DEPARTMENT OF ENVIRONMENT AND CONSERVATION

2013 AMBIENT AIR MONITORING REPORT

February 2014

Executive Summary

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

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

In 2013, major forest fires in northern Quebec and Labrador resulted in poor air quality in the region from late June to mid-July. The remainder of the province experienced poor air quality for several days in early July as a consequence of the long-range transport of pollutants from the fires resulting in ambient air quality standards being exceeded in all regions of the province. Forest fires aside, the air quality at most monitoring stations indicated no exceedances of the ambient air quality standards. Additionally there were instances where an individual industry had emissions which approached or exceeded the associated ambient standard.

The report does not provide commentary into any trend identified in the data except in situations where there has been a technological change in the data collection system or there has been a change in the operating condition as in the case of industrial monitoring.

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1.0 Introduction

The ambient air quality in Newfoundland and Labrador is monitored through a joint effort between the Department of Environment and Conservation and Environment Canada via the National Air Pollution Surveillance (NAPS) network. In 2013, the Department operated stations at six locations as part of the (NAPS) network. Additionally the major industrial operations in the province are required to monitor the air quality near their operations for select pollutants. The Department audits the operation of these industrial monitoring networks on a regular basis.

In general the air quality in the province is good as indicated by the levels recorded at the various monitors. However in 2013, major forest fires in Labrador and northern Quebec in late June and early July resulted in an extended period of poorer air quality in western Labrador and several days of poor air quality elsewhere in the province. Additionally there were instances where an individual industry had emissions which approached or exceeded the associated ambient standard, and instances when elevated air pollutant levels, particularly ozone, were seen as a result of long range transport. Local emissions, such as those from vehicular traffic and woodstoves, also impact air quality on a routine basis.

This report provides summary information and trends from all air quality monitors in Newfoundland and Labrador which were either operated or audited by the Department in 2013. All monitoring stations are required to meet minimum standards set out by the NAPS network and those defined in the Departmental Ambient Air Monitoring Guidelines (http://www.env.gov.nl.ca/env/env_protection/science/gd_ppd_065.pdf). Additionally all data has gone through a data reduction and quality assurance process to account for any anomalous readings or system malfunctions.

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

1.1 Definitions

The following definitions are used throughout this report:

AQHI	Air Quality Health Index
CO	Carbon Monoxide
IOCC	Iron Ore Company of Canada
NALCOR	NALCOR Energy
NARL	North Atlantic Refining Limited
NAPS	National Air Pollution Surveillance
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
O_3	Ozone
$PM_{2.5}$	Particulate Matter less than or equal to 2.5 microns
PM_{10}	Particulate Matter less than or equal to 10 microns
SO_2	Sulphur Dioxide
TPM	Total Particulate Matter
$\mu g/m^3$	Micrograms per cubic metre
VALE	VALE Newfoundland and Labrador

2.0 Monitoring Network

Five categories of pollutants are measured at the monitoring networks in the province, though not all networks monitor all pollutants. The monitored pollutants are sulphur dioxide (SO_2), oxides of nitrogen (NO_x) (which includes nitric oxide (NO) and nitrogen dioxide (NO_2)), carbon monoxide (CO), particulate matter (PM) (which includes particles less than 2.5 microns ($PM_{2.5}$), particles less than 10 microns (PM_{10}) and total particulate matter (TPM)), and ozone (O_3). Volatile organic compounds, (VOCs) are also measured periodically at the NAPS stations, but are 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 3 mechanisms, namely thermal NO_x, fuel NO_x and prompt NO_x. Thermal NO_x is the primary source of NO_x and is formed as a high temperature dissociation and subsequent reaction of nitrogen (N_2) and oxygen (O_2). It is produced in the hottest part of the flame and its formation increases exponentially with the flame temperature. The control of thermal NO_x is generally achieved through reducing the flame temperature, reducing the residence time, or by operating under fuel rich conditions. Fuel NO_x is formed by the reaction of nitrogen compounds chemically bound in liquid or solid fuels with oxygen in the combustion air. In the combustion of such fuels, fuel NO_x can account for up to 50% of the total NO_x emissions. Prompt NO_x is formed from the rapid reaction of atmospheric nitrogen with hydrocarbon radicals, and typically under partially fuel-rich conditions. It can be reduced through combustion staging or by operating under highly oxidizing combustion conditions.

NO_2 is the primary component of concern in NO_x emissions. Generally between 5% and 10% of the NO_x emitted from the combustion of fuel is emitted as NO_2. The remainder is emitted as NO, which is subsequently converted to NO_2 in reactions with various oxidants and oxygen 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 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 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 2.5 microns in diameter ($PM_{2.5}$) is believed to pose the greatest health risks as it can lodge deeply into the lungs; a $PM_{2.5}$ particle is approximately $1/30^{th}$ the average width of a human hair. Typically these smaller particles are suspended in the air for long periods of time. Total Particulate Matter (TPM) is the term applied to any particle suspended in the atmosphere, but depending on the monitoring method, is typically limited to particulate matter less than 44 microns. Particulate larger than 10 microns is typically associated with a nuisance issue rather than a health issue.

2.1.3 Carbon Monoxide (CO)

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

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

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

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

2.1.4 Sulphur Dioxide (SO_2)

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

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

2.1.5 Ozone (O_3)

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

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

2.2 Ambient Air Standards

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

TABLE 2.2.1 - AMBIENT AIR STANDARDS IN NEWFOUNDLAND AND LABRADOR

POLLUTANT	AVERAGING PERIOD	CONCENTRATION ($\mu g/m^3$)
CARBON MONOXIDE (CO)	1-HOUR 8-HOUR	35000 15000
NITROGEN DIOXIDE (NO_2)	1-HOUR 24-HOUR 1-YEAR	400 200 100
OZONE	1-HOUR 8-HOUR	160 87
PARTICULATE MATTER < 2.5 MICRONS ($PM_{2.5}$)	24-HOUR	25
PARTICULATE MATTER < 10 MICRONS (PM_{10})	24-HOUR	50
TOTAL PARTICULATE MATTER (TPM)	24-HOUR 1-YEAR	120 60
SULPHUR DIOXIDE (SO_2)	1-HOUR 3-HOUR 24-HOUR 1-YEAR	900 600 300 60

2.3 Monitoring in Newfoundland and Labrador

Table 2.3.1 provides the listing of monitoring stations in the province that measured pollutants during 2013. Figure 2.0.1 provides a picture of a typical ambient air monitoring station.

TABLE 2.3.1 - POLLUTANT MONITORING IN NEWFOUNDLAND AND LABRADOR

		POLLUTANT						
OPERATOR	**STATION LOCATION**	**SO_2**	**NO_X / NO_2**	**O_3**	**TPM**	**PM_{10}**	**$PM_{2.5}$**	**CO**
ENVIRONMENT AND CONSERVATION + ENVIRONMENT CANADA (NAPS)	WATER STREET, ST. JOHN'S	✓	✓	✓			✓	✓
	OLD PLACENTIA ROAD, MOUNT PEARL	✓	✓	✓			✓	✓
	MACPHERSON AVENUE, CORNER BROOK	✓	✓	✓			✓	✓
	SCOTT AVENUE, GRAND FALLS WINDSOR	✓	✓	✓			✓	✓
	PORT AUX CHOIX			✓				
	BURIN	✓	✓	✓		✓	✓	✓
NALCOR ENERGY	BUTTERPOT ROAD	✓	✓				✓	
	GREEN ACRES ROAD	✓	✓		✓		✓	
	INDIAN POND DRIVE	✓	✓		✓		✓	
	INDIAN POND ROAD	✓	✓		✓		✓	
	LAWRENCE POND ROAD	✓	✓		✓		✓	
	PROPERTY BOUNDARY				✓		✓	

		POLLUTANT						
OPERATOR	**STATION LOCATION**	**SO_2**	**NO_X / NO_2**	**O_3**	**TPM**	**PM_{10}**	**$PM_{2.5}$**	**CO**
NORTH ATLANTIC REFINING LIMITED	COME BY CHANCE	✓					✓	
	FIRST STREET, ARNOLD'S COVE	✓					✓	
	SUNNYSIDE	✓					✓	
	PROPERTY BOUNDARY	✓					✓	
CORNER BROOK PULP AND PAPER	MAIN STREET	✓			✓		✓	
	WEST STREET				✓			
IRON ORE COMPANY OF CANADA	HUDSON DRIVE				✓			
	BARTLETT DRIVE				✓			
	INDIAN POINT	✓	✓		✓		✓	
	SMOKEY MOUNTAIN	✓	✓		✓		✓	
	TAMARACK DRIVE	✓	✓		✓		✓	
VALE NEWFOUNDLAND AND LABRADOR LIMITED	VOISEY'S BAY CAMP		✓				✓	
	VOISEY'S BAY PROCESS AREA		✓					
	VOISEY'S BAY PORT				✓			
	LONG HARBOUR COMMUNITY CENTRE		✓				✓	
	LONG HARBOUR MAIN ROAD		✓				✓	
	LONG HARBOUR PROPERTY BOUNDARY		✓				✓	
WABUSH MINES	BOND AVENUE	✓			✓		✓	
	HYDRO SUBSTATION				✓	✓	✓	

FIGURE 2.0.1 - TYPICAL AMBIENT AIR MONITORING STATION

NAPS monitoring station in Mt. Pearl

2.4 Air Quality Health Index (AQHI)

The Air Quality Health Index (AQHI) is a numerical scale designed to help an individual understand what the air quality means to your 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 the hourly AQHI is published to the Environment 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 data monitored in both the NAPS network and the industrial monitoring network undergoes a data reduction and quality assurance 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

In 2010, the department developed its Guidance Document on Ambient Air Monitoring (GD-PPD-065) which further prescribes monitoring requirements. The document is available at http://www.env.gov.nl.ca/env/env_protection/science/gd_ppd_065.pdf

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 2013 there were five permanent sites operational with a complete suite monitoring (SO_2, $PM_{2.5}$ NO_x / NO_2, CO and O_3), and one which monitored O_3 only. The NAPS stations with a complete suite of monitoring provide the data necessary to calculate the AQHI.

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

A map identifying the location of the NAPS stations in the greater St. John's area is presented in Figure 3.0.1, while the location of the Grand Falls Windsor station is presented in Figure 3.0.2. The location of the Corner Brook station is presented in Figure 3.0.3 while Figure 3.0.4 presents the location of the Port aux Choix Station. The location of the Burin station is presented in Figure 3.0.5.

FIGURE 3.0.1 - NAPS MONITORING STATIONS IN GREATER ST. JOHN'S

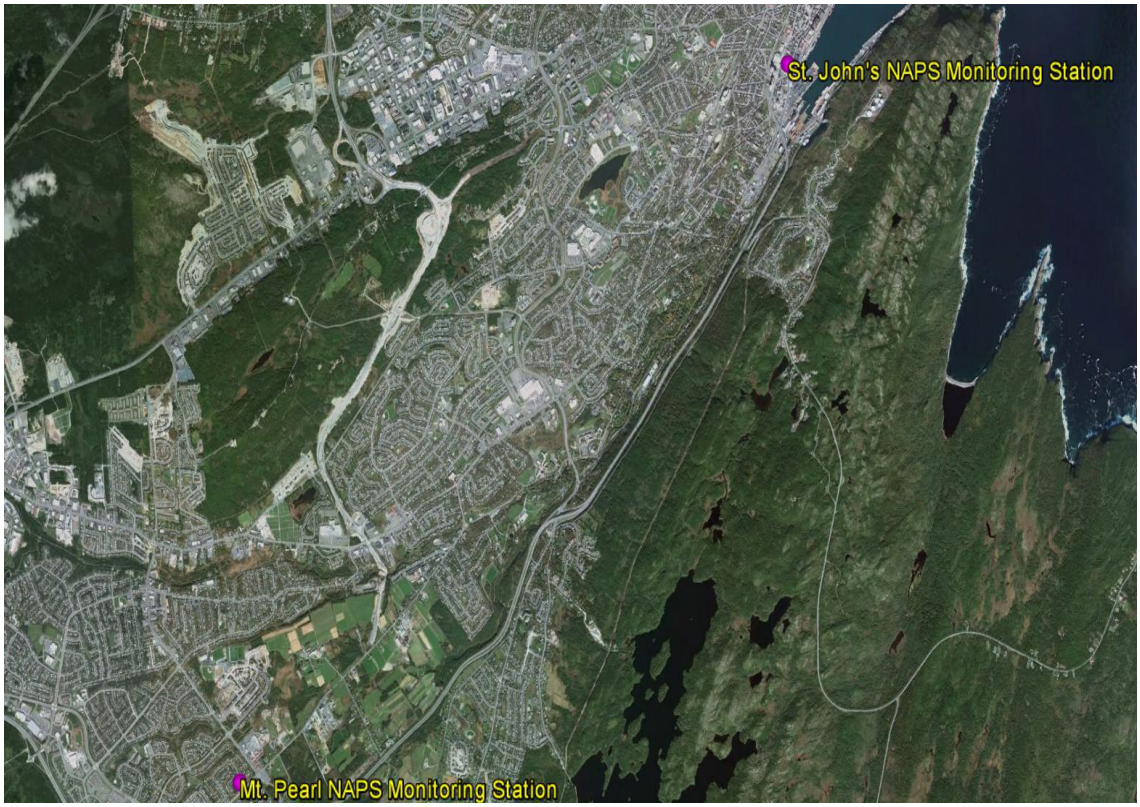


FIGURE 3.0.2 - NAPS MONITORING STATION IN GRAND FALLS WINDSOR

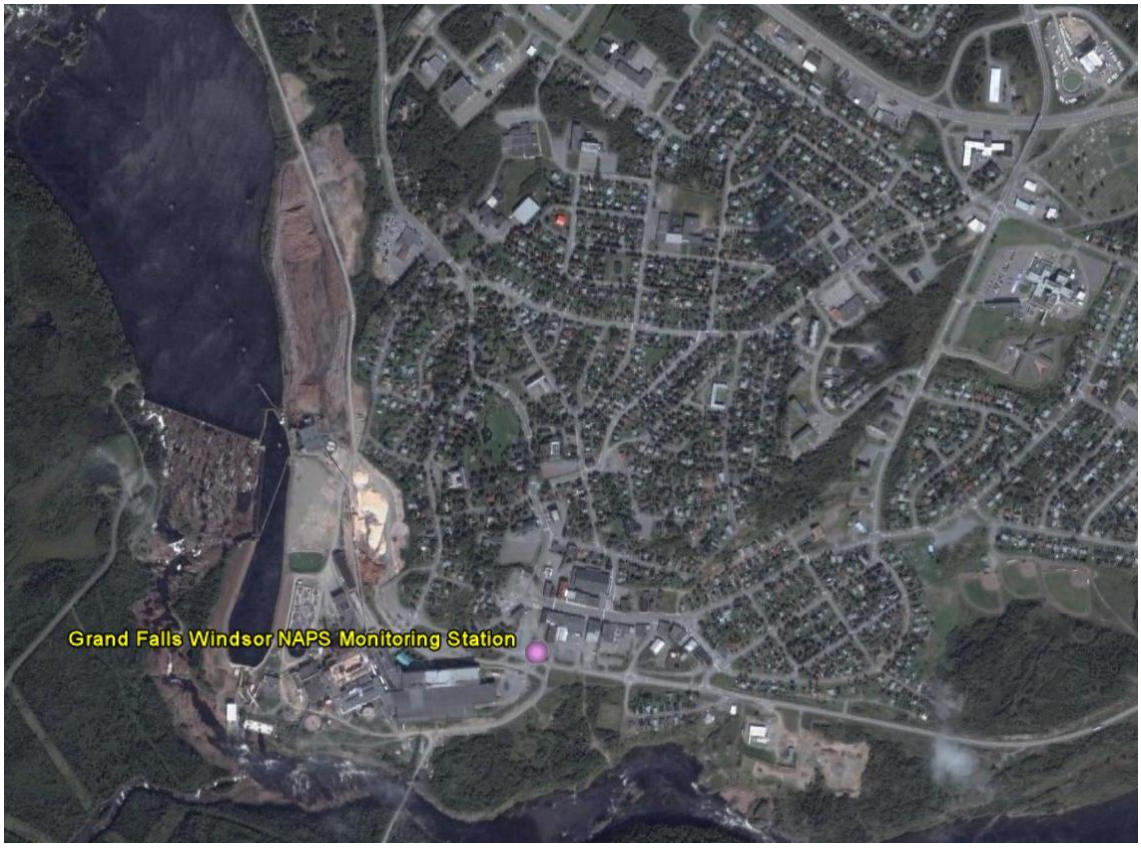


FIGURE 3.0.3 - NAPS MONITORING STATION IN CORNER BROOK

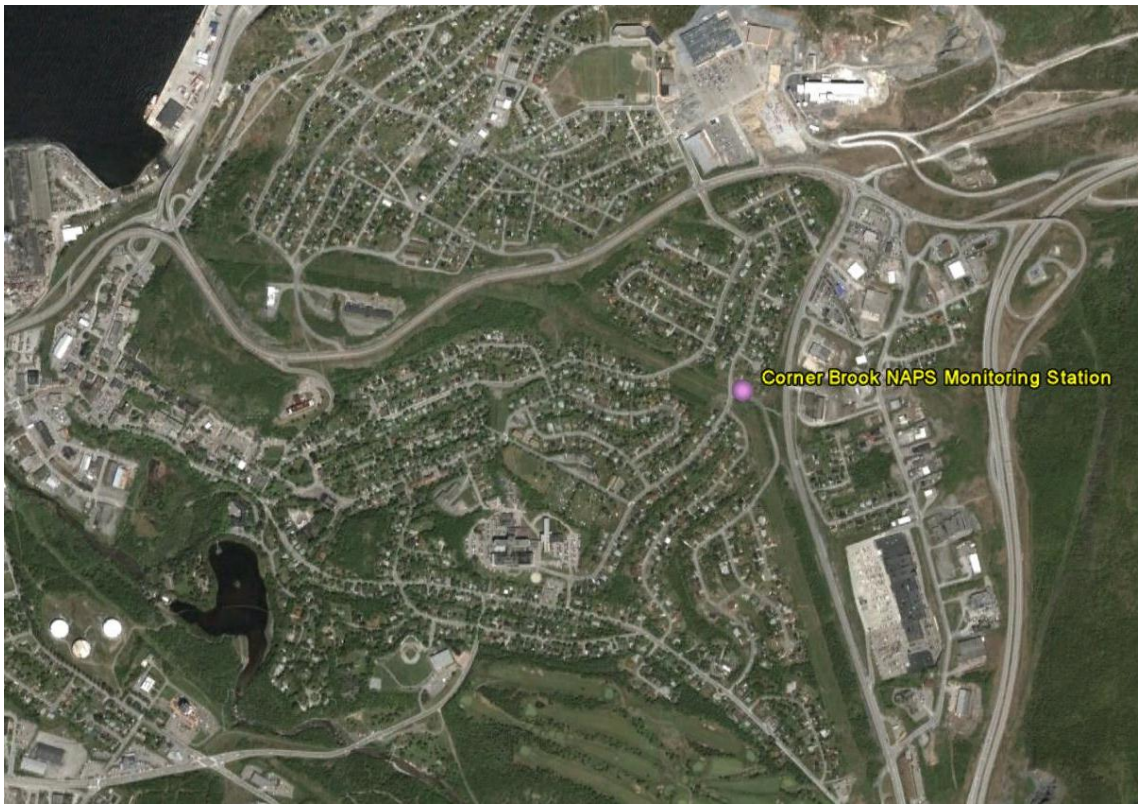


FIGURE 3.0.4 - NAPS MONITORING STATION IN PORT AUX CHOIX

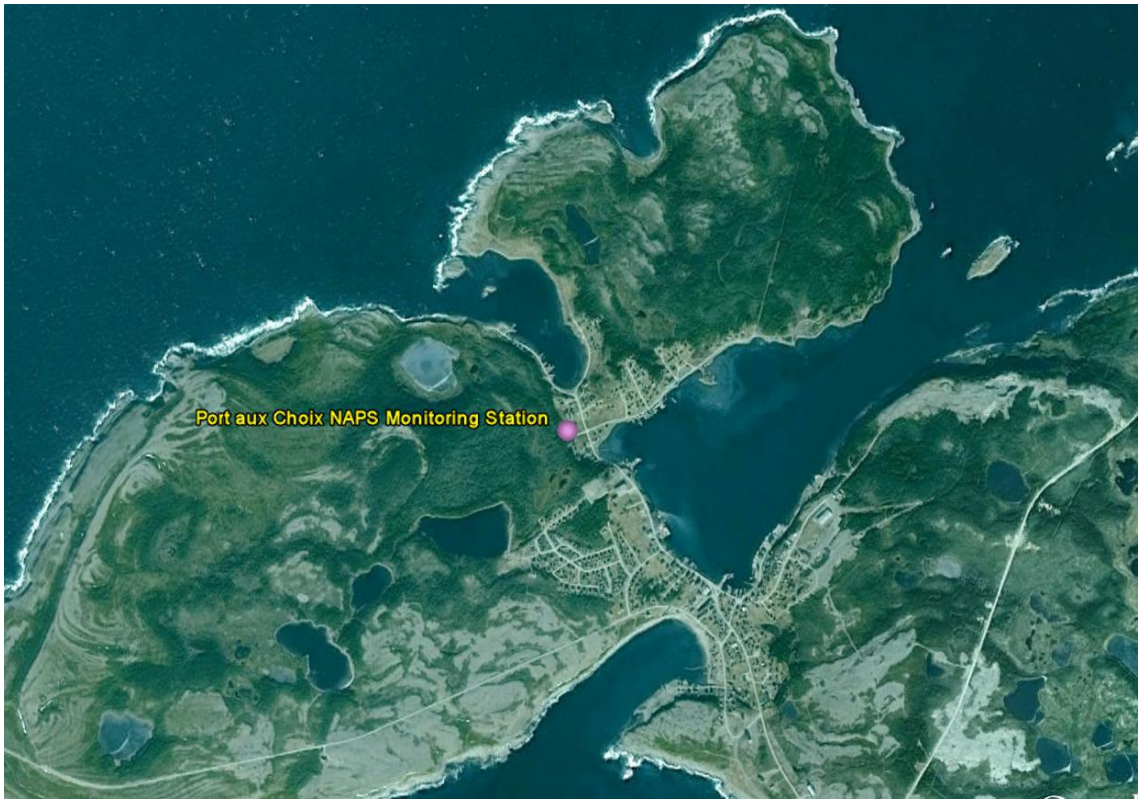
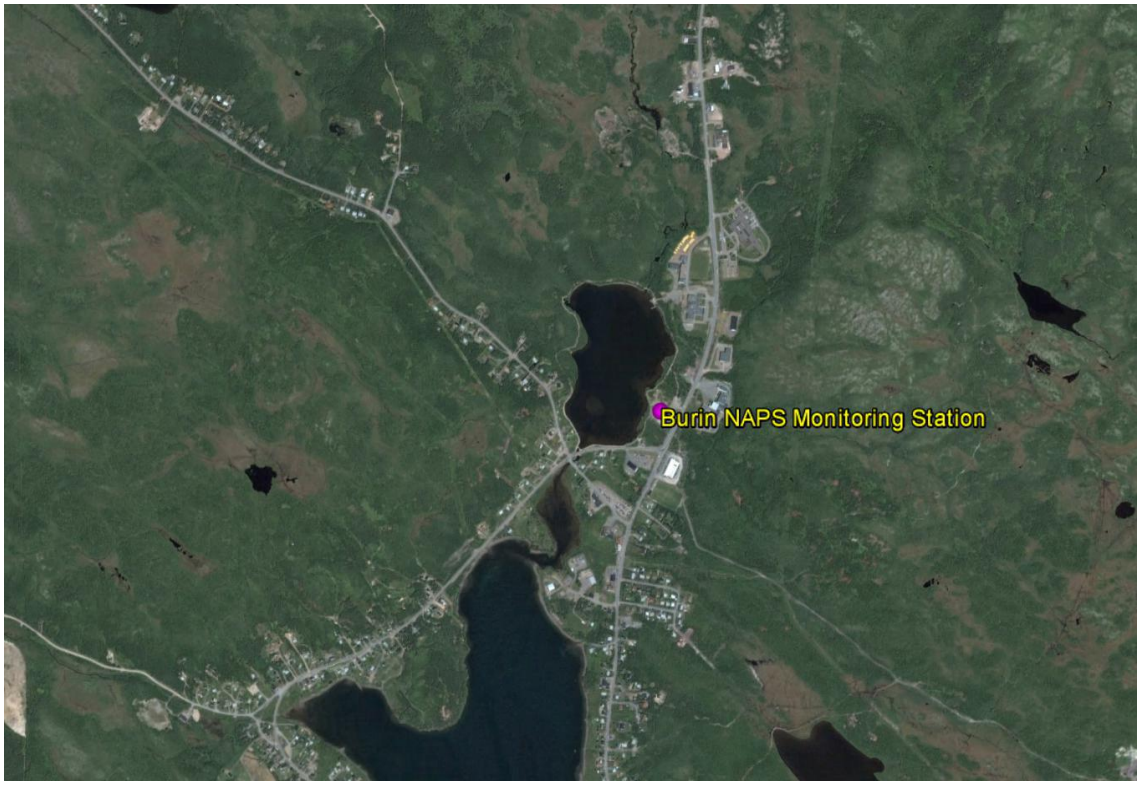


FIGURE 3.0.5 - NAPS MONITORING STATION IN BURIN



3.1 St. John's

The St. John's NAPS monitoring station is located on Water Street near the convention centre and monitors the ambient levels of SO_2, NO_x / NO_2, CO, O_3 and $PM_{2.5}$ on a continuous basis. For SO_2, NO_x / NO_2, and CO, the ambient air criteria were not exceeded on any occasion in 2013. For O_3, the 8-hour standard was exceeded ten times between February and August, while the 24-hour $PM_{2.5}$ standard was exceed on two occasions in July.

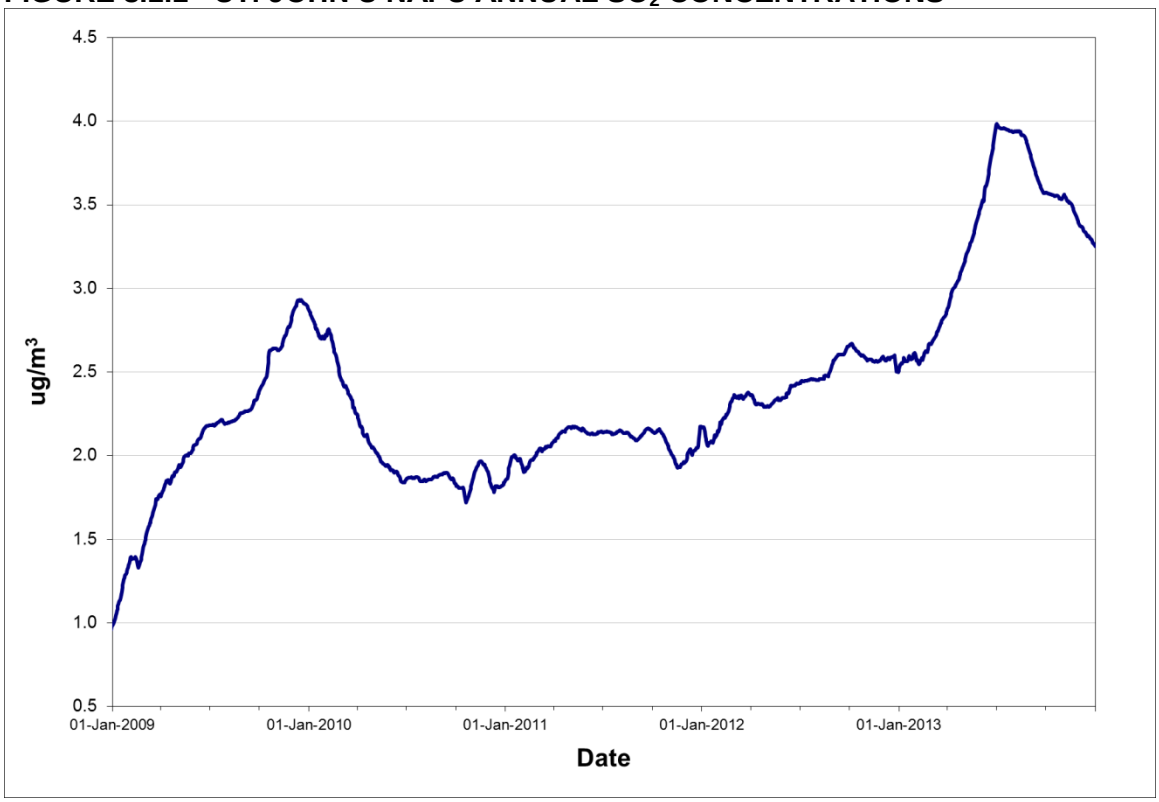
Tables 3.1.1 through 3.1.5 present the summary information on the level of air contaminants measured at the St. John's NAPS station, while Figures 3.1.1 through 3.1.5 provide a graphical representation of the annual trend of each pollutant. Table 3.1.6 provides a summary of the AQHI while Figure 3.1.6 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2013.

TABLE 3.1.1 - ST. JOHN'S NAPS SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	742	99.7%	4.1	30.5	22.3	10.6	0	0	0
	February	695	99.9%	5.9	50.7	32.9	15.0	0	0	0
	March	740	99.5%	2.7	17.8	9.4	5.8	0	0	0
	April	717	99.6%	1.4	15.8	9.6	3.2	0	0	0
	May	740	99.5%	1.4	8.0	5.2	3.1	0	0	0
	June	719	99.9%	2.2	52.8	31.6	8.4	0	0	0
	July	740	99.5%	1.2	14.0	8.9	3.5	0	0	0
	August	743	99.9%	1.8	21.7	18.7	6.6	0	0	0
	September	497	69.0%	3.2	13.5	11.8	5.1	0	0	0
	October	714	96.0%	1.1	8.3	3.6	1.7	0	0	0
	November	596	82.8%	2.4	9.9	8.4	4.2	0	0	0
	December	741	99.6%	2.8	15.0	12.1	4.6	0	0	0
Annual		8384	95.4%	2.5	52.8	32.9	15.0	0	0	0
2013	January	630	84.7%	6.0	29.0	22.8	10.0	0	0	0
	February	669	99.6%	6.7	40.1	36.0	16.0	0	0	0
	March	729	98.0%	5.0	13.9	11.7	7.1	0	0	0
	April	623	86.5%	4.7	14.7	13.4	7.5	0	0	0
	May	693	93.1%	5.1	15.2	12.4	6.4	0	0	0
	June	717	99.6%	7.9	47.8	41.0	19.2	0	0	0
	July	734	98.7%	0.7	11.5	10.1	5.2	0	0	0
	August	739	99.3%	0.5	13.3	9.0	2.2	0	0	0
	September	713	99.0%	0.6	5.4	4.9	2.2	0	0	0
	October	711	95.6%	0.7	3.9	3.4	1.7	0	0	0
	November	632	87.8%	0.5	4.3	3.4	1.9	0	0	0
	December	742	99.7%	1.3	18.9	12.1	3.8	0	0	0
Annual		8332	95.1%	3.3	47.8	41.0	19.2	0	0	0

Observations in ug/m^3

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



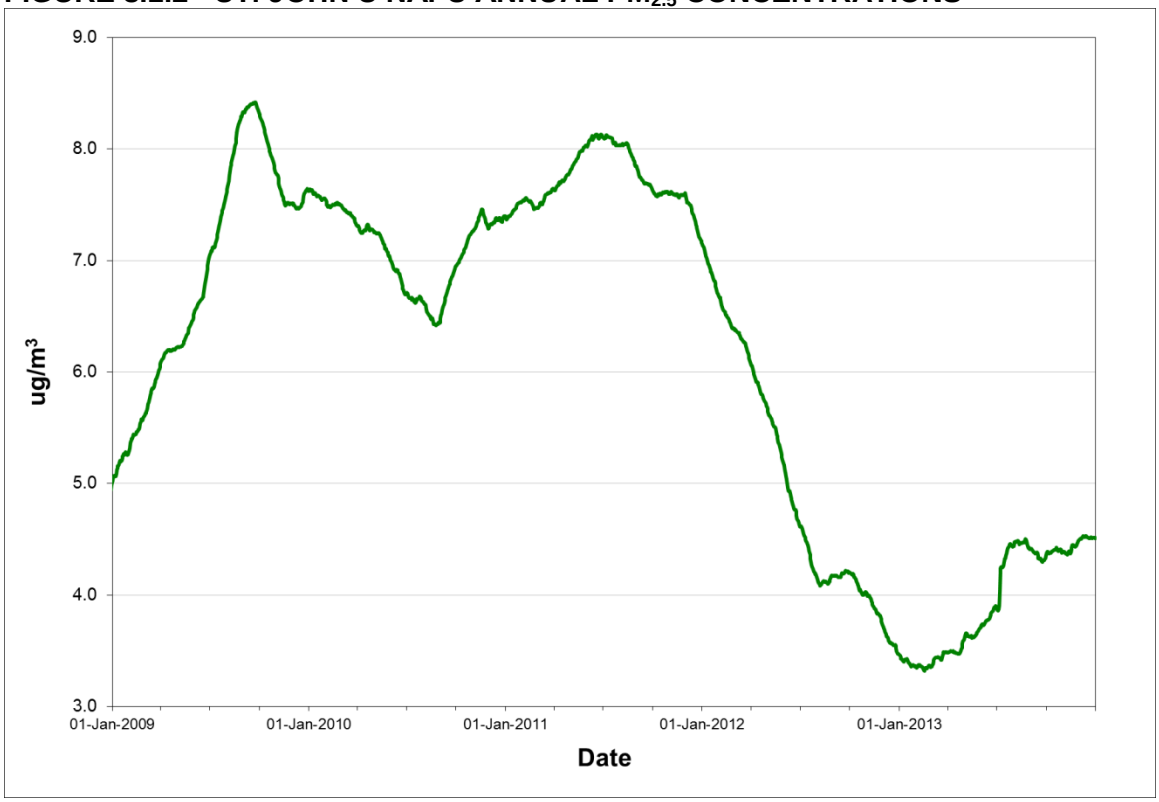
Rolling annual average of hourly concentrations

TABLE 3.1.2 - ST. JOHN'S NAPS $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	3.2	6.4	0
	February	26	89.7%	2.9	7.3	0
	March	10	32.3%	1.8	4.3	0
	April	30	100.0%	4.0	7.3	0
	May	31	100.0%	3.8	9.6	0
	June	30	100.0%	3.3	7.5	0
	July	31	100.0%	4.3	11.9	0
	August	31	100.0%	5.8	10.2	0
	September	26	86.7%	4.5	11.6	0
	October	31	100.0%	3.1	8.1	0
	November	24	80.0%	1.9	6.0	0
	December	31	100.0%	1.7	5.6	0
Annual		332	90.7%	3.5	11.9	0
2013	January	24	77.4%	1.6	5.7	0
	February	27	96.4%	2.9	6.4	0
	March	30	96.8%	4.3	12.1	0
	April	25	83.3%	5.6	16.8	0
	May	25	80.6%	5.4	10.3	0
	June	30	100.0%	5.4	8.7	0
	July	31	100.0%	10.1	60.5	2
	August	31	100.0%	5.6	13.8	0
	September	30	100.0%	3.8	12.8	0
	October	31	100.0%	3.4	11.5	0
	November	30	100.0%	3.7	9.5	0
	December	30	96.8%	1.7	5.4	0
Annual		344	94.2%	4.5	60.5	2

Observations in ug/m^3

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



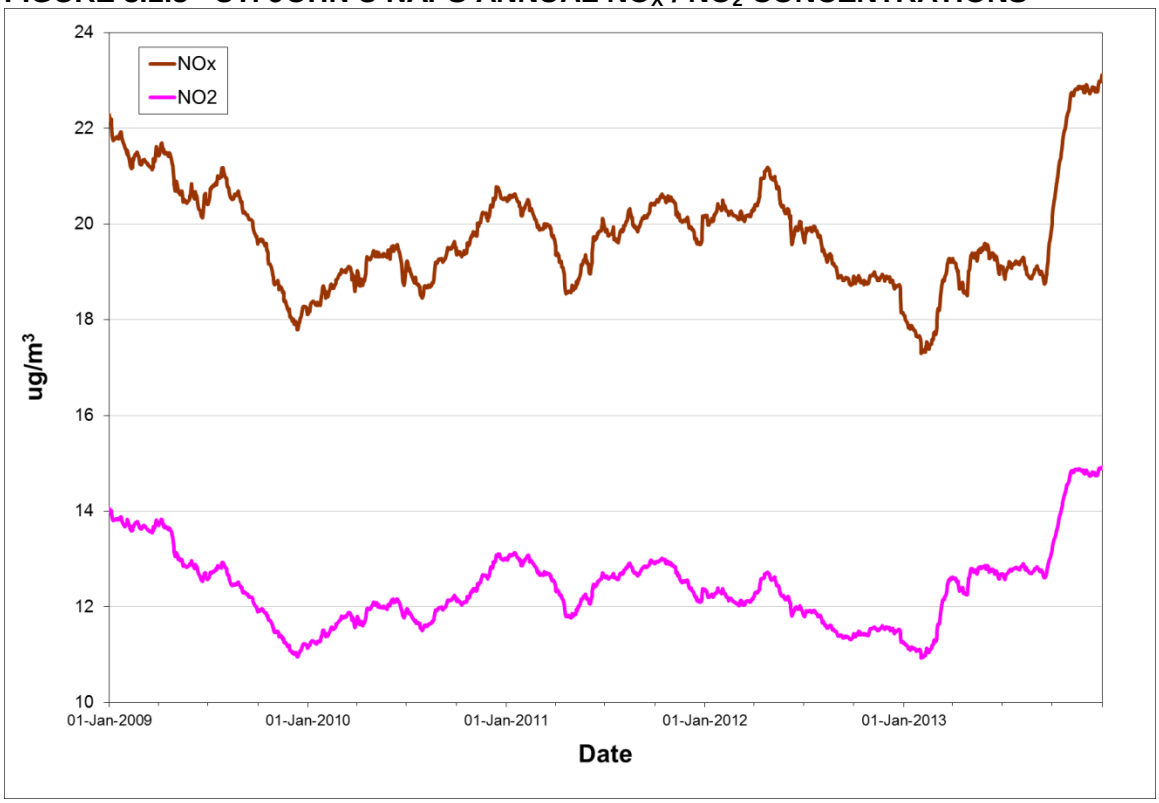
Rolling annual average of daily concentrations

TABLE 3.1.3 - ST. JOHN'S NAPS NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	741	99.6%	21.3	13.3	186.1	71.2	53.3	31.2	0	0
	February	695	99.9%	18.5	11.7	300.8	77.2	81.4	39.5	0	0
	March	734	98.7%	17.6	12.5	170.0	69.7	49.1	29.8	0	0
	April	718	99.7%	22.3	13.6	398.1	100.5	77.8	37.3	0	0
	May	741	99.6%	15.9	10.0	219.4	73.4	36.7	26.2	0	0
	June	719	99.9%	25.2	13.8	231.7	66.3	62.2	27.7	0	0
	July	741	99.6%	15.3	8.3	193.6	75.4	61.9	27.0	0	0
	August	743	99.9%	14.7	8.2	275.7	99.0	63.2	24.5	0	0
	September	640	88.9%	16.5	9.9	138.8	57.7	31.0	19.5	0	0
	October	712	95.7%	19.6	12.3	178.1	67.7	48.1	24.7	0	0
	November	596	82.8%	16.0	10.9	180.6	61.3	48.9	26.7	0	0
	December	740	99.5%	14.1	10.5	145.2	66.9	37.4	27.7	0	0
Annual		8520	97.0%	18.1	11.2	398.1	100.5	81.4	39.5	0	0
2013	January	630	84.7%	15.0	11.5	241.3	76.1	38.0	24.4	0	0
	February	669	99.6%	19.8	14.1	182.7	82.8	61.8	42.9	0	0
	March	729	98.0%	35.2	27.7	249.5	95.2	76.5	54.5	0	0
	April	622	86.4%	20.0	13.7	283.6	96.0	86.3	56.7	0	0
	May	693	93.1%	22.3	12.8	374.4	84.2	75.3	46.2	0	0
	June	717	99.6%	19.9	12.0	161.7	63.7	56.2	27.9	0	0
	July	735	98.8%	16.0	9.3	245.3	58.7	46.4	25.9	0	0
	August	739	99.3%	13.4	8.3	124.3	72.5	37.4	23.6	0	0
	September	714	99.2%	28.0	14.7	221.1	47.8	95.5	33.8	0	0
	October	734	98.7%	46.1	28.3	163.2	44.1	79.9	37.0	0	0
	November	714	99.2%	21.6	13.6	96.7	44.3	59.2	38.3	0	0
	December	742	99.7%	18.3	12.2	272.9	76.8	60.1	32.2	0	0
Annual		8438	96.3%	23.1	14.9	374.4	96.0	95.5	56.7	0	0

Observations in ug/m^3

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



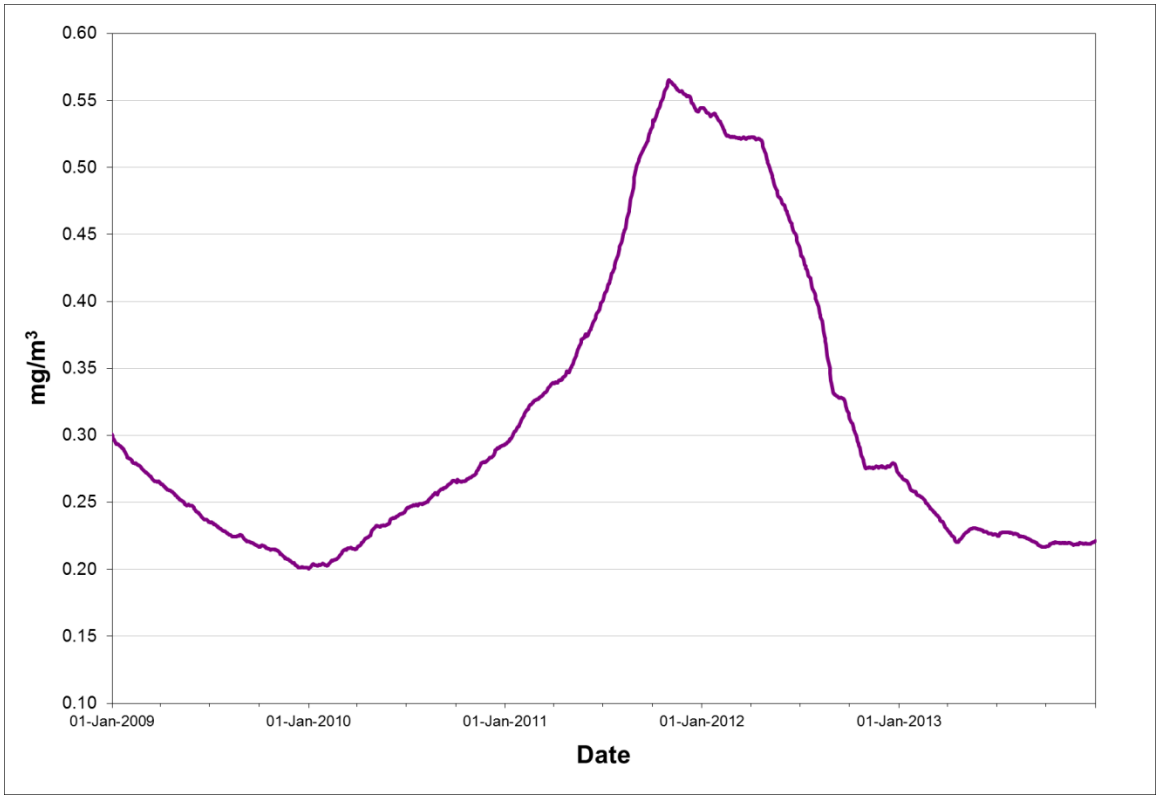
Rolling annual average of hourly concentrations

