m³

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



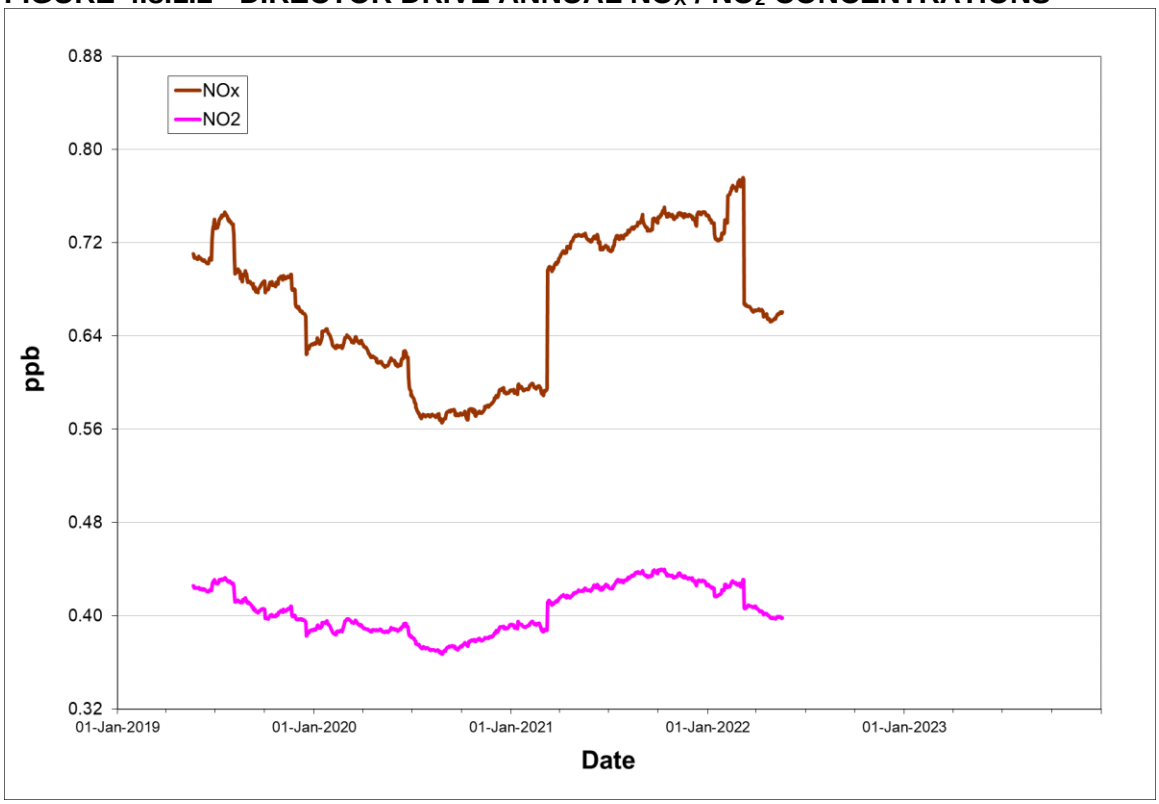
Rolling annual average of hourly concentrations

TABLE 4.8.1.2 - DIRECTOR DRIVE NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	742	99.7%	0.5	0.4	35.9	17.6	2.1	1.2	0	0
	February	654	97.3%	1.1	0.4	192.1	28.1	8.6	1.6	0	0
	March	741	99.6%	0.6	0.4	25.5	8.0	2.1	1.1	0	0
	April	324	45.0%	0.5	0.2	5.8	2.6	1.0	0.3	0	0
	May	0	0.0%								
	June	0	0.0%								
	July	0	0.0%								
	August	0	0.0%								
	September	0	0.0%								
	October	0	0.0%								
	November	0	0.0%								
	December	0	0.0%								
Annual		2461	28.1%			192.1	28.1	8.6	1.6	0	0
2023	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	0	0.0%								
	October	11	1.5%	0.3	0.1	0.8	0.6	0.0	0.0	0	0
	November	720	100.0%	0.9	0.6	15.9	5.6	1.4	0.9	0	0
	December	741	99.6%	0.9	0.7	17.6	12.1	4.4	2.5	0	0
Annual		1472	16.8%			17.6	12.1	4.4	2.5	0	0