TABLE 3.1.4 - ST. JOHN'S NAPS CO SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>35)	Regulatory Exceedances 8-Hour (>15)
2012	January	738	99.2%	0.4	1.0	0.7	0	0
	February	695	99.9%	0.4	1.6	0.7	0	0
	March	743	99.9%	0.5	1.1	0.8	0	0
	April	687	95.4%	0.3	0.9	0.8	0	0
	May	739	99.3%	0.2	0.5	0.4	0	0
	June	719	99.9%	0.2	1.0	0.5	0	0
	July	742	99.7%	0.2	0.6	0.5	0	0
	August	743	99.9%	0.2	0.6	0.5	0	0
	September	639	88.8%	0.2	0.7	0.5	0	0
	October	740	99.5%	0.2	1.0	0.6	0	0
	November	596	82.8%	0.2	1.2	0.6	0	0
	December	741	99.6%	0.2	0.9	0.5	0	0
Annual		8522	97.0%	0.3	1.6	0.8	0	0
2013	January	605	81.3%	0.2	0.8	0.4	0	0
	February	659	98.1%	0.2	1.0	0.6	0	0
	March	729	98.0%	0.3	0.8	0.5	0	0
	April	621	86.3%	0.3	0.6	0.4	0	0
	May	693	93.1%	0.2	0.7	0.4	0	0
	June	718	99.7%	0.2	1.0	0.4	0	0
	July	736	98.9%	0.2	1.1	0.9	0	0
	August	740	99.5%	0.2	0.5	0.4	0	0
	September	715	99.3%	0.2	0.6	0.4	0	0
	October	734	98.7%	0.3	1.6	0.9	0	0
	November	714	99.2%	0.2	0.7	0.6	0	0
	December	742	99.7%	0.2	1.0	0.5	0	0
Annual		8406	96.0%	0.2	1.6	0.9	0	0

Observations in mg/m^3

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



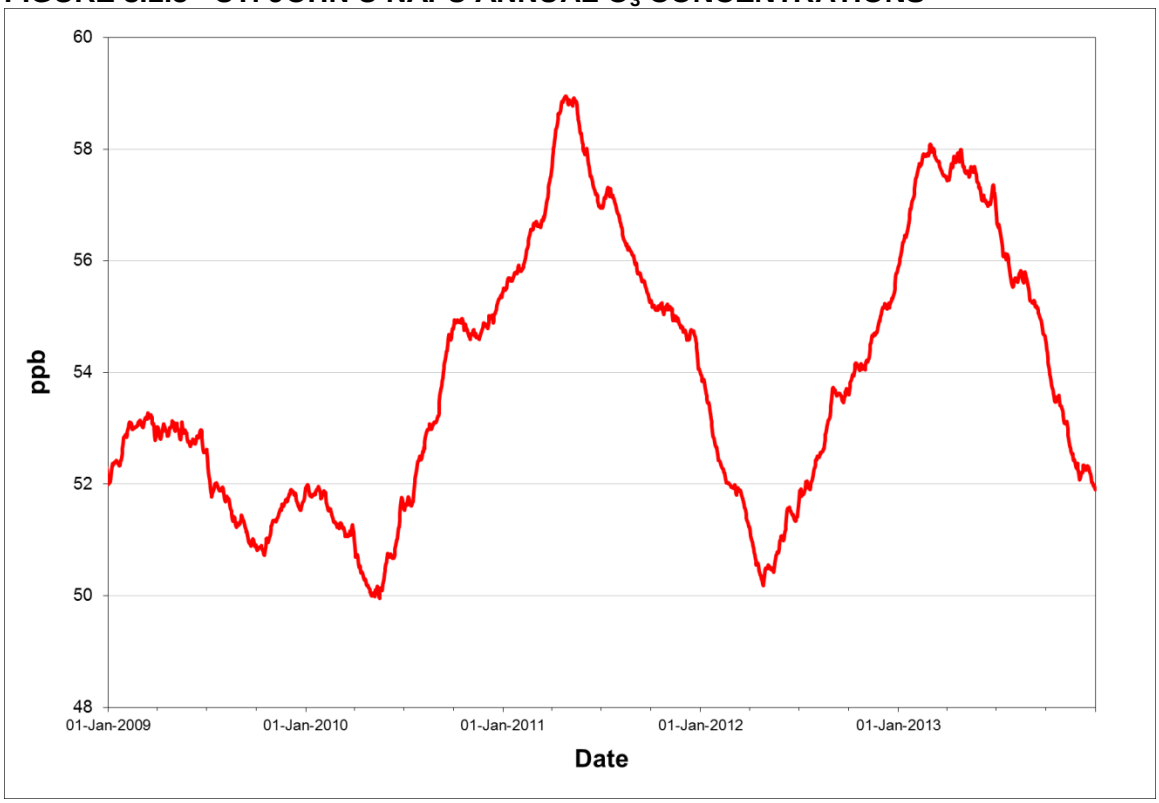
Rolling annual average of hourly concentrations

TABLE 3.1.5 - ST. JOHN'S NAPS O_3 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2012	January	739	99.3%	46.7	71.8	68.5	0	0
	February	695	99.9%	59.2	82.9	76.4	0	0
	March	715	96.1%	64.2	90.1	85.4	0	0
	April	718	99.7%	61.2	107.6	101.5	0	4
	May	741	99.6%	59.8	98.5	89.7	0	1
	June	719	99.9%	49.0	106.5	81.8	0	0
	July	740	99.5%	56.4	117.7	97.7	0	4
	August	743	99.9%	50.4	105.1	90.3	0	1
	September	639	88.8%	48.4	104.8	99.1	0	1
	October	726	97.6%	51.0	89.4	77.1	0	0
	November	596	82.8%	62.9	89.2	85.1	0	0
	December	739	99.3%	61.9	82.9	79.1	0	0
Annual		8510	96.9%	55.9	117.7	101.5	0	11
2013	January	630	84.7%	63.6	81.3	80.3	0	0
	February	669	99.6%	69.6	91.4	90.5	0	4
	March	108	14.5%	55.1	137.2	73.3	0	0
	April	560	77.8%	65.2	95.0	92.6	0	4
	May	693	93.1%	55.6	91.7	84.6	0	0
	June	717	99.6%	45.5	84.1	79.4	0	0
	July	737	99.1%	41.6	88.2	76.2	0	0
	August	740	99.5%	49.5	111.9	108.3	0	2
	September	713	99.0%	40.1	91.7	68.4	0	0
	October	734	98.7%	37.9	68.7	65.3	0	0
	November	713	99.0%	49.4	76.9	73.3	0	0
	December	742	99.7%	58.5	78.3	75.1	0	0
Annual		7756	88.5%	51.9	137.2	108.3	0	10

Observations in ug/m^3

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

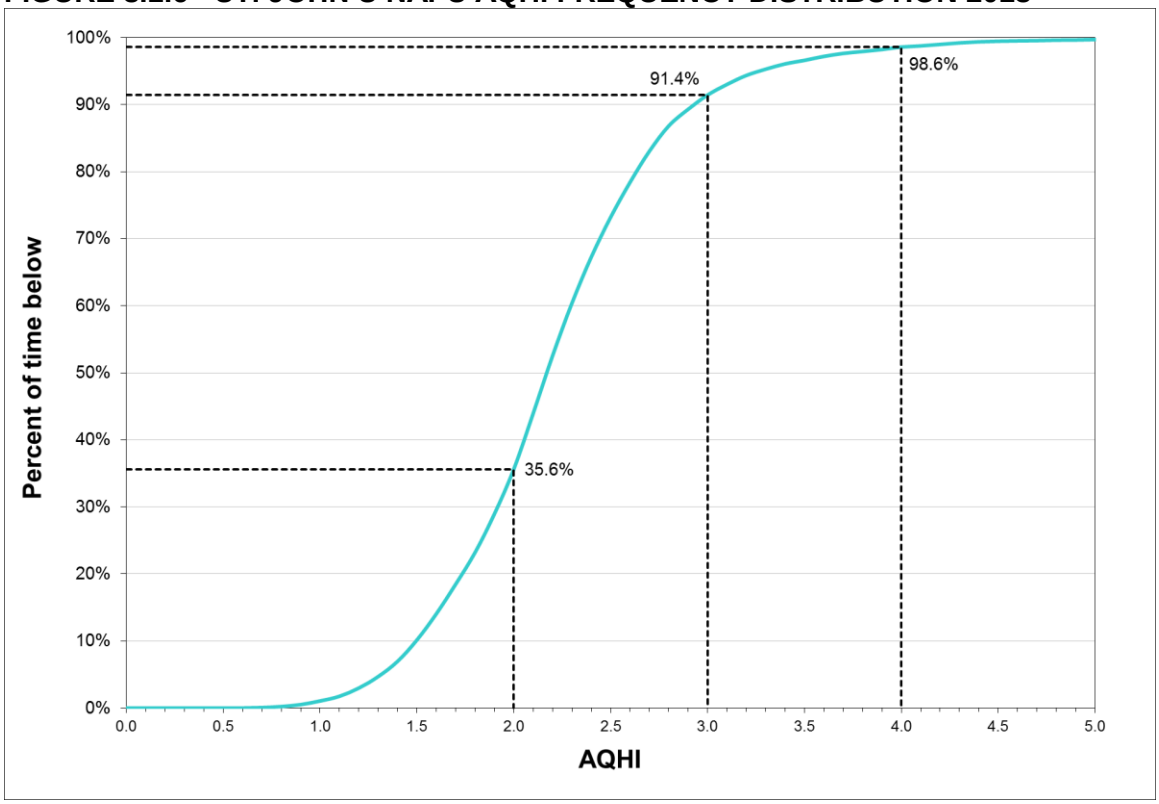


Rolling annual average of hourly concentrations

TABLE 3.1.6 - ST. JOHN'S NAPS AQHI SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2012	January	740	99.5%	2.0	3.4
	February	654	94.0%	2.2	4.5
	March	220	29.6%	2.3	4.1
	April	720	100.0%	2.4	5.0
	May	744	100.0%	2.2	3.9
	June	720	100.0%	2.1	4.0
	July	739	99.3%	2.1	4.6
	August	742	99.7%	2.0	4.9
	September	636	88.3%	1.9	3.5
	October	711	95.6%	2.1	3.9
	November	596	82.8%	2.2	3.5
	December	739	99.3%	2.2	3.7
Annual		7961	90.6%	2.1	5.0
2013	January	608	81.7%	2.3	3.4
	February	655	97.5%	2.6	4.4
	March	108	14.5%	3.5	5.1
	April	559	77.6%	2.6	5.0
	May	630	84.7%	2.3	4.9
	June	718	99.7%	2.0	3.8
	July	738	99.2%	2.0	8.1
	August	744	100.0%	1.9	4.0
	September	710	98.6%	1.9	3.3
	October	734	98.7%	2.4	3.7
	November	699	97.1%	2.1	4.1
	December	695	93.4%	2.2	3.7
Annual		7598	86.7%	2.2	8.1

FIGURE 3.1.6 - ST. JOHN'S NAPS AQHI FREQUENCY DISTRIBUTION 2013



e.g. 91.4% of the time the AQHI recorded was below 3.0

3.2 Mt. Pearl

The Mt. Pearl NAPS monitoring station is located on Old Placentia Road near Admiralty House and monitors the ambient levels of SO_2, NO_x / NO_2, CO, O_3 and $PM_{2.5}$ on a continuous basis. For SO_2, NO_x / NO_2, and CO, the ambient air criteria were not exceeded on any occasion in 2013. For O_3, the 8-hour ambient standard was exceeded on thirty two occasions in 2013 between February and August, while the 24-hour $PM_{2.5}$ standard was exceeded on two occasions in July.

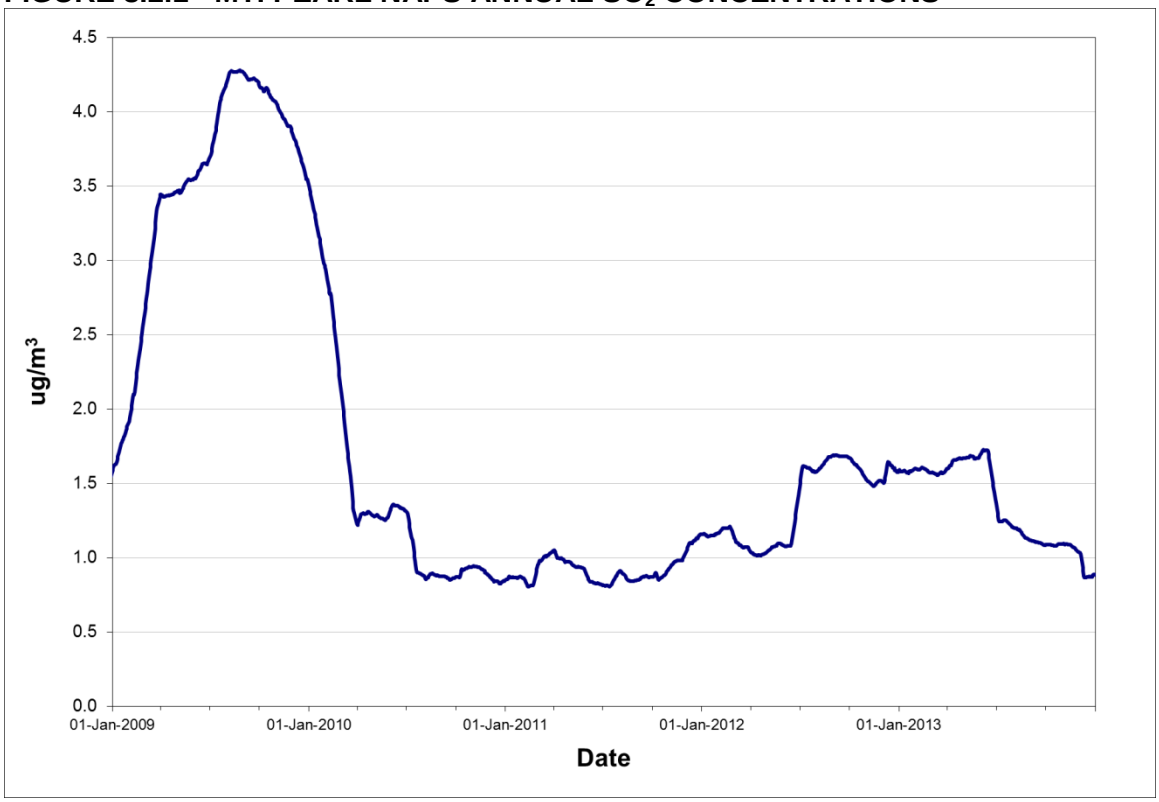
Tables 3.2.1 through 3.2.5 present the summary information on the level of air contaminants measured at the Mt. Pearl NAPS station, while Figures 3.2.1 through 3.2.5 provide a graphical representation of the annual trend of each pollutant. Table 3.2.6 provides a summary of the AQHI while Figure 3.2.6 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2013.

TABLE 3.2.1 - MT. PEARL NAPS SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	740	99.5%	1.3	11.6	6.9	2.6	0	0	0
	February	694	99.7%	1.7	13.6	7.4	3.5	0	0	0
	March	740	99.5%	1.0	9.0	4.6	2.1	0	0	0
	April	718	99.7%	0.5	11.0	4.9	1.5	0	0	0
	May	744	100.0%	1.1	5.9	3.8	2.5	0	0	0
	June	718	99.7%	4.8	12.0	10.3	9.6	0	0	0
	July	740	99.5%	2.5	10.9	10.6	9.6	0	0	0
	August	730	98.1%	1.4	4.8	4.0	2.3	0	0	0
	September	713	99.0%	0.5	6.7	2.6	1.2	0	0	0
	October	737	99.1%	0.2	2.1	1.0	0.6	0	0	0
	November	691	96.0%	1.2	6.7	3.9	3.2	0	0	0
	December	655	88.0%	2.8	22.8	14.1	9.9	0	0	0
Annual		8620	98.1%	1.6	22.8	14.1	9.9	0	0	0
2013	January	727	97.7%	1.5	20.5	14.2	4.3	0	0	0
	February	668	99.4%	1.3	16.9	10.9	3.6	0	0	0
	March	737	99.1%	1.3	18.6	7.6	3.4	0	0	0
	April	713	99.0%	1.4	12.7	8.9	5.6	0	0	0
	May	743	99.9%	1.3	3.8	3.5	3.1	0	0	0
	June	627	87.1%	1.0	5.0	4.8	3.6	0	0	0
	July	697	93.7%	0.7	10.6	5.9	2.4	0	0	0
	August	740	99.5%	0.4	2.4	2.0	1.5	0	0	0
	September	714	99.2%	0.1	1.6	1.2	0.6	0	0	0
	October	656	88.2%	0.1	2.7	1.3	0.6	0	0	0
	November	639	88.8%	0.5	2.1	2.0	1.4	0	0	0
	December	740	99.5%	0.8	21.1	14.9	4.6	0	0	0
Annual		8401	95.9%	0.9	21.1	14.9	5.6	0	0	0

Observations in ug/m^3

FIGURE 3.2.1 - MT. PEARL NAPS ANNUAL SO_2 CONCENTRATIONS



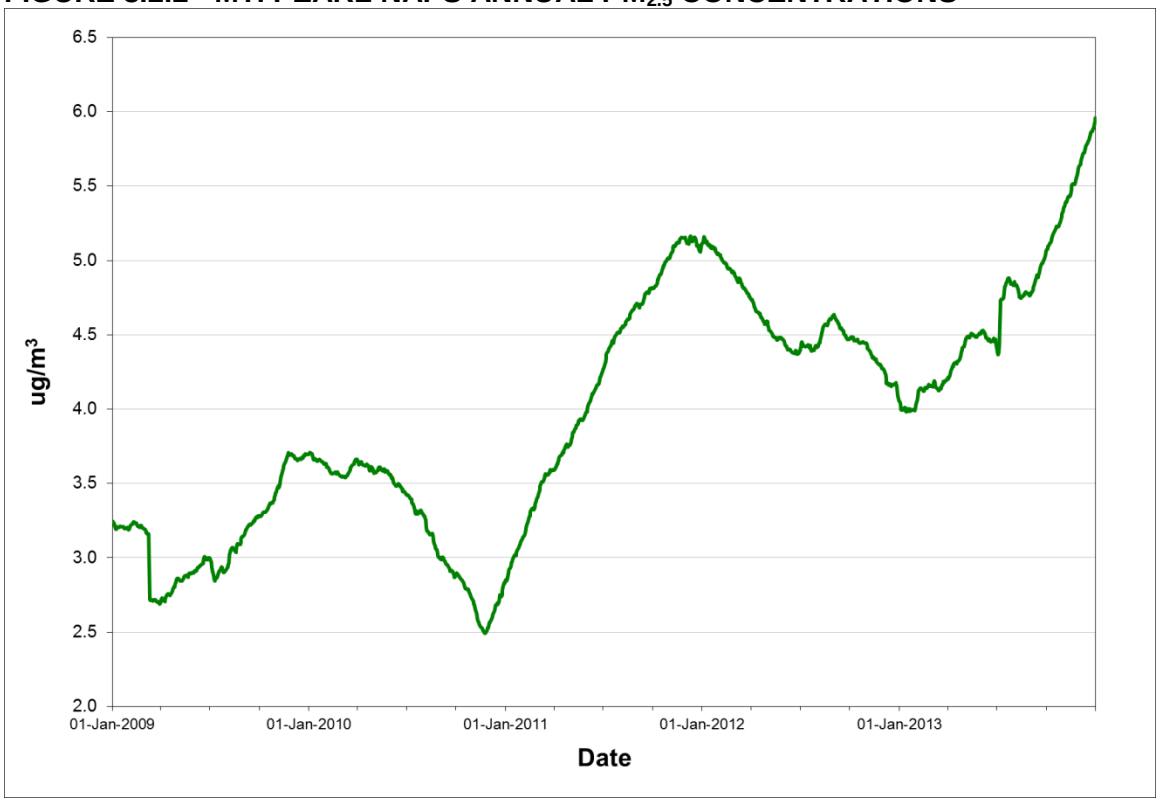
Rolling annual average of hourly concentrations

TABLE 3.2.2 - MT. PEARL NAPS $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	4.8	13.5	0
	February	29	100.0%	3.9	8.2	0
	March	31	100.0%	4.0	13.4	0
	April	30	100.0%	4.0	7.5	0
	May	31	100.0%	3.8	8.5	0
	June	30	100.0%	4.5	10.0	0
	July	25	80.6%	5.8	12.7	0
	August	30	96.8%	6.2	10.7	0
	September	30	100.0%	2.0	6.2	0
	October	29	93.5%	3.5	6.4	0
	November	30	100.0%	3.0	7.1	0
	December	31	100.0%	3.6	6.5	0
Annual		357	97.5%	4.1	13.5	0
2013	January	30	96.8%	4.0	10.0	0
	February	28	100.0%	5.8	17.8	0
	March	31	100.0%	4.6	11.8	0
	April	30	100.0%	6.5	11.5	0
	May	31	100.0%	4.8	10.6	0
	June	27	90.0%	3.6	9.7	0
	July	30	96.8%	10.3	57.0	2
	August	31	100.0%	5.4	12.5	0
	September	30	100.0%	5.5	11.3	0
	October	27	87.1%	6.9	10.2	0
	November	30	100.0%	6.7	12.4	0
	December	31	100.0%	7.3	11.0	0
Annual		356	97.5%	6.0	57.0	2

Observations in ug/m^3

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



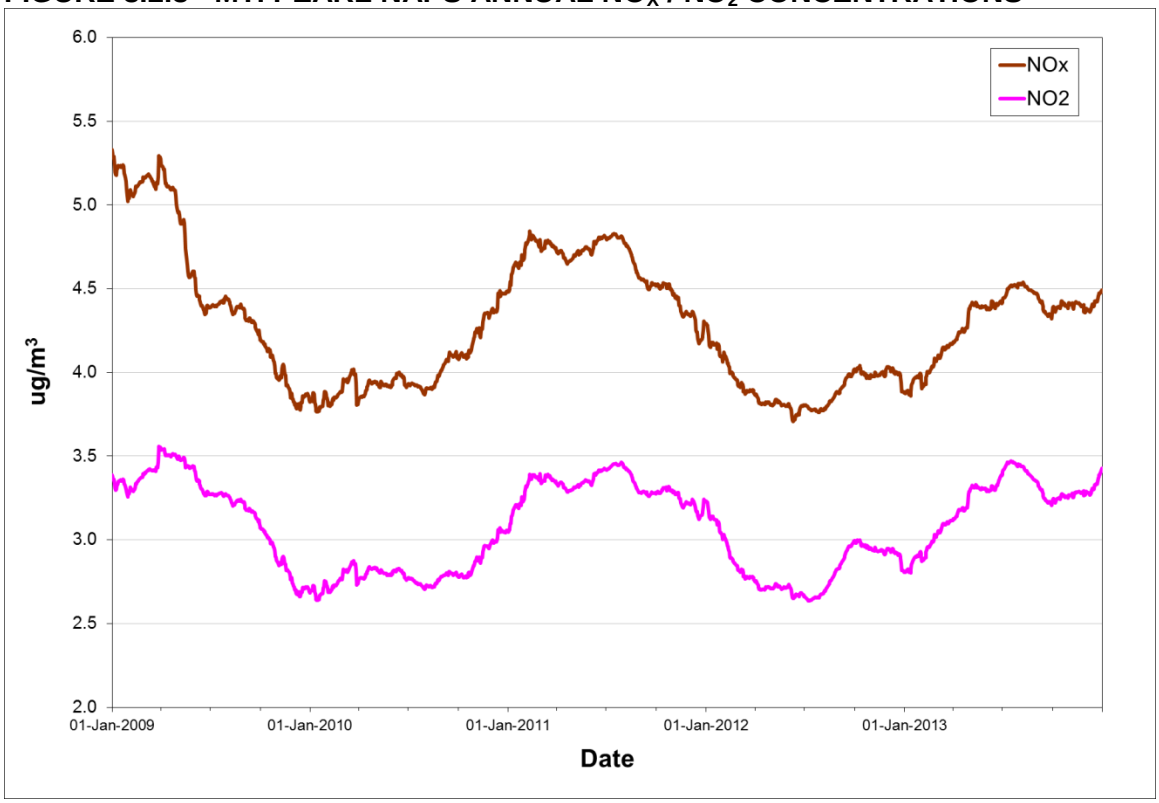
Rolling annual average of daily concentrations

TABLE 3.2.3 - MT. PEARL NAPS NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	740	99.5%	4.3	3.3	35.0	27.1	14.9	11.7	0	0
	February	694	99.7%	4.4	3.1	119.4	56.5	25.6	15.1	0	0
	March	739	99.3%	3.2	2.2	58.6	34.1	7.8	6.0	0	0
	April	716	99.4%	2.4	1.9	34.9	28.3	9.2	8.0	0	0
	May	744	100.0%	3.7	2.7	33.9	27.0	8.9	6.9	0	0
	June	719	99.9%	4.8	2.6	35.8	29.6	11.4	8.3	0	0
	July	742	99.7%	2.4	1.9	38.3	16.8	4.2	2.9	0	0
	August	730	98.1%	3.1	2.7	16.3	13.1	6.0	4.8	0	0
	September	714	99.2%	4.8	4.0	51.1	27.5	9.0	7.3	0	0
	October	741	99.6%	4.3	3.0	47.8	32.8	11.0	7.8	0	0
	November	715	99.3%	5.1	3.4	92.1	39.3	19.1	11.8	0	0
	December	740	99.5%	3.9	2.8	28.1	25.6	7.2	6.4	0	0
Annual		8734	99.4%	3.9	2.8	119.4	56.5	25.6	15.1	0	0
2013	January	725	97.4%	5.7	4.7	81.3	50.7	16.7	12.2	0	0
	February	667	99.3%	5.5	4.3	91.3	53.4	20.1	16.8	0	0
	March	741	99.6%	4.4	3.4	58.0	41.1	10.4	8.3	0	0
	April	714	99.2%	5.0	4.0	72.7	51.9	22.6	18.8	0	0
	May	743	99.9%	3.8	2.8	23.8	18.3	8.6	7.2	0	0
	June	695	96.5%	5.3	3.8	136.5	67.5	17.8	9.7	0	0
	July	739	99.3%	3.7	2.6	36.6	24.7	8.3	5.9	0	0
	August	740	99.5%	2.4	1.6	21.9	20.1	5.2	4.0	0	0
	September	710	98.6%	3.4	2.4	119.8	22.4	16.7	8.6	0	0
	October	655	88.0%	5.1	3.6	214.4	72.3	19.8	10.3	0	0
	November	714	99.2%	4.4	3.4	50.9	40.1	11.4	8.8	0	0
	December	742	99.7%	5.4	4.7	47.2	37.7	12.9	10.0	0	0
Annual		8585	98.0%	4.5	3.4	214.4	72.3	22.6	18.8	0	0

Observations in ug/m^3

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



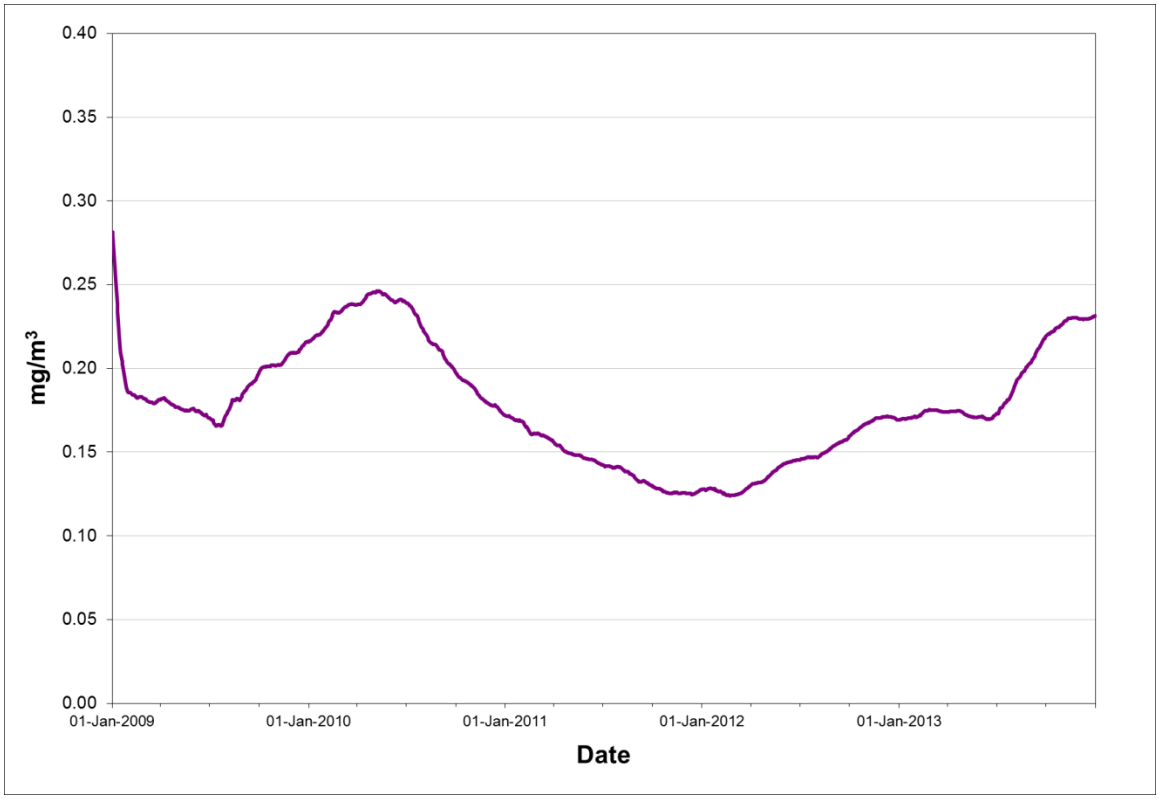
Rolling annual average of hourly concentrations

TABLE 3.2.4 - MT. PEARL NAPS CO SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>35)	Regulatory Exceedances 8-Hour (>15)
2012	January	742	99.7%	0.2	0.5	0.3	0	0
	February	682	98.0%	0.2	2.5	0.4	0	0
	March	741	99.6%	0.2	1.0	0.4	0	0
	April	666	92.5%	0.2	0.6	0.3	0	0
	May	744	100.0%	0.2	0.4	0.3	0	0
	June	705	97.9%	0.1	0.3	0.2	0	0
	July	743	99.9%	0.1	0.5	0.2	0	0
	August	730	98.1%	0.2	0.4	0.2	0	0
	September	715	99.3%	0.1	0.5	0.3	0	0
	October	740	99.5%	0.2	0.5	0.3	0	0
	November	714	99.2%	0.2	1.0	0.4	0	0
	December	739	99.3%	0.2	0.5	0.3	0	0
Annual		8661	98.6%	0.2	2.5	0.4	0	0
2013	January	727	97.7%	0.2	0.9	0.3	0	0
	February	668	99.4%	0.2	1.8	0.6	0	0
	March	742	99.7%	0.2	0.6	0.3	0	0
	April	199	27.6%	0.2	0.4	0.2	0	0
	May	0	0.0%					
	June	507	70.4%	0.1	0.4	0.2	0	0
	July	703	94.5%	0.3	1.0	0.8	0	0
	August	740	99.5%	0.3	0.8	0.5	0	0
	September	710	98.6%	0.3	0.8	0.4	0	0
	October	655	88.0%	0.3	1.3	0.4	0	0
	November	715	99.3%	0.2	0.6	0.5	0	0
	December	742	99.7%	0.2	0.5	0.3	0	0
Annual		7108	81.1%	0.2	1.8	0.8	0	0

Observations in mg/m^3

FIGURE 3.2.4 - MT. PEARL NAPS ANNUAL CO CONCENTRATIONS



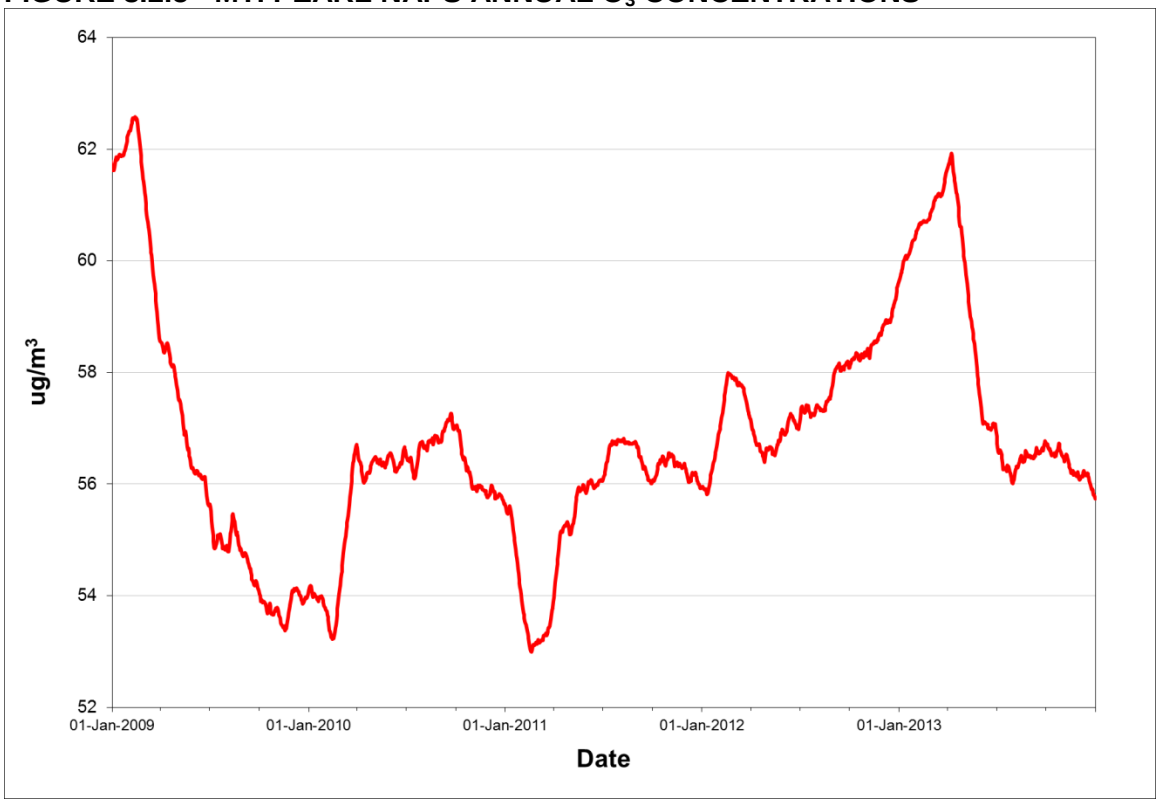
Rolling annual average of hourly concentrations

TABLE 3.2.5 - MT. PEARL NAPS O_3 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2012	January	740	99.5%	57.0	73.0	71.0	0	0
	February	694	99.7%	69.5	89.8	82.9	0	0
	March	740	99.5%	71.1	93.4	89.2	0	1
	April	719	99.9%	73.8	121.0	112.9	0	14
	May	744	100.0%	68.6	107.1	92.1	0	6
	June	702	97.5%	55.7	103.3	81.7	0	0
	July	743	99.9%	54.5	112.4	103.0	0	3
	August	729	98.0%	46.9	91.3	80.0	0	0
	September	711	98.8%	44.2	93.3	86.8	0	0
	October	739	99.3%	49.7	76.8	67.1	0	0
	November	714	99.2%	58.2	80.1	77.6	0	0
	December	739	99.3%	66.0	85.0	82.1	0	0
Annual		8714	99.2%	59.6	121.0	112.9	0	24
2013	January	727	97.7%	66.9	81.6	79.6	0	0
	February	668	99.4%	75.0	89.1	87.7	0	4
	March	741	99.6%	80.5	94.3	92.4	0	17
	April	713	99.0%	55.9	101.9	97.1	0	9
	May	743	99.9%	38.1	75.9	59.3	0	0
	June	606	84.2%	46.5	87.0	79.5	0	0
	July	701	94.2%	43.4	82.3	68.7	0	0
	August	702	94.4%	52.6	110.2	105.6	0	2
	September	687	95.4%	46.7	89.7	77.0	0	0
	October	655	88.0%	45.6	71.1	67.8	0	0
	November	715	99.3%	53.8	75.8	75.0	0	0
	December	742	99.7%	61.6	76.8	75.5	0	0
Annual		8400	95.9%	55.7	110.2	105.6	0	32

Observations in ug/m^3

FIGURE 3.2.5 - MT. PEARL NAPS ANNUAL O_3 CONCENTRATIONS

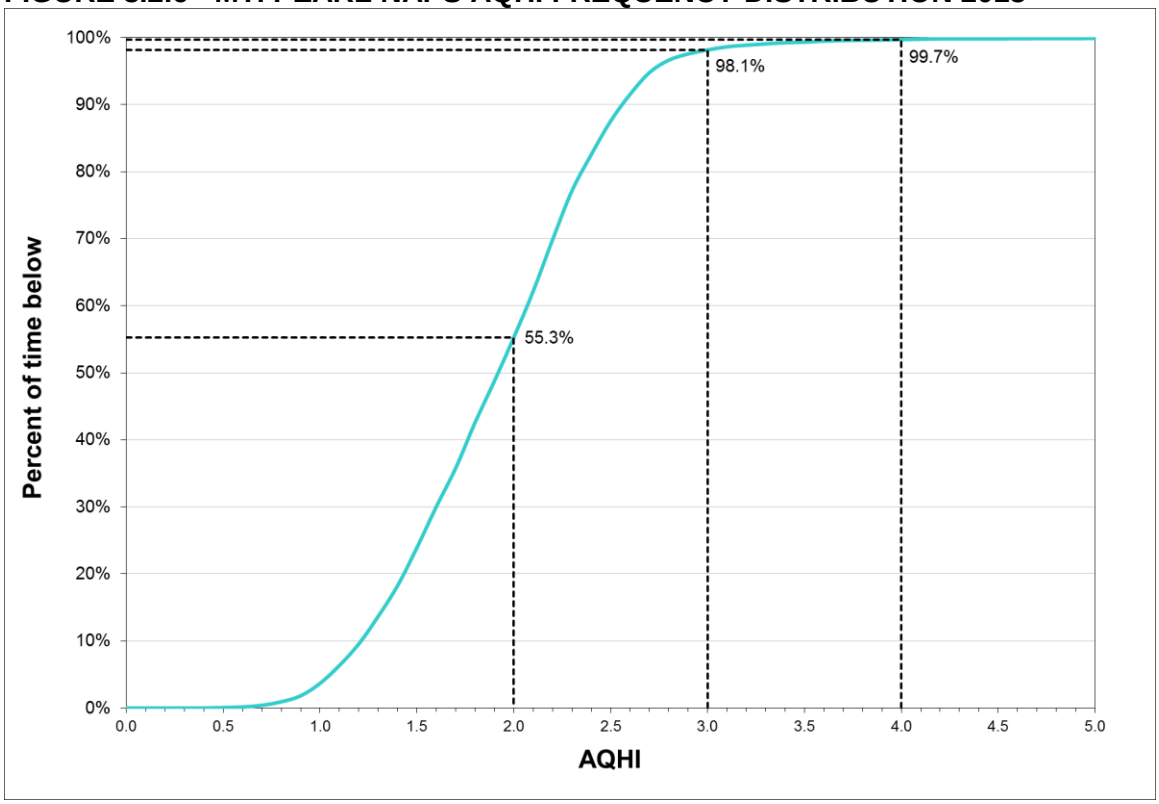


Rolling annual average of hourly concentrations

TABLE 3.2.6 - MT. PEARL NAPS AQHI SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2012	January	739	99.3%	1.9	4.3
	February	694	99.7%	2.2	3.1
	March	740	99.5%	2.2	3.4
	April	718	99.7%	2.2	3.8
	May	744	100.0%	2.1	3.2
	June	700	97.2%	1.8	3.1
	July	605	81.3%	1.8	3.7
	August	732	98.4%	1.7	3.1
	September	711	98.8%	1.4	3.2
	October	723	97.2%	1.6	2.5
	November	715	99.3%	1.8	3.1
	December	739	99.3%	2.0	3.4
Annual		8560	97.4%	1.9	4.3
2013	January	728	97.8%	2.2	4.0
	February	670	99.7%	2.5	4.2
	March	744	100.0%	2.5	3.7
	April	714	99.2%	2.0	4.7
	May	744	100.0%	1.4	2.9
	June	599	83.2%	1.5	3.6
	July	703	94.5%	1.8	8.5
	August	706	94.9%	1.7	3.8
	September	688	95.6%	1.6	3.2
	October	662	89.0%	1.7	3.2
	November	717	99.6%	1.9	3.3
	December	744	100.0%	2.2	3.0
Annual		8419	96.1%	1.9	8.5

FIGURE 3.2.6 - MT. PEARL NAPS AQHI FREQUENCY DISTRIBUTION 2013



e.g. 98.1% of the time the AQHI recorded was below 3.0

3.3 Grand Falls Windsor

The Grand Falls Windsor NAPS monitoring station is located on Scott Avenue and monitors the ambient levels of SO_2, NO_x / NO_2, CO, O_3 and $PM_{2.5}$ on a continuous basis. . For O_3, the 8-hour ambient standard was exceeded on eighty four occasions in 2013 between February and August, while the 24-hour $PM_{2.5}$ standard was exceeded on 2 occasions. For all other pollutants, the ambient air criteria were not exceeded on any occasion in 2013

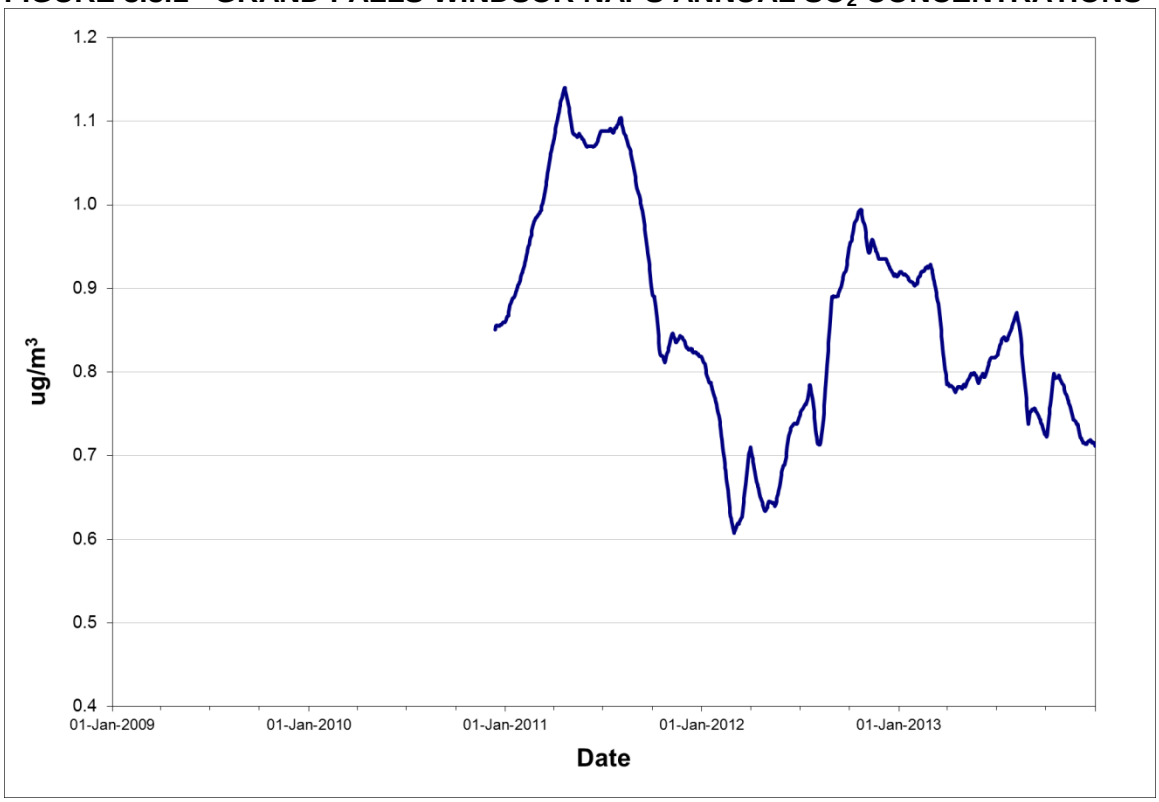
Tables 3.3.1 through 3.3.5 present the summary information on the level of air contaminants measured at the Grand Falls Windsor NAPS station, while Figures 3.3.1 through 3.3.5 provides a graphical representation of the annual trend of each pollutant. Table 3.3.6 provides a summary of the AQHI while Figure 3.3.6 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2013.

TABLE 3.3.1 - GRAND FALLS WINDSOR NAPS SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	13	1.7%	0.7	1.5	0.8	0.0	0	0	0
	February	691	99.3%	0.3	2.5	1.6	0.8	0	0	0
	March	744	100.0%	2.5	4.6	4.3	3.9	0	0	0
	April	720	100.0%	0.4	5.9	2.4	0.9	0	0	0
	May	735	98.8%	0.6	9.3	3.5	1.5	0	0	0
	June	289	40.1%	1.1	9.3	3.8	2.1	0	0	0
	July	740	99.5%	0.4	3.8	1.8	1.5	0	0	0
	August	740	99.5%	1.7	5.5	4.1	3.2	0	0	0
	September	720	100.0%	0.7	3.4	2.2	1.6	0	0	0
	October	460	61.8%	0.6	3.8	2.3	2.1	0	0	0
	November	545	75.7%	0.9	2.3	2.1	1.3	0	0	0
	December	736	98.9%	0.8	5.9	2.1	1.6	0	0	0
Annual		7133	81.2%	0.9	9.3	4.3	3.9	0	0	0
2013	January	732	98.4%	0.8	2.3	1.6	1.3	0	0	0
	February	670	99.7%	0.6	2.4	2.3	1.3	0	0	0
	March	733	98.5%	1.0	2.7	2.0	1.6	0	0	0
	April	714	99.2%	0.3	4.4	3.1	1.3	0	0	0
	May	743	99.9%	0.7	3.8	2.4	1.4	0	0	0
	June	650	90.3%	1.3	3.6	2.3	1.6	0	0	0
	July	742	99.7%	0.8	20.1	7.4	1.8	0	0	0
	August	741	99.6%	0.5	4.1	2.4	2.0	0	0	0
	September	720	100.0%	0.5	10.5	4.2	1.6	0	0	0
	October	737	99.1%	1.4	10.8	4.7	3.3	0	0	0
	November	718	99.7%	0.2	1.2	0.9	0.7	0	0	0
	December	379	50.9%	0.3	2.0	1.6	1.4	0	0	0
Annual		8279	94.5%	0.7	20.1	7.4	3.3	0	0	0

Observations in ug/m^3

FIGURE 3.3.1 - GRAND FALLS WINDSOR NAPS ANNUAL SO_2 CONCENTRATIONS



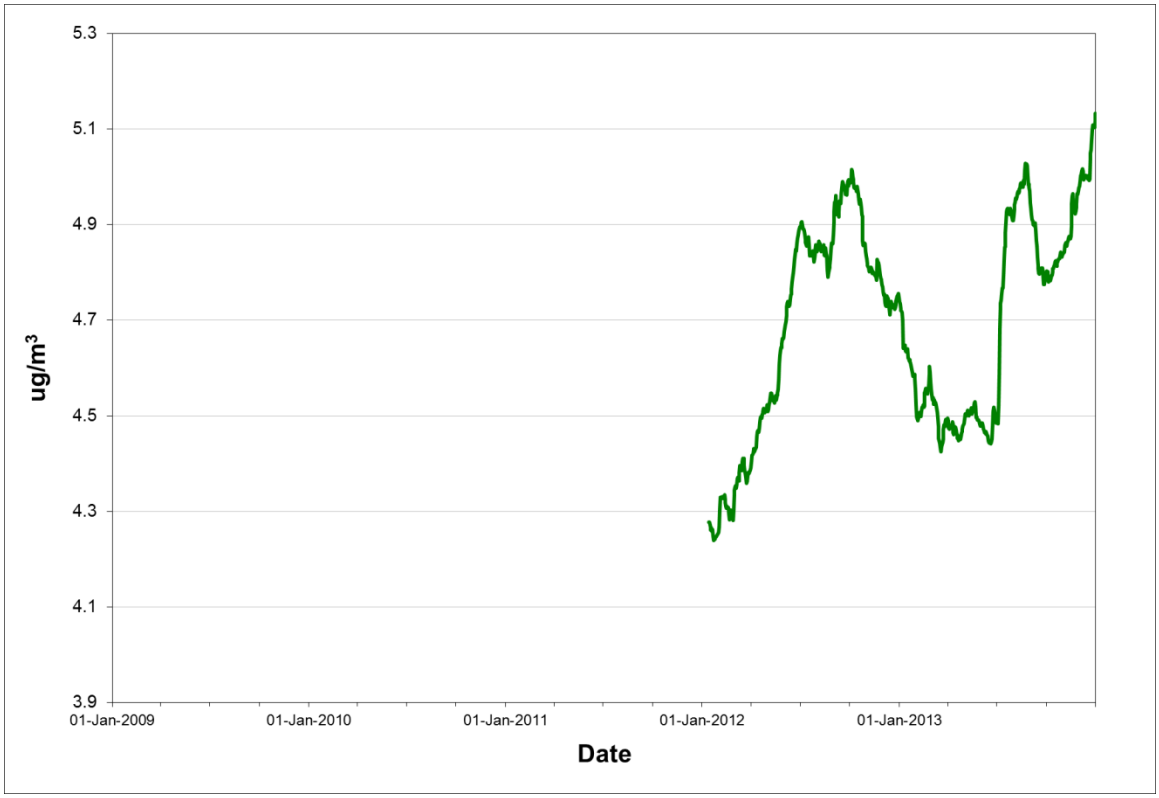
Rolling annual average of hourly concentrations

TABLE 3.3.2 - GRAND FALLS WINDSOR NAPS $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	22	71.0%	5.6	20.9	0
	February	29	100.0%	5.0	14.0	0
	March	31	100.0%	5.5	11.4	0
	April	23	76.7%	5.3	8.0	0
	May	31	100.0%	4.5	11.9	0
	June	13	43.3%	3.6	5.9	0
	July	23	74.2%	3.8	7.5	0
	August	29	93.5%	4.3	11.2	0
	September	30	100.0%	6.2	12.3	0
	October	31	100.0%	4.0	9.9	0
	November	30	100.0%	4.2	16.5	0
	December	31	100.0%	4.5	9.6	0
Annual		323	88.3%	4.7	20.9	0
2013	January	30	96.8%	3.3	8.8	0
	February	28	100.0%	5.1	12.0	0
	March	31	100.0%	4.7	10.7	0
	April	30	100.0%	4.9	8.0	0
	May	31	100.0%	4.5	8.4	0
	June	30	100.0%	4.2	14.9	0
	July	31	100.0%	8.9	37.4	2
	August	31	100.0%	5.1	16.2	0
	September	30	100.0%	4.0	7.7	0
	October	30	96.8%	4.5	7.2	0
	November	30	100.0%	5.9	20.9	0
	December	31	100.0%	6.3	19.7	0
Annual		363	99.5%	5.1	37.4	2

Observations in ug/m^3

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



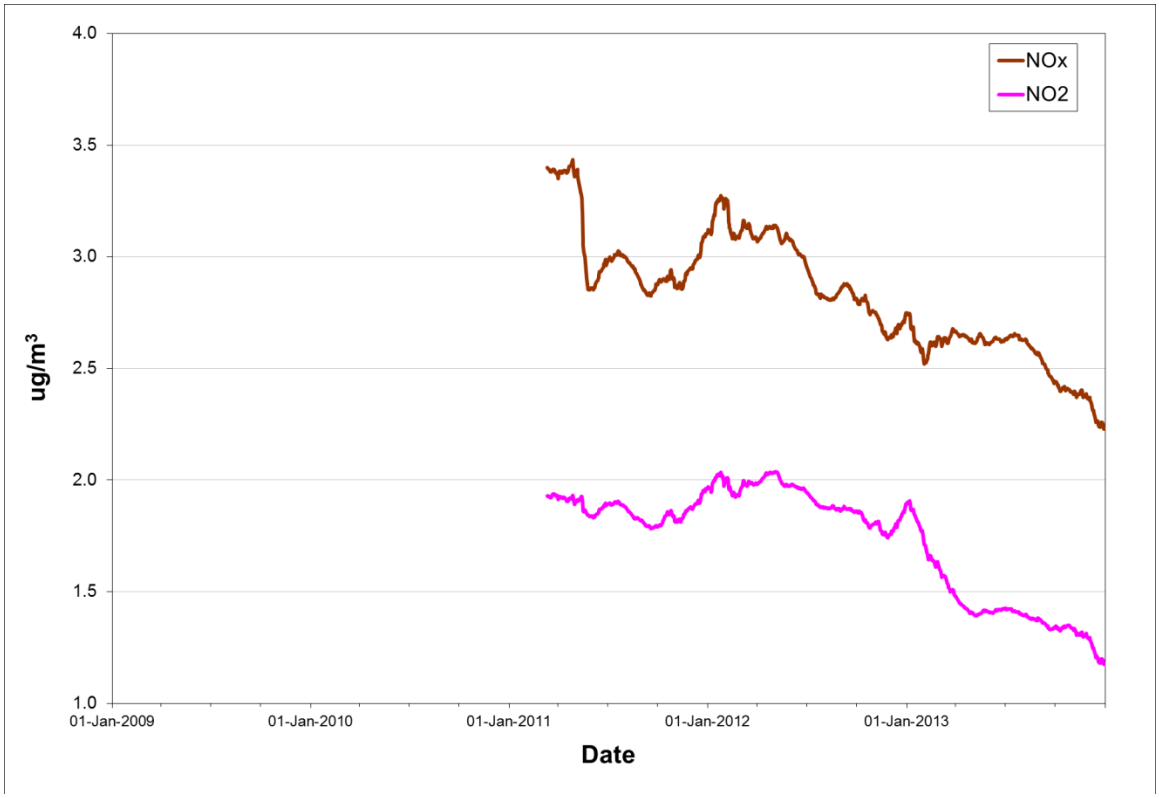
Rolling annual average of daily concentrations

TABLE 3.3.3 - GRAND FALLS WINDSOR NAPS NO_X / NO_2 SUMMARY 2012 & 2013

						Maximums				Exceedances	
		# Valid	% Valid	Average		1-Hour		24-Hour		1-Hour	24-Hour
Year	Month	Hours	Hours	NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2012	January	744	100.0%	4.4	2.6	133.1	53.4	18.1	11.8	0	0
	February	692	99.4%	3.4	3.2	44.4	44.8	10.1	8.1	0	0
	March	744	100.0%	2.8	2.3	50.2	28.6	10.7	7.2	0	0
	April	0	0.0%								
	May	737	99.1%	2.5	1.1	137.8	40.6	8.6	3.8	0	0
	June	351	48.8%	1.6	1.2	19.6	7.7	2.7	2.1	0	0
	July	739	99.3%	1.6	0.9	133.7	40.1	8.1	2.8	0	0
	August	744	100.0%	1.9	1.1	27.8	11.8	3.1	2.0	0	0
	September	720	100.0%	2.2	1.2	37.4	12.8	4.5	3.2	0	0
	October	733	98.5%	2.5	1.5	31.8	15.8	6.3	3.9	0	0
	November	716	99.4%	2.3	1.9	60.5	27.1	7.9	6.5	0	0
	December	743	99.9%	4.5	3.6	52.5	28.0	9.2	7.2	0	0
Annual		7663	87.2%	2.8	1.9	137.8	53.4	18.1	11.8	0	0
2013	January	731	98.3%	2.7	1.2	37.3	18.7	6.2	4.0	0	0
	February	672	100.0%	4.1	1.5	38.2	19.2	8.4	5.1	0	0
	March	743	99.9%	3.1	0.9	24.0	9.8	6.8	2.6	0	0
	April	698	96.9%	2.3	0.6	24.7	14.6	4.6	2.4	0	0
	May	740	99.5%	2.3	1.1	36.4	19.7	4.4	3.4	0	0
	June	421	58.5%	2.2	1.6	18.5	8.9	3.7	2.7	0	0
	July	740	99.5%	1.5	0.5	18.4	8.3	3.4	1.6	0	0
	August	740	99.5%	1.2	0.9	16.2	11.2	5.5	3.8	0	0
	September	720	100.0%	0.6	0.7	24.1	16.9	3.4	2.6	0	0
	October	743	99.9%	2.0	1.4	33.7	13.0	4.1	2.7	0	0
	November	720	100.0%	2.0	1.4	34.4	30.1	6.4	5.3	0	0
	December	744	100.0%	3.1	2.4	55.5	26.5	8.6	7.0	0	0
Annual		8412	96.0%	2.2	1.2	55.5	30.1	8.6	7.0	0	0

Observations in ug/m^3

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



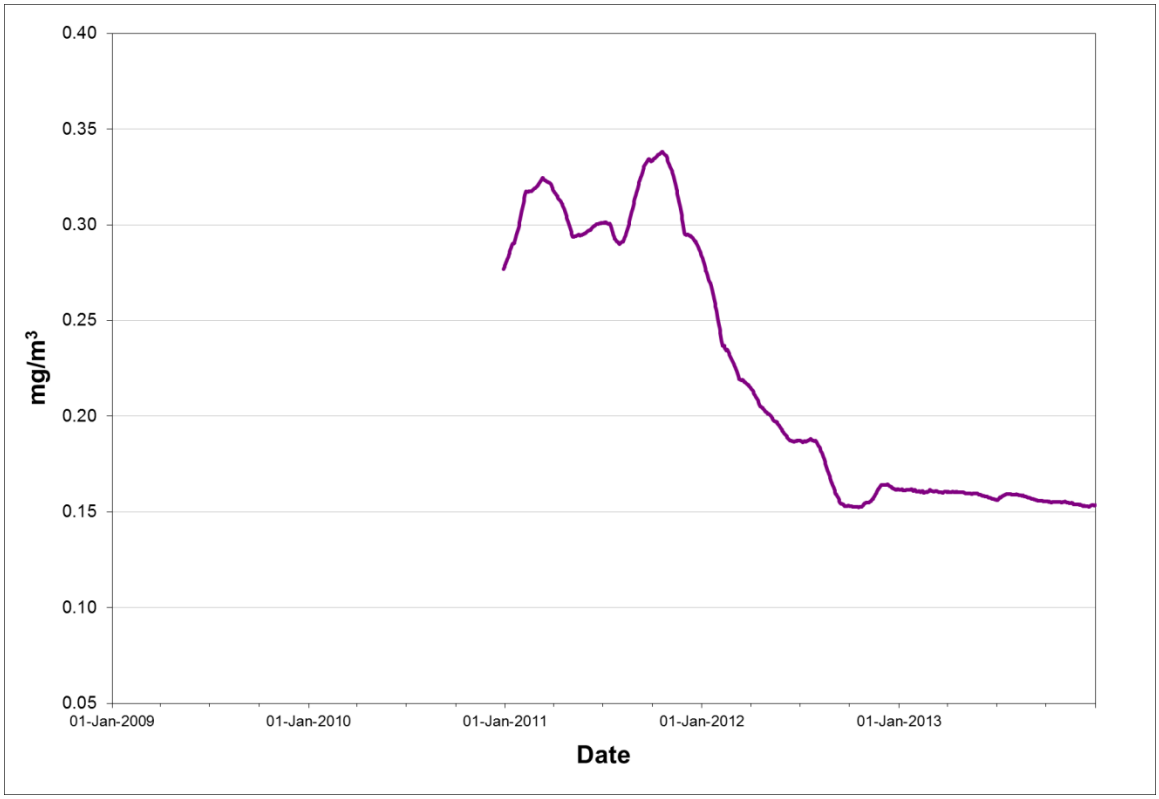
Rolling annual average of hourly concentrations

TABLE 3.3.4 - GRAND FALLS WINDSOR NAPS CO SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>35)	Regulatory Exceedances 8-Hour (>15)
2012	January	743	99.9%	0.2	2.4	0.8	0	0
	February	682	98.0%	0.2	3.0	1.1	0	0
	March	744	100.0%	0.2	0.5	0.4	0	0
	April	720	100.0%	0.2	0.5	0.3	0	0
	May	743	99.9%	0.1	0.3	0.3	0	0
	June	352	48.9%	0.1	0.3	0.3	0	0
	July	730	98.1%	0.1	0.2	0.2	0	0
	August	741	99.6%	0.1	0.4	0.2	0	0
	September	720	100.0%	0.1	0.4	0.3	0	0
	October	742	99.7%	0.1	0.3	0.3	0	0
	November	716	99.4%	0.2	0.8	0.6	0	0
	December	744	100.0%	0.2	0.7	0.4	0	0
Annual		8377	95.4%	0.2	3.0	1.1	0	0
2013	January	734	98.7%	0.2	0.4	0.3	0	0
	February	672	100.0%	0.2	0.8	0.4	0	0
	March	744	100.0%	0.2	0.5	0.3	0	0
	April	716	99.4%	0.2	0.4	0.3	0	0
	May	744	100.0%	0.1	0.4	0.2	0	0
	June	717	99.6%	0.1	0.3	0.2	0	0
	July	742	99.7%	0.1	0.6	0.5	0	0
	August	741	99.6%	0.1	0.3	0.2	0	0
	September	720	100.0%	0.1	0.3	0.2	0	0
	October	744	100.0%	0.1	0.4	0.3	0	0
	November	719	99.9%	0.2	0.7	0.4	0	0
	December	744	100.0%	0.2	0.5	0.4	0	0
Annual		8737	99.7%	0.2	0.8	0.5	0	0

Observations in mg/m^3

FIGURE 3.3.4 - GRAND FALLS WINDSOR NAPS ANNUAL CO CONCENTRATIONS



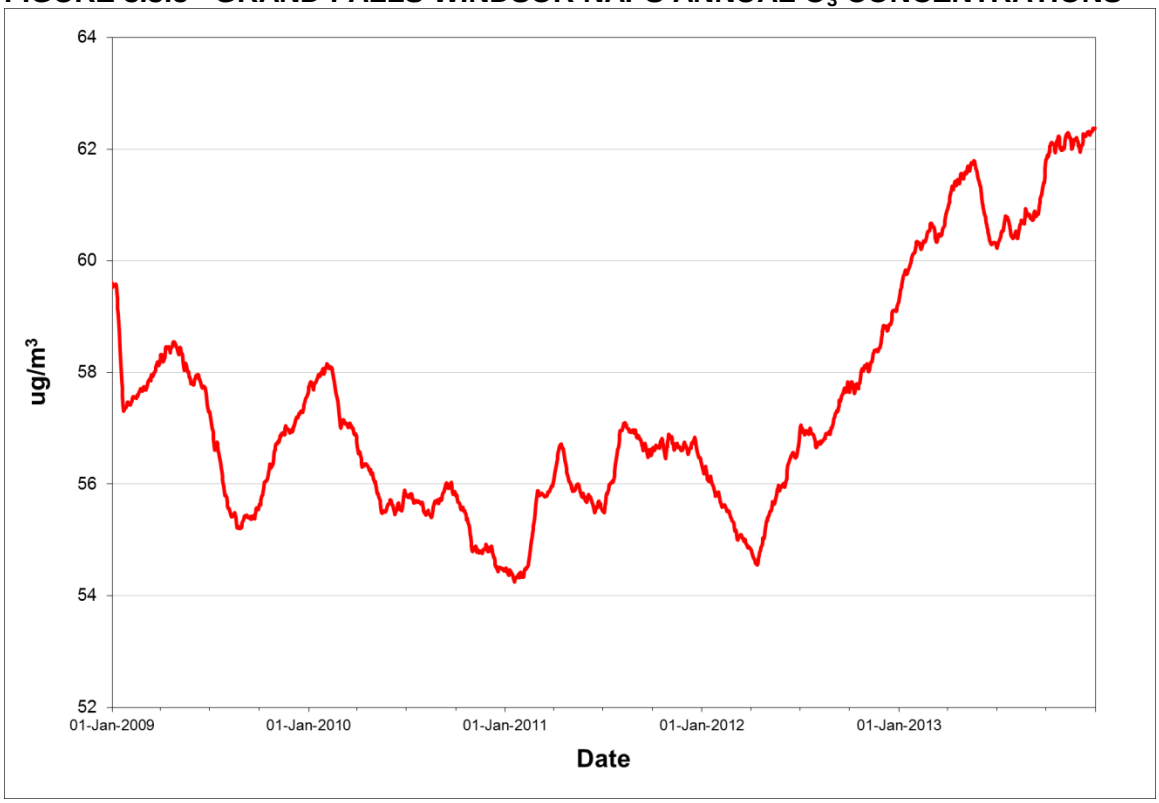
Rolling annual average of hourly concentrations

TABLE 3.3.5 - GRAND FALLS WINDSOR NAPS O_3 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2012	January	744	100.0%	59.2	76.7	71.4	0	0
	February	696	100.0%	68.8	85.1	81.7	0	0
	March	744	100.0%	72.4	101.1	97.4	0	3
	April	720	100.0%	75.3	114.6	108.6	0	15
	May	688	92.5%	64.8	114.8	95.4	0	3
	June	351	48.8%	64.5	108.6	98.4	0	1
	July	743	99.9%	48.7	93.6	77.5	0	0
	August	744	100.0%	43.9	87.6	76.6	0	0
	September	560	77.8%	45.6	86.9	75.3	0	0
	October	624	83.9%	44.4	77.6	68.8	0	0
	November	717	99.6%	56.8	78.8	76.3	0	0
	December	742	99.7%	65.0	84.5	81.8	0	0
Annual		8073	91.9%	59.3	114.8	108.6	0	22
2013	January	732	98.4%	69.9	83.1	79.3	0	0
	February	505	75.1%	78.9	94.5	93.0	0	6
	March	472	63.4%	83.1	101.1	97.3	0	29
	April	717	99.6%	81.2	112.1	104.1	0	41
	May	743	99.9%	63.3	108.2	93.8	0	5
	June	556	77.2%	47.9	86.9	73.8	0	0
	July	344	46.2%	38.5	65.7	56.6	0	0
	August	662	89.0%	46.5	131.5	108.3	0	3
	September	191	26.5%	50.6	82.5	77.8	0	0
	October	684	91.9%	48.3	77.1	73.8	0	0
	November	594	82.5%	56.6	85.7	83.6	0	0
	December	744	100.0%	68.0	88.9	84.8	0	0
Annual		6944	79.3%	62.4	131.5	108.3	0	84

Observations in ug/m^3

FIGURE 3.3.5 - GRAND FALLS WINDSOR NAPS ANNUAL O_3 CONCENTRATIONS

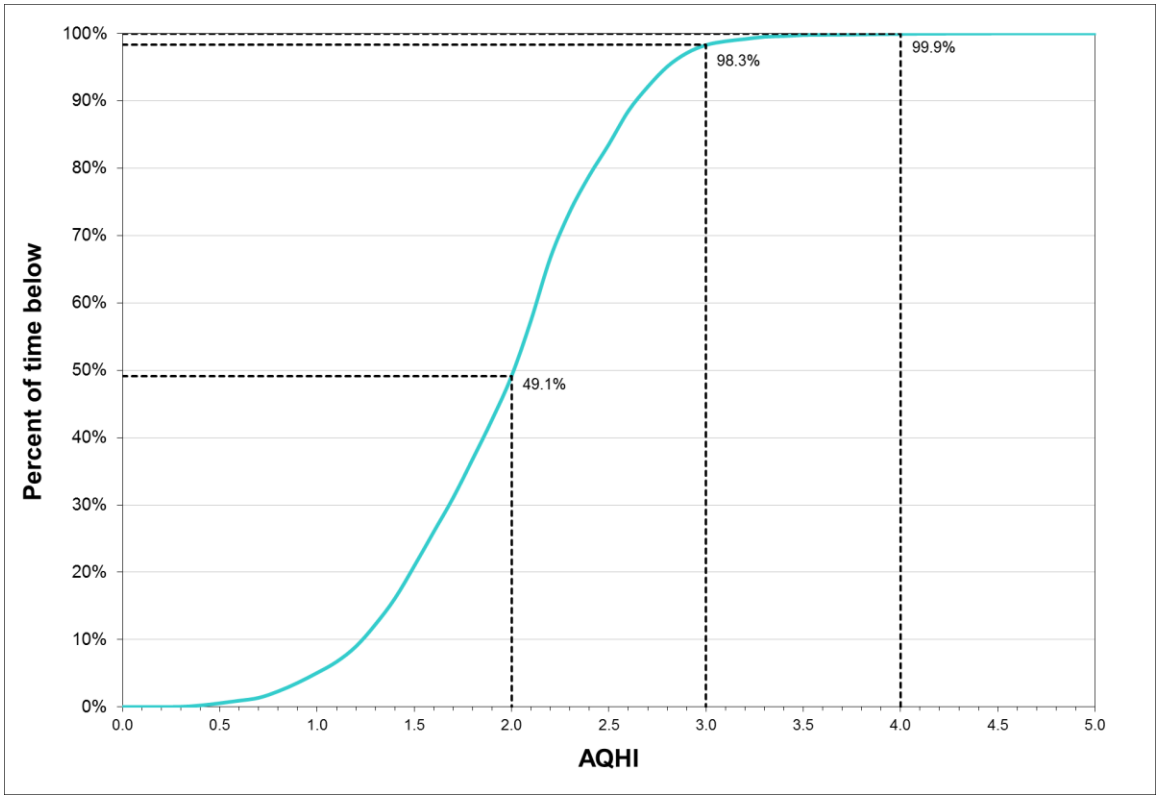


Rolling annual average of hourly concentrations

TABLE 3.3.6 - GRAND FALLS WINDSOR NAPS AQHI SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2012	January	550	73.9%	1.9	7.3
	February	690	99.1%	2.2	4.8
	March	740	99.5%	2.3	3.3
	April	1	0.1%	2.3	2.3
	May	679	91.3%	2.0	3.5
	June	350	48.6%	1.9	3.5
	July	572	76.9%	1.5	2.7
	August	714	96.0%	1.4	3.0
	September	558	77.5%	1.5	4.0
	October	617	82.9%	1.4	2.4
	November	706	98.1%	1.8	3.9
	December	742	99.7%	2.1	3.6
Annual		6919	78.8%	1.8	7.3
2013	January	727	97.7%	2.1	2.6
	February	506	75.3%	2.4	4.1
	March	469	63.0%	2.5	3.3
	April	696	96.7%	2.4	3.3
	May	742	99.7%	1.9	3.1
	June	331	46.0%	1.6	3.9
	July	339	45.6%	1.3	4.5
	August	660	88.7%	1.5	4.0
	September	193	26.8%	1.5	2.5
	October	646	86.8%	1.5	2.4
	November	593	82.4%	1.9	3.5
	December	744	100.0%	2.2	3.2
Annual		6646	75.9%	2.0	4.5

FIGURE 3.3.6 - GRAND FALLS WINDSOR NAPS AQHI FREQUENCY DISTRIBUTION 2013



e.g. 98.8% of the time the AQHI recorded was below 3.0

3.4 Corner Brook

The Corner Brook NAPS monitoring station is located on MacPherson Avenue near Confederation Drive and monitors the ambient levels of SO_2, NO_x / NO_2, CO, O_3 and $PM_{2.5}$ on a continuous basis. The station was moved to its current location in 2009 after being located on Brook Street since 2001. For SO_2, NO_x / NO_2, and CO, the ambient air criteria were not exceeded on any occasion in 2013. The 8-hour O_3 standard was exceeded on sixty seven occasions in 2013 between February and August, while the 24-hour PM2.5 standard was exceeded on 3 occasions in July.

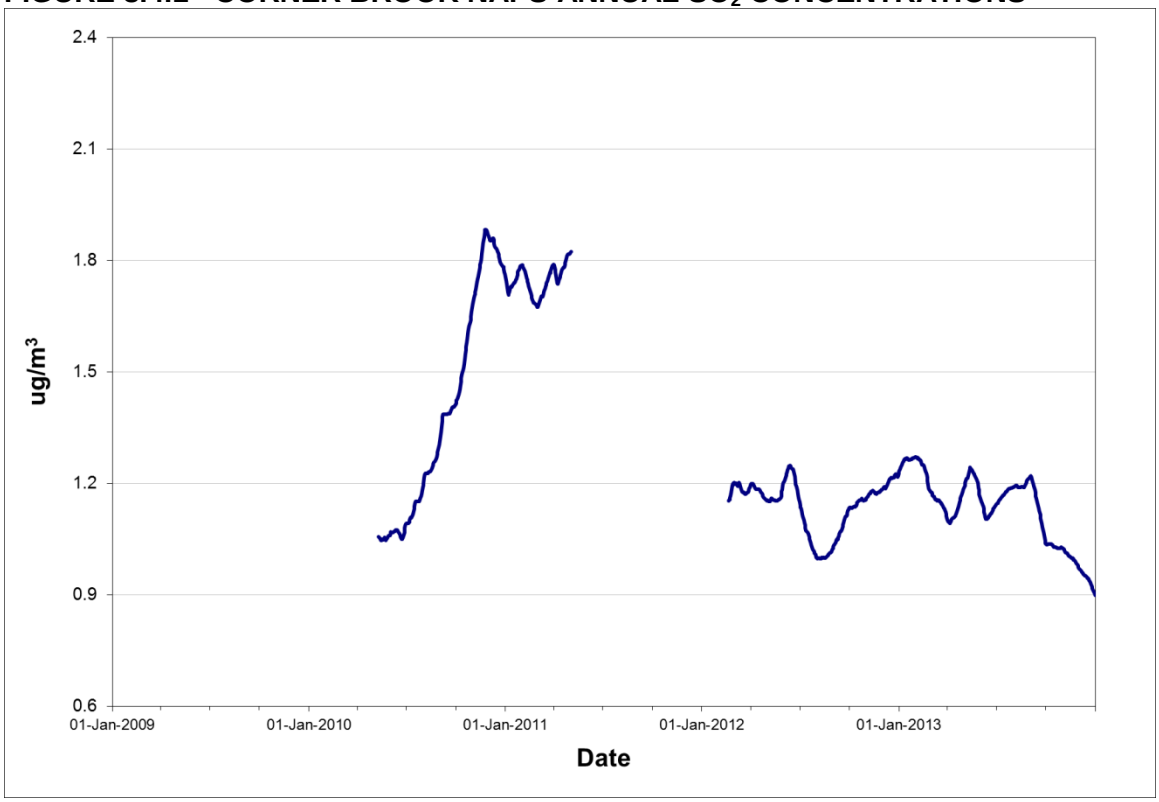
Tables 3.4.1 through 3.4.5 present the summary information on the level of air contaminants measured at the Corner Brook NAPS station, while Figures 3.4.1 through 3.3.5 provide a graphical representation of the annual trend of each pollutant. The disconnection in the Figures corresponds to the timeframe in which the station was relocated. Table 3.4.6 provides a summary of the AQHI while Figure 3.3 provides a graphical representation of the percentage of time the AQHI values were below a given level in 2013.

TABLE 3.4.1 - CORNER BROOK NAPS SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	744	100.0%	0.4	3.1	2.3	1.7	0	0	0
	February	693	99.6%	1.4	7.5	5.8	4.3	0	0	0
	March	735	98.8%	1.1	7.5	5.3	2.9	0	0	0
	April	546	75.8%	0.6	9.3	6.3	2.5	0	0	0
	May	671	90.2%	1.6	27.5	17.9	5.2	0	0	0
	June	652	90.6%	1.2	21.6	11.3	4.1	0	0	0
	July	621	83.5%	0.8	8.4	6.7	1.5	0	0	0
	August	600	80.6%	1.8	8.3	4.4	2.4	0	0	0
	September	719	99.9%	2.6	20.6	8.9	3.8	0	0	0
	October	738	99.2%	0.6	5.4	3.2	1.5	0	0	0
	November	713	99.0%	1.0	6.2	2.8	1.5	0	0	0
	December	740	99.5%	1.4	5.4	2.9	2.1	0	0	0
Annual		8172	93.0%	1.2	27.5	17.9	5.2	0	0	0
2013	January	658	88.4%	0.9	17.3	6.0	2.1	0	0	0
	February	659	98.1%	0.3	5.2	4.1	1.2	0	0	0
	March	725	97.4%	0.3	5.0	1.9	0.7	0	0	0
	April	641	89.0%	1.7	6.6	3.6	2.5	0	0	0
	May	741	99.6%	1.4	19.7	8.2	3.5	0	0	0
	June	640	88.9%	0.9	5.2	3.8	1.9	0	0	0
	July	739	99.3%	1.4	6.4	2.9	1.9	0	0	0
	August	733	98.5%	2.0	6.6	4.1	3.1	0	0	0
	September	715	99.3%	0.5	7.0	4.2	3.0	0	0	0
	October	680	91.4%	0.4	4.4	1.9	1.0	0	0	0
	November	705	97.9%	0.4	4.4	2.0	0.9	0	0	0
	December	538	72.3%	0.4	13.8	4.7	0.8	0	0	0
Annual		8174	93.3%	0.9	19.7	8.2	3.5	0	0	0

Observations in ug/m^3

FIGURE 3.4.1 - CORNER BROOK NAPS ANNUAL SO_2 CONCENTRATIONS



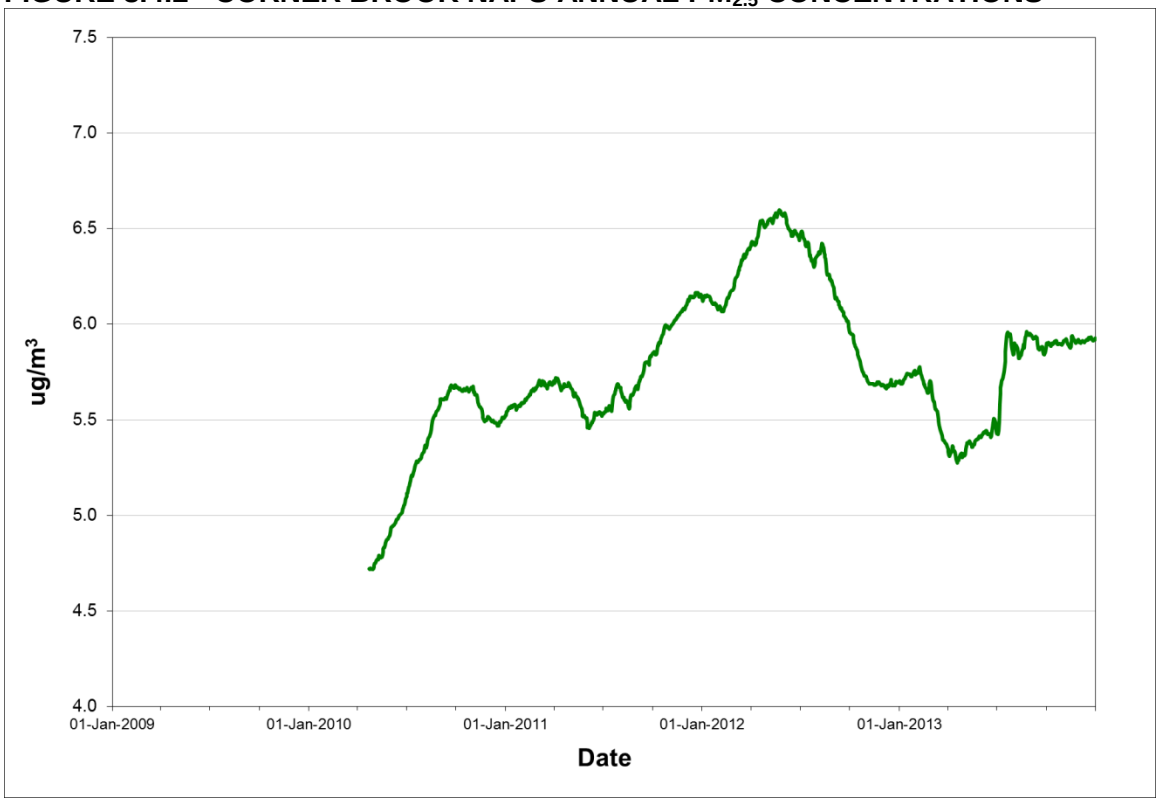
Rolling annual average of hourly concentrations

TABLE 3.4.2 - CORNER BROOK NAPS $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	4.2	7.8	0
	February	29	100.0%	6.3	10.3	0
	March	31	100.0%	8.1	13.5	0
	April	30	100.0%	6.4	13.6	0
	May	31	100.0%	5.0	8.9	0
	June	28	93.3%	6.4	17.5	0
	July	31	100.0%	7.8	15.0	0
	August	30	96.8%	6.3	13.8	0
	September	30	100.0%	5.1	13.0	0
	October	31	100.0%	3.8	7.2	0
	November	22	73.3%	4.3	7.3	0
	December	30	96.8%	4.2	7.8	0
Annual		354	96.7%	5.7	17.5	0
2013	January	31	100.0%	4.7	7.5	0
	February	28	100.0%	5.8	13.8	0
	March	31	100.0%	4.2	7.2	0
	April	30	100.0%	6.0	13.6	0
	May	31	100.0%	6.0	13.0	0
	June	30	100.0%	6.7	15.8	0
	July	31	100.0%	12.4	39.9	3
	August	31	100.0%	7.6	21.8	0
	September	30	100.0%	4.2	10.8	0
	October	31	100.0%	4.0	10.5	0
	November	30	100.0%	4.9	14.3	0
	December	21	67.7%	3.7	5.4	0
Annual		355	97.3%	5.9	39.9	3

Observations in ug/m^3

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



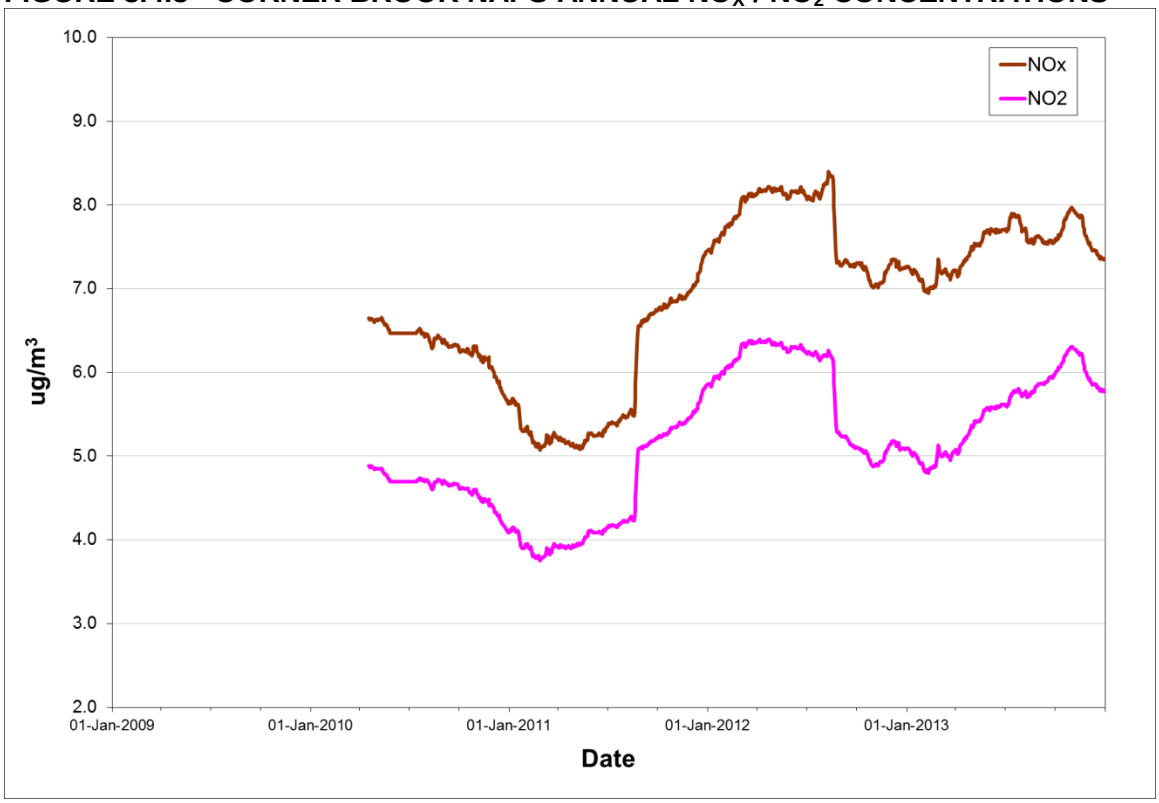
Rolling annual average of daily concentrations

TABLE 3.4.3 - CORNER BROOK NAPS NO_X / NO_2 SUMMARY 2012 & 2013

						Maximums				Exceedances	
		# Valid	% Valid	Average		1-Hour		24-Hour		1-Hour	24-Hour
Year	Month	Hours	Hours	NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2012	January	744	100.0%	8.1	6.7	56.8	40.8	15.9	12.5	0	0
	February	696	100.0%	9.7	8.1	97.2	54.7	27.1	19.2	0	0
	March	735	98.8%	8.2	6.6	98.5	57.7	30.9	23.9	0	0
	April	713	99.0%	4.5	3.3	63.6	41.0	17.6	12.7	0	0
	May	735	98.8%	5.5	3.9	48.9	44.8	16.0	11.9	0	0
	June	556	77.2%	6.1	4.1	99.7	53.8	14.4	11.6	0	0
	July	719	96.6%	8.3	4.6	78.6	43.1	22.0	12.7	0	0
	August	731	98.3%	7.8	3.3	77.1	42.9	26.0	13.6	0	0
	September	719	99.9%	6.1	2.6	51.7	29.3	14.3	8.8	0	0
	October	734	98.7%	3.9	2.4	57.0	34.2	14.2	8.5	0	0
	November	714	99.2%	10.4	8.8	95.9	54.5	37.5	28.2	0	0
	December	743	99.9%	8.4	6.5	81.6	48.1	22.1	16.7	0	0
Annual		8539	97.2%	7.3	5.1	99.7	57.7	37.5	28.2	0	0
2013	January	733	98.5%	6.2	4.6	71.7	43.4	16.9	11.5	0	0
	February	671	99.9%	13.1	11.0	117.9	67.6	40.8	30.9	0	0
	March	743	99.9%	6.6	5.9	58.4	43.8	13.3	11.9	0	0
	April	720	100.0%	7.9	6.9	69.0	47.9	21.8	17.5	0	0
	May	739	99.3%	7.5	6.2	50.0	41.3	17.8	14.0	0	0
	June	720	100.0%	6.8	5.0	64.8	37.7	21.4	13.0	0	0
	July	739	99.3%	8.4	5.9	60.1	46.2	23.5	15.7	0	0
	August	743	99.9%	6.9	5.0	52.9	40.1	21.5	13.4	0	0
	September	717	99.6%	5.3	3.9	51.5	33.4	14.3	10.5	0	0
	October	743	99.9%	8.6	6.4	87.2	30.2	27.0	15.3	0	0
	November	708	98.3%	5.3	4.3	69.2	47.8	15.3	11.3	0	0
	December	539	72.4%	5.5	4.3	49.9	33.7	13.3	11.0	0	0
Annual		8515	97.2%	7.4	5.8	117.9	67.6	40.8	30.9	0	0