Observations in ppb

FIGURE 4.8.1.2 - DIRECTOR DRIVE ANNUAL NO_X / NO_2 CONCENTRATIONS



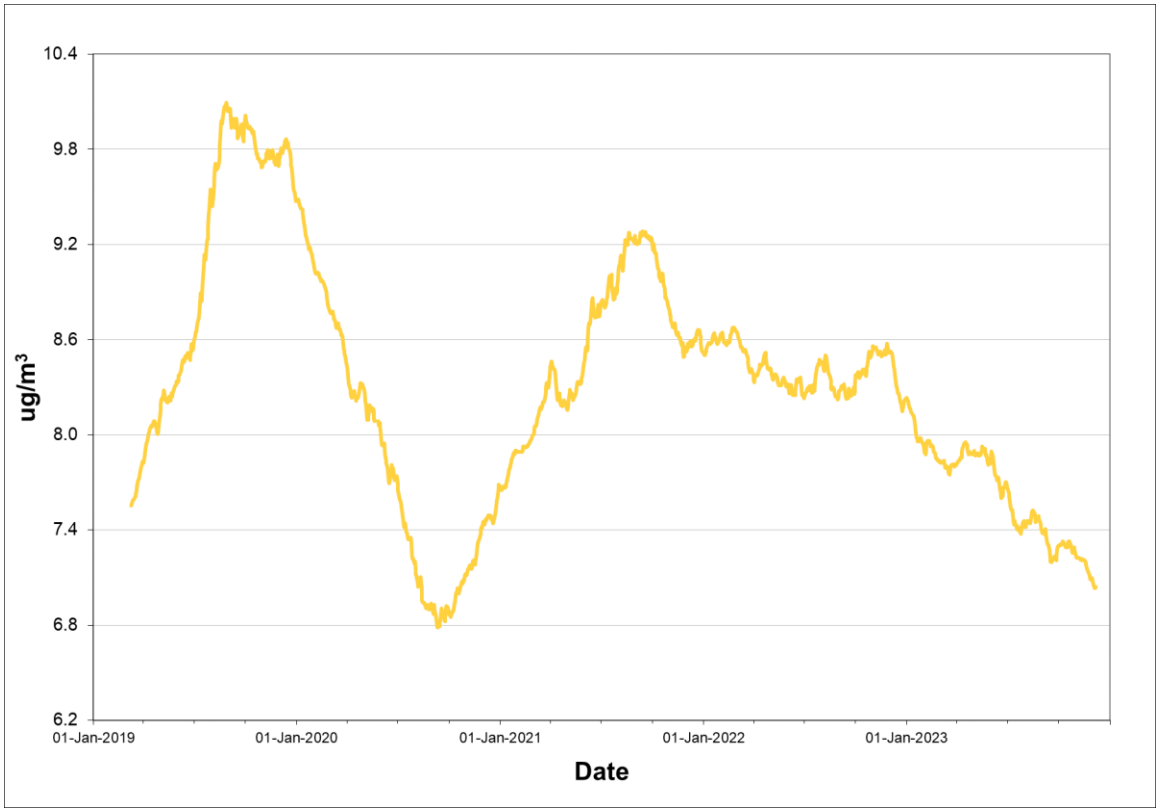
Rolling annual average of hourly concentrations