Observations in ug/m^3

FIGURE 3.4.3 - CORNER BROOK NAPS ANNUAL NO_X / NO_2 CONCENTRATIONS



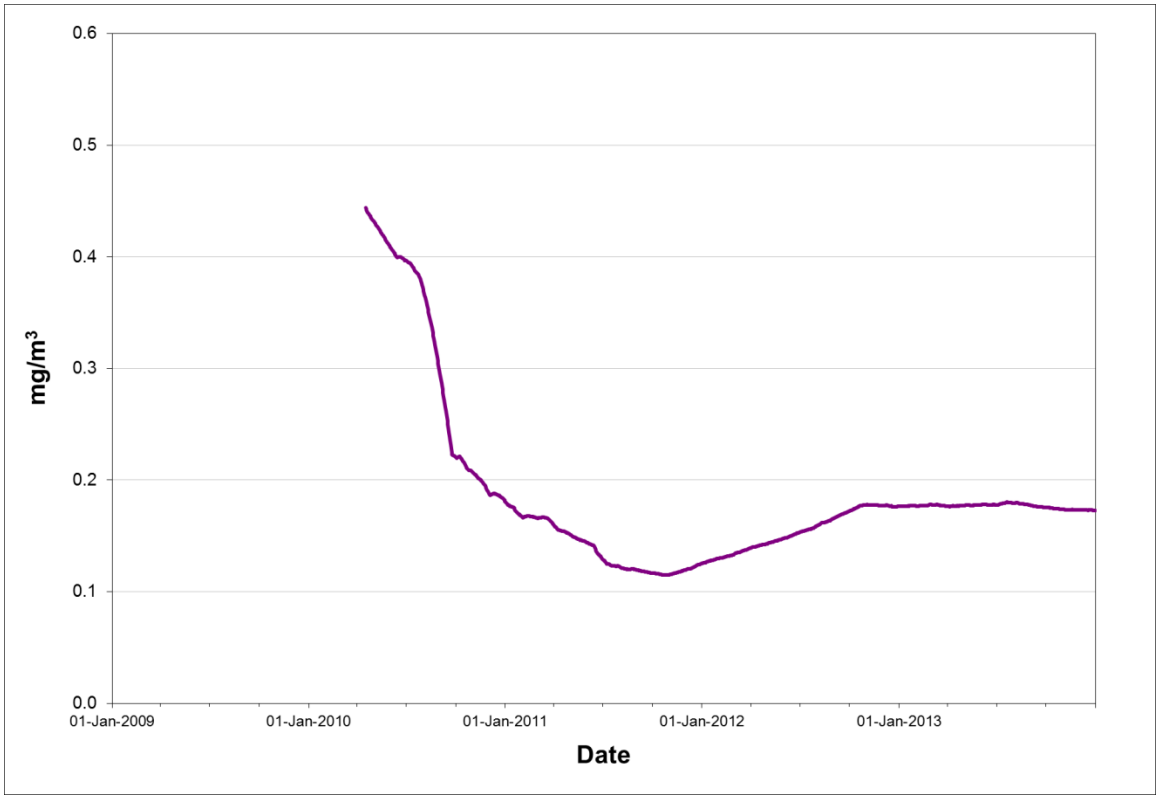
Rolling annual average of hourly concentrations

TABLE 3.4.4 - CORNER BROOK NAPS CO SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>35)	Regulatory Exceedances 8-Hour (>15)
2012	January	742	99.7%	0.2	0.6	0.4	0	0
	February	696	100.0%	0.2	0.6	0.3	0	0
	March	736	98.9%	0.2	0.7	0.4	0	0
	April	713	99.0%	0.2	0.4	0.3	0	0
	May	740	99.5%	0.2	0.3	0.2	0	0
	June	713	99.0%	0.1	0.4	0.2	0	0
	July	741	99.6%	0.2	0.3	0.2	0	0
	August	729	98.0%	0.2	0.3	0.3	0	0
	September	717	99.6%	0.2	0.5	0.3	0	0
	October	736	98.9%	0.2	0.4	0.3	0	0
	November	715	99.3%	0.2	0.5	0.3	0	0
	December	738	99.2%	0.2	0.5	0.3	0	0
	Annual	8716	99.2%	0.2	0.7	0.4	0	0
2013	January	738	99.2%	0.2	0.5	0.4	0	0
	February	670	99.7%	0.2	0.8	0.4	0	0
	March	743	99.9%	0.2	0.5	0.3	0	0
	April	720	100.0%	0.2	0.6	0.4	0	0
	May	743	99.9%	0.2	0.4	0.3	0	0
	June	717	99.6%	0.1	0.4	0.3	0	0
	July	736	98.9%	0.2	0.5	0.3	0	0
	August	740	99.5%	0.2	0.4	0.3	0	0
	September	719	99.9%	0.1	0.3	0.2	0	0
	October	740	99.5%	0.1	0.5	0.2	0	0
	November	707	98.2%	0.2	0.5	0.4	0	0
	December	535	71.9%	0.2	0.5	0.3	0	0
	Annual	8508	97.1%	0.2	0.8	0.4	0	0

Observations in mg/m^3

FIGURE 3.4.4 - CORNER BROOK NAPS ANNUAL CO CONCENTRATIONS



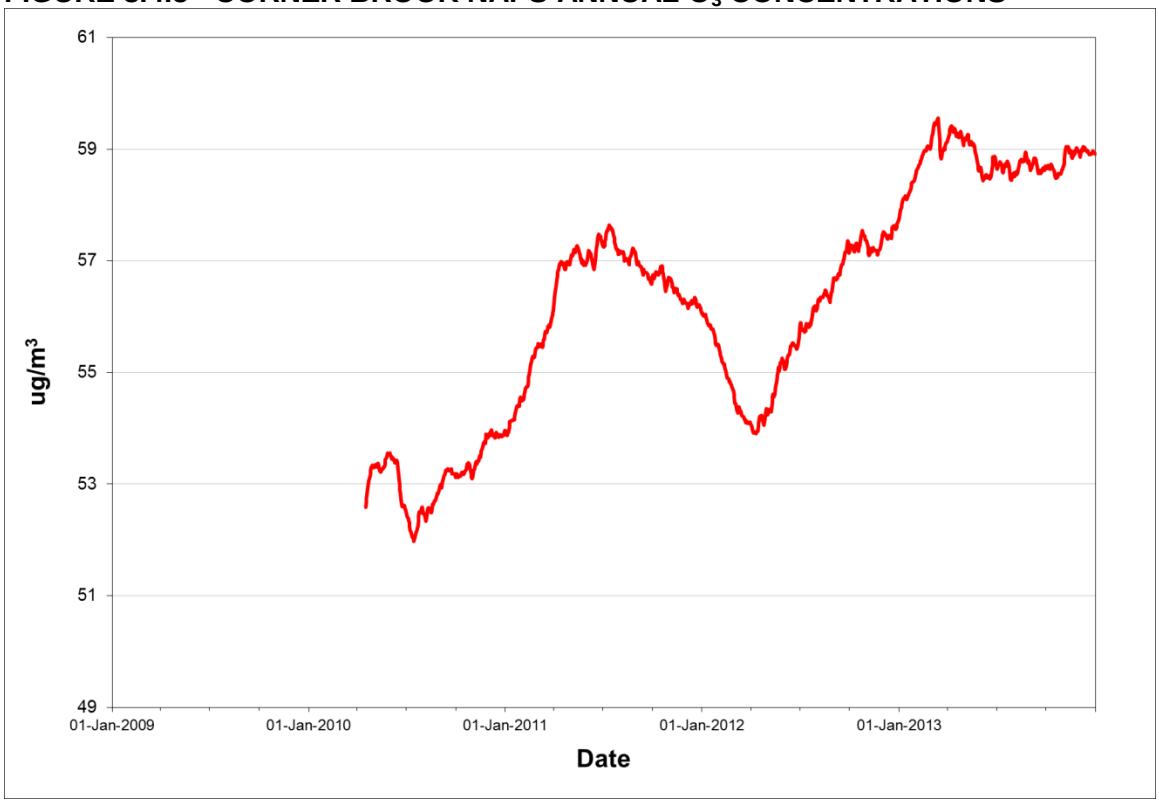
Rolling annual average of hourly concentrations

TABLE 3.4.5 - CORNER BROOK NAPS O_3 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2012	January	744	100.0%	60.1	82.0	73.2	0	0
	February	696	100.0%	66.4	88.5	86.5	0	0
	March	739	99.3%	70.8	114.5	107.9	0	4
	April	718	99.7%	77.3	137.7	119.3	0	18
	May	743	99.9%	65.3	105.1	94.6	0	7
	June	716	99.4%	51.7	112.1	101.2	0	2
	July	743	99.9%	47.0	96.1	82.4	0	0
	August	731	98.3%	45.4	94.5	82.5	0	0
	September	719	99.9%	45.1	87.0	80.1	0	0
	October	724	97.3%	46.3	76.7	68.7	0	0
	November	718	99.7%	54.0	83.8	77.5	0	0
	December	743	99.9%	63.5	85.7	82.7	0	0
Annual		8734	99.4%	57.7	137.7	119.3	0	31
2013	January	739	99.3%	69.6	84.3	81.1	0	0
	February	670	99.7%	73.0	92.7	90.2	0	3
	March	742	99.7%	72.1	100.7	99.0	0	30
	April	720	100.0%	76.5	108.5	101.7	0	28
	May	742	99.7%	60.5	103.0	90.9	0	3
	June	720	100.0%	52.2	109.4	102.6	0	1
	July	739	99.3%	45.1	83.0	73.6	0	0
	August	742	99.7%	47.5	107.5	103.8	0	2
	September	718	99.7%	45.0	80.3	73.1	0	0
	October	743	99.9%	45.9	79.5	66.7	0	0
	November	712	98.9%	57.9	85.1	80.1	0	0
	December	467	62.8%	65.2	81.6	80.1	0	0
Annual		8454	96.5%	58.9	109.4	103.8	0	67

Observations in ug/m^3

FIGURE 3.4.5 - CORNER BROOK NAPS ANNUAL O_3 CONCENTRATIONS

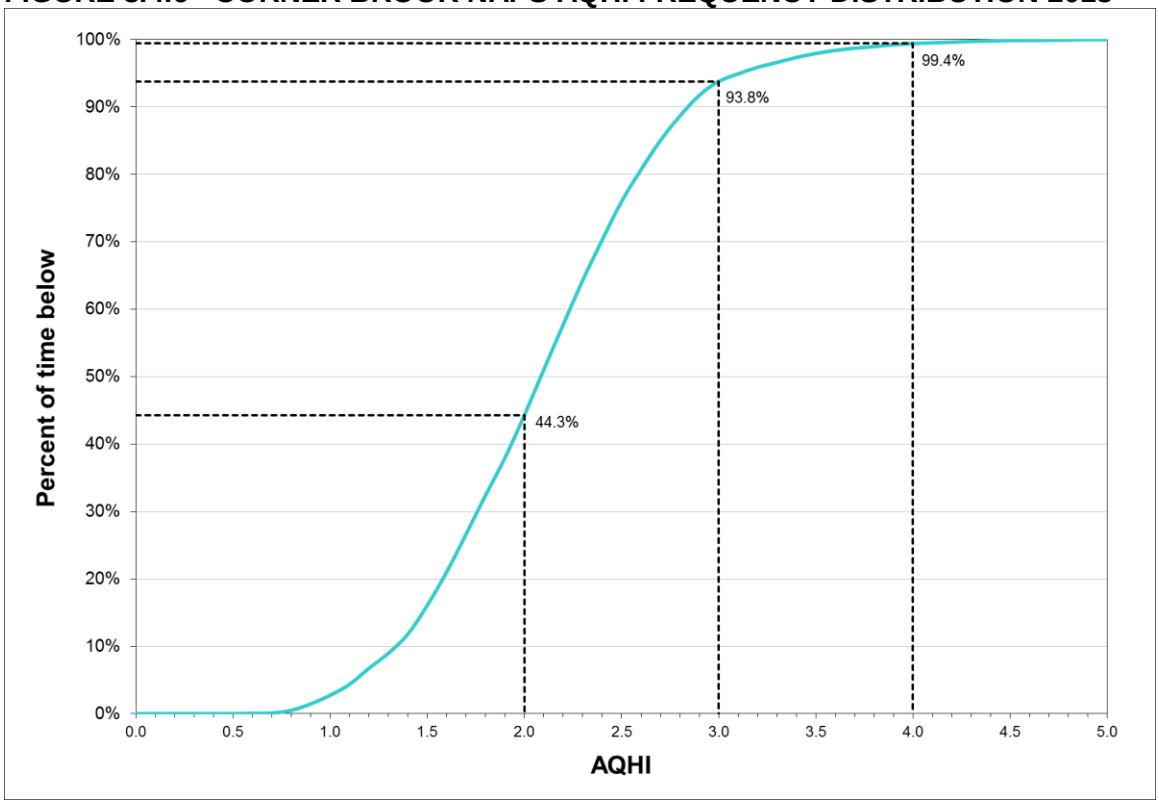


Rolling annual average of hourly concentrations

TABLE 3.4.6 - CORNER BROOK NAPS AQHI SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour
2012	January	742	99.7%	2.1	2.7
	February	694	99.7%	2.4	3.6
	March	736	98.9%	2.6	4.4
	April	712	98.9%	2.5	4.2
	May	738	99.2%	2.1	3.5
	June	530	73.6%	1.9	4.4
	July	722	97.0%	1.8	4.0
	August	730	98.1%	1.7	4.5
	September	720	100.0%	1.5	3.3
	October	713	95.8%	1.5	2.5
	November	538	74.7%	2.0	3.3
	December	728	97.8%	2.2	2.9
Annual		8303	94.5%	2.0	4.5
2013	January	734	98.7%	2.3	3.1
	February	665	99.0%	2.7	5.2
	March	742	99.7%	2.4	3.8
	April	720	100.0%	2.6	4.9
	May	737	99.1%	2.2	4.0
	June	720	100.0%	1.9	4.0
	July	739	99.3%	2.0	5.1
	August	742	99.7%	1.8	4.3
	September	716	99.4%	1.6	3.2
	October	738	99.2%	1.7	2.9
	November	707	98.2%	2.0	3.5
	December	464	62.4%	2.1	2.6
Annual		8424	96.2%	2.1	5.2

FIGURE 3.4.6 - CORNER BROOK NAPS AQHI FREQUENCY DISTRIBUTION 2013



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

3.5 Burin

The Burin station was commissioned in October 2011 and monitors the ambient levels of SO_2, $PM_{2.5}$ NO_x / NO_2, CO, O_3 and PM_{10} on a continuous basis. The ambient air criteria for SO_2, NO_x / NO_2, CO, and PM_{10} were not exceeded on any occasion in 2013. For 8-hour ozone and 24-hour $PM_{2.5}$, the ambient air criteria were exceeded on ninety eight occasions and 1 occasion respectively in 2013. Tables 3.5.1 through 3.5.6 provide summary information on the level of each air contaminant measured at the Burin site. Due to the limited data, no graphical representation of the annual trend is provided.

Table 3.5.7 provides a summary of the AQHI, while Figure 3.5.1 provides a graphical representation of the AQHI frequency based on all data collected in Burin.

TABLE 3.5.1 - BURIN NAPS SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	221	29.7%	0.0	3.2	1.6	0.2	0	0	0
	February	646	92.8%	1.6	4.2	3.5	3.2	0	0	0
	March	577	77.6%	2.0	24.9	9.8	3.4	0	0	0
	April	710	98.6%	1.5	27.2	10.6	3.3	0	0	0
	May	741	99.6%	0.8	5.5	3.2	2.5	0	0	0
	June	715	99.3%	0.1	18.6	7.0	1.2	0	0	0
	July	744	100.0%	0.4	1.3	1.1	0.8	0	0	0
	August	735	98.8%	0.2	2.8	1.6	0.5	0	0	0
	September	242	33.6%	0.0	1.1	0.6	0.1	0	0	0
	October	321	43.1%	0.0	1.6	0.8	0.1	0	0	0
	November	712	98.9%	0.2	1.0	0.9	0.8	0	0	0
	December	519	69.8%	0.1	2.2	1.0	0.4	0	0	0
Annual		6883	78.4%	0.7	27.2	10.6	3.4	0	0	0
2013	January	36	4.8%	1.5	2.0	1.7	1.6	0	0	0
	February	664	98.8%	0.7	2.4	2.2	2.0	0	0	0
	March	739	99.3%	0.4	3.5	1.8	0.9	0	0	0
	April	615	85.4%	0.4	3.3	2.4	1.1	0	0	0
	May	581	78.1%	0.5	1.8	1.1	0.8	0	0	0
	June	519	72.1%	0.4	1.0	1.0	0.9	0	0	0
	July	744	100.0%	0.2	4.1	2.6	0.7	0	0	0
	August	741	99.6%	0.2	3.1	1.2	0.5	0	0	0
	September	660	91.7%	0.6	3.7	2.0	1.8	0	0	0
	October	741	99.6%	0.0	0.5	0.3	0.2	0	0	0
	November	718	99.7%	0.7	1.5	1.5	1.4	0	0	0
	December	743	99.9%	0.6	3.0	2.5	1.1	0	0	0
Annual		7501	85.6%	0.4	4.1	2.6	2.0	0	0	0

Observations in ug/m^3

TABLE 3.5.2 - BURIN NAPS $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	3.4	8.0	0
	February	29	100.0%	2.2	5.6	0
	March	31	100.0%	3.3	8.8	0
	April	30	100.0%	3.5	6.2	0
	May	31	100.0%	2.4	5.2	0
	June	30	100.0%	1.8	3.8	0
	July	31	100.0%	2.4	9.1	0
	August	29	93.5%	1.9	5.6	0
	September	22	73.3%	1.3	4.0	0
	October	31	100.0%	2.0	5.0	0
	November	30	100.0%	5.0	8.0	0
	December	31	100.0%	6.1	9.7	0
Annual		356	97.3%	3.0	9.7	0
2013	January	31	100.0%	5.4	8.0	0
	February	27	96.4%	6.2	11.7	0
	March	31	100.0%	6.3	11.3	0
	April	30	100.0%	8.3	13.6	0
	May	25	80.6%	6.0	9.5	0
	June	30	100.0%	5.6	12.1	0
	July	31	100.0%	6.1	28.0	1
	August	31	100.0%	3.3	16.6	0
	September	30	100.0%	4.4	9.0	0
	October	24	77.4%	5.8	9.3	0
	November	30	100.0%	7.3	11.1	0
	December	31	100.0%	7.5	10.9	0
Annual		351	96.2%	6.0	28.0	1

Observations in ug/m^3

TABLE 3.5.3 - BURIN NAPS NO_X / NO_2 SUMMARY 2012 &2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	742	99.7%	1.3	0.7	43.1	19.7	4.7	3.6	0	0
	February	689	99.0%	1.3	0.7	83.4	36.3	12.7	7.8	0	0
	March	738	99.2%	0.8	0.4	52.6	25.1	7.0	4.5	0	0
	April	713	99.0%	1.7	0.7	141.4	19.9	9.0	2.0	0	0
	May	740	99.5%	1.0	0.4	19.1	7.7	2.3	1.2	0	0
	June	717	99.6%	1.0	0.2	14.8	5.6	2.2	0.8	0	0
	July	744	100.0%	1.6	0.7	16.1	7.1	3.4	1.5	0	0
	August	735	98.8%	1.1	0.3	19.5	8.9	2.5	0.8	0	0
	September	713	99.0%	0.7	0.3	14.5	5.4	1.8	1.3	0	0
	October	736	98.9%	1.1	0.7	59.6	35.7	5.9	2.8	0	0
	November	716	99.4%	2.4	1.7	91.5	89.6	7.6	6.3	0	0
	December	740	99.5%	1.8	1.3	164.9	66.3	9.6	5.1	0	0
Annual		8723	99.3%	1.3	0.7	164.9	89.6	12.7	7.8	0	0
2013	January	736	98.9%	7.5	6.4	76.4	41.6	18.9	14.6	0	0
	February	662	98.5%	1.2	0.9	46.8	22.7	6.2	3.6	0	0
	March	740	99.5%	1.3	0.8	80.7	24.8	7.5	3.0	0	0
	April	719	99.9%	1.7	1.2	22.1	11.4	4.6	2.5	0	0
	May	744	100.0%	1.7	0.8	33.1	11.6	5.5	2.1	0	0
	June	719	99.9%	1.3	0.8	10.7	5.8	2.4	1.9	0	0
	July	631	84.8%	0.3	0.2	21.9	8.6	2.5	1.2	0	0
	August	741	99.6%	1.0	0.4	85.2	21.9	4.7	1.0	0	0
	September	714	99.2%	0.7	0.5	30.0	11.0	3.2	1.7	0	0
	October	741	99.6%	1.4	0.9	27.7	10.0	4.8	2.8	0	0
	November	718	99.7%	1.2	0.7	20.8	10.0	3.8	2.1	0	0
	December	743	99.9%	2.0	1.3	53.3	17.1	4.4	3.1	0	0
Annual		8608	98.3%	1.8	1.3	85.2	41.6	18.9	14.6	0	0

Observations in ug/m^3

TABLE 3.5.4 - BURIN NAPS CO SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>35)	Regulatory Exceedances 8-Hour (>15)
2012	January	0	0.0%					
	February	0	0.0%					
	March	0	0.0%					
	April	462	64.2%	0.0	0.2	0.2	0	0
	May	258	34.7%	0.1	0.2	0.2	0	0
	June	0	0.0%					
	July	0	0.0%					
	August	401	53.9%	0.1	0.4	0.2	0	0
	September	713	99.0%	0.2	0.3	0.2	0	0
	October	739	99.3%	0.1	0.3	0.2	0	0
	November	715	99.3%	0.1	0.3	0.2	0	0
	December	740	99.5%	0.2	0.3	0.2	0	0
Annual		4028	45.9%	0.1	0.4	0.2	0	0
2013	January	738	99.2%	0.2	0.5	0.3	0	0
	February	663	98.7%	0.2	0.4	0.3	0	0
	March	740	99.5%	0.2	0.3	0.2	0	0
	April	718	99.7%	0.2	0.3	0.2	0	0
	May	538	72.3%	0.1	0.2	0.2	0	0
	June	104	14.4%	0.0	0.1	0.1	0	0
	July	742	99.7%	0.1	0.5	0.3	0	0
	August	743	99.9%	0.1	0.3	0.2	0	0
	September	716	99.4%	0.1	0.2	0.1	0	0
	October	741	99.6%	0.1	0.2	0.2	0	0
	November	717	99.6%	0.1	0.3	0.2	0	0
	December	743	99.9%	0.2	0.2	0.2	0	0
Annual		7903	90.2%	0.1	0.5	0.3	0	0

Observations in ug/m^3

TABLE 3.5.5 - BURIN NAPS O_3 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2012	January	743	99.9%	61.1	79.7	77.5	0	0
	February	689	99.0%	71.9	96.8	89.8	0	1
	March	737	99.1%	72.2	95.6	89.7	0	3
	April	716	99.4%	80.6	119.3	113.5	0	24
	May	645	86.7%	75.3	109.3	102.9	0	11
	June	717	99.6%	62.3	100.2	89.0	0	1
	July	744	100.0%	55.2	102.9	91.2	0	1
	August	736	98.9%	55.5	90.7	77.6	0	0
	September	714	99.2%	40.3	89.2	85.6	0	0
	October	735	98.8%	51.4	84.6	79.8	0	0
	November	715	99.3%	64.9	87.8	86.4	0	0
	December	739	99.3%	71.6	91.7	89.8	0	2
Annual		8630	98.2%	63.4	119.3	113.5	0	43
2013	January	737	99.1%	73.7	89.9	88.5	0	1
	February	662	98.5%	82.4	98.8	98.1	0	21
	March	521	70.0%	85.2	100.2	96.9	0	32
	April	465	64.6%	79.2	101.9	98.4	0	26
	May	744	100.0%	70.0	103.6	100.7	0	12
	June	720	100.0%	54.5	92.1	80.3	0	0
	July	636	85.5%	48.9	97.2	86.0	0	0
	August	742	99.7%	54.2	129.0	112.2	0	6
	September	715	99.3%	50.8	88.4	80.3	0	0
	October	741	99.6%	47.9	83.6	73.4	0	0
	November	718	99.7%	53.3	70.1	68.2	0	0
	December	743	99.9%	63.1	76.8	72.4	0	0
Annual		8144	93.0%	62.6	129.0	112.2	0	98

Observations in ug/m^3

TABLE 3.5.6 - BURIN NAPS PM_{10} SUMMARY 2012 & 2013

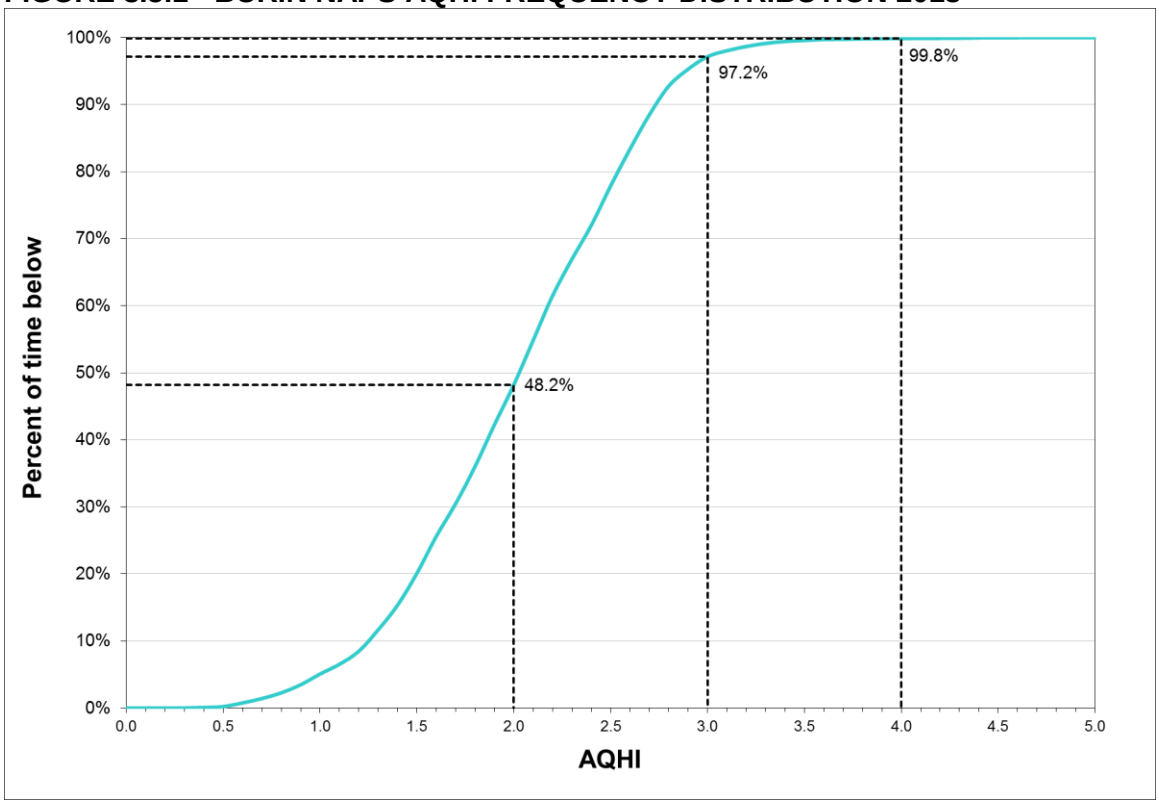
Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>50 µg/m^3)
2012	January	31	100.0%	9.5	21.5	0
	February	29	100.0%	6.8	15.4	0
	March	28	90.3%	10.7	22.3	0
	April	29	96.7%	11.2	24.8	0
	May	29	93.5%	9.9	19.7	0
	June	24	80.0%	9.5	19.0	0
	July	21	67.7%	12.4	18.5	0
	August	27	87.1%	13.6	23.9	0
	September	24	80.0%	13.2	23.1	0
	October	31	100.0%	10.1	20.0	0
	November	30	100.0%	11.7	18.5	0
	December	31	100.0%	10.9	15.8	0
Annual		334	91.3%	10.7	24.8	0
2013	January	30	96.8%	7.1	14.3	0
	February	27	96.4%	9.5	27.4	0
	March	24	77.4%	11.4	25.4	0
	April	30	100.0%	15.2	28.7	0
	May	31	100.0%	10.2	21.8	0
	June	30	100.0%	6.9	15.3	0
	July	31	100.0%	9.8	35.5	0
	August	31	100.0%	8.1	24.3	0
	September	30	100.0%	8.1	15.4	0
	October	25	80.6%	7.0	14.5	0
	November	30	100.0%	10.1	24.3	0
	December	31	100.0%	8.8	17.0	0
Annual		350	95.9%	9.4	35.5	0

Observations in ug/m^3

TABLE 3.5.7 - BURIN NAPS AQHI SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 3-Hour
2012	January	742	99.7%	1.8	2.3
	February	688	98.9%	2.0	2.6
	March	738	99.2%	2.1	3.0
	April	711	98.8%	2.3	3.5
	May	646	86.8%	2.1	3.2
	June	715	99.3%	1.8	2.8
	July	744	100.0%	1.6	3.1
	August	707	95.0%	1.6	2.7
	September	619	86.0%	1.2	2.4
	October	732	98.4%	1.5	2.4
	November	713	99.0%	2.0	3.9
	December	737	99.1%	2.2	3.2
Annual		8492	96.7%	1.9	3.9
2013	January	736	98.9%	2.5	3.3
	February	658	97.9%	2.5	3.4
	March	523	70.3%	2.6	3.6
	April	465	64.6%	2.6	3.6
	May	612	82.3%	2.3	3.3
	June	720	100.0%	1.7	2.7
	July	630	84.7%	1.6	5.5
	August	741	99.6%	1.6	4.4
	September	712	98.9%	1.6	2.9
	October	603	81.0%	1.6	2.4
	November	720	100.0%	1.8	2.5
	December	744	100.0%	2.1	2.5
Annual		7864	89.8%	2.0	5.5

FIGURE 3.5.1 - BURIN NAPS AQHI FREQUENCY DISTRIBUTION 2013



e.g. 97.2% of the time the AQHI recorded was below 3.0

3.6 Port aux Choix

The Port aux Choix NAPS monitoring station was relocated from the Ferolle Point location in 2010 due to logistical issues. The station monitors the ambient levels of O_3 on a continuous basis.

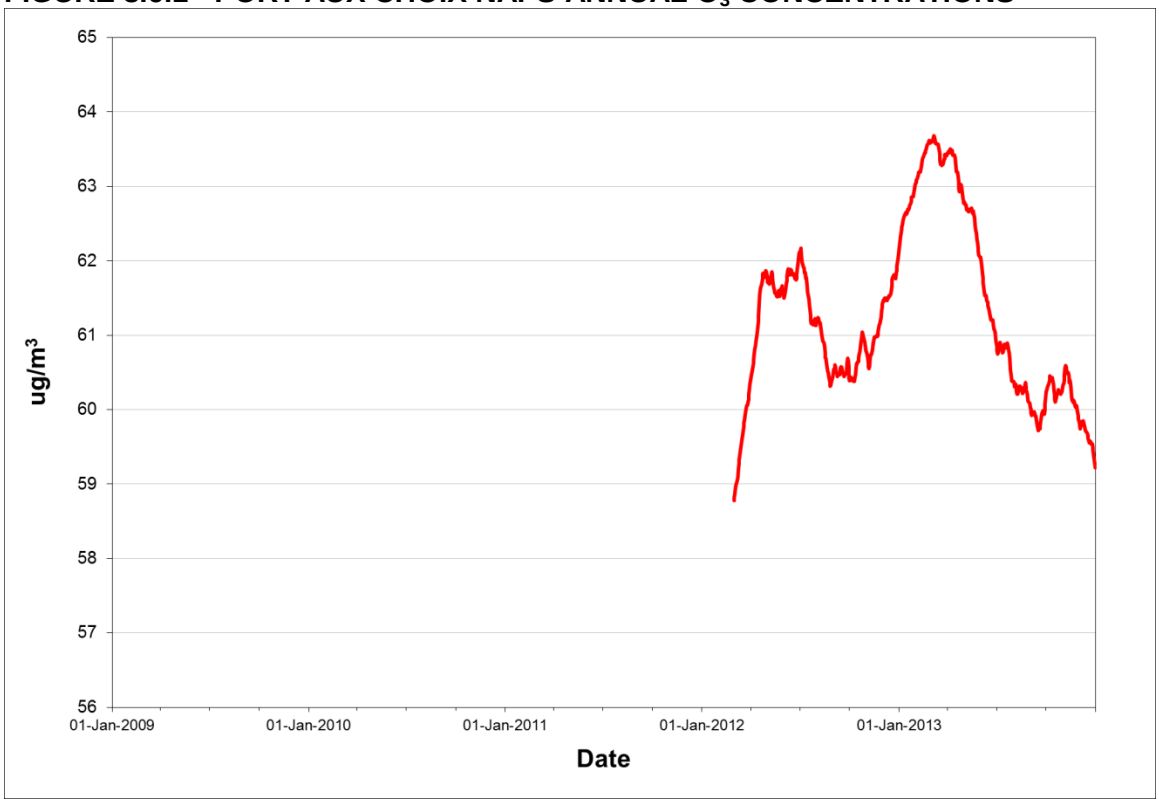
The 8-hour ambient air standard for O_3 was exceeded fifteen times in 2013. Table 3.6.1 presents the summary information on the level of O_3 measured at the Port aux Choix NAPS station while Figure 3.6.1 presents a graphical representation of the annual trend of O_3.

TABLE 3.6.1 - PORT AUX CHOIX NAPS O_3 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 8-Hour	Regulatory Exceedances 1-Hour (>160)	Regulatory Exceedances 8-Hour (>87)
2012	January	744	100.0%	64.5	77.3	75.4	0	0
	February	691	99.3%	73.4	85.4	82.6	0	0
	March	744	100.0%	74.7	105.2	101.0	0	3
	April	720	100.0%	77.5	129.0	123.6	0	13
	May	744	100.0%	65.6	94.9	91.0	0	4
	June	325	45.1%	61.4	74.3	72.3	0	0
	July	655	88.0%	45.6	111.2	96.9	0	1
	August	742	99.7%	44.7	79.0	75.2	0	0
	September	719	99.9%	48.7	95.3	88.2	0	1
	October	740	99.5%	50.8	92.6	72.1	0	0
	November	716	99.4%	63.4	86.7	84.1	0	0
	December	725	97.4%	73.5	90.4	89.9	0	3
Annual		8265	94.1%	62.1	129.0	123.6	0	25
2013	January	742	99.7%	75.1	86.3	85.7	0	0
	February	647	96.3%	80.9	98.6	93.6	0	13
	March	743	99.9%	73.1	92.3	86.1	0	0
	April	720	100.0%	70.2	95.7	89.4	0	2
	May	743	99.9%	57.3	90.3	79.5	0	0
	June	718	99.7%	47.9	90.4	81.8	0	0
	July	739	99.3%	41.4	73.9	70.2	0	0
	August	744	100.0%	41.3	86.4	84.1	0	0
	September	470	65.3%	44.1	68.8	60.3	0	0
	October	541	72.7%	49.4	73.6	69.5	0	0
	November	717	99.6%	58.5	79.5	76.2	0	0
	December	742	99.7%	66.0	85.2	80.0	0	0
Annual		8266	94.4%	59.2	98.6	93.6	0	15

Observations in ug/m^3

FIGURE 3.6.1 - PORT AUX CHOIX NAPS ANNUAL O_3 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.0 Industrial Monitoring Network

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

On the island of Newfoundland, there were four monitoring networks operated by industry in 2013 and another three in Labrador. Figures 4.0.1 and 4.0.2 present the locations of these monitoring networks.

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

FIGURE 4.0.1 - INDUSTRIAL MONITORING NETWORK IN NEWFOUNDLAND

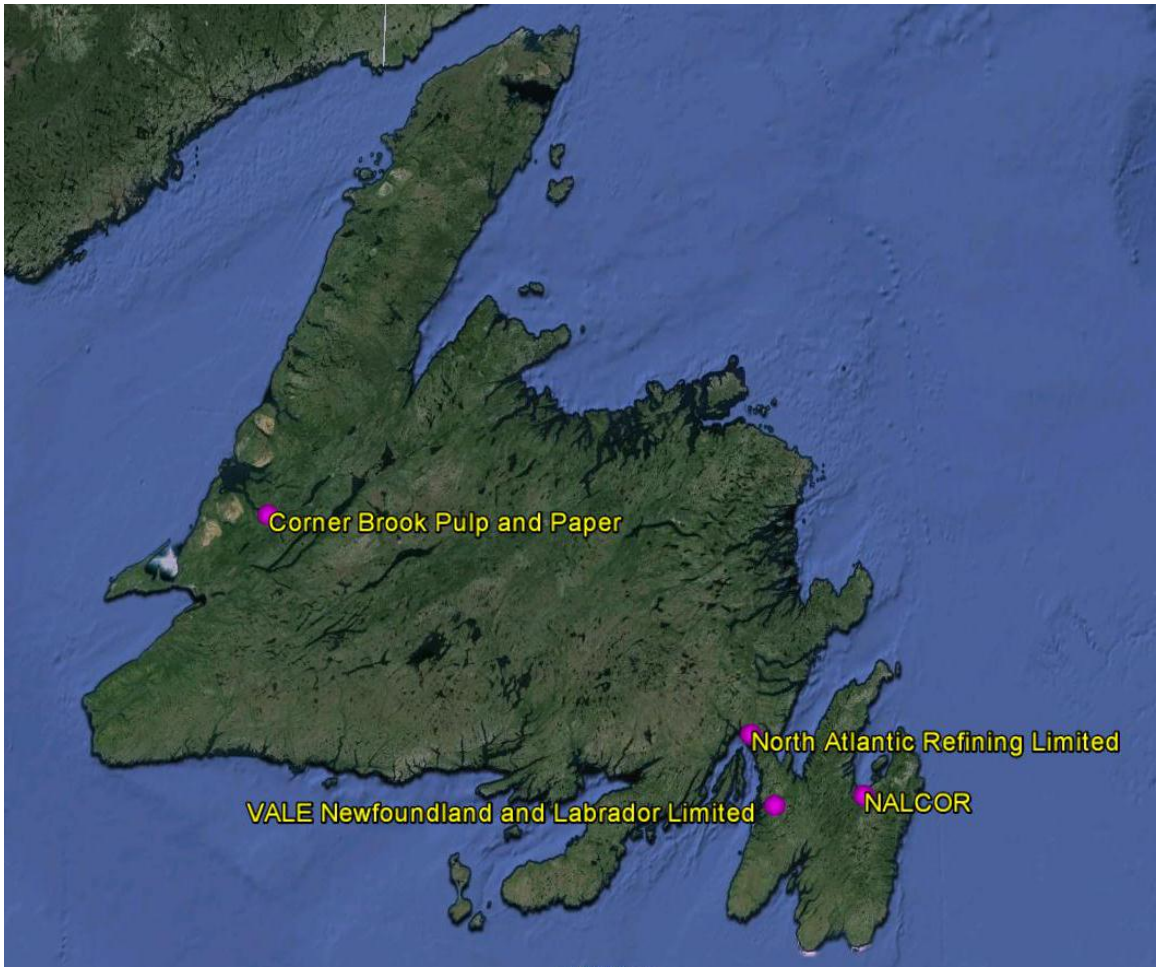
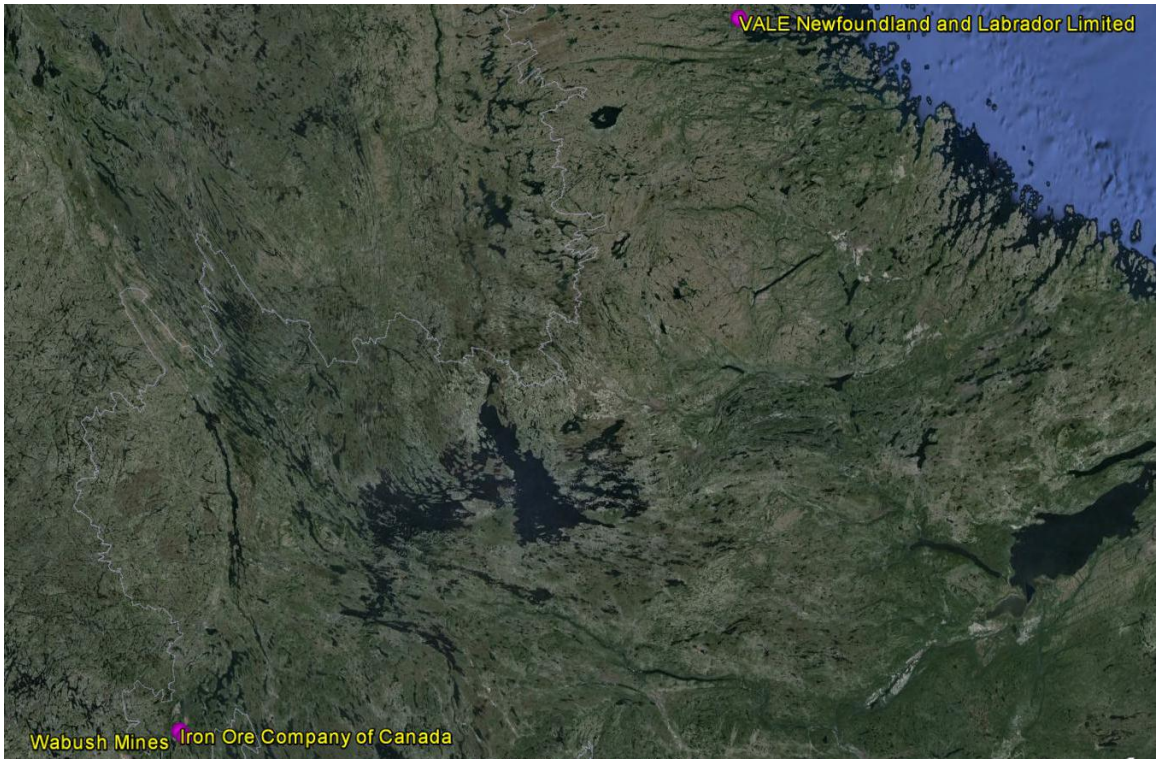


FIGURE 4.0.2 - INDUSTRIAL MONITORING NETWORK IN LABRADOR



4.1 NALCOR

In 2013, NALCOR operated monitoring stations at 6 locations in the Holyrood area. These stations are installed to monitor the emissions from the Holyrood Thermal Generating Station and are located at Butterpot Road, Green Acres Road, Indian Pond Drive, Indian Pond Road, Lawrence Pond, and the NALCOR property boundary. Figure 4.1.1 indicates the location of these stations.

FIGURE 4.1.1 - NALCOR AMBIENT MONITORING STATIONS

4.1.1 Butterpot Road

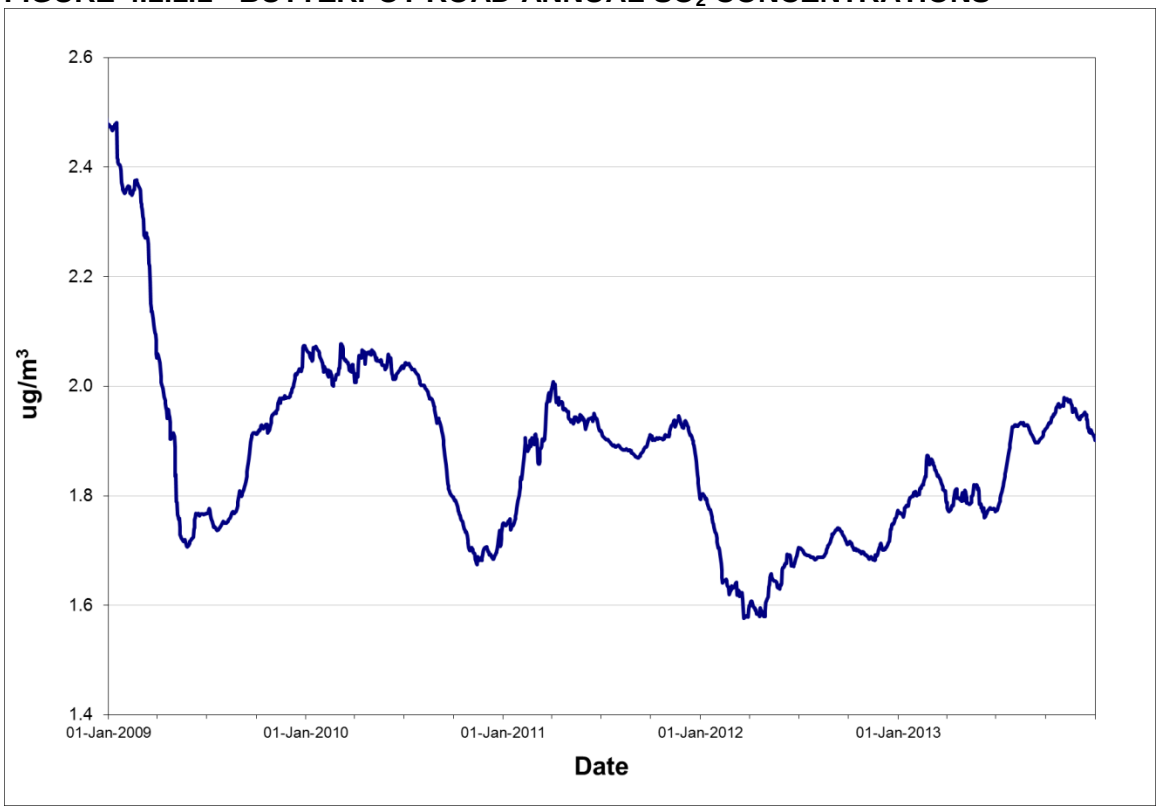
The Butterpot Road station monitors the ambient levels of SO_2, NO_x / NO_2 and $PM_{2.5}$ on a continuous basis. For all pollutants, the ambient air criteria were not exceeded on any occasion in 2013 with the exception of $PM_{2.5}$ which exceeded the 24-hour standard on two occasions. Tables 4.1.1.1 through 4.1.1.4 provide summary information on the level of air contaminants measured at Butterpot Road, while Figures 4.1.1.1 through 4.1.1.4 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.1.1.1 - BUTTERPOT ROAD SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	713	95.8%	1.5	21.5	14.1	4.0	0	0	0
	February	664	95.4%	1.9	38.0	17.0	3.8	0	0	0
	March	711	95.6%	2.8	71.6	29.5	8.6	0	0	0
	April	690	95.8%	2.1	38.3	27.8	7.6	0	0	0
	May	691	92.9%	2.3	47.9	25.4	10.4	0	0	0
	June	687	95.4%	2.0	47.6	22.6	7.8	0	0	0
	July	710	95.4%	0.8	3.6	2.2	1.3	0	0	0
	August	712	95.7%	1.4	11.9	10.6	3.4	0	0	0
	September	656	91.1%	1.3	3.2	2.7	2.4	0	0	0
	October	708	95.2%	1.1	12.1	7.8	3.2	0	0	0
	November	690	95.8%	2.0	22.5	15.8	6.2	0	0	0
	December	710	95.4%	2.2	33.9	20.2	6.3	0	0	0
Annual		8342	95.0%	1.8	71.6	29.5	10.4	0	0	0
2013	January	699	94.0%	1.9	26.2	13.2	3.8	0	0	0
	February	639	95.1%	2.5	50.0	42.7	12.4	0	0	0
	March	709	95.3%	1.9	27.0	12.3	4.9	0	0	0
	April	690	95.8%	2.3	37.6	27.5	7.0	0	0	0
	May	685	92.1%	2.1	51.9	25.1	8.8	0	0	0
	June	687	95.4%	1.8	26.6	14.8	4.3	0	0	0
	July	703	94.5%	2.7	11.8	6.2	4.0	0	0	0
	August	689	92.6%	1.4	4.5	2.5	1.8	0	0	0
	September	686	95.3%	1.3	6.7	4.3	2.9	0	0	0
	October	713	95.8%	1.6	23.9	14.0	3.0	0	0	0
	November	682	94.7%	1.7	22.7	19.7	7.9	0	0	0
	December	527	70.8%	1.6	19.0	12.1	4.3	0	0	0
Annual		8109	92.6%	1.9	51.9	42.7	12.4	0	0	0

Observations in ug/m^3

FIGURE 4.1.1.1 - BUTTERPOT ROAD ANNUAL SO_2 CONCENTRATIONS



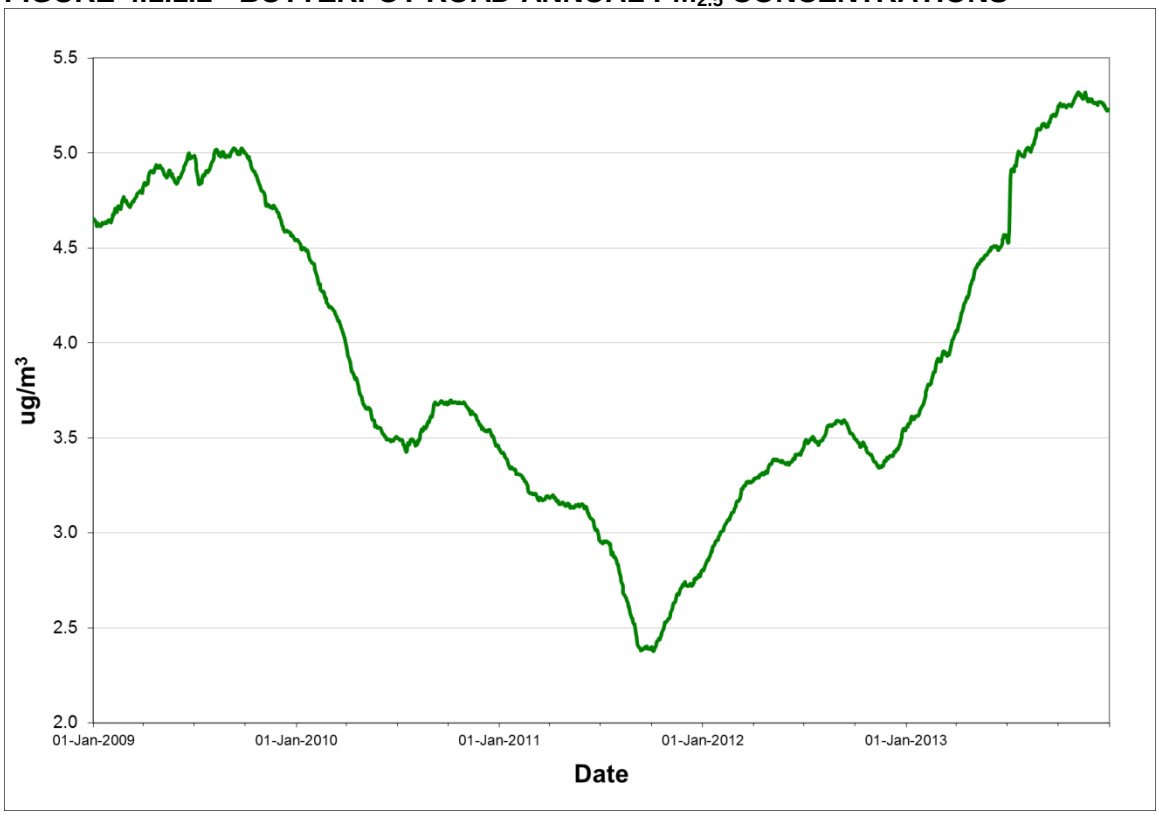
Rolling annual average of hourly concentrations

TABLE 4.1.1.2 - BUTTERPOT ROAD $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	3.7	7.2	0
	February	29	100.0%	3.5	6.8	0
	March	31	100.0%	4.4	7.8	0
	April	30	100.0%	3.7	7.3	0
	May	31	100.0%	3.4	6.2	0
	June	25	83.3%	3.0	5.6	0
	July	31	100.0%	3.7	9.9	0
	August	29	93.5%	3.4	7.1	0
	September	20	66.7%	0.8	3.0	0
	October	26	83.9%	2.9	6.1	0
	November	30	100.0%	3.8	7.0	0
	December	31	100.0%	5.1	9.2	0
Annual		344	94.0%	3.5	9.9	0
2013	January	29	93.5%	5.2	9.4	0
	February	26	92.9%	6.6	10.4	0
	March	31	100.0%	5.9	10.8	0
	April	30	100.0%	6.8	9.3	0
	May	31	100.0%	5.0	9.0	0
	June	30	100.0%	4.1	10.6	0
	July	30	96.8%	8.5	54.0	2
	August	31	100.0%	5.2	12.5	0
	September	29	96.7%	3.4	7.2	0
	October	27	87.1%	3.7	5.7	0
	November	30	100.0%	3.7	7.5	0
	December	22	71.0%	4.2	6.2	0
Annual		346	94.8%	5.2	54.0	2

Observations in ug/m^3

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



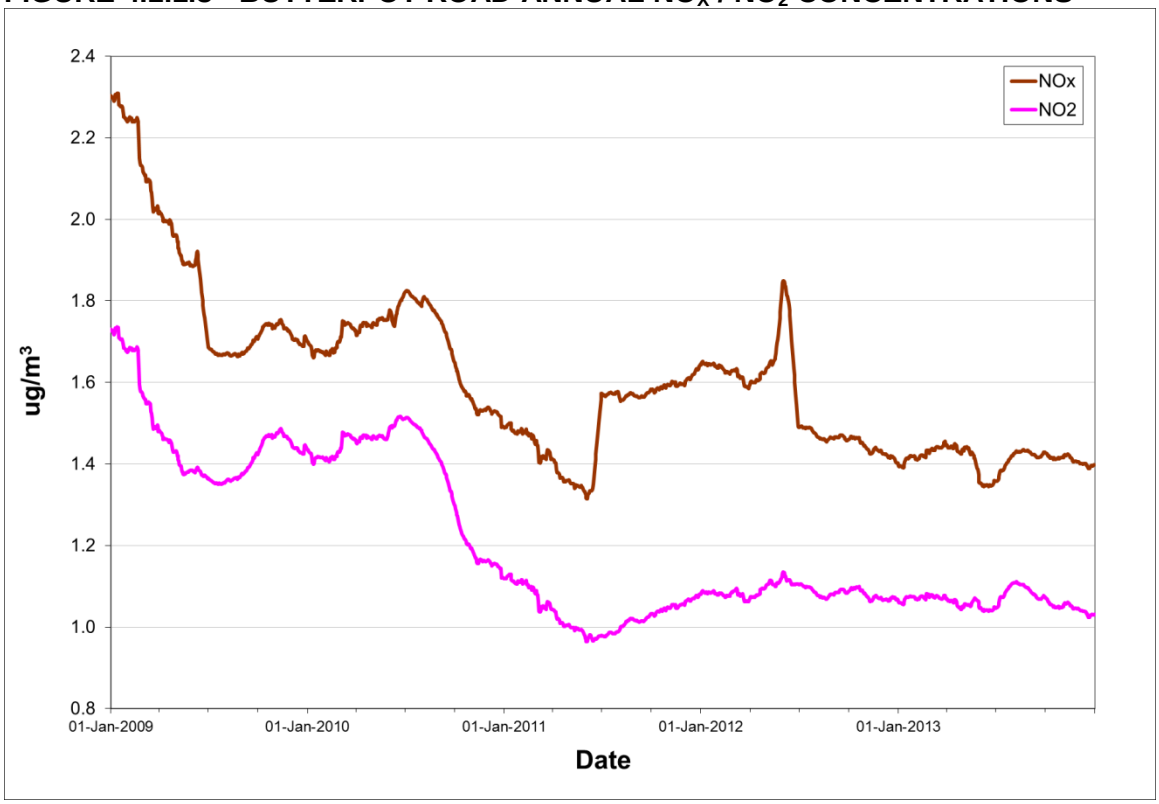
Rolling annual average of daily concentrations

TABLE 4.1.1.3 - BUTTERPOT ROAD NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	682	91.7%	1.2	1.1	22.0	19.8	3.2	3.0	0	0
	February	635	91.2%	1.3	1.2	22.2	14.8	4.0	2.9	0	0
	March	680	91.4%	1.2	1.0	36.9	25.2	4.1	3.1	0	0
	April	660	91.7%	1.4	1.2	24.4	20.2	5.4	4.4	0	0
	May	677	91.0%	3.8	1.3	22.3	14.7	10.5	4.9	0	0
	June	686	95.3%	1.3	1.1	20.0	15.1	3.1	2.3	0	0
	July	712	95.7%	0.8	0.7	2.9	2.2	1.2	1.0	0	0
	August	713	95.8%	0.9	0.9	3.5	3.3	1.6	1.4	0	0
	September	659	91.5%	1.0	0.9	6.2	5.0	1.5	1.4	0	0
	October	701	94.2%	1.3	1.2	7.3	6.2	2.3	2.2	0	0
	November	660	91.7%	1.3	1.1	10.6	9.8	3.2	2.9	0	0
	December	680	91.4%	1.3	1.2	18.0	15.2	3.2	3.1	0	0
Annual		8145	92.7%	1.4	1.1	36.9	25.2	10.5	4.9	0	0
2013	January	669	89.9%	1.4	1.2	23.7	21.5	5.2	4.7	0	0
	February	609	90.6%	1.4	1.2	31.4	27.0	8.1	6.9	0	0
	March	680	91.4%	1.4	1.0	21.1	15.7	4.1	3.3	0	0
	April	660	91.7%	1.3	0.9	18.3	11.5	4.4	3.3	0	0
	May	675	90.7%	2.9	1.3	30.7	15.1	6.5	4.0	0	0
	June	687	95.4%	1.3	1.1	8.2	8.0	2.3	1.9	0	0
	July	703	94.5%	1.5	1.3	7.1	5.5	3.0	2.7	0	0
	August	687	92.3%	1.0	0.7	4.3	2.7	1.7	1.3	0	0
	September	687	95.4%	1.0	0.7	9.6	8.2	3.0	2.6	0	0
	October	713	95.8%	1.2	0.9	8.8	6.0	2.4	1.9	0	0
	November	665	92.4%	1.2	1.0	6.2	5.5	2.6	2.4	0	0
	December	512	68.8%	1.2	1.0	10.7	7.0	2.4	2.1	0	0
Annual		7947	90.7%	1.4	1.0	31.4	27.0	8.1	6.9	0	0

Observations in ug/m^3

FIGURE 4.1.1.3 - BUTTERPOT ROAD ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.1.2 Green Acres Road

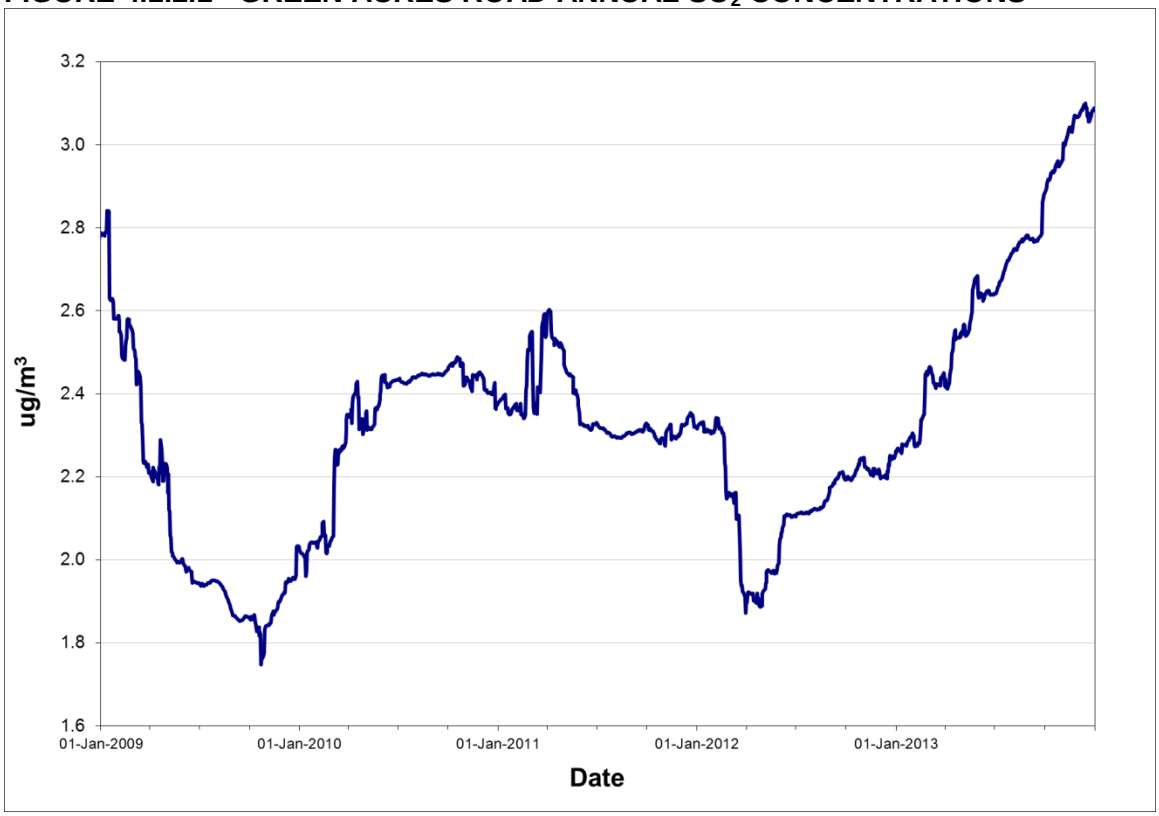
The Green Acres Road station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle consistent with the NAPS defined schedule. For all pollutants with the exception of $PM_{2.5}$, the ambient air criteria were not exceeded on any occasion in 2013. The $PM_{2.5}$ 24-hour criterion was exceeded on two occasions. 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 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	712	95.7%	2.2	30.0	17.0	4.5	0	0	0
	February	665	95.5%	3.1	135.5	75.2	13.9	0	0	0
	March	706	94.9%	2.9	80.9	40.3	10.2	0	0	0
	April	689	95.7%	2.2	109.0	52.7	11.1	0	0	0
	May	713	95.8%	2.8	156.0	64.7	20.5	0	0	0
	June	664	92.2%	2.0	103.0	48.4	9.0	0	0	0
	July	713	95.8%	1.3	5.1	3.9	2.4	0	0	0
	August	713	95.8%	1.7	15.0	11.6	4.5	0	0	0
	September	681	94.6%	1.8	5.0	4.6	3.3	0	0	0
	October	713	95.8%	2.2	34.7	22.8	7.7	0	0	0
	November	688	95.6%	2.3	27.7	24.8	8.5	0	0	0
	December	702	94.4%	2.6	58.0	40.2	9.9	0	0	0
Annual		8359	95.2%	2.3	156.0	75.2	20.5	0	0	0
2013	January	692	93.0%	2.7	57.0	13.7	6.8	0	0	0
	February	644	95.8%	5.1	90.1	79.7	23.3	0	0	0
	March	707	95.0%	2.5	98.3	54.7	9.4	0	0	0
	April	690	95.8%	3.7	133.4	47.5	14.6	0	0	0
	May	712	95.7%	4.0	214.1	98.0	21.0	0	0	0
	June	664	92.2%	2.0	29.7	16.8	4.2	0	0	0
	July	708	95.2%	2.4	14.7	11.0	3.9	0	0	0
	August	712	95.7%	2.2	13.6	7.7	4.6	0	0	0
	September	681	94.6%	3.0	50.7	44.9	23.6	0	0	0
	October	713	95.8%	3.1	59.8	22.6	5.9	0	0	0
	November	687	95.4%	3.6	55.3	49.1	17.3	0	0	0
	December	705	94.8%	2.9	30.1	18.8	5.6	0	0	0
Annual		8315	94.9%	3.1	214.1	98.0	23.6	0	0	0

Observations in ug/m^3

FIGURE 4.1.2.1 - GREEN ACRES ROAD ANNUAL SO_2 CONCENTRATIONS



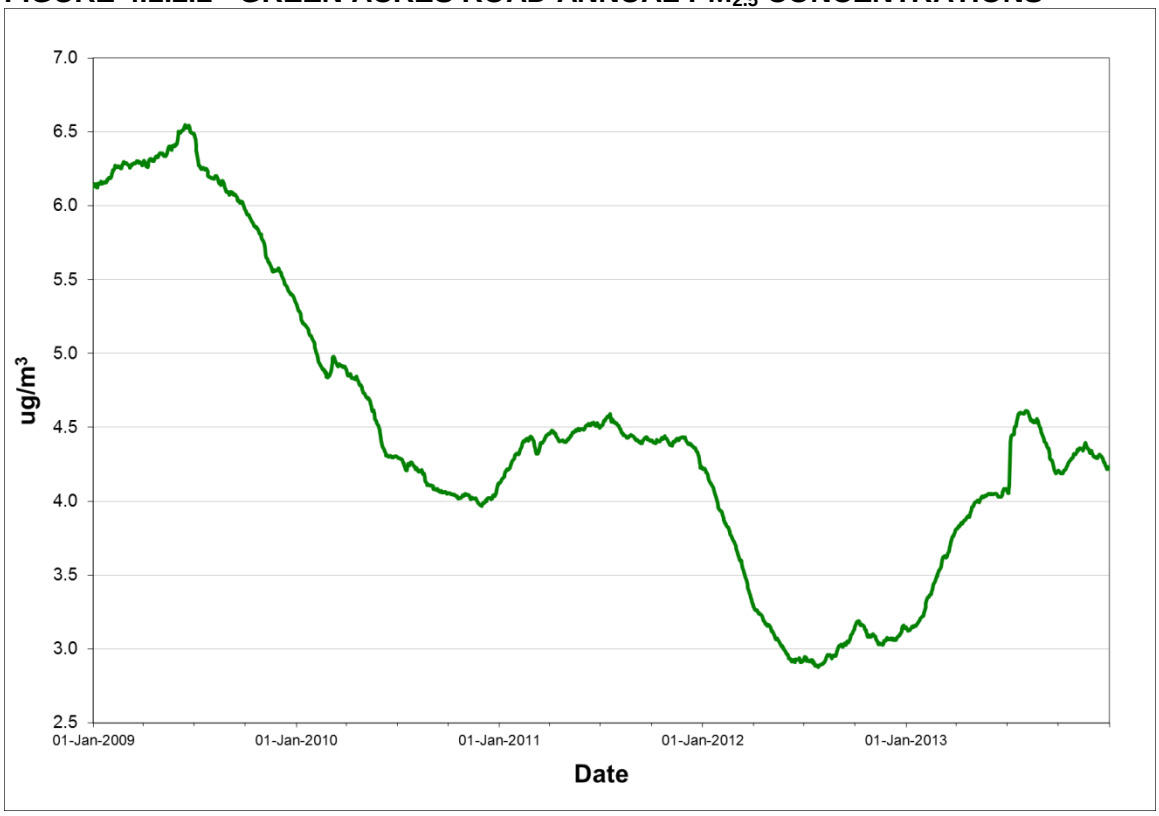
Rolling annual average of hourly concentrations

TABLE 4.1.2.2 - GREEN ACRES ROAD $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	2.2	5.3	0
	February	27	93.1%	1.7	4.0	0
	March	31	100.0%	2.1	6.0	0
	April	30	100.0%	2.5	5.6	0
	May	31	100.0%	2.2	6.3	0
	June	26	86.7%	3.5	6.0	0
	July	31	100.0%	3.8	9.8	0
	August	31	100.0%	4.3	9.0	0
	September	30	100.0%	5.2	9.2	0
	October	22	71.0%	2.5	6.6	0
	November	25	83.3%	3.5	7.7	0
	December	31	100.0%	3.8	7.1	0
Annual		346	94.5%	3.1	9.8	0
2013	January	29	93.5%	3.1	5.4	0
	February	28	100.0%	5.6	9.4	0
	March	31	100.0%	5.2	11.1	0
	April	26	86.7%	4.3	10.9	0
	May	31	100.0%	3.1	5.6	0
	June	30	100.0%	4.0	10.0	0
	July	31	100.0%	9.5	54.4	2
	August	30	96.8%	2.9	11.4	0
	September	30	100.0%	2.2	8.0	0
	October	27	87.1%	4.3	8.1	0
	November	28	93.3%	3.8	8.3	0
	December	21	67.7%	1.8	3.5	0
Annual		342	93.7%	4.2	54.4	2

Observations in ug/m^3

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



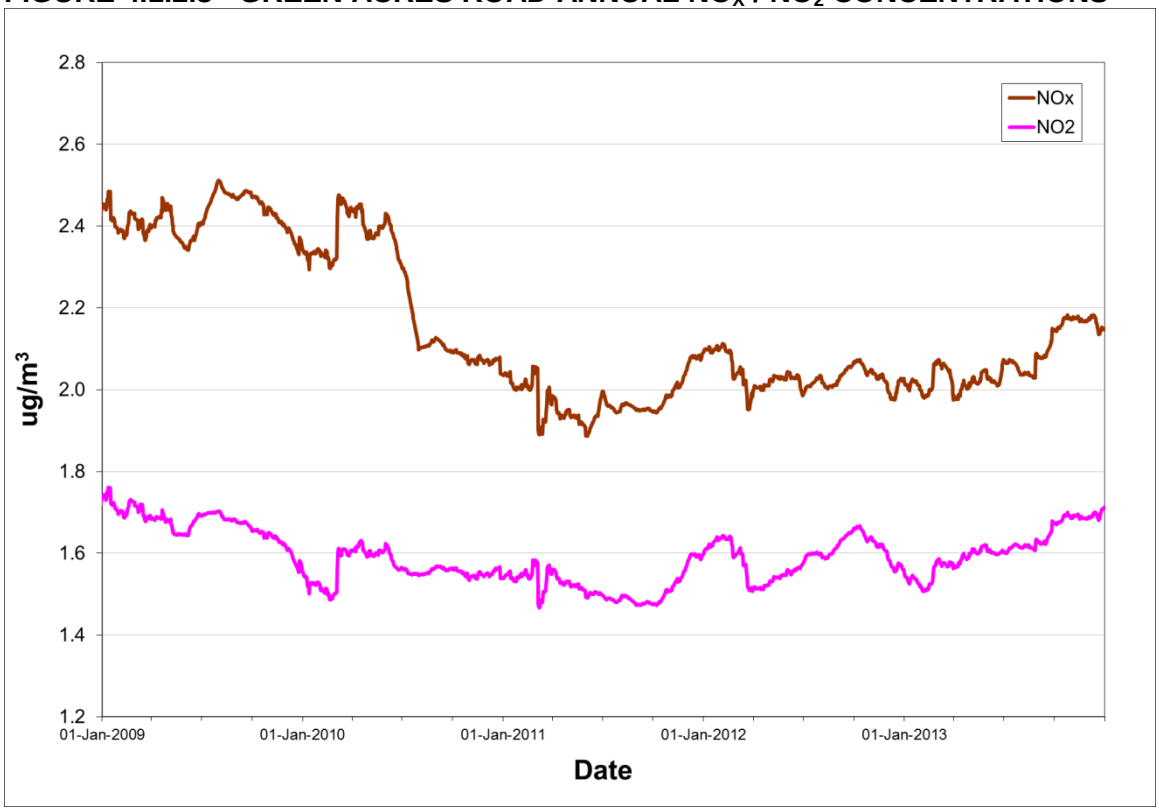
Rolling annual average of daily concentrations

TABLE 4.1.2.3 - GREEN ACRES ROAD NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	682	91.7%	2.1	2.0	46.0	18.4	4.5	3.9	0	0
	February	636	91.4%	2.0	1.6	78.7	36.4	9.1	5.6	0	0
	March	672	90.3%	2.7	1.6	51.3	32.1	7.1	3.2	0	0
	April	660	91.7%	2.0	1.5	56.0	31.8	7.0	4.5	0	0
	May	681	91.5%	1.9	1.6	53.9	25.3	7.7	4.9	0	0
	June	558	77.5%	2.0	1.6	33.8	22.8	4.1	3.2	0	0
	July	511	68.7%	1.9	1.0	4.2	3.7	2.6	1.6	0	0
	August	713	95.8%	1.5	1.4	15.0	10.9	4.5	3.4	0	0
	September	674	93.6%	1.8	1.5	17.5	8.3	2.8	2.5	0	0
	October	682	91.7%	1.9	1.6	17.5	12.5	4.8	3.7	0	0
	November	660	91.7%	2.1	1.8	22.8	17.3	4.8	4.2	0	0
	December	658	88.4%	2.4	1.5	36.0	23.9	6.3	4.5	0	0
Annual		7787	88.6%	2.0	1.6	78.7	36.4	9.1	5.6	0	0
2013	January	661	88.8%	1.8	1.5	34.5	24.3	5.5	4.8	0	0
	February	616	91.7%	2.8	2.3	54.4	32.8	12.4	8.2	0	0
	March	676	90.9%	1.6	1.4	47.8	32.2	5.3	4.3	0	0
	April	659	91.5%	2.4	1.9	60.0	31.4	7.0	4.4	0	0
	May	682	91.7%	2.1	1.7	74.6	42.8	7.9	5.3	0	0
	June	651	90.4%	2.5	1.5	13.4	10.0	5.4	2.5	0	0
	July	712	95.7%	1.5	1.3	7.6	5.7	2.8	2.3	0	0
	August	703	94.5%	2.0	1.5	93.3	36.0	21.9	10.2	0	0
	September	681	94.6%	2.6	2.1	29.2	20.0	12.9	9.7	0	0
	October	713	95.8%	2.2	1.7	17.5	13.3	4.4	3.5	0	0
	November	686	95.3%	2.1	1.8	27.8	12.3	5.5	4.5	0	0
	December	706	94.9%	2.1	1.8	32.3	15.0	5.2	4.5	0	0
Annual		8146	93.0%	2.1	1.7	93.3	42.8	21.9	10.2	0	0

Observations in ug/m^3

FIGURE 4.1.2.3 - GREEN ACRES ROAD ANNUAL NO_X / NO_2 CONCENTRATIONS



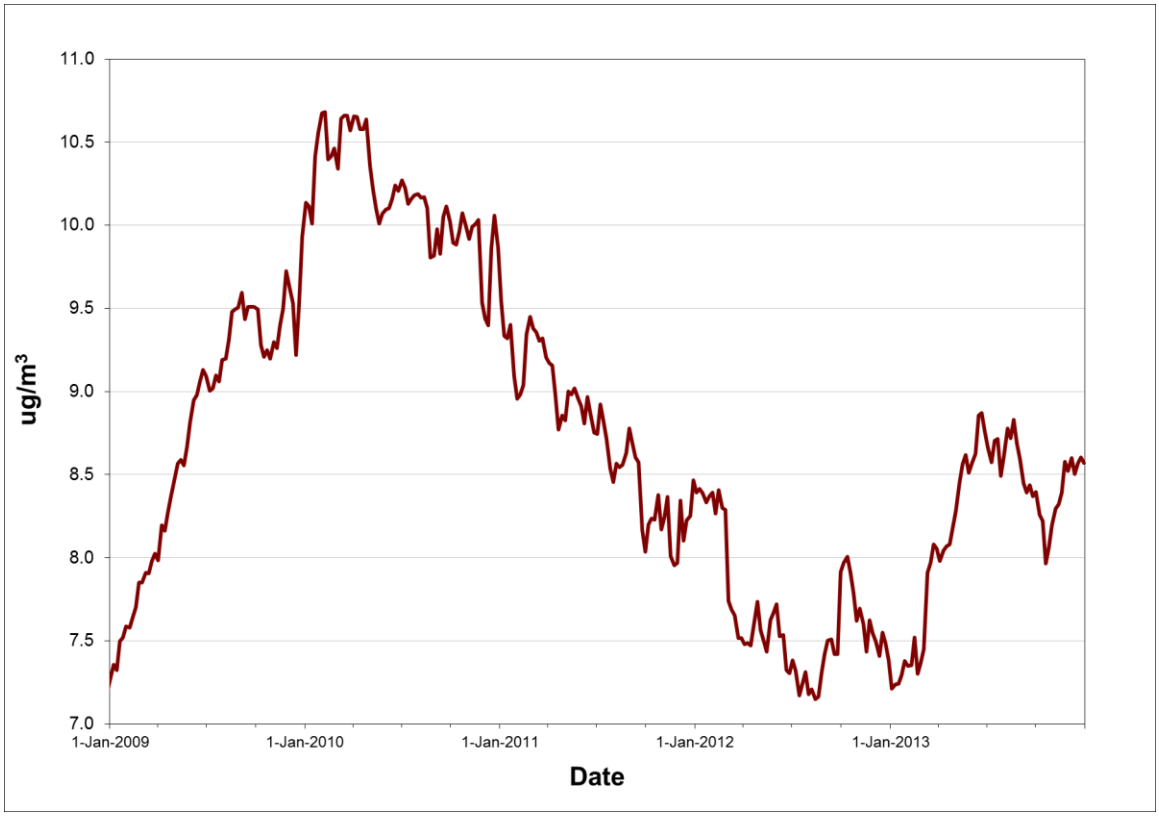
Rolling annual average of hourly concentrations

TABLE 4.1.2.4 - GREEN ACRES ROAD TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2012	January	4	80.0%	7.8	14.5	0
	February	5	100.0%	9.2	41.8	0
	March	5	100.0%	4.1	15.6	0
	April	5	100.0%	7.5	12.8	0
	May	5	100.0%	9.0	26.5	0
	June	4	80.0%	6.8	16.4	0
	July	5	100.0%	8.8	17.4	0
	August	6	100.0%	9.2	23.6	0
	September	5	100.0%	10.2	21.5	0
	October	5	100.0%	6.6	22.8	0
	November	5	100.0%	4.3	6.3	0
	December	5	100.0%	6.8	10.6	0
Annual		59	96.7%	7.3	41.8	0
2013	January	3	60.0%	8.4	14.4	0
	February	5	100.0%	9.8	11.4	0
	March	5	100.0%	10.5	18.3	0
	April	5	100.0%	10.4	26.5	0
	May	5	100.0%	12.9	14.8	0
	June	5	100.0%	9.4	18.2	0
	July	5	100.0%	7.8	15.5	0
	August	5	100.0%	7.3	17.3	0
	September	5	100.0%	8.5	12.3	0
	October	6	100.0%	7.2	10.7	0
	November	5	100.0%	7.3	10.6	0
	December	2	40.0%	4.4	4.7	0
Annual		56	91.8%	8.7	26.5	0

Observations in ug/m^3

FIGURE 4.1.2.4 - GREEN ACRES ROAD ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.1.3 Indian Pond Drive

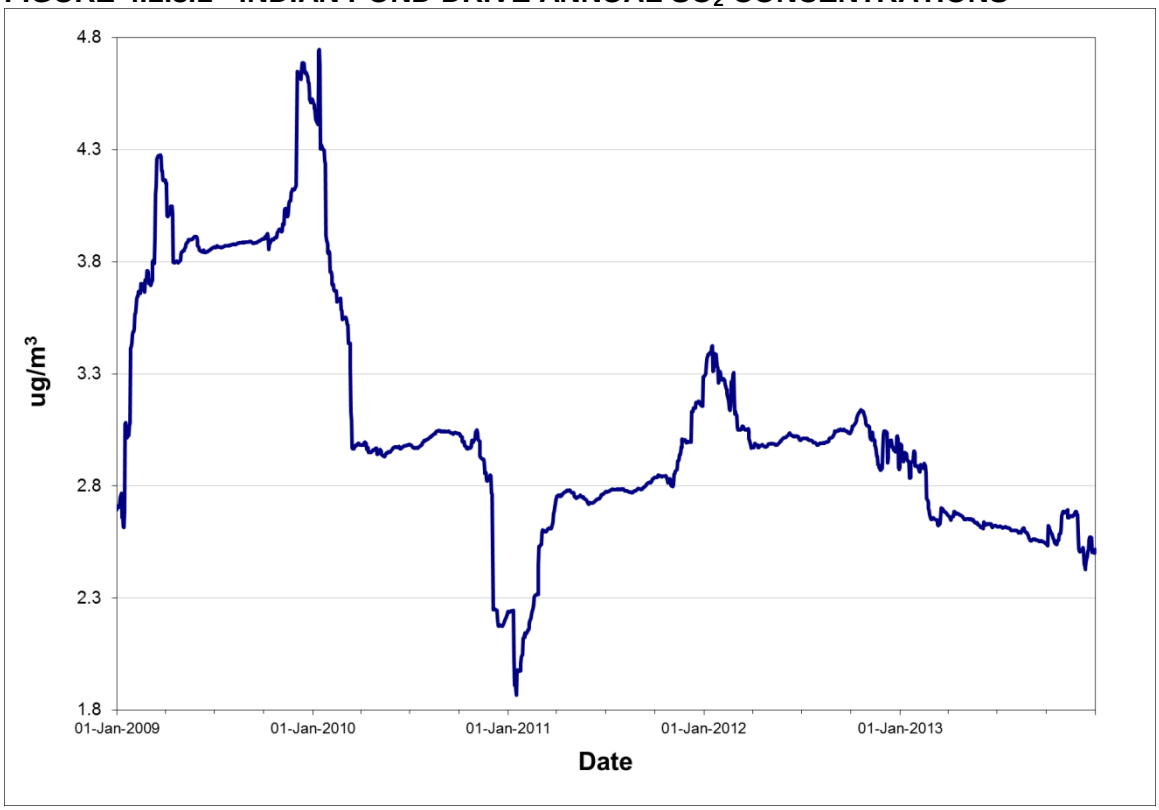
The Indian Pond Drive station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle consistent with the NAPS defined schedule. With the exception of $PM_{2.5}$, the ambient air criteria were not exceeded on any occasion in 2013. The 24-hour $PM_{2.5}$ standard was exceeded on two occasions in 2013. 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 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	712	95.7%	5.2	114.3	88.7	29.5	0	0	0
	February	664	95.4%	5.1	167.0	138.7	43.2	0	0	0
	March	710	95.4%	2.3	42.9	25.6	7.4	0	0	0
	April	688	95.6%	2.3	21.1	15.0	4.6	0	0	0
	May	708	95.2%	1.6	23.3	9.2	3.1	0	0	0
	June	680	94.4%	2.1	11.7	8.3	4.4	0	0	0
	July	707	95.0%	1.3	4.7	3.1	2.4	0	0	0
	August	713	95.8%	2.2	42.3	30.9	7.5	0	0	0
	September	684	95.0%	1.7	5.0	4.5	3.3	0	0	0
	October	690	92.7%	2.7	12.9	10.1	4.6	0	0	0
	November	686	95.3%	3.8	154.4	141.2	30.3	0	0	0
	December	711	95.6%	4.2	145.4	105.0	25.4	0	0	0
Annual		8353	95.1%	2.9	167.0	141.2	43.2	0	0	0
2013	January	670	90.1%	5.4	96.0	78.4	39.7	0	0	0
	February	634	94.3%	2.1	88.8	68.4	10.6	0	0	0
	March	709	95.3%	2.6	106.7	55.3	15.3	0	0	0
	April	689	95.7%	2.1	43.2	33.2	9.4	0	0	0
	May	710	95.4%	1.2	12.8	7.7	2.0	0	0	0
	June	688	95.6%	2.2	63.2	48.2	14.1	0	0	0
	July	712	95.7%	1.1	4.5	3.3	1.7	0	0	0
	August	682	91.7%	1.6	7.3	6.1	4.3	0	0	0
	September	687	95.4%	1.6	3.6	2.7	1.9	0	0	0
	October	713	95.8%	4.4	102.1	81.2	35.5	0	0	0
	November	682	94.7%	1.9	20.3	12.3	4.2	0	0	0
	December	711	95.6%	4.2	103.1	42.9	17.8	0	0	0
Annual		8287	94.6%	2.5	106.7	81.2	39.7	0	0	0

Observations in ug/m^3

FIGURE 4.1.3.1 - INDIAN POND DRIVE ANNUAL SO_2 CONCENTRATIONS



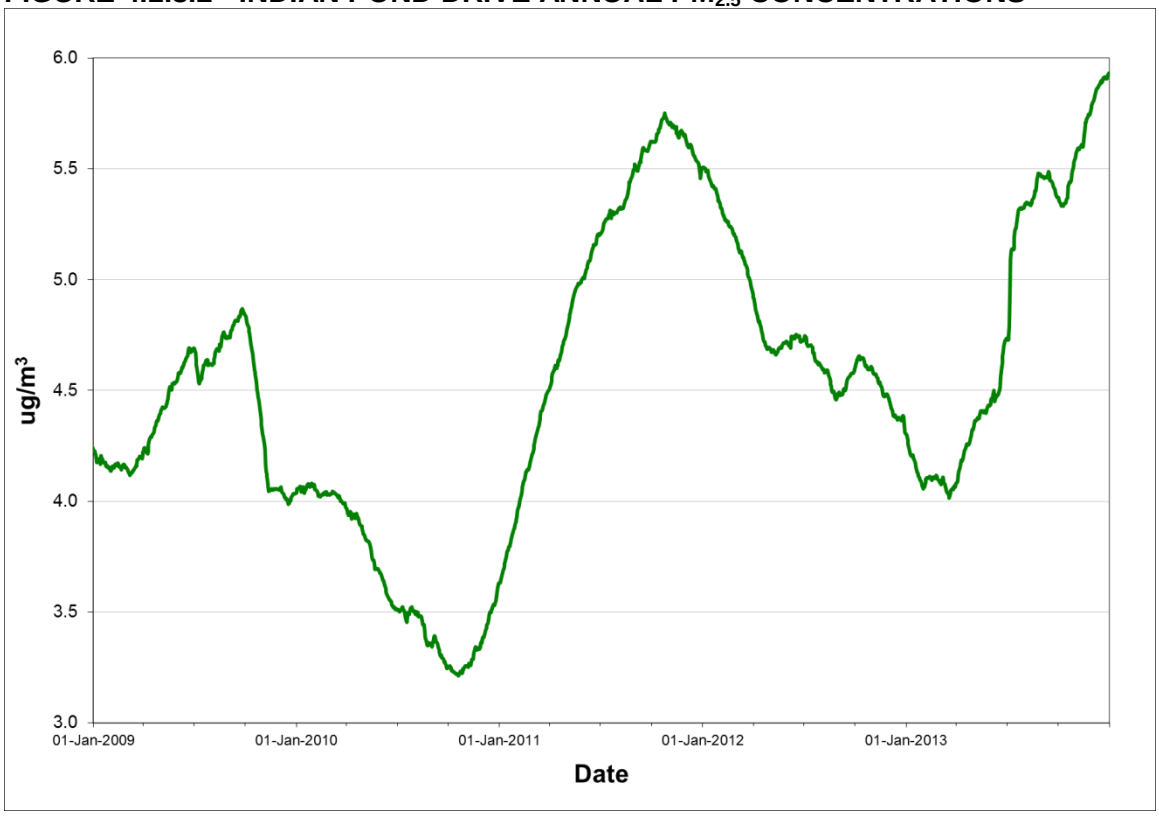
Rolling annual average of hourly concentrations