TABLE 4.8.1.3 - DIRECTOR DRIVE TPM SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	744	100.0%	10.4	23.2	0
	February	672	100.0%	9.7	25.5	0
	March	679	91.3%	9.4	20.4	0
	April	634	88.1%	8.2	19.3	0
	May	642	86.3%	10.0	22.6	0
	June	720	100.0%	7.7	30.0	0
	July	744	100.0%	8.4	22.5	0
	August	718	96.5%	5.6	16.5	0
	September	720	100.0%	7.6	27.6	0
	October	744	100.0%	8.1	18.8	0
	November	615	85.4%	9.2	19.4	0
	December	744	100.0%	6.5	18.2	0
Annual		8376	95.6%	8.2	30.0	0
2023	January	558	75.0%	6.3	17.1	0
	February	614	91.4%	8.5	19.0	0
	March	740	99.5%	9.0	38.0	0
	April	558	77.5%	9.4	21.0	0
	May	744	100.0%	9.3	34.3	0
	June	720	100.0%	5.8	36.5	0
	July	444	59.7%	5.2	18.9	0
	August	744	100.0%	5.3	20.7	0
	September	720	100.0%	6.5	39.3	0
	October	101	13.6%	9.1	13.9	0
	November	0	0.0%			
	December	0	0.0%			
Annual		5943	67.8%		39.3	0

Observations in µg/m³

FIGURE 4.8.1.3 - DIRECTOR DRIVE ANNUAL TPM CONCENTRATIONS



Rolling annual average of hourly concentrations

4.9 CEMEX

CEMEX, formerly known as Atlantic Minerals Limited, in late 2016 / early 2017, installed continuous $PM_{2.5}$ and TPM air quality 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 air quality monitoring station is shown in Figure 4.9.1.

FIGURE 4.9.1 - CEMEX AIR QUALITY MONITORING STATION

4.9.1 CEMEX Property Boundary

The CEMEX 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 $PM_{2.5}$ exceedances however there were eighteen TPM exceedances in May of the associated air quality standard and primarily due to stockpiling and port activities at the AML site. In July, the TPM monitor was taken off-line due to operational issues and remained off-line for the remainder of the year.

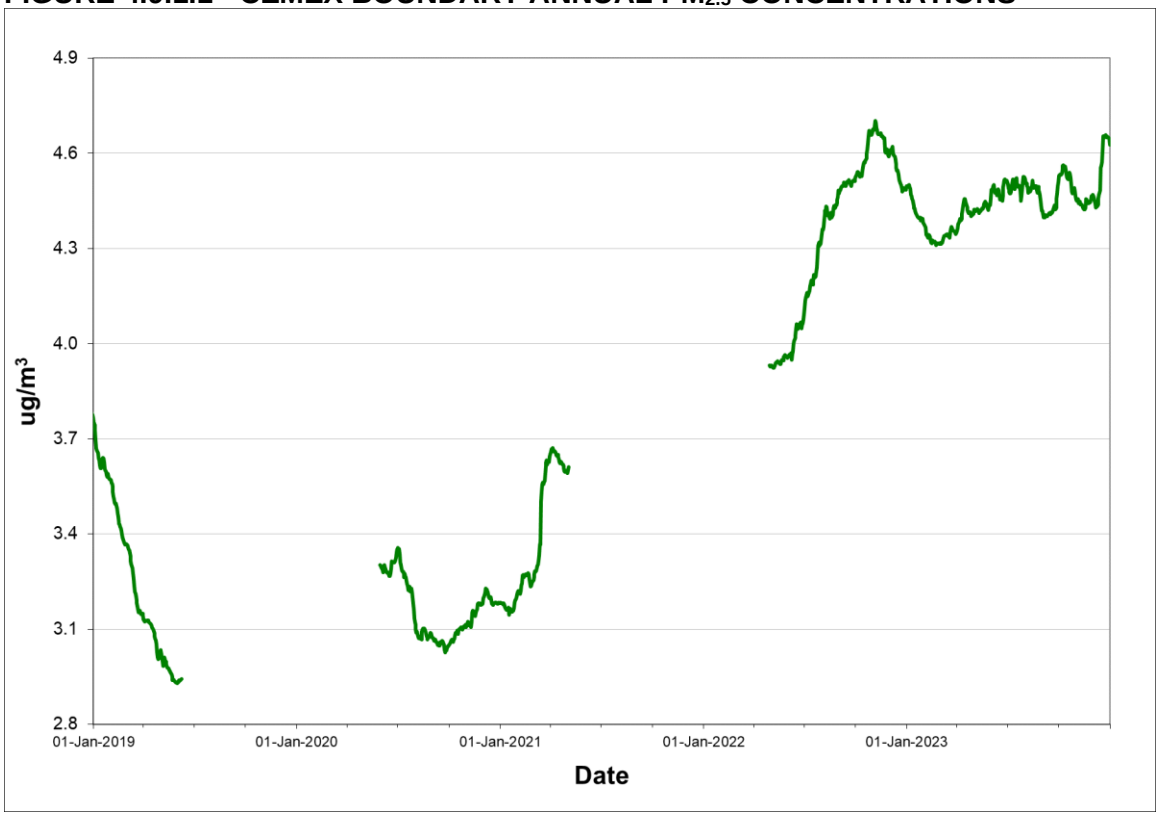
Annual graphics for $PM_{2.5}$ and TPM are presented in Figures 4.9.1.1 and 4.9.1.2 respectively.