TABLE 4.1.3.2 - INDIAN POND DRIVE $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	4.3	7.9	0
	February	28	96.6%	3.9	8.1	0
	March	31	100.0%	3.6	8.4	0
	April	30	100.0%	3.9	6.9	0
	May	31	100.0%	5.5	9.0	0
	June	26	86.7%	5.0	23.7	0
	July	31	100.0%	4.4	10.4	0
	August	31	100.0%	4.7	10.6	0
	September	30	100.0%	6.8	11.4	0
	October	25	80.6%	4.0	7.8	0
	November	29	96.7%	3.0	6.3	0
	December	29	93.5%	2.6	7.3	0
Annual		352	96.2%	4.3	23.7	0
2013	January	28	90.3%	1.2	4.8	0
	February	28	100.0%	4.4	8.0	0
	March	30	96.8%	3.3	8.1	0
	April	30	100.0%	6.7	11.9	0
	May	31	100.0%	6.7	11.1	0
	June	30	100.0%	8.4	21.5	0
	July	31	100.0%	11.1	61.1	2
	August	23	74.2%	6.6	15.9	0
	September	30	100.0%	5.7	11.3	0
	October	27	87.1%	6.3	21.6	0
	November	29	96.7%	5.9	12.3	0
	December	31	100.0%	4.4	6.6	0
Annual		348	95.3%	5.9	61.1	2

Observations in ug/m^3

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



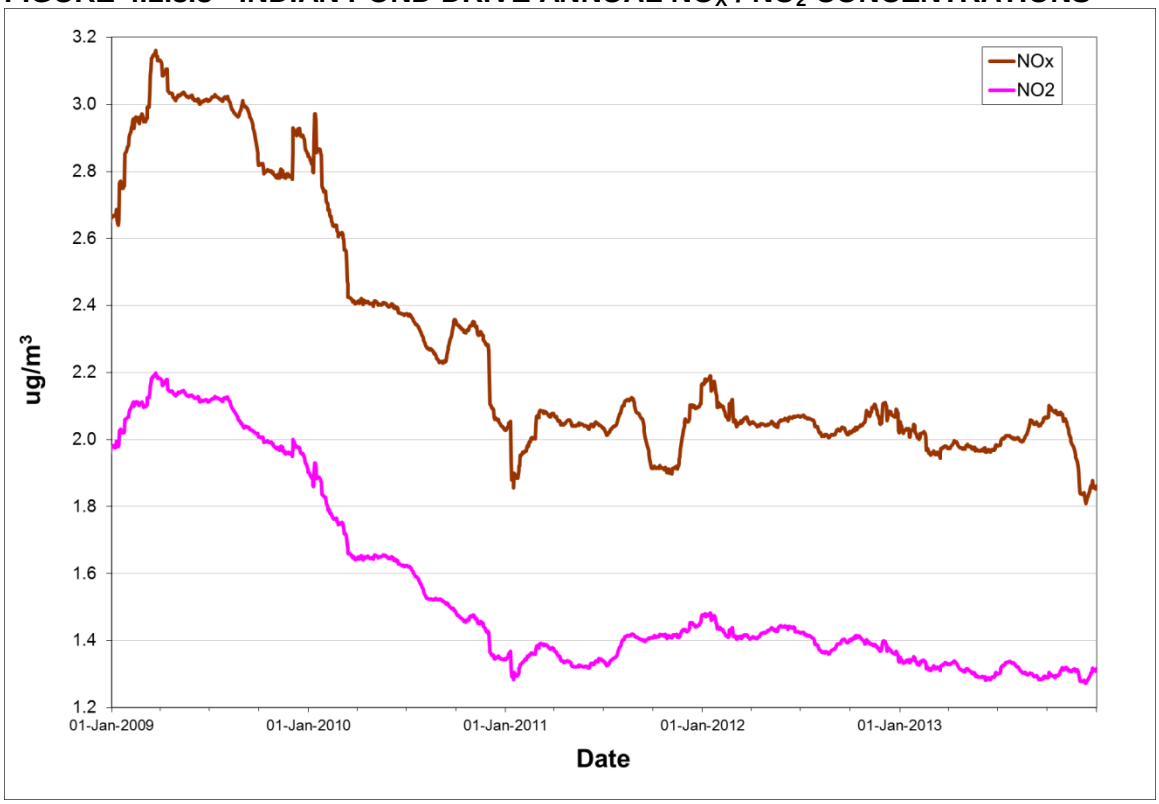
Rolling annual average of daily concentrations

TABLE 4.1.3.3 - INDIAN POND DRIVE NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	682	91.7%	2.6	1.7	38.8	18.3	10.3	4.6	0	0
	February	635	91.2%	2.5	1.6	63.1	23.9	15.7	7.4	0	0
	March	679	91.3%	1.5	1.1	19.9	11.8	4.2	3.0	0	0
	April	660	91.7%	1.4	1.2	18.6	17.1	2.9	2.5	0	0
	May	678	91.1%	1.5	1.2	19.0	18.1	5.5	4.6	0	0
	June	660	91.7%	1.7	1.3	63.0	47.5	6.3	4.8	0	0
	July	708	95.2%	1.3	1.0	7.3	6.2	2.1	1.7	0	0
	August	713	95.8%	1.5	1.2	9.1	8.3	2.7	2.2	0	0
	September	686	95.3%	1.7	1.4	21.1	7.0	3.1	2.3	0	0
	October	673	90.5%	2.6	1.5	15.5	10.2	6.9	3.7	0	0
	November	660	91.7%	4.1	1.6	60.7	24.9	15.6	6.3	0	0
	December	680	91.4%	1.9	1.2	51.9	18.7	8.9	4.1	0	0
Annual		8114	92.4%	2.0	1.3	63.1	47.5	15.7	7.4	0	0
2013	January	642	86.3%	2.6	1.8	35.4	13.6	12.8	6.2	0	0
	February	610	90.8%	1.7	1.2	36.5	22.1	4.9	3.0	0	0
	March	680	91.4%	1.7	1.3	46.3	18.5	6.7	3.5	0	0
	April	671	93.2%	1.4	0.9	16.0	8.8	4.1	2.5	0	0
	May	707	95.0%	1.4	1.0	12.6	10.8	3.0	2.4	0	0
	June	688	95.6%	1.9	1.4	20.7	9.6	5.1	3.2	0	0
	July	712	95.7%	1.6	1.4	15.0	8.0	3.3	2.9	0	0
	August	682	91.7%	2.1	0.9	16.0	3.8	4.6	2.0	0	0
	September	688	95.6%	1.9	1.2	24.0	15.2	4.3	2.9	0	0
	October	713	95.8%	2.5	1.8	34.4	15.4	12.9	6.0	0	0
	November	641	89.0%	1.4	1.2	14.2	9.0	2.4	2.0	0	0
	December	711	95.6%	2.2	1.7	38.4	15.5	5.7	4.7	0	0
Annual		8145	93.0%	1.9	1.3	46.3	22.1	12.9	6.2	0	0

Observations in ug/m^3

FIGURE 4.1.3.3 - INDIAN POND DRIVE ANNUAL NO_X / NO_2 CONCENTRATIONS



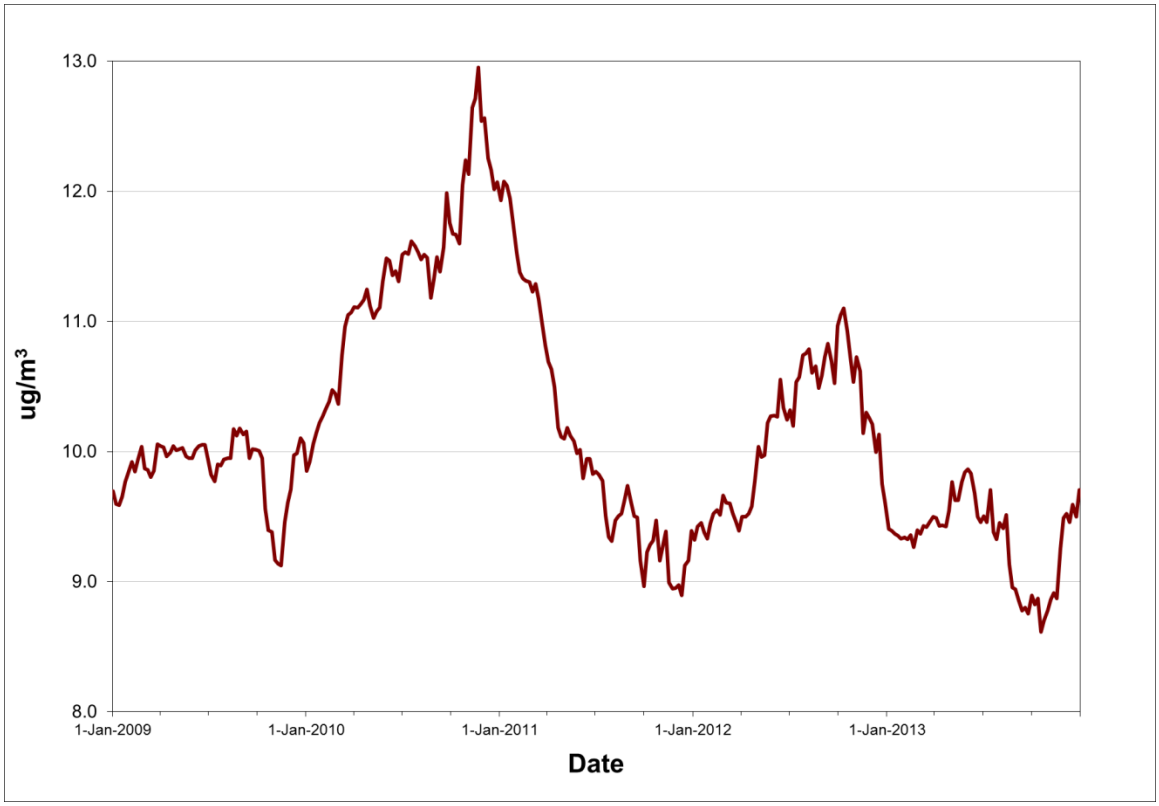
Rolling annual average of hourly concentrations

TABLE 4.1.3.4 - INDIAN POND DRIVE TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2012	January	4	80.0%	10.8	12.4	0
	February	5	100.0%	12.7	25.0	0
	March	5	100.0%	10.9	13.1	0
	April	4	80.0%	12.3	14.2	0
	May	5	100.0%	15.7	36.1	0
	June	5	100.0%	13.9	40.2	0
	July	5	100.0%	11.5	72.7	0
	August	5	83.3%	8.3	17.8	0
	September	5	100.0%	8.9	20.1	0
	October	5	100.0%	7.5	23.6	0
	November	5	100.0%	4.0	10.3	0
	December	5	100.0%	5.7	14.0	0
Annual		58	95.1%	9.5	72.7	0
2013	January	4	80.0%	7.9	10.9	0
	February	5	100.0%	11.7	17.2	0
	March	5	100.0%	14.1	20.8	0
	April	5	100.0%	13.2	23.8	0
	May	5	100.0%	21.6	37.6	0
	June	5	100.0%	9.6	14.2	0
	July	5	100.0%	10.5	20.6	0
	August	5	100.0%	4.8	18.3	0
	September	5	100.0%	6.7	10.6	0
	October	6	100.0%	8.4	12.6	0
	November	5	100.0%	10.3	20.0	0
	December	5	100.0%	7.5	7.9	0
Annual		60	98.4%	9.8	37.6	0

Observations in ug/m^3

FIGURE 4.1.3.4 - INDIAN POND DRIVE ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.1.4 Indian Pond Road

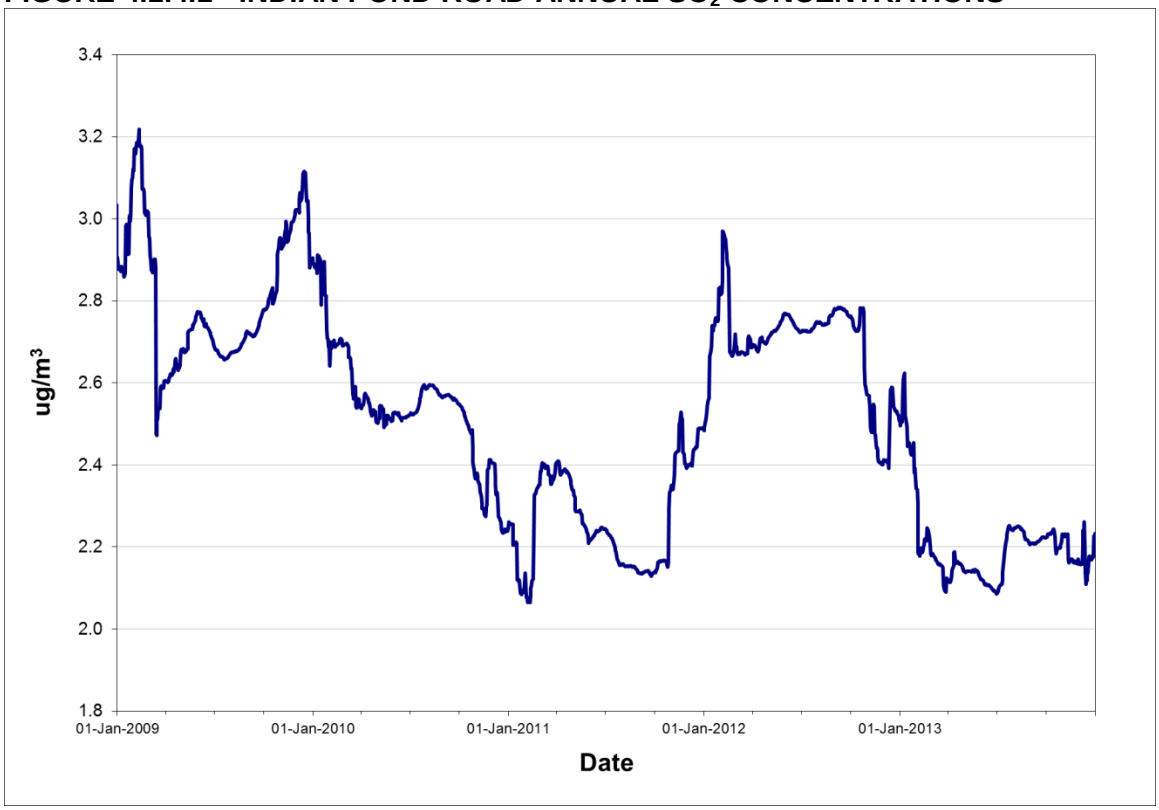
The Indian Pond Road station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle consistent with the NAPS defined schedule. For all pollutants, with the exception of $PM_{2.5}$, the ambient air criteria were not exceeded on any occasion in 2013. For $PM_{2.5}$, the 24-hour ambient air criterion was exceeded twice in July. 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 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	707	95.0%	6.2	140.2	121.1	33.1	0	0	0
	February	667	95.8%	4.5	122.5	93.1	44.6	0	0	0
	March	711	95.6%	2.5	117.5	86.8	19.0	0	0	0
	April	683	94.9%	1.9	41.4	31.0	7.3	0	0	0
	May	712	95.7%	1.6	15.3	9.1	3.3	0	0	0
	June	687	95.4%	1.3	8.1	3.6	2.2	0	0	0
	July	713	95.8%	1.2	5.0	3.2	2.2	0	0	0
	August	708	95.2%	1.4	34.6	23.8	5.9	0	0	0
	September	677	94.0%	1.2	3.9	2.8	1.9	0	0	0
	October	689	92.6%	1.9	66.4	44.8	11.9	0	0	0
	November	685	95.1%	1.9	72.7	65.6	23.0	0	0	0
	December	711	95.6%	4.3	131.5	60.2	29.4	0	0	0
Annual		8350	95.1%	2.5	140.2	121.1	44.6	0	0	0
2013	January	686	92.2%	4.5	87.1	75.5	29.5	0	0	0
	February	642	95.5%	2.2	84.4	24.4	12.8	0	0	0
	March	710	95.4%	1.8	71.2	32.5	14.2	0	0	0
	April	684	95.0%	2.2	77.9	40.3	14.2	0	0	0
	May	712	95.7%	1.4	32.4	15.2	3.3	0	0	0
	June	687	95.4%	0.9	5.3	3.8	1.5	0	0	0
	July	688	92.5%	3.1	8.7	8.0	6.9	0	0	0
	August	704	94.6%	1.0	10.7	6.2	2.0	0	0	0
	September	688	95.6%	1.4	5.3	2.7	1.8	0	0	0
	October	706	94.9%	2.0	57.2	28.5	6.2	0	0	0
	November	688	95.6%	1.2	23.0	13.5	5.1	0	0	0
	December	707	95.0%	5.1	112.6	80.7	21.5	0	0	0
Annual		8302	94.8%	2.2	112.6	80.7	29.5	0	0	0

Observations in ug/m^3

FIGURE 4.1.4.1 - INDIAN POND ROAD ANNUAL SO_2 CONCENTRATIONS



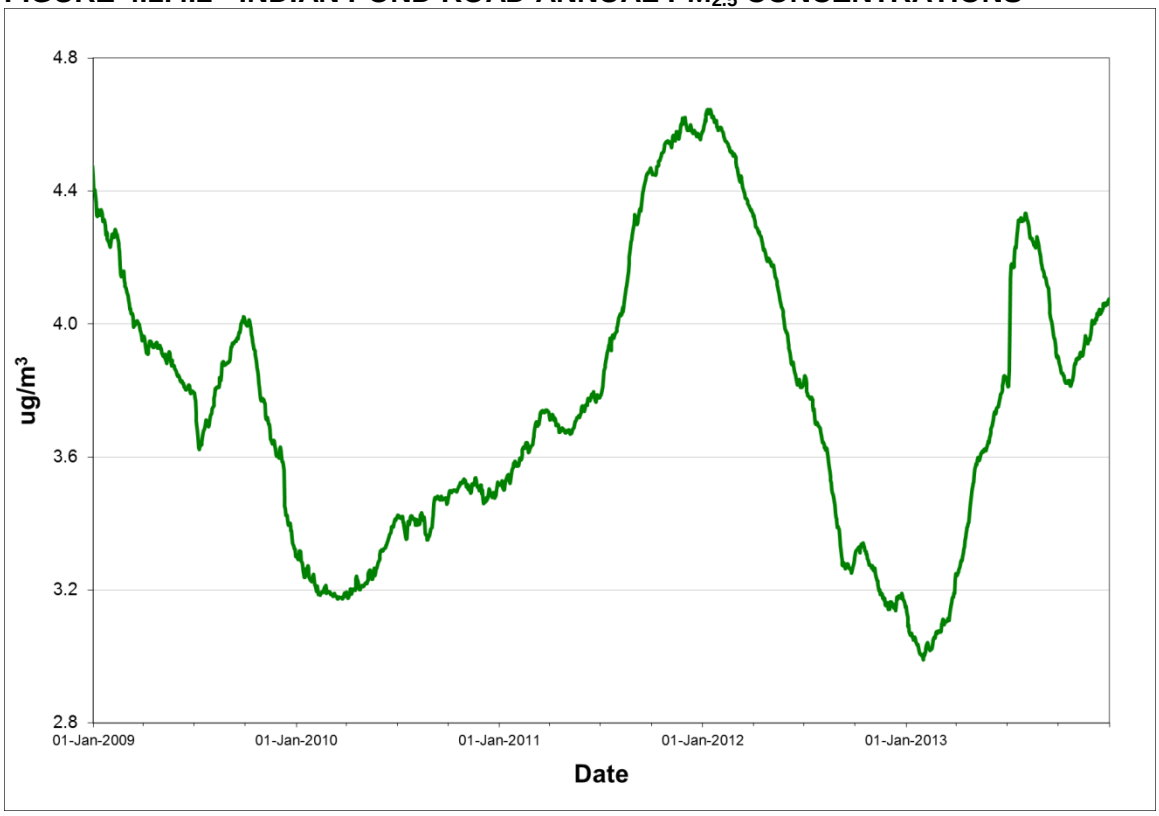
Rolling annual average of hourly concentrations

TABLE 4.1.4.2 - INDIAN POND ROAD $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	30	96.8%	4.2	10.7	0
	February	28	96.6%	2.5	6.5	0
	March	31	100.0%	2.1	7.9	0
	April	30	100.0%	1.9	4.3	0
	May	28	90.3%	1.6	5.0	0
	June	24	80.0%	2.0	5.2	0
	July	31	100.0%	4.8	11.0	0
	August	29	93.5%	4.6	8.9	0
	September	29	96.7%	5.2	11.0	0
	October	26	83.9%	3.0	6.4	0
	November	24	80.0%	2.2	5.2	0
	December	30	96.8%	3.3	9.1	0
Annual		340	92.9%	3.1	11.0	0
2013	January	29	93.5%	2.4	5.1	0
	February	28	100.0%	3.5	8.6	0
	March	31	100.0%	3.9	14.8	0
	April	29	96.7%	5.0	9.7	0
	May	31	100.0%	3.4	8.4	0
	June	30	100.0%	4.3	9.9	0
	July	31	100.0%	10.1	53.4	2
	August	30	96.8%	3.1	12.2	0
	September	30	100.0%	1.9	6.0	0
	October	27	87.1%	2.8	7.7	0
	November	30	100.0%	3.9	7.8	0
	December	31	100.0%	4.2	10.1	0
Annual		357	97.8%	4.1	53.4	2

Observations in ug/m^3

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



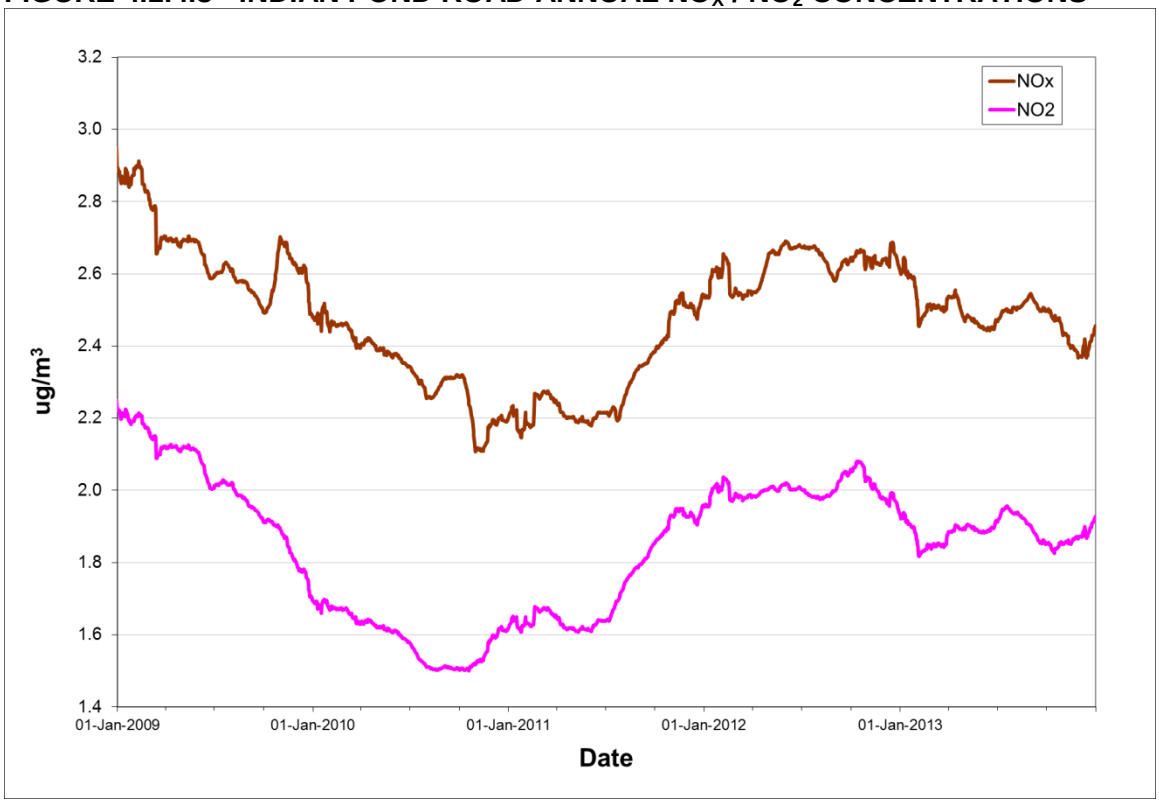
Rolling annual average of daily concentrations

TABLE 4.1.4.3 - INDIAN POND ROAD NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2012	January	678	91.1%	3.9	2.9	61.9	32.4	15.7	8.4	0	0
	February	638	91.7%	2.9	2.2	54.4	29.9	17.6	10.4	0	0
	March	680	91.4%	1.7	1.3	42.3	25.9	6.7	4.2	0	0
	April	651	90.4%	2.7	1.4	20.4	13.3	5.4	2.7	0	0
	May	681	91.5%	2.1	1.6	15.6	11.7	5.3	4.3	0	0
	June	660	91.7%	2.1	1.7	10.2	7.6	3.0	2.4	0	0
	July	713	95.8%	2.1	1.6	6.8	5.4	2.8	2.2	0	0
	August	661	88.8%	2.2	2.1	10.0	6.3	3.6	3.3	0	0
	September	680	94.4%	2.7	2.5	20.1	12.2	4.2	3.6	0	0
	October	673	90.5%	3.3	2.3	22.4	13.6	7.3	4.5	0	0
	November	656	91.1%	3.1	1.7	29.0	17.0	10.4	5.7	0	0
	December	680	91.4%	2.6	1.9	45.9	23.6	12.3	8.0	0	0
Annual		8051	91.7%	2.6	1.9	61.9	32.4	17.6	10.4	0	0
2013	January	654	87.9%	3.1	2.2	39.1	20.8	12.1	6.9	0	0
	February	616	91.7%	2.4	1.8	31.6	21.0	5.7	4.3	0	0
	March	680	91.4%	2.1	1.8	74.0	71.6	11.8	9.7	0	0
	April	656	91.1%	1.9	1.5	31.4	21.2	7.1	5.4	0	0
	May	682	91.7%	1.9	1.5	15.0	11.3	4.4	3.6	0	0
	June	658	91.4%	2.3	2.1	16.8	12.1	6.3	4.8	0	0
	July	685	92.1%	2.5	1.9	10.5	7.3	4.8	3.5	0	0
	August	706	94.9%	2.7	1.7	9.9	8.9	3.4	2.9	0	0
	September	688	95.6%	2.1	1.9	10.6	9.0	3.1	2.6	0	0
	October	706	94.9%	2.5	2.2	19.2	16.8	6.3	5.3	0	0
	November	690	95.8%	2.3	2.0	19.1	15.2	3.6	3.0	0	0
	December	711	95.6%	3.6	2.6	38.5	28.0	8.7	5.1	0	0
Annual		8132	92.8%	2.5	1.9	74.0	71.6	12.1	9.7	0	0

Observations in ug/m^3

FIGURE 4.1.4.3 - INDIAN POND ROAD ANNUAL NO_X / NO_2 CONCENTRATIONS



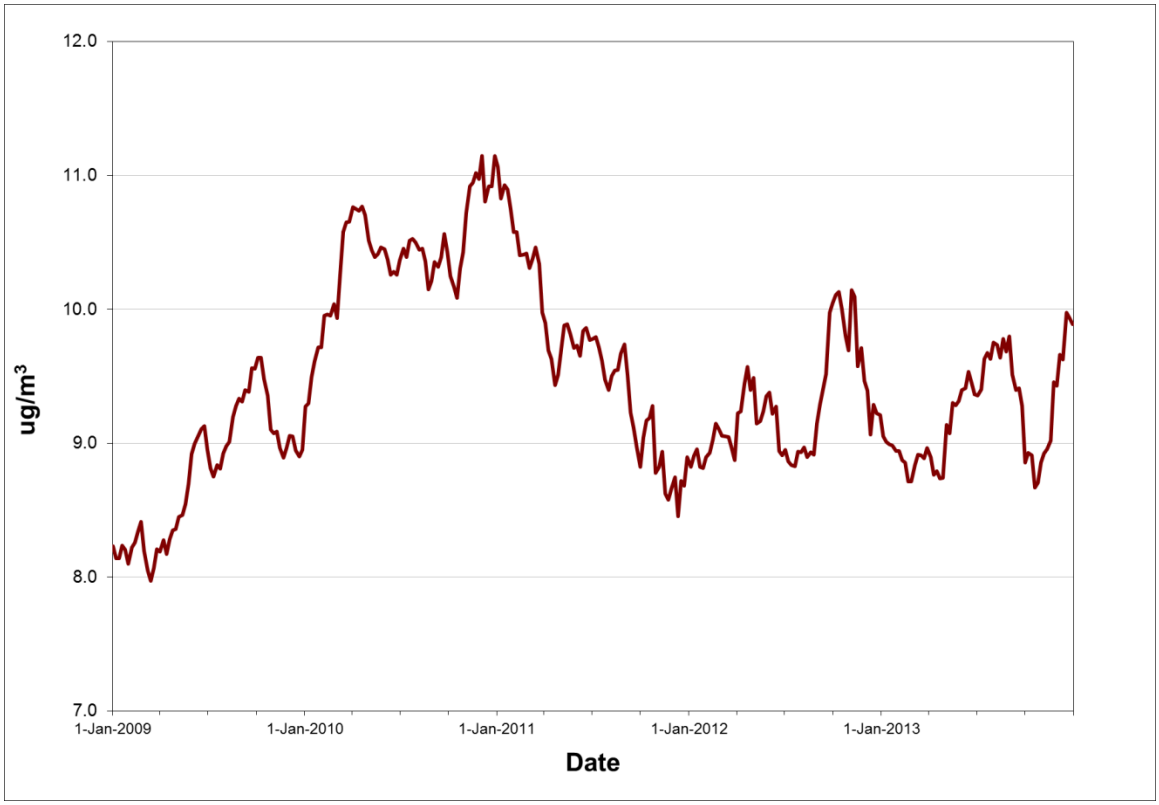
Rolling annual average of hourly concentrations

TABLE 4.1.4.4 - INDIAN POND ROAD TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2012	January	5	100.0%	10.1	11.5	0
	February	5	100.0%	11.9	17.6	0
	March	5	100.0%	11.1	14.4	0
	April	5	100.0%	10.8	25.1	0
	May	5	100.0%	11.5	31.9	0
	June	5	100.0%	8.1	16.8	0
	July	5	100.0%	7.4	14.6	0
	August	6	100.0%	11.1	45.3	0
	September	5	100.0%	16.7	125.8	1
	October	5	100.0%	7.6	21.6	0
	November	5	100.0%	3.5	8.4	0
	December	5	100.0%	6.6	12.3	0
Annual		61	100.0%	9.1	125.8	1
2013	January	4	80.0%	7.2	10.0	0
	February	5	100.0%	9.2	11.7	0
	March	5	100.0%	14.3	20.9	0
	April	5	100.0%	12.8	23.7	0
	May	5	100.0%	15.8	20.5	0
	June	5	100.0%	9.0	22.7	0
	July	5	100.0%	11.6	19.7	0
	August	5	100.0%	8.9	18.9	0
	September	5	100.0%	7.8	13.5	0
	October	6	100.0%	7.9	12.2	0
	November	5	100.0%	9.2	13.3	0
	December	5	100.0%	9.4	12.4	0
Annual		60	98.4%	10.0	23.7	0

Observations in ug/m^3

FIGURE 4.1.4.4 - INDIAN POND ROAD ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.1.5 Lawrence Pond Road

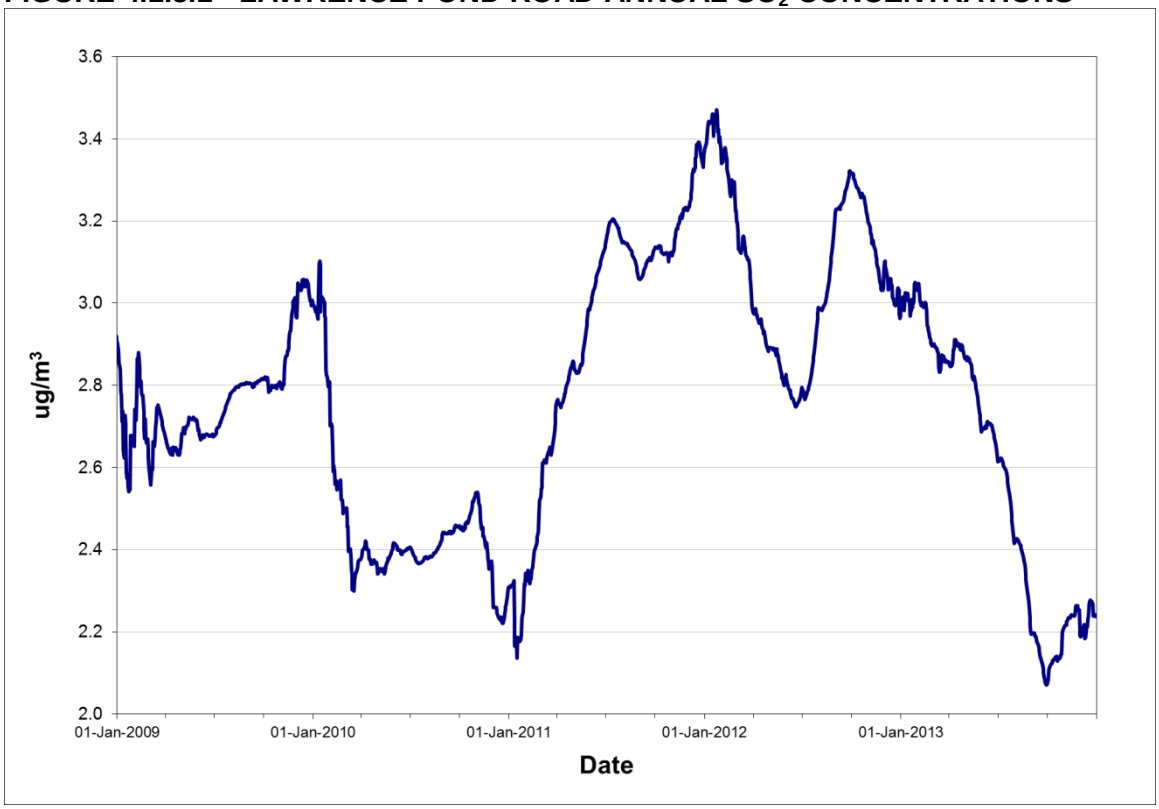
The Lawrence Pond Road station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle consistent with the NAPS defined schedule. For all pollutants except $PM_{2.5}$, the ambient air criteria were not exceeded on any occasion in 2013. The $PM_{2.5}$ 24-hour standard was exceeded on two occasions in 2013. 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 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	713	95.8%	4.2	61.9	38.7	15.5	0	0	0
	February	667	95.8%	3.8	62.7	53.7	15.9	0	0	0
	March	705	94.8%	2.5	53.5	39.0	14.4	0	0	0
	April	689	95.7%	2.2	42.0	16.9	5.6	0	0	0
	May	713	95.8%	3.4	32.9	23.3	9.7	0	0	0
	June	683	94.9%	2.4	30.2	11.8	6.4	0	0	0
	July	713	95.8%	3.9	7.8	7.4	7.1	0	0	0
	August	713	95.8%	3.9	30.4	23.6	8.9	0	0	0
	September	678	94.2%	3.2	9.3	7.7	6.0	0	0	0
	October	712	95.7%	1.1	49.3	25.9	4.5	0	0	0
	November	681	94.6%	2.0	51.7	29.3	18.3	0	0	0
	December	711	95.6%	2.9	48.8	38.1	12.0	0	0	0
Annual		8378	95.4%	3.0	62.7	53.7	18.3	0	0	0
2013	January	634	85.2%	5.3	60.6	42.0	17.1	0	0	0
	February	642	95.5%	2.1	52.4	26.9	8.2	0	0	0
	March	706	94.9%	2.0	28.3	19.8	10.1	0	0	0
	April	689	95.7%	2.3	48.5	24.0	10.5	0	0	0
	May	711	95.6%	1.3	58.0	23.9	5.9	0	0	0
	June	683	94.9%	1.6	21.9	17.4	4.8	0	0	0
	July	713	95.8%	1.6	5.4	3.5	2.3	0	0	0
	August	713	95.8%	1.3	4.7	3.4	1.8	0	0	0
	September	665	92.4%	1.7	4.5	4.4	2.4	0	0	0
	October	712	95.7%	2.7	42.7	33.5	16.6	0	0	0
	November	690	95.8%	2.0	41.4	22.6	7.6	0	0	0
	December	706	94.9%	3.3	75.0	32.8	11.0	0	0	0
Annual		8264	94.3%	2.2	75.0	42.0	17.1	0	0	0

Observations in ug/m^3

FIGURE 4.1.5.1 - LAWRENCE POND ROAD ANNUAL SO_2 CONCENTRATIONS



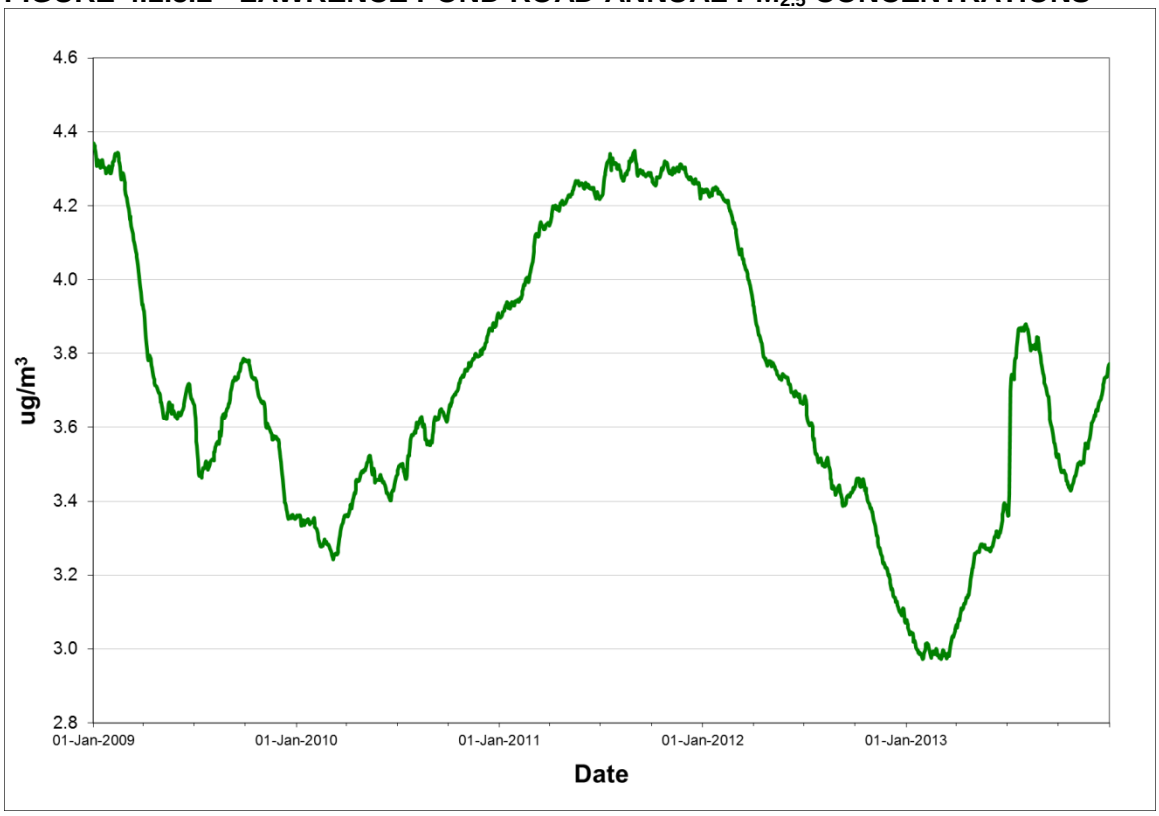
Rolling annual average of hourly concentrations

TABLE 4.1.5.2 - LAWRENCE POND ROAD $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	3.2	7.0	0
	February	29	100.0%	2.8	6.8	0
	March	31	100.0%	2.5	6.6	0
	April	30	100.0%	2.8	6.0	0
	May	31	100.0%	3.2	6.9	0
	June	26	86.7%	3.0	6.9	0
	July	31	100.0%	4.1	10.2	0
	August	31	100.0%	4.2	10.7	0
	September	30	100.0%	4.6	8.7	0
	October	26	83.9%	2.8	9.1	0
	November	27	90.0%	1.5	3.9	0
	December	29	93.5%	1.9	4.6	0
Annual		352	96.2%	3.1	10.7	0
2013	January	28	90.3%	2.0	5.1	0
	February	28	100.0%	2.9	6.4	0
	March	31	100.0%	3.4	8.0	0
	April	30	100.0%	4.6	8.8	0
	May	31	100.0%	3.7	7.0	0
	June	30	100.0%	4.4	9.3	0
	July	31	100.0%	9.5	52.5	2
	August	30	96.8%	3.2	11.3	0
	September	30	100.0%	1.7	6.0	0
	October	27	87.1%	2.1	4.2	0
	November	25	83.3%	3.3	7.2	0
	December	31	100.0%	3.8	5.9	0
Annual		352	96.4%	3.8	52.5	2

Observations in ug/m^3

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



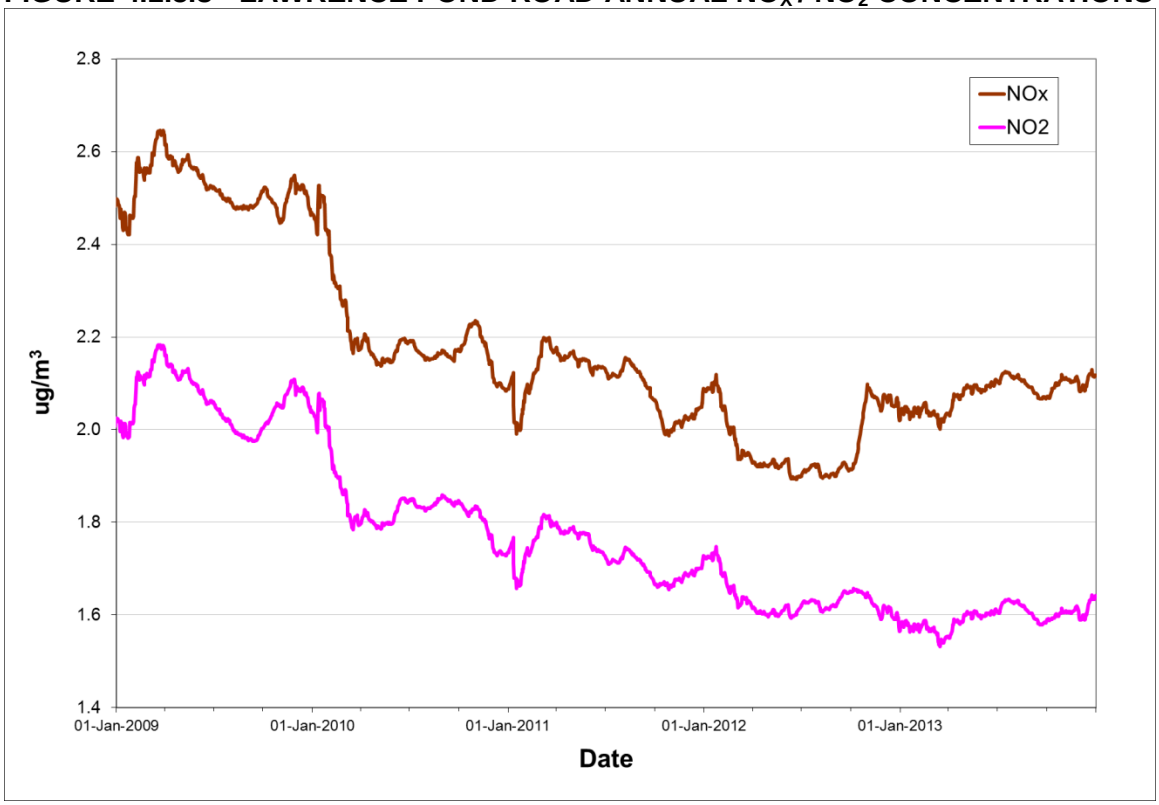
Rolling annual average of daily concentrations

TABLE 4.1.5.3 - LAWRENCE POND ROAD NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	682	91.7%	2.7	2.3	32.0	29.2	8.2	6.5	0	0
	February	638	91.7%	2.0	1.8	35.1	31.1	7.2	6.4	0	0
	March	672	90.3%	1.6	1.5	33.0	25.5	8.5	7.4	0	0
	April	660	91.7%	1.5	1.2	17.2	13.0	2.9	2.2	0	0
	May	682	91.7%	1.8	1.6	18.6	15.0	5.1	4.1	0	0
	June	658	91.4%	1.7	1.6	21.7	15.8	3.1	2.8	0	0
	July	713	95.8%	1.6	1.3	13.4	11.1	2.4	1.9	0	0
	August	713	95.8%	1.6	1.5	5.1	4.5	2.6	2.4	0	0
	September	651	90.4%	1.8	1.5	15.6	14.5	3.0	2.8	0	0
	October	682	91.7%	4.1	1.5	21.7	12.2	6.8	3.1	0	0
	November	628	87.2%	1.9	1.6	21.7	20.2	7.8	7.0	0	0
	December	680	91.4%	1.9	1.4	23.7	20.4	6.3	5.0	0	0
Annual		8059	91.7%	2.0	1.6	35.1	31.1	8.5	7.4	0	0
2013	January	611	82.1%	3.0	2.5	28.1	25.7	7.8	6.7	0	0
	February	616	91.7%	2.0	1.8	38.4	29.8	7.0	6.3	0	0
	March	677	91.0%	1.7	1.3	17.7	16.3	6.1	5.2	0	0
	April	660	91.7%	2.1	1.8	28.7	21.7	6.7	5.8	0	0
	May	682	91.7%	1.7	1.4	23.9	16.8	4.3	3.7	0	0
	June	675	93.8%	2.0	1.8	17.9	13.2	3.5	3.3	0	0
	July	713	95.8%	1.7	1.5	9.8	7.1	3.1	2.9	0	0
	August	706	94.9%	1.3	1.2	7.1	6.0	2.0	1.8	0	0
	September	642	89.2%	1.5	1.3	6.8	5.8	2.5	2.4	0	0
	October	710	95.4%	4.5	1.7	17.3	14.0	7.9	4.1	0	0
	November	690	95.8%	1.7	1.5	16.9	14.2	3.8	3.3	0	0
	December	706	94.9%	2.3	2.0	29.8	28.5	5.4	5.1	0	0
Annual		8088	92.3%	2.1	1.6	38.4	29.8	7.9	6.7	0	0

Observations in ug/m^3

FIGURE 4.1.5.3 - LAWRENCE POND ROAD ANNUAL NO_X / NO_2 CONCENTRATIONS



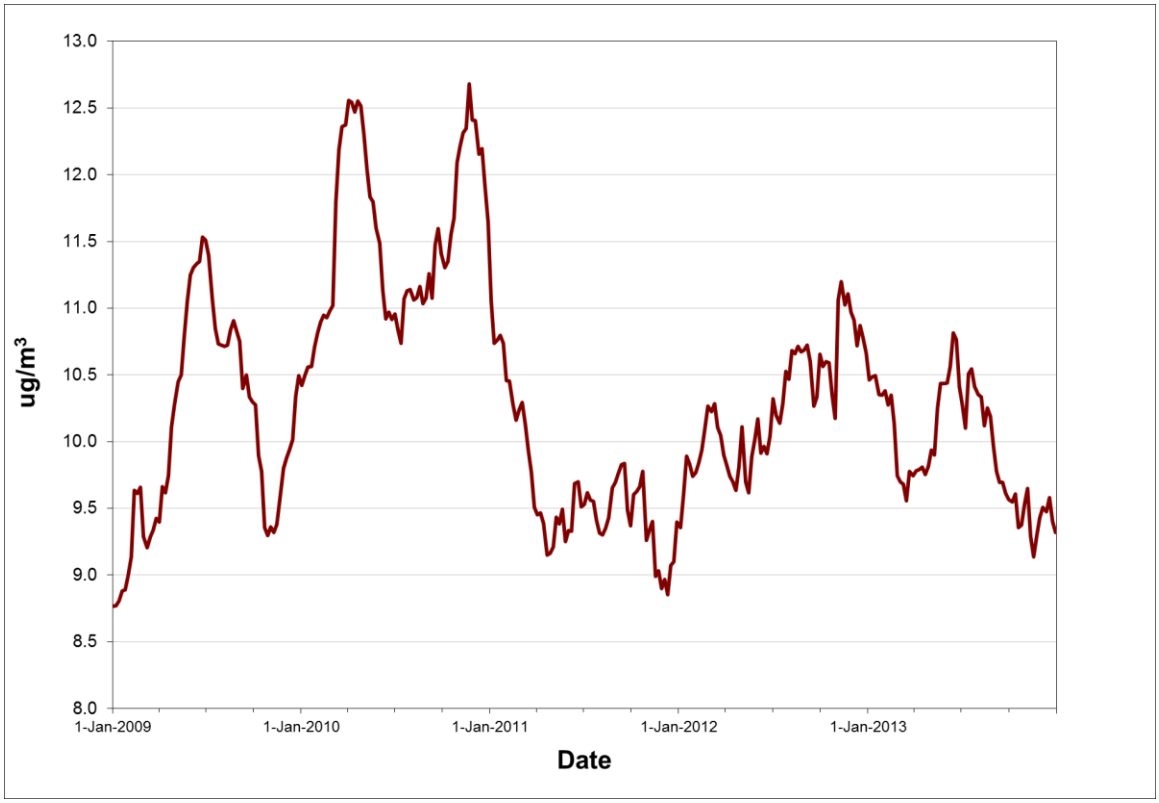
Rolling annual average of hourly concentrations

TABLE 4.1.5.4 - LAWRENCE POND ROAD TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2012	January	3	60.0%	12.4	23.2	0
	February	4	80.0%	13.0	20.2	0
	March	5	100.0%	9.1	18.7	0
	April	5	100.0%	7.2	14.5	0
	May	5	100.0%	14.2	55.6	0
	June	5	100.0%	12.9	34.9	0
	July	5	100.0%	17.2	37.4	0
	August	6	100.0%	14.2	34.6	0
	September	5	100.0%	10.0	13.3	0
	October	5	100.0%	6.6	20.4	0
	November	5	100.0%	8.2	56.2	0
	December	5	100.0%	7.8	13.2	0
Annual		58	95.1%	10.5	56.2	0
2013	January	3	60.0%	8.6	10.1	0
	February	5	100.0%	5.3	12.7	0
	March	5	100.0%	10.8	15.2	0
	April	5	100.0%	8.0	10.4	0
	May	5	100.0%	23.2	43.9	0
	June	5	100.0%	11.9	27.4	0
	July	5	100.0%	18.8	64.3	0
	August	5	100.0%	10.5	21.8	0
	September	5	100.0%	6.6	10.9	0
	October	6	100.0%	7.6	10.0	0
	November	5	100.0%	7.1	10.3	0
	December	5	100.0%	6.1	7.7	0
Annual		59	96.7%	9.4	64.3	0

Observations in ug/m^3

FIGURE 4.1.5.4 - LAWRENCE POND ROAD ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.1.6 NALCOR Property Boundary

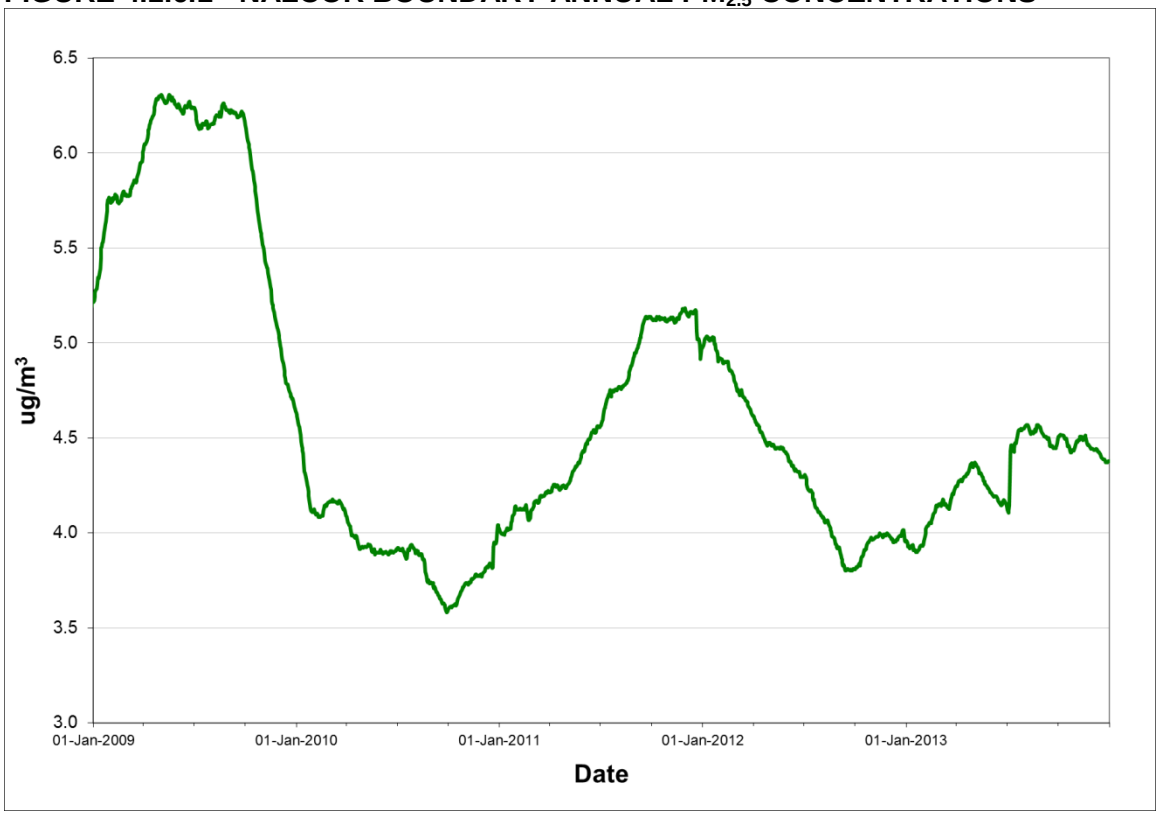
The NALCOR Property Boundary station monitors the ambient levels of $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle consistent with the NAPS defined schedule. The TPM ambient air quality standards were not exceeded in 2013, however the 24-hour $PM_{2.5}$ standard was exceeded on two occasions. Tables 4.1.6.1 through 4.1.6.2 provide summary information on the level of air contaminants measured at NALCOR Property Boundary, while Figures 4.1.6.1 through 4.1.6.2 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.1.6.1 - NALCOR BOUNDARY $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	4.2	10.8	0
	February	29	100.0%	3.0	8.5	0
	March	31	100.0%	3.5	10.6	0
	April	28	93.3%	3.6	7.7	0
	May	31	100.0%	4.4	7.6	0
	June	24	80.0%	3.5	5.7	0
	July	31	100.0%	4.5	10.0	0
	August	29	93.5%	4.3	7.8	0
	September	30	100.0%	3.7	9.9	0
	October	26	83.9%	4.7	10.6	0
	November	27	90.0%	3.9	7.8	0
	December	31	100.0%	4.1	7.4	0
Annual		348	95.1%	4.0	10.8	0
2013	January	29	93.5%	3.9	5.7	0
	February	28	100.0%	5.7	9.8	0
	March	30	96.8%	4.6	9.5	0
	April	28	93.3%	5.0	8.3	0
	May	30	96.8%	2.8	7.6	0
	June	30	100.0%	2.8	8.9	0
	July	31	100.0%	9.1	55.9	2
	August	28	90.3%	4.1	12.4	0
	September	30	100.0%	3.2	8.3	0
	October	25	80.6%	4.2	7.8	0
	November	26	86.7%	3.8	6.7	0
	December	20	64.5%	2.7	5.2	0
Annual		335	91.8%	4.4	55.9	2

Observations in ug/m^3

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



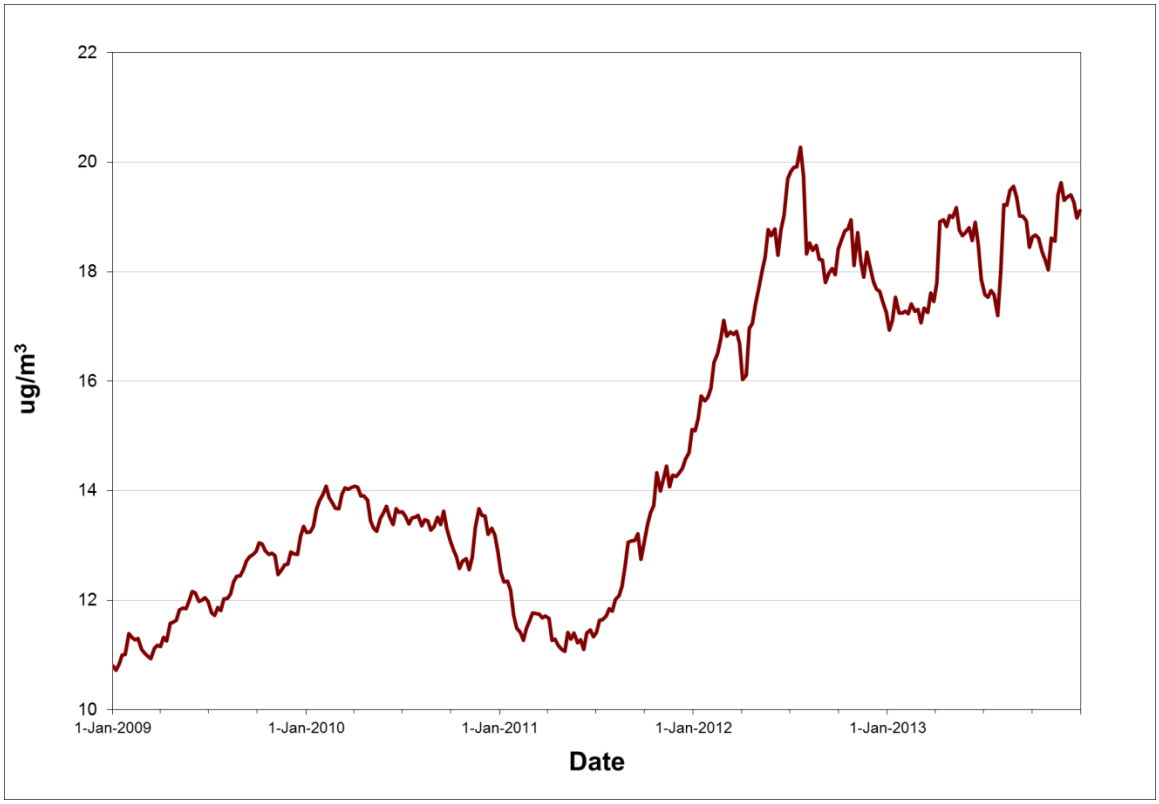
Rolling annual average of daily concentrations

TABLE 4.1.6.2 - NALCOR BOUNDARY TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2012	January	5	100.0%	16.4	46.8	0
	February	5	100.0%	29.5	55.5	0
	March	5	100.0%	15.4	27.7	0
	April	5	100.0%	13.4	29.5	0
	May	5	100.0%	25.9	48.0	0
	June	5	100.0%	34.9	107.7	0
	July	5	100.0%	13.4	26.9	0
	August	6	100.0%	10.3	38.6	0
	September	5	100.0%	21.2	41.4	0
	October	5	100.0%	20.3	41.5	0
	November	4	80.0%	12.1	22.3	0
	December	5	100.0%	10.5	15.9	0
Annual		60	98.4%	17.2	107.7	0
2013	January	4	80.0%	19.3	67.2	0
	February	5	100.0%	22.4	65.8	0
	March	5	100.0%	22.9	36.7	0
	April	5	100.0%	33.8	53.3	0
	May	4	80.0%	24.0	34.3	0
	June	5	100.0%	13.4	19.7	0
	July	5	100.0%	20.3	43.6	0
	August	4	80.0%	24.5	33.1	0
	September	5	100.0%	12.8	27.8	0
	October	5	83.3%	19.2	22.4	0
	November	4	80.0%	21.8	53.9	0
	December	5	100.0%	11.5	23.6	0
Annual		56	91.8%	19.5	67.2	0

Observations in ug/m^3

FIGURE 4.1.6.2 - NALCOR BOUNDARY ANNUAL TPM CONCENTRATIONS



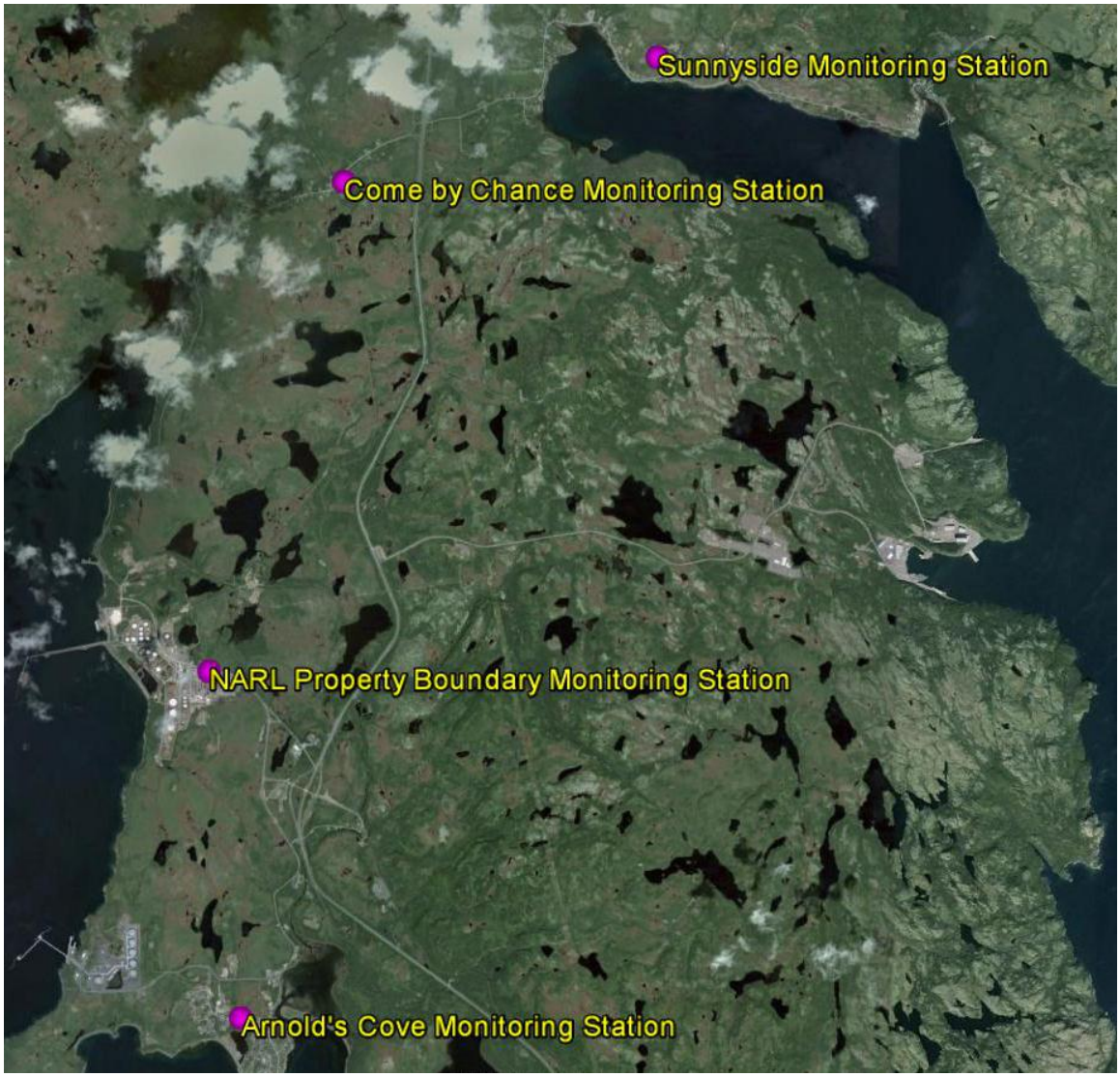
Rolling annual average of daily concentrations

4.2 North Atlantic Refining Limited

North Atlantic Refining Limited (NARL) operated monitoring stations at four locations in 2013. These stations are installed to monitor the emissions from North Atlantic's refinery in Come-by-Chance and are located at Arnold's Cove, Come-by-Chance, Sunnyside and the NARL property boundary. The locations of these monitoring stations are identified in Figure 4.2.1.

In January 2013, NARL replaced the $PM_{2.5}$ monitors at all monitoring stations, switching from TEOM technology to BAM technology. The new BAM units meet the standards set out in the Departmental Ambient Air Monitoring Guidelines.

FIGURE 4.2.1 - NARL AMBIENT MONITORING STATIONS



4.2.1 Arnold's Cove

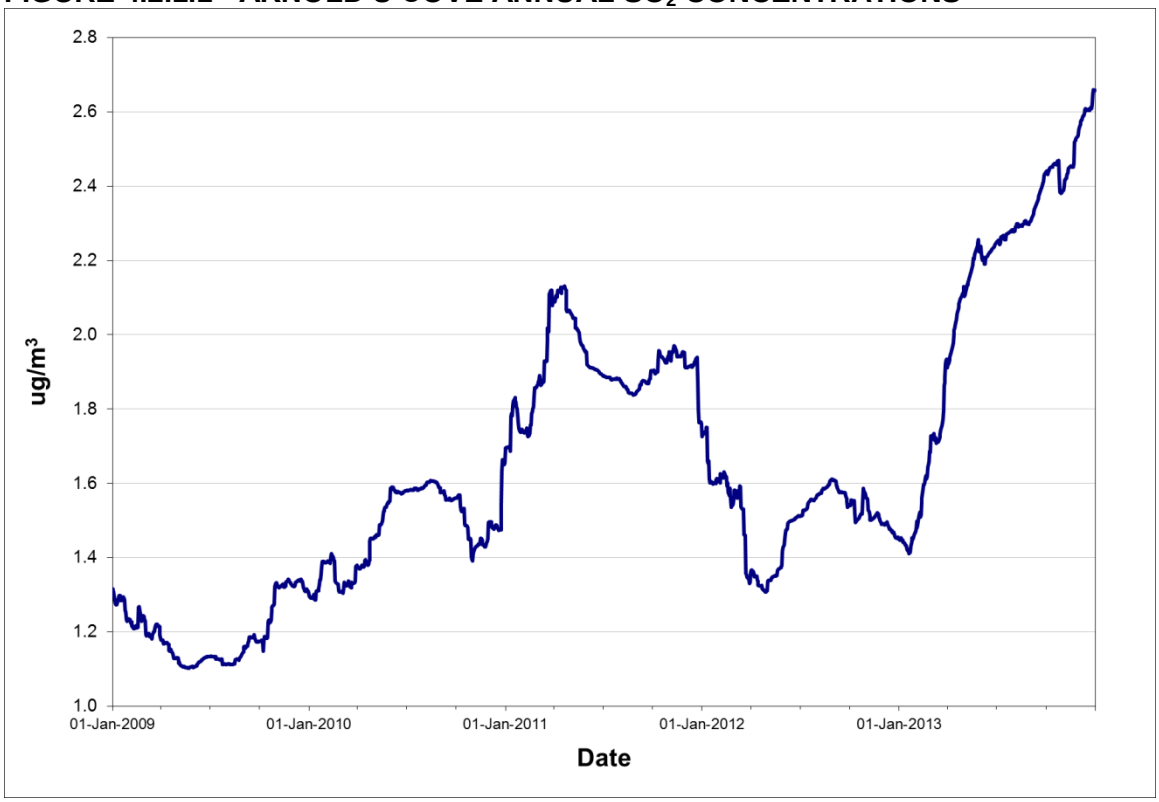
The Arnold's Cove station monitors the ambient levels of SO_2 and $PM_{2.5}$ on a continuous basis and is located near Tricentia Academy School. For SO_2, the ambient air criteria were not exceeded on any occasion in 2013; for PM2.5 however, the 24-hour standard was exceeded on three occasions. Tables 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 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	691	92.9%	1.9	37.6	15.7	4.4	0	0	0
	February	663	95.3%	2.2	103.6	34.8	9.8	0	0	0
	March	708	95.2%	2.3	91.7	51.1	11.0	0	0	0
	April	685	95.1%	0.9	15.4	7.1	2.8	0	0	0
	May	735	98.8%	1.9	148.8	85.4	13.6	0	0	0
	June	714	99.2%	1.3	33.3	22.3	7.1	0	0	0
	July	681	91.5%	1.0	79.1	32.9	5.1	0	0	0
	August	680	91.4%	1.0	26.6	19.7	4.1	0	0	0
	September	655	91.0%	0.7	13.8	7.8	2.2	0	0	0
	October	679	91.3%	2.0	104.4	25.2	17.8	0	0	0
	November	668	92.8%	0.9	5.2	3.9	2.1	0	0	0
	December	280	37.6%	0.8	28.9	12.3	2.4	0	0	0
Annual		7839	89.2%	1.5	148.8	85.4	17.8	0	0	0
2013	January	251	33.7%	3.1	26.9	12.9	5.9	0	0	0
	February	654	97.3%	5.2	79.6	43.2	19.0	0	0	0
	March	735	98.8%	4.1	140.9	84.0	21.3	0	0	0
	April	717	99.6%	3.0	38.2	19.6	8.6	0	0	0
	May	736	98.9%	3.0	33.7	18.2	5.9	0	0	0
	June	714	99.2%	1.6	28.0	16.1	5.4	0	0	0
	July	735	98.8%	1.5	38.9	17.2	4.8	0	0	0
	August	700	94.1%	1.2	34.9	14.9	3.7	0	0	0
	September	598	83.1%	2.3	32.5	18.3	5.9	0	0	0
	October	703	94.5%	1.5	28.6	13.6	3.4	0	0	0
	November	683	94.9%	2.8	60.6	48.7	20.8	0	0	0
	December	706	94.9%	3.1	70.2	36.0	11.6	0	0	0
Annual		7932	90.5%	2.7	140.9	84.0	21.3	0	0	0

Observations in ug/m^3

FIGURE 4.2.1.1 - ARNOLD'S COVE ANNUAL SO_2 CONCENTRATIONS



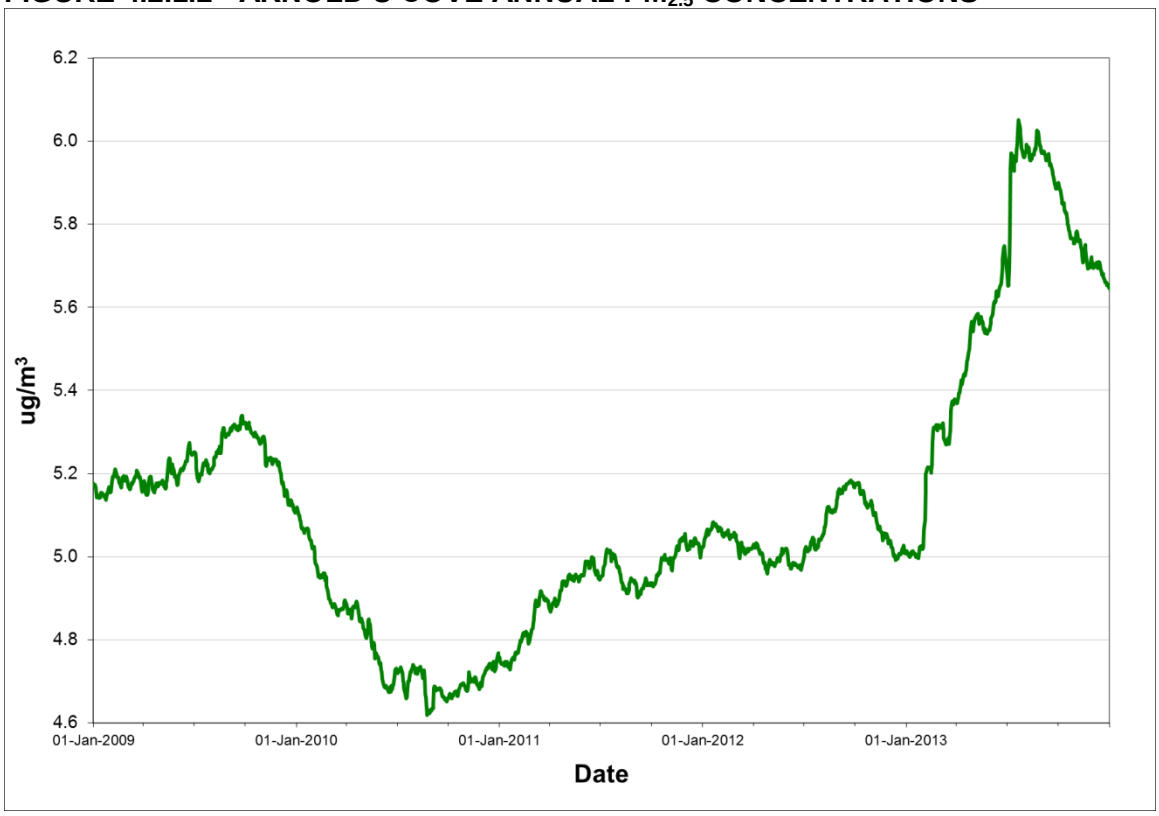
Rolling annual average of hourly concentrations

TABLE 4.2.1.2 - ARNOLD'S COVE $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	5.0	7.9	0
	February	29	100.0%	4.6	8.8	0
	March	31	100.0%	5.1	11.1	0
	April	30	100.0%	5.3	8.5	0
	May	31	100.0%	4.8	9.9	0
	June	29	96.7%	4.2	8.2	0
	July	31	100.0%	6.1	11.0	0
	August	29	93.5%	6.2	11.8	0
	September	29	96.7%	5.3	8.2	0
	October	31	100.0%	4.4	8.4	0
	November	30	100.0%	4.4	9.1	0
	December	12	38.7%	4.0	5.8	0
Annual		343	93.7%	5.0	11.8	0
2013	January	10	32.3%	5.5	9.1	0
	February	28	100.0%	8.0	27.1	1
	March	26	83.9%	5.8	19.2	0
	April	30	100.0%	7.1	11.1	0
	May	31	100.0%	4.9	8.6	0
	June	30	100.0%	5.7	12.9	0
	July	31	100.0%	8.9	56.2	2
	August	29	93.5%	6.3	15.0	0
	September	25	83.3%	4.3	8.6	0
	October	31	100.0%	3.0	5.2	0
	November	30	100.0%	4.0	9.1	0
	December	29	93.5%	4.2	7.0	0
Annual		330	90.4%	5.6	56.2	3

Observations in ug/m^3

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



Rolling annual average of daily concentrations

4.2.2 Come by Chance

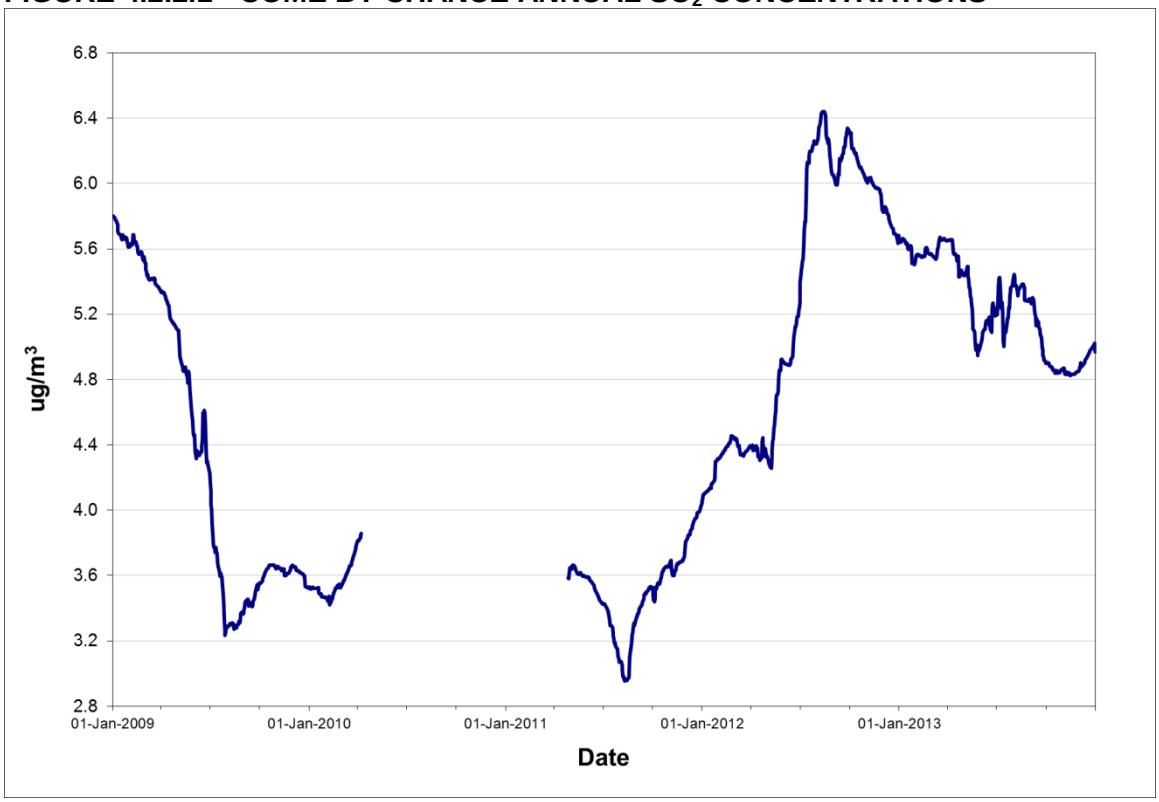
The Come by Chance station, located near the town office, monitors the ambient levels of SO_2 and $PM_{2.5}$ on a continuous basis. For SO2, the ambient air criteria were not exceeded on any occasion in 2013, however the $PM_{2.5}$ 24-hour standard was exceeded on two occasions. Tables 4.2.2.1 through 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 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	703	94.5%	4.6	214.6	115.5	37.9	0	0	0
	February	660	94.8%	3.1	76.4	54.8	11.1	0	0	0
	March	689	92.6%	3.2	24.5	19.3	8.1	0	0	0
	April	668	92.8%	6.5	168.1	98.7	38.6	0	0	0
	May	690	92.7%	10.0	198.9	167.5	34.9	0	0	0
	June	682	94.7%	6.1	131.9	73.1	27.7	0	0	0
	July	707	95.0%	13.5	347.9	178.5	68.7	0	0	0
	August	706	94.9%	5.8	323.1	189.6	27.8	0	0	0
	September	670	93.1%	8.7	250.2	170.1	42.0	0	0	0
	October	701	94.2%	2.2	57.0	26.7	8.3	0	0	0
	November	685	95.1%	2.2	67.5	36.7	13.7	0	0	0
	December	698	93.8%	2.3	120.2	88.3	23.9	0	0	0
Annual		8259	94.0%	5.7	347.9	189.6	68.7	0	0	0
2013	January	658	88.4%	2.6	173.5	59.6	10.8	0	0	0
	February	642	95.5%	3.5	142.6	81.5	21.9	0	0	0
	March	709	95.3%	4.2	93.5	61.3	16.4	0	0	0
	April	686	95.3%	4.0	68.3	25.2	12.9	0	0	0
	May	671	90.2%	4.7	68.4	44.1	12.1	0	0	0
	June	712	98.9%	8.8	220.0	100.6	42.9	0	0	0
	July	727	97.7%	15.2	259.6	125.0	50.1	0	0	0
	August	740	99.5%	4.5	78.2	62.5	16.2	0	0	0
	September	682	94.7%	3.8	101.1	60.8	19.9	0	0	0
	October	706	94.9%	1.7	41.0	25.0	6.7	0	0	0
	November	686	95.3%	2.1	34.1	13.6	4.9	0	0	0
	December	727	97.7%	3.8	59.6	43.6	16.3	0	0	0
Annual		8346	95.3%	5.0	259.6	125.0	50.1	0	0	0

Observations in ug/m^3

FIGURE 4.2.2.1 - COME BY CHANCE ANNUAL SO_2 CONCENTRATIONS



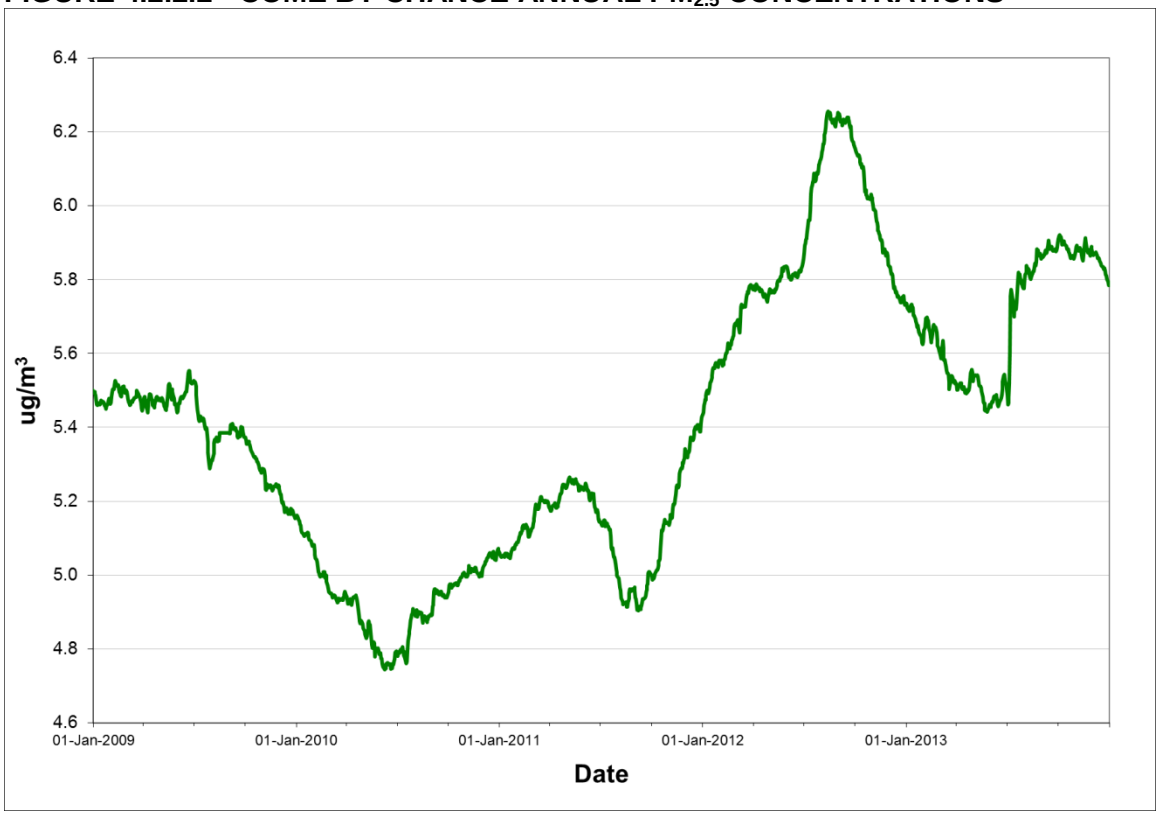
Rolling annual average of hourly concentrations

TABLE 4.2.2.2 - COME BY CHANCE $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	6.0	11.2	0
	February	29	100.0%	5.9	12.4	0
	March	29	93.5%	6.6	17.5	0
	April	30	100.0%	5.8	8.8	0
	May	31	100.0%	5.2	11.9	0
	June	30	100.0%	4.8	8.2	0
	July	31	100.0%	8.3	18.4	0
	August	31	100.0%	6.6	11.6	0
	September	29	96.7%	5.5	9.8	0
	October	31	100.0%	4.6	7.4	0
	November	30	100.0%	4.7	8.2	0
	December	26	83.9%	4.7	6.8	0
Annual		358	97.8%	5.7	18.4	0
2013	January	21	67.7%	4.5	7.5	0
	February	28	100.0%	5.7	14.8	0
	March	29	93.5%	5.5	11.4	0
	April	30	100.0%	6.0	11.1	0
	May	27	87.1%	4.2	7.3	0
	June	30	100.0%	5.3	13.3	0
	July	31	100.0%	11.3	64.0	2
	August	31	100.0%	7.4	17.6	0
	September	30	100.0%	6.0	11.6	0
	October	31	100.0%	4.3	8.4	0
	November	30	100.0%	4.9	9.2	0
	December	31	100.0%	3.7	6.7	0
Annual		349	95.6%	5.8	64.0	2