TABLE 4.9.1.1 - CEMEX BOUNDARY $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	496	66.7%	5.5	10.8	0
	February	533	79.3%	4.4	11.4	0
	March	738	99.2%	3.3	6.0	0
	April	720	100.0%	3.9	7.4	0
	May	744	100.0%	4.2	8.3	0
	June	720	100.0%	5.2	10.8	0
	July	744	100.0%	5.7	13.7	0
	August	744	100.0%	6.1	11.3	0
	September	689	95.7%	4.0	9.4	0
	October	744	100.0%	4.8	11.5	0
	November	720	100.0%	3.5	8.6	0
	December	744	100.0%	3.5	7.8	0
Annual		8336	95.2%	4.5	13.7	0
2023	January	744	100.0%	3.8	8.8	0
	February	454	67.6%	3.1	6.0	0
	March	329	44.2%	2.9	8.0	0
	April	720	100.0%	4.6	10.4	0
	May	744	100.0%	4.8	10.7	0
	June	720	100.0%	5.7	14.4	0
	July	744	100.0%	5.9	14.0	0
	August	517	69.5%	5.2	9.9	0
	September	162	22.5%	6.8	15.1	0
	October	744	100.0%	4.4	11.6	0
	November	720	100.0%	3.5	9.6	0
	December	601	80.8%	5.2	23.6	0
Annual		7199	82.2%	4.6	23.6	0

Observations in µg/m³

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



Rolling annual average of hourly concentrations

TABLE 4.9.1.2 - CEMEX BOUNDARY TPM SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m³)
2022	January	524	70.4%	5.5	23.6	0
	February	633	94.2%	5.4	24.6	0
	March	641	86.2%	4.5	9.6	0
	April	720	100.0%	4.7	23.2	0
	May	744	100.0%	6.1	135.8	19
	June	376	52.2%	7.3	211.3	23
	July	402	54.0%	12.9	58.1	0
	August	744	100.0%	11.2	235.7	36
	September	688	95.6%	6.6	26.0	0
	October	744	100.0%	8.6	162.8	35
	November	720	100.0%	6.7	59.3	0
	December	744	100.0%	5.4	97.5	0
Annual		7680	87.7%	6.6	235.7	113
2023	January	744	100.0%	5.1	85.0	0
	February	672	100.0%	6.0	88.5	0
	March	744	100.0%	4.6	11.3	0
	April	720	100.0%	6.4	13.8	0
	May	744	100.0%	9.3	146.7	18
	June	720	100.0%	8.7	36.0	0
	July	386	51.9%	11.3	29.9	0
	August	0	0.0%			
	September	0	0.0%			
	October	0	0.0%			
	November	0	0.0%			
	December	0	0.0%			
Annual		4730	54.0%		146.7	18

Observations in µg/m³

FIGURE 4.9.1.2 - CEMEX 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, an air quality monitoring station was installed near the TSMC camp site. Figure 4.10.1 indicates the location of this air quality monitoring station.

FIGURE 4.10.1 - TSMC AIR QUALITY MONITORING STATION

4.10.1 TSMC Camp Site

The TSMC Camp Site air quality 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. The $PM_{2.5}$ monitor recorded two hundred and forty four hourly exceedances of the 24-hour air quality standard in 2023. Of these exceedances, sixty four occurred in June, one hundred and thirty two in July, twenty seven in September and twenty one in December. The exceedances in June, July and September all appear to be primarily related to smoke from wildfires in other jurisdictions, notably Quebec in June and July, and northern Alberta and the Northwest Territories in September. The December exceedances were due to localized effects, and may have been weather related.

There were no exceedances of the NO_2 air quality standards.

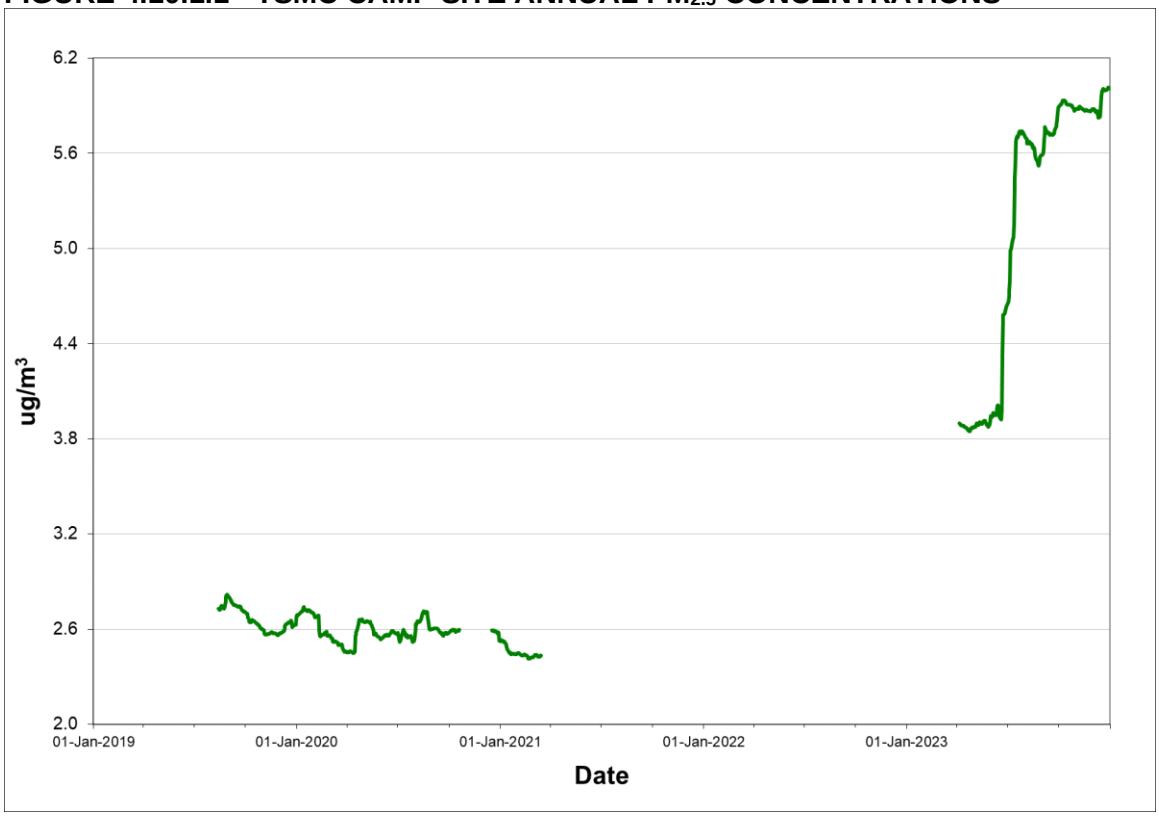
Figures 4.10.1.1 and 4.10.1.2 present the annualized trend for $PM_{2.5}$ and NO_x / NO_2 respectively.