Observations in ug/m^3

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



Rolling annual average of daily concentrations

4.2.3 Sunnyside

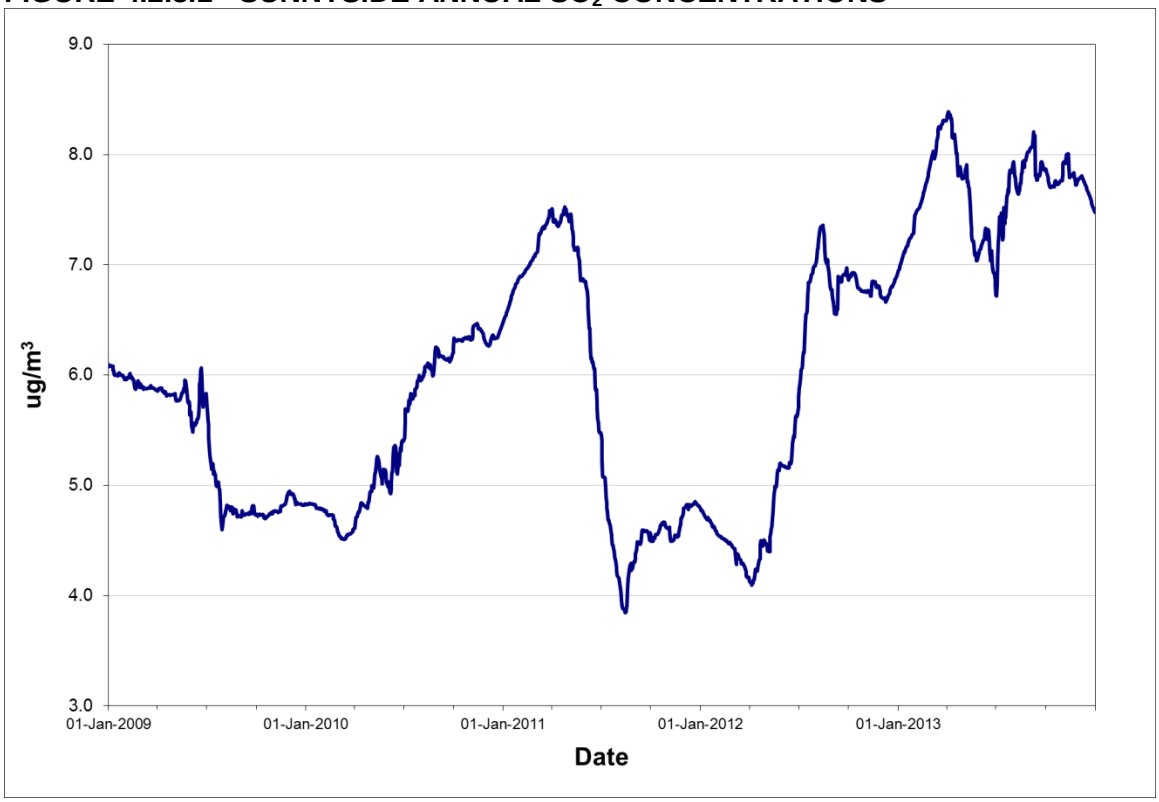
The Sunnyside station monitors the ambient levels of SO_2, $PM_{2.5}$ on a continuous basis; PM_{10} monitoring was discontinued in December 2012. The monitoring station was moved from the Gardner School area to near the town office in February 2013. For SO_2, the ambient air criteria were not exceeded on any occasion in 2013, however the 24-hour $PM_{2.5}$ standard was exceeded on six occasions in 2013. 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 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	707	95.0%	2.0	58.0	36.9	12.7	0	0	0
	February	664	95.4%	1.6	42.8	31.1	5.4	0	0	0
	March	707	95.0%	3.0	71.7	53.7	22.4	0	0	0
	April	686	95.3%	10.0	156.2	106.3	48.0	0	0	0
	May	705	94.8%	11.1	208.6	119.4	51.6	0	0	0
	June	685	95.1%	9.0	146.2	100.2	42.2	0	0	0
	July	705	94.8%	16.0	223.7	160.1	54.9	0	0	0
	August	710	95.4%	7.0	297.8	138.6	28.9	0	0	0
	September	537	74.6%	9.4	589.8	338.2	109.3	0	0	0
	October	511	68.7%	2.0	76.7	35.4	9.5	0	0	0
	November	688	95.6%	5.0	180.5	133.4	46.2	0	0	0
	December	151	20.3%	1.9	24.3	10.3	3.8	0	0	0
Annual		7456	84.9%	6.9	589.8	338.2	109.3	0	0	0
2013	January	278	37.4%	6.1	157.5	89.2	27.3	0	0	0
	February	200	29.8%	5.2	127.7	63.8	18.7	0	0	0
	March	603	81.0%	6.8	95.4	56.7	19.9	0	0	0
	April	709	98.5%	5.1	63.8	44.4	13.6	0	0	0
	May	738	99.2%	5.2	72.9	53.4	19.3	0	0	0
	June	715	99.3%	6.1	97.6	75.8	21.6	0	0	0
	July	706	94.9%	25.8	251.3	210.3	85.9	0	0	0
	August	669	89.9%	8.4	150.3	67.2	29.5	0	0	0
	September	714	99.2%	7.6	111.4	67.3	29.8	0	0	0
	October	710	95.4%	2.6	95.0	49.7	15.9	0	0	0
	November	682	94.7%	5.0	116.7	69.3	29.4	0	0	0
	December	699	94.0%	3.4	23.7	12.0	4.7	0	0	0
Annual		7423	84.7%	7.5	251.3	210.3	85.9	0	0	0

Observations in ug/m^3

FIGURE 4.2.3.1 - SUNNYSIDE ANNUAL SO_2 CONCENTRATIONS



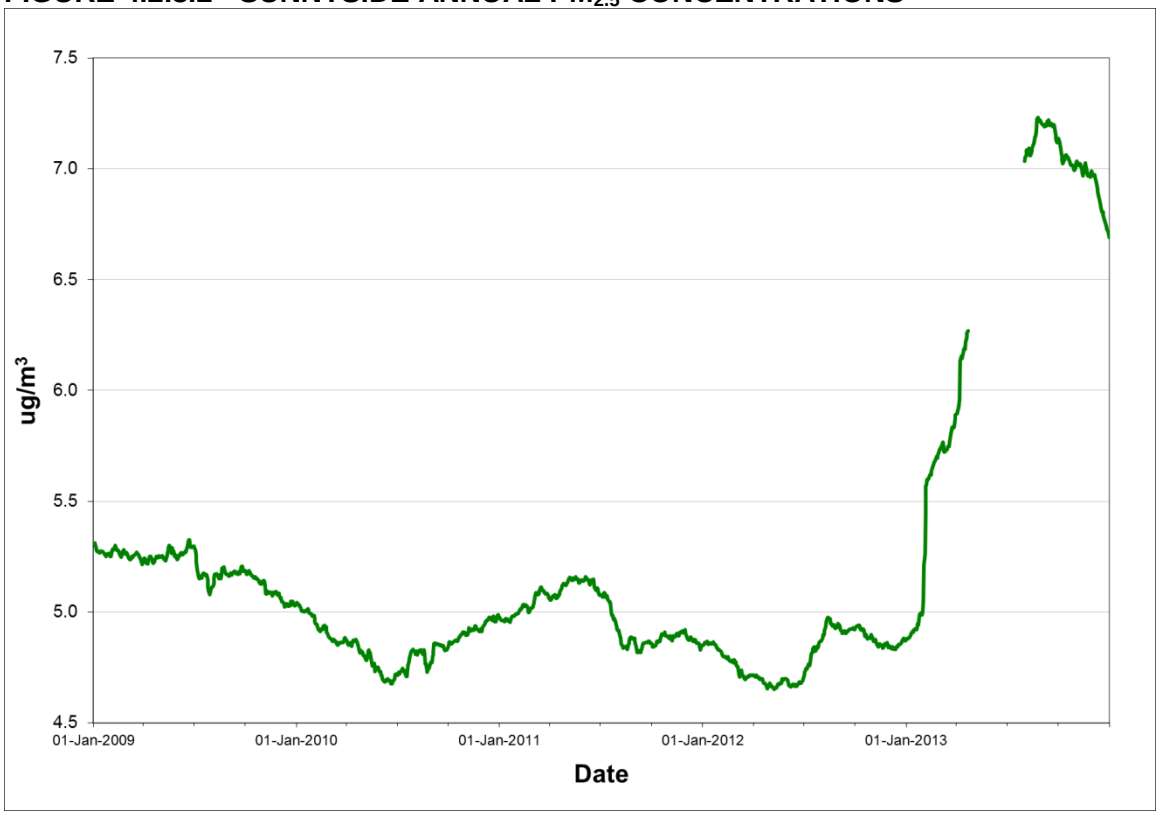
Rolling annual average of hourly concentrations

TABLE 4.2.3.2 - SUNNYSIDE $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	29	93.5%	3.9	6.0	0
	February	29	100.0%	3.7	7.8	0
	March	31	100.0%	4.4	9.2	0
	April	30	100.0%	5.3	7.8	0
	May	31	100.0%	4.8	10.7	0
	June	29	96.7%	4.4	7.9	0
	July	31	100.0%	7.1	12.7	0
	August	29	93.5%	6.2	11.6	0
	September	23	76.7%	5.4	9.3	0
	October	22	71.0%	4.1	6.4	0
	November	30	100.0%	4.3	9.9	0
	December	5	16.1%	3.9	5.1	0
Annual		319	87.2%	4.9	12.7	0
2013	January	13	41.9%	6.8	17.1	0
	February	9	32.1%	22.1	61.9	3
	March	24	77.4%	6.0	11.0	0
	April	26	86.7%	9.8	51.8	1
	May	31	100.0%	4.7	7.9	0
	June	30	100.0%	5.4	12.8	0
	July	31	100.0%	12.3	67.8	2
	August	31	100.0%	7.9	20.2	0
	September	30	100.0%	5.1	10.9	0
	October	28	90.3%	3.4	8.1	0
	November	30	100.0%	4.2	10.0	0
	December	31	100.0%	3.5	7.8	0
Annual		314	86.0%	6.7	67.8	6

Observations in ug/m^3

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



Rolling annual average of daily concentrations

4.2.4 NARL Property Boundary

The NARL Property Boundary station monitors the ambient levels of SO_2 and $PM_{2.5}$. Given its proximity to the process area of NARL, this station routinely records ambient levels of SO_2 and $PM_{2.5}$ in excess of the standards. In 2013, the 1-hour SO_2 standard was exceeded fourteen times, the 3-hour standard sixty three times and the 24-hour standard thirty two times. The majority of exceedances occurred in August and are associated with extended periods of southerly wind flow.

The TEOM $PM_{2.5}$ monitor was replaced with a BAM $PM_{2.5}$ monitor in January. The change-out resulted in more stable and reliable $PM_{2.5}$ measurements. In 2013 there were one hundred and thirty two recorded $PM_{2.5}$ exceedances of the 24-hour ambient standard.

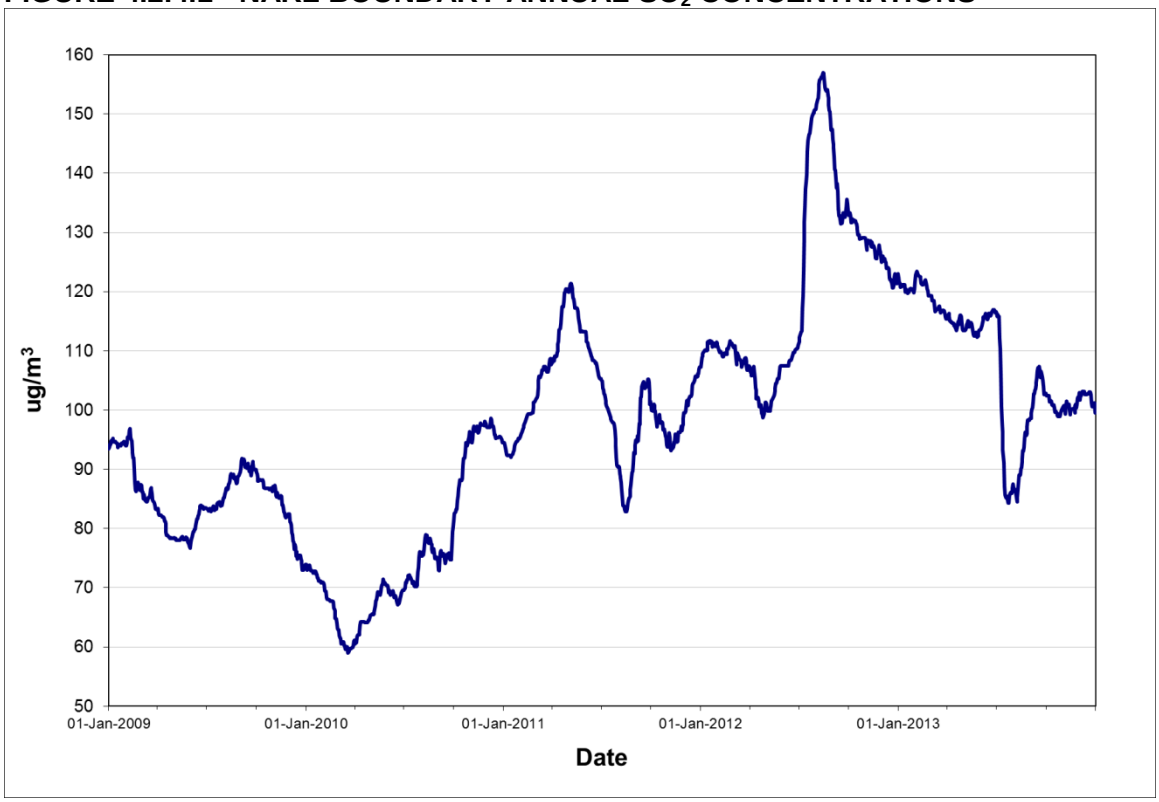
Tables 4.2.4.1 through 4.2.4.2 provide summary information on the level of air contaminants measured at NARL Property Boundary, while Figure 4.2.4.1 provides a graphical representation of the annual trend of SO_2. No graphical presentation of $PM_{2.5}$ is provided owing to extended periods of downtime.

TABLE 4.2.4.1 - NARL BOUNDARY SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	704	94.6%	88.3	940.1	894.1	477.5	2	4	2
	February	658	94.5%	79.6	727.6	561.9	321.7	0	0	2
	March	709	95.3%	72.0	710.9	516.8	356.3	0	0	2
	April	685	95.1%	130.0	634.7	538.2	443.0	0	0	5
	May	704	94.6%	92.5	677.0	547.3	334.1	0	0	3
	June	687	95.4%	48.5	548.1	479.3	238.4	0	0	0
	July	706	94.9%	464.2	4055.1	2944.6	2096.9	137	48	13
	August	708	95.2%	107.4	816.6	725.9	536.1	0	5	2
	September	684	95.0%	130.4	795.0	635.8	493.5	0	5	3
	October	707	95.0%	63.9	681.9	580.2	389.9	0	0	1
	November	687	95.4%	102.0	764.3	574.7	457.3	0	0	5
	December	709	95.3%	89.0	1040.7	1013.5	583.2	5	6	3
Annual		8348	95.0%	122.7	4055.1	2944.6	2096.9	144	68	41
2013	January	711	95.6%	73.6	803.4	737.8	478.6	0	4	1
	February	649	96.6%	51.3	901.8	828.4	511.4	1	2	2
	March	713	95.8%	26.9	544.3	531.1	178.3	0	0	0
	April	687	95.4%	106.4	627.7	507.7	301.2	0	0	1
	May	709	95.3%	93.6	776.1	638.2	294.5	0	1	0
	June	697	96.8%	86.3	699.6	512.8	204.3	0	0	0
	July	605	81.3%	115.9	1084.5	993.9	540.5	3	8	2
	August	668	89.8%	249.3	1083.7	1015.7	637.8	6	23	11
	September	686	95.3%	184.1	895.5	734.7	485.1	0	8	9
	October	635	85.3%	26.5	553.5	473.9	189.9	0	0	0
	November	615	85.4%	127.4	911.3	860.9	536.0	2	9	4
	December	711	95.6%	59.2	970.4	869.8	417.4	2	8	2
Annual		8086	92.3%	99.5	1084.5	1015.7	637.8	14	63	32

Observations in ug/m^3

FIGURE 4.2.4.1 - NARL BOUNDARY ANNUAL SO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

TABLE 4.2.4.2 - NARL BOUNDARY $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	0	0.0%			
	February	0	0.0%			
	March	18	58.1%	13.1	40.3	5
	April	26	86.7%	24.4	79.5	9
	May	21	67.7%	17.9	66.1	5
	June	30	100.0%	15.4	56.1	9
	July	31	100.0%	75.9	193.8	26
	August	31	100.0%	37.0	167.9	13
	September	27	90.0%	31.1	130.9	13
	October	31	100.0%	16.0	70.5	7
	November	30	100.0%	27.3	132.3	10
	December	0	0.0%			
Annual		245	66.9%	30.1	193.8	97
2013	January	8	25.8%	28.7	88.6	3
	February	25	89.3%	14.1	111.8	2
	March	28	90.3%	10.7	48.3	3
	April	30	100.0%	38.2	88.3	16
	May	31	100.0%	30.7	82.8	15
	June	30	100.0%	30.8	85.3	18
	July	31	100.0%	49.8	188.5	22
	August	22	71.0%	88.1	239.3	17
	September	30	100.0%	49.9	133.0	18
	October	31	100.0%	9.8	67.9	3
	November	26	86.7%	35.8	117.0	11
	December	29	93.5%	12.3	55.3	4
Annual		321	87.9%	32.6	239.3	132

Observations in ug/m^3

4.3 Iron Ore Company of Canada

In 2011, the Iron Ore Company of Canada (IOCC) completed a major revamp of their monitoring network to include the monitoring of more pollutants on a continuous basis. The revamp also included the introduction of several new station locations, the decommissioning of some stations as well as the moving of others. At the end of 2013, there were five stations in operation located near Smokey Mountain, the Town Depot / Tamarack Drive, Indian Point, Bartlett Drive, and Hudson Drive. The locations of these monitoring stations are identified in Figure 4.3.1.

The forest fires in Quebec and western Labrador during late June and early July were the main factors affecting air quality in 2013 throughout the region. For a two week period, the levels of $PM_{2.5}$ and TPM were near or above their associated ambient air quality standard. The forest fires also created sporadic losses in power which resulted in data not being collected on a continuous basis at all sites. It is likely that more exceedances occurred than what it being reported herein.

FIGURE 4.3.1 - IOCC AMBIENT MONITORING STATIONS

4.3.1 Indian Point

The Indian Point station monitors the ambient levels of SO_2, NO_x / NO_2, $PM_{2.5}$ and TPM on a continuous basis. For SO_2, NO_x / NO_2, the ambient air criteria were not exceeded on any occasion in 2013, however for $PM_{2.5}$ and TPM, the 24-hour ambient air criteria was exceeded on eleven occasion and five occasions respectively. Tables 4.3.1.1 through 4.3.1.4 provide summary information on the level of air contaminants measured at Indian Point. Owing to insufficient data, graphical representations indicating the annual trend of each pollutant are not presented.

TABLE 4.3.1.1 - INDIAN POINT SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	713	95.8%	2.2	77.0	54.6	21.6	0	0	0
	February	667	95.8%	2.6	97.3	86.0	24.2	0	0	0
	March	713	95.8%	3.1	37.8	29.5	10.2	0	0	0
	April	689	95.7%	2.2	50.6	23.5	7.5	0	0	0
	May	702	94.4%	2.2	81.0	75.9	24.0	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	647	87.0%	3.4	81.0	67.5	21.5	0	0	0
Annual		4131	47.0%	2.6	97.3	86.0	24.2	0	0	0
2013	January	706	94.9%	1.4	37.2	23.2	7.8	0	0	0
	February	642	95.5%	2.1	60.6	36.0	7.7	0	0	0
	March	706	94.9%	3.1	45.7	26.4	18.1	0	0	0
	April	634	88.1%	1.2	25.6	19.0	5.7	0	0	0
	May	707	95.0%	1.4	28.3	17.6	6.1	0	0	0
	June	668	92.8%	1.0	14.9	9.7	3.3	0	0	0
	July	710	95.4%	1.1	24.1	15.5	4.5	0	0	0
	August	701	94.2%	0.7	7.2	2.5	1.1	0	0	0
	September	664	92.2%	0.8	11.5	7.4	3.7	0	0	0
	October	709	95.3%	0.6	4.1	2.7	1.1	0	0	0
	November	688	95.6%	1.4	50.9	20.2	3.9	0	0	0
	December	708	95.2%	2.7	77.9	60.5	24.3	0	0	0
Annual		8243	94.1%	1.5	77.9	60.5	24.3	0	0	0

Observations in ug/m^3

TABLE 4.3.1.2 - INDIAN POINT $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	11	35.5%	6.2	9.3	0
	February	27	93.1%	4.5	10.5	0
	March	28	90.3%	4.7	8.1	0
	April	30	100.0%	4.3	13.2	0
	May	7	22.6%	6.5	9.4	0
	June	0	0.0%			
	July	0	0.0%			
	August	8	25.8%	4.0	12.0	0
	September	28	93.3%	3.6	12.3	0
	October	29	93.5%	3.1	9.9	0
	November	21	70.0%	6.7	42.4	1
	December	28	90.3%	3.6	8.9	0
Annual		217	59.3%	4.4	42.4	1
2013	January	29	93.5%	2.1	5.5	0
	February	28	100.0%	4.6	8.1	0
	March	31	100.0%	4.5	9.4	0
	April	27	90.0%	4.6	8.8	0
	May	31	100.0%	4.4	8.3	0
	June	26	86.7%	10.2	46.7	4
	July	31	100.0%	23.8	169.6	7
	August	30	96.8%	4.6	18.0	0
	September	29	96.7%	1.5	4.0	0
	October	31	100.0%	1.6	4.7	0
	November	30	100.0%	2.7	11.5	0
	December	28	90.3%	3.2	9.7	0
Annual		351	96.2%	5.7	169.6	11

Observations in ug/m^3

TABLE 4.3.1.3 - INDIAN POINT NO_X / NO_2 SUMMARY 2012 & 2013

						Maximums				Exceedances	
		# Valid	% Valid	Average		1-Hour		24-Hour		1-Hour	24-Hour
Year	Month	Hours	Hours	NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2012	January	741	99.6%	16.7	13.0	143.4	73.3	40.3	31.6	0	0
	February	696	100.0%	15.7	12.0	164.2	64.6	50.9	33.4	0	0
	March	744	100.0%	10.8	8.6	84.7	61.0	28.9	22.4	0	0
	April	719	99.9%	8.0	6.5	65.6	38.4	25.0	19.3	0	0
	May	736	98.9%	8.9	6.4	97.3	52.1	28.6	15.9	0	0
	June	718	99.7%		6.8		37.6		12.4	0	0
	July	744	100.0%		6.7		41.4		11.5	0	0
	August	741	99.6%		6.4		37.6		12.4	0	0
	September	693	96.3%	15.3	6.5	91.3	75.2	24.1	28.3	0	0
	October	709	95.3%	14.4	11.1	86.7	64.3	39.4	23.1	0	0
	November	352	48.9%	13.2	10.7	67.2	52.9	28.7	23.0	0	0
	December	735	98.8%	15.5	13.2	154.0	80.1	64.3	47.5	0	0
Annual		8328	94.8%	9.7	8.9	164.2	80.1	64.3	47.5	0	0
2013	January	736	98.9%	8.8	7.9	103.7	66.4	53.2	42.9	0	0
	February	669	99.6%	17.7	15.3	96.3	74.2	49.1	40.4	0	0
	March	734	98.7%	11.9	9.9	108.1	58.3	37.3	30.0	0	0
	April	661	91.8%	8.5	7.9	51.2	46.8	18.8	17.0	0	0
	May	738	99.2%	7.1	6.5	76.4	53.5	13.7	11.9	0	0
	June	694	96.4%	6.0	5.6	140.5	58.8	15.3	13.5	0	0
	July	739	99.3%	6.9	6.1	42.5	41.0	22.5	21.1	0	0
	August	731	98.3%	5.4	5.2	54.7	22.6	10.1	9.4	0	0
	September	687	95.4%	6.5	6.0	57.8	34.9	17.4	12.4	0	0
	October	730	98.1%	7.2	6.5	74.0	32.9	16.9	13.1	0	0
	November	718	99.7%	8.9	8.2	59.3	46.3	27.7	23.2	0	0
	December	740	99.5%	16.8	13.8	177.9	86.7	58.7	38.4	0	0
Annual		8577	97.9%	9.3	8.2	177.9	86.7	58.7	42.9	0	0

Observations in ug/m^3

TABLE 4.3.1.4 - INDIAN POINT TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m^3)
2012	January	27	87.1%	10.7	89.2	0
	February	25	86.2%	12.0	75.6	0
	March	29	93.5%	21.6	127.9	2
	April	24	80.0%	34.6	81.7	0
	May	16	51.6%	16.7	242.5	2
	June	30	100.0%	55.1	222.2	5
	July	31	100.0%	35.0	125.5	1
	August	30	96.8%	23.0	67.3	0
	September	29	96.7%	17.5	42.6	0
	October	31	100.0%	17.5	66.6	0
	November	26	86.7%	4.9	42.4	0
	December	29	93.5%	11.9	137.1	1
Annual		327	89.3%	22.2	242.5	11
2013	January	29	93.5%	4.7	41.3	0
	February	26	92.9%	15.4	93.5	0
	March	30	96.8%	20.4	67.3	0
	April	27	90.0%	16.0	55.1	0
	May	31	100.0%	25.8	130.2	2
	June	28	93.3%	30.9	100.8	0
	July	31	100.0%	28.0	360.2	3
	August	30	96.8%	9.9	34.6	0
	September	29	96.7%	5.7	29.4	0
	October	30	96.8%	3.5	22.1	0
	November	29	96.7%	5.3	70.8	0
	December	25	80.6%	6.8	95.0	0
Annual		345	94.5%	14.5	360.2	5

Observations in ug/m^3

4.3.2 Town Depot / Tamarack Drive

The Town Depot / Tamarack Drive station monitors the ambient 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 ambient air criteria were not exceeded on any occasion in 2013. The 24-hour $PM_{2.5}$ and TPM criteria however were exceeded on eleven and eight occasions respectively. Tables 4.3.2.1 through 4.3.2.4 provide summary information on the level of air contaminants measured at Town Depot / Tamarack Drive. Owing to insufficient data, graphical representations indicating the annual trend of each pollutant are not presented.

TABLE 4.3.2.1 - TOWN DEPOT / TAMARACK Dr. SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	566	76.1%	2.0	91.7	67.2	35.2	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	0	0.0%							
	November	190	26.4%	0.8	13.7	11.8	2.0	0	0	0
	December	710	95.4%	3.9	122.4	107.1	34.3	0	0	0
Annual		1466	16.7%	2.8	122.4	107.1	35.2	0	0	0
2013	January	707	95.0%	1.6	121.9	53.1	14.6	0	0	0
	February	607	90.3%	1.9	71.8	41.2	7.8	0	0	0
	March	625	84.0%	3.8	76.4	63.8	40.0	0	0	0
	April	619	86.0%	1.3	33.6	23.6	7.2	0	0	0
	May	704	94.6%	1.8	85.0	64.0	13.7	0	0	0
	June	668	92.8%	0.7	21.7	11.8	3.5	0	0	0
	July	490	65.9%	0.8	10.2	9.1	4.9	0	0	0
	August	0	0.0%							
	September	10	1.4%	0.1	0.2	0.2	0.0	0	0	0
	October	660	88.7%	0.4	9.9	4.9	1.2	0	0	0
	November	704	97.8%	0.7	23.0	18.0	2.9	0	0	0
	December	693	93.1%	2.7	127.9	97.1	29.7	0	0	0
Annual		6487	74.1%	1.6	127.9	97.1	40.0	0	0	0

Observations in ug/m^3

TABLE 4.3.2.2 - TOWN DEPOT / TAMARACK Dr. $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	29	93.5%	3.9	8.3	0
	February	22	75.9%	3.9	11.3	0
	March	27	87.1%	4.1	8.3	0
	April	29	96.7%	3.7	9.5	0
	May	31	100.0%	4.4	14.9	0
	June	28	93.3%	6.2	14.6	0
	July	31	100.0%	4.3	10.8	0
	August	31	100.0%	4.6	12.6	0
	September	28	93.3%	6.2	14.6	0
	October	31	100.0%	2.9	8.0	0
	November	29	96.7%	3.0	9.5	0
	December	28	90.3%	5.3	20.0	0
Annual		344	94.0%	4.4	20.0	0
2013	January	26	83.9%	3.3	6.9	0
	February	26	92.9%	4.5	8.2	0
	March	24	77.4%	4.5	10.0	0
	April	26	86.7%	4.7	7.9	0
	May	29	93.5%	4.0	8.5	0
	June	29	96.7%	8.6	47.8	4
	July	21	67.7%	29.9	168.5	7
	August	4	12.9%	1.8	3.3	0
	September	10	33.3%	2.0	4.4	0
	October	27	87.1%	1.5	4.7	0
	November	29	96.7%	2.7	12.2	0
	December	25	80.6%	3.7	13.3	0
Annual		276	75.6%	6.0	168.5	11

Observations in ug/m^3

TABLE 4.3.2.3 - TOWN DEPOT / TAMARACK Dr. NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average		Maximums 1-Hour		Maximums 24-Hour		Exceedances 1-Hour	Exceedances 24-Hour
				NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2012	January	743	99.9%		13.2		86.5		34.9	0	0
	February	696	100.0%		12.8		62.1		37.1	0	0
	March	744	100.0%		8.6		56.4		20.3	0	0
	April	720	100.0%		6.9		56.4		16.7	0	0
	May	738	99.2%		3.1		156.1		8.3	0	0
	June	716	99.4%		7.9		69.3		21.4	0	0
	July	744	100.0%		5.1		124.1		10.3	0	0
	August	742	99.7%		4.8		22.6		10.1	0	0
	September	705	97.9%		4.1		33.8		9.6	0	0
	October	722	97.0%	8.9	6.7	61.8	43.2	22.2	16.2	0	0
	November	685	95.1%	8.8	8.0	56.8	44.3	24.7	18.2	0	0
	December	712	95.7%	22.1	17.4	220.2	94.0	81.4	53.2	0	0
Annual		8667	98.7%	3.3	8.2	220.2	156.1	81.4	53.2	0	0
2013	January	709	95.3%	13.0	9.5	700.4	132.4	73.4	54.2	0	0
	February	607	90.3%	23.9	19.5	114.8	87.3	57.9	46.2	0	0
	March	625	84.0%	17.6	14.0	122.9	81.6	66.1	44.6	0	0
	April	636	88.3%	10.8	8.2	107.5	81.4	26.1	20.8	0	0
	May	705	94.8%	9.2	7.4	101.7	49.1	22.7	15.4	0	0
	June	668	92.8%	7.2	6.0	46.7	30.6	15.6	13.3	0	0
	July	509	68.4%	5.8	5.3	46.3	44.8	23.3	22.3	0	0
	August	107	14.4%	5.4	4.5	23.6	19.4	7.1	5.9	0	0
	September	243	33.8%	5.8	5.1	39.4	28.2	12.1	11.0	0	0
	October	661	88.8%	7.2	5.9	65.9	46.7	17.6	13.9	0	0
	November	705	97.9%	11.1	9.5	77.1	54.5	34.0	27.0	0	0
	December	693	93.1%	20.0	16.5	202.6	89.7	68.5	43.3	0	0
Annual		6868	78.4%	12.3	9.9	700.4	132.4	73.4	54.2	0	0

Observations in ug/m^3

TABLE 4.3.2.4 - TOWN DEPOT / TAMARACK Dr. TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m^3)
2012	January	22	71.0%	10.7	117.0	0
	February	23	79.3%	15.6	96.8	0
	March	27	87.1%	29.1	160.1	4
	April	30	100.0%	40.7	112.5	0
	May	30	96.8%	30.8	220.1	2
	June	30	100.0%	42.7	145.0	2
	July	31	100.0%	24.3	117.6	0
	August	31	100.0%	14.9	69.6	0
	September	27	90.0%	11.7	44.5	0
	October	31	100.0%	10.4	37.8	0
	November	30	100.0%	8.2	72.9	0
	December	31	100.0%	21.5	233.8	2
Annual		343	93.7%	22.1	233.8	10
2013	January	31	100.0%	9.2	53.2	0
	February	25	89.3%	18.9	138.7	1
	March	30	96.8%	24.7	110.8	0
	April	27	90.0%	26.9	101.1	0
	May	31	100.0%	39.9	126.2	1
	June	28	93.3%	35.0	104.0	0
	July	21	67.7%	31.5	383.0	3
	August	0	0.0%			
	September	0	0.0%			
	October	0	0.0%			
	November	29	96.7%	9.8	136.0	1
	December	27	87.1%	11.9	156.5	2
Annual		249	68.2%	22.9	383.0	8

Observations in ug/m^3

4.3.3 Smokey Mountain

The Smokey Mountain station monitors the ambient 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 ambient air criteria were not exceeded on any occasion in 2013. For $PM_{2.5}$ and TPM, the 24-hour ambient air criteria were exceeded on eleven and five occasions respectively. Tables 4.3.3.1 through 4.3.3.4 provide summary information on the level of air contaminants measured at Smokey Mountain. Owing to insufficient data, graphical representations indicating the annual trend of each pollutant are not presented.

TABLE 4.3.3.1 - SMOKEY MOUNTAIN SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	710	95.4%	0.9	16.8	13.2	3.0	0	0	0
	February	667	95.8%	1.2	29.3	13.9	5.4	0	0	0
	March	713	95.8%	0.9	42.2	23.0	5.9	0	0	0
	April	684	95.0%	0.9	32.4	21.2	5.2	0	0	0
	May	674	90.6%	1.0	50.7	48.5	8.3	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		3448	39.3%	1.0	50.7	48.5	8.3	0	0	0
2013	January	0	0.0%							
	February	0	0.0%							
	March	0	0.0%							
	April	0	0.0%							
	May	237	31.9%	0.9	3.9	2.5	1.3	0	0	0
	June	691	96.0%	0.8	8.2	7.0	2.2	0	0	0
	July	709	95.3%	1.1	3.9	3.6	1.8	0	0	0
	August	699	94.0%	1.0	5.0	2.1	1.5	0	0	0
	September	659	91.5%	1.1	4.4	3.4	1.7	0	0	0
	October	705	94.8%	0.6	5.5	3.5	1.1	0	0	0
	November	672	93.3%	0.8	27.0	2.7	1.3	0	0	0
	December	686	92.2%	0.5	12.6	8.2	1.7	0	0	0
Annual		5058	57.7%	0.9	27.0	8.2	2.2	0	0	0

Observations in ug/m^3

TABLE 4.3.3.2 - SMOKEY MOUNTAIN $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	28	90.3%	3.4	6.6	0
	February	29	100.0%	3.0	11.2	0
	March	30	96.8%	3.2	6.0	0
	April	30	100.0%	2.5	7.2	0
	May	8	25.8%	3.8	6.6	0
	June	7	23.3%	4.3	6.7	0
	July	22	71.0%	3.2	8.3	0
	August	22	71.0%	2.0	7.9	0
	September	18	60.0%	2.0	7.5	0
	October	1	3.2%	4.8	4.8	0
	November	27	90.0%	2.3	6.8	0
	December	28	90.3%	2.7	6.0	0
Annual		250	68.3%	2.8	11.2	0
2013	January	31	100.0%	2.8	6.3	0
	February	28	100.0%	3.2	8.3	0
	March	31	100.0%	2.1	8.8	0
	April	26	86.7%	2.5	6.4	0
	May	28	90.3%	1.5	5.2	0
	June	27	90.0%	8.3	53.5	4
	July	31	100.0%	20.3	167.9	7
	August	28	90.3%	2.2	14.8	0
	September	29	96.7%	0.9	3.0	0
	October	30	96.8%	1.4	4.8	0
	November	28	93.3%	1.9	7.8	0
	December	26	83.9%	3.8	11.2	0
Annual		343	94.0%	4.3	167.9	11

Observations in ug/m^3

TABLE 4.3.3.3 - SMOKEY MOUNTAIN NO_X / NO_2 SUMMARY 2012 & 2013

						Maximums				Exceedances	
		# Valid	% Valid	Average		1-Hour		24-Hour		1-Hour	24-Hour
Year	Month	Hours	Hours	NO_x	NO_2	NO_x	NO_2	NO_x	NO_2	(>400)	(>200)
2012	January	709	95.3%	14.1	11.8	105.4	61.1	36.2	28.8	0	0
	February	591	84.9%	15.9	12.8	266.2	70.8	61.4	35.9	0	0
	March	690	92.7%	9.8	8.6	135.0	95.4	36.1	24.9	0	0
	April	685	95.1%	5.0	4.7	58.6	48.0	15.7	13.8	0	0
	May	703	94.5%	5.7	5.1	103.3	52.6	17.8	12.1	0	0
	June	681	94.6%	10.0	9.3	210.4	200.4	20.9	20.1	0	0
	July	739	99.3%	7.4	6.7	39.6	31.7	17.4	15.2	0	0
	August	738	99.2%	7.9	6.5	53.8	31.2	18.0	11.3	0	0
	September	692	96.1%	10.2	8.9	61.7	44.5	25.8	19.3	0	0
	October	713	95.8%	10.8	9.1	74.8	64.5	28.2	26.0	0	0
	November	709	98.5%	10.9	10.3	70.6	56.7	21.3	20.3	0	0
	December	692	93.0%	22.4	19.2	201.1	102.9	103.7	71.1	0	0
Annual		8342	95.0%	10.7	9.3	266.2	200.4	103.7	71.1	0	0
2013	January	736	98.9%	13.8	12.9	213.4	111.5	70.0	58.7	0	0
	February	668	99.4%	21.4	20.3	151.4	90.9	51.3	47.2	0	0
	March	732	98.4%	14.1	13.8	76.3	71.2	43.4	42.0	0	0
	April	664	92.2%	15.9	15.4	61.1	58.4	27.9	27.1	0	0
	May	717	96.4%	16.4	15.8	65.5	46.8	28.0	26.9	0	0
	June	697	96.8%	24.6	24.1	103.8	69.9	43.3	42.6	0	0
	July	741	99.6%	34.6	33.7	98.2	97.4	60.9	60.3	0	0
	August	730	98.1%	46.2	47.9	128.6	118.0	78.0	80.4	0	0
	September	691	96.0%	33.6	33.0	106.0	83.5	58.2	56.5	0	0
	October	735	98.8%	21.4	20.8	82.4	65.5	39.4	37.9	0	0
	November	701	97.4%	18.1	17.6	64.6	56.8	34.2	30.0	0	0
	December	715	96.1%	16.4	14.9	113.3	65.6	49.6	39.5	0	0
Annual		8527	97.3%	23.1	22.6	213.4	118.0	78.0	80.4	0	0

Observations in ug/m^3

TABLE 4.3.3.4 - SMOKEY MOUNTAIN TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 µg/m^3)
2012	January	29	93.5%	5.5	20.4	0
	February	26	89.7%	5.5	91.1	0
	March	31	100.0%	13.9	88.3	0
	April	30	100.0%	19.5	65.8	0
	May	31	100.0%	23.5	297.1	3
	June	30	100.0%	34.7	112.5	0
	July	31	100.0%	13.4	67.8	0
	August	31	100.0%	16.4	38.3	0
	September	26	86.7%	18.5	64.9	0
	October	29	93.5%	9.7	91.9	0
	November	29	96.7%	6.2	53.0	0
	December	28	90.3%	5.4	94.5	0
Annual		351	95.9%	14.5	297.1	3
2013	January	28	90.3%	4.8	20.8	0
	February	27	96.4%	9.1	48.0	0
	March	31	100.0%	12.1	82.0	0
	April	27	90.0%	19.2	116.3	0
	May	29	93.5%	13.2	137.5	1
	June	25	83.3%	17.6	99.7	0
	July	31	100.0%	20.3	365.8	4
	August	30	96.8%	11.1	41.0	0
	September	28	93.3%	5.8	115.0	0
	October	28	90.3%	5.5	65.5	0
	November	28	93.3%	4.5	25.7	0
	December	25	80.6%	4.6	21.4	0
Annual		337	92.3%	10.7	365.8	5

Observations in ug/m^3

4.3.4 Bartlett Drive

The Bartlett Drive monitoring station is located at A. P. Low School and measured TPM on a one day in six day cycle in 2013. The station had an equipment upgrade in 2011, resulting in period of monitoring downtime. Although only one exceedance of the 24-hour ambient air standard was recorded in 2013, the unit only ran once during the forest fire period. It is likely more exceedances would have been recorded had the unit been operating for more days during the fires.

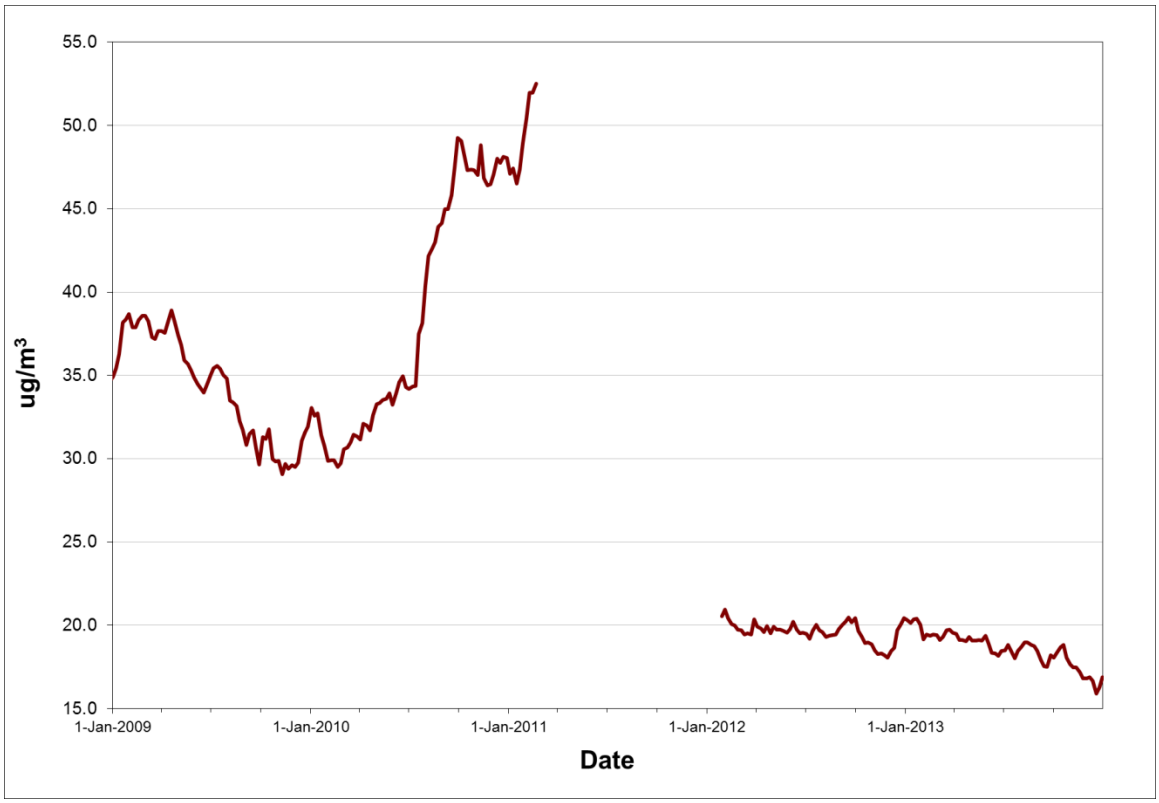
Table 4.3.4.1 provides summary information of air contaminants measured at Bartlett Drive, while Figure 4.3.4.1 provides a graphical representation of the annual trend of the measured pollutants.

TABLE 4.3.4.1 - BARTLETT DRIVE TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2012	January	5	100.0%	12.3	44.8	0
	February	5	100.0%	13.9	49.5	0
	March	5	100.0%	19.5	110.6	0
	April	5	100.0%	23.9	67.6	0
	May	5	100.0%	46.1	86.0	0
	June	5	100.0%	41.1	98.3	0
	July	5	100.0%	23.8	79.9	0
	August	6	100.0%	20.5	51.0	0
	September	5	100.0%	27.4	43.6	0
	October	5	100.0%	12.1	37.5	0
	November	5	100.0%	10.0	16.6	0
	December	5	100.0%	21.5	159.7	1
Annual		61	100.0%	20.4	159.7	1
2013	January	4	80.0%	8.0	14.1	0
	February	4	80.0%	8.0	17.2	0
	March	5	100.0%	21.3	60.8	0
	April	5	100.0%	20.5	57.7	0
	May	5	100.0%	48.3	60.8	0
	June	4	80.0%	24.3	89.8	0
	July	4	80.0%	25.4	46.7	0
	August	5	100.0%	20.9	32.6	0
	September	5	100.0%	21.6	73.7	0
	October	3	50.0%	6.1	8.0	0
	November	5	100.0%	6.0	9.2	0
	December	5	100.0%	22.3	165.9	1
Annual		54	88.5%	16.9	165.9	1

Observations in ug/m^3

FIGURE 4.3.4.1 - BARTLETT DRIVE ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.3.5 Hudson Drive

The Hudson Drive monitoring station is located at the fire hall and measured TPM on a one day in six day cycle in 2013. The station was newly installed in 2011.

Table 4.3.5.1 provides summary information of air contaminants measured at Hudson Drive. In 2013, the 24-hour ambient air criterion was exceeded on one occasions. Owing to insufficient data, graphical representations indicating the annual trend of each pollutant are not presented.

TABLE 4.3.5.1 - HUDSON DRIVE TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2012	January	5	100.0%	16.2	37.2	0
	February	5	100.0%	12.2	44.9	0
	March	5	100.0%	17.4	98.3	0
	April	5	100.0%	