TABLE 4.10.1.1 - TSMC CAMP SITE $PM_{2.5}$ SUMMARY 2022 & 2023

Year	Month	# Valid 24-Hour	% Valid 24-Hour	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m³)
2022	January	0	0.0%			
	February	0	0.0%			
	March	0	0.0%			
	April	0	0.0%			
	May	520	69.9%	3.9	8.0	0
	June	663	92.1%	4.6	16.8	0
	July	742	99.7%	4.0	9.6	0
	August	537	72.2%	5.9	19.0	0
	September	501	69.6%	2.8	4.8	0
	October	720	96.8%	3.3	6.9	0
	November	664	92.2%	3.8	5.9	0
	December	603	81.0%	4.0	12.3	0
Annual		4950	56.5%	4.0	19.0	0
2023	January	594	79.8%	4.4	24.8	0
	February	533	79.3%	3.7	12.8	0
	March	545	73.3%	2.4	4.2	0
	April	697	96.8%	3.5	8.3	0
	May	744	100.0%	4.7	15.9	0
	June	720	100.0%	12.1	127.0	64
	July	725	97.4%	15.4	85.3	132
	August	744	100.0%	4.6	20.8	0
	September	687	95.4%	6.9	31.0	27
	October	717	96.4%	3.1	13.5	0
	November	702	97.5%	3.9	6.5	0
	December	723	97.2%	5.8	36.5	21
Annual		8131	92.8%	6.0	127.0	244

Observations in µg/m³

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



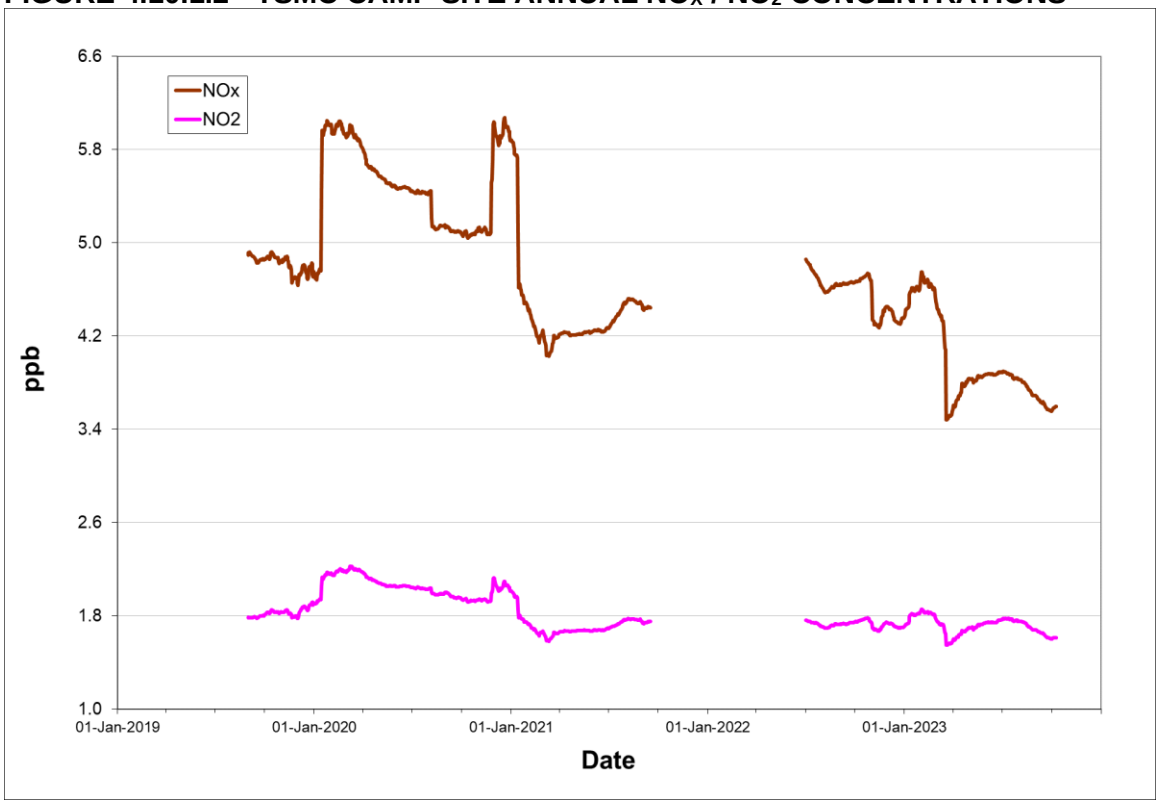
Rolling annual average of hourly concentrations

TABLE 4.10.1.2 - TSMC CAMP SITE NO_X / NO_2 SUMMARY 2022 & 2023

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	(>213)	(>106)
2022	January	635	85.3%	6.4	2.3	228.7	33.7	13.5	6.8	0	0
	February	668	99.4%	8.8	3.2	94.2	34.4	27.3	10.4	0	0
	March	740	99.5%	14.3	3.9	773.9	108.6	209.9	35.0	0	0
	April	690	95.8%	2.7	1.3	44.5	21.8	8.6	4.1	0	0
	May	733	98.5%	1.9	1.0	50.7	22.0	6.6	3.7	0	0
	June	719	99.9%	0.8	0.5	16.2	10.6	2.4	1.6	0	0
	July	744	100.0%	2.0	1.1	26.2	14.7	7.3	4.2	0	0
	August	743	99.9%	2.4	1.3	51.7	22.4	6.1	3.7	0	0
	September	716	99.4%	2.3	1.2	31.9	11.9	4.6	3.6	0	0
	October	741	99.6%	2.3	1.1	49.9	15.9	6.8	3.2	0	0
	November	718	99.7%	4.8	2.1	69.4	21.3	21.3	8.1	0	0
	December	744	100.0%	3.9	1.6	68.3	19.6	15.0	4.7	0	0
Annual		8591	98.1%	4.4	1.7	773.9	108.6	209.9	35.0	0	0
2023	January	744	100.0%	10.2	3.8	145.3	47.7	35.3	12.8	0	0
	February	537	79.9%	6.4	2.4	74.2	26.8	18.8	6.7	0	0
	March	508	68.3%	3.6	1.9	122.6	29.0	11.4	5.3	0	0
	April	720	100.0%	5.8	2.6	105.0	32.9	28.5	10.6	0	0
	May	741	99.6%	2.4	1.5	35.8	16.9	7.5	4.2	0	0
	June	719	99.9%	1.1	0.8	14.4	11.0	3.2	3.0	0	0
	July	738	99.2%	1.3	1.0	24.3	22.7	3.1	2.8	0	0
	August	722	97.0%	0.8	0.4	10.0	4.7	2.0	1.2	0	0
	September	705	97.9%	0.7	0.2	74.0	14.5	4.7	1.0	0	0
	October	324	43.5%	3.6	1.5	188.3	64.1	13.3	4.7	0	0
	November	719	99.9%	3.5	1.5	134.0	61.6	20.5	7.8	0	0
	December	744	100.0%	4.0	1.8	50.9	18.1	11.9	3.8	0	0
Annual		7921	90.4%	3.6	1.6	188.3	64.1	35.3	12.8	0	0

Observations in ppb

FIGURE 4.10.1.2 - TSMC CAMP SITE ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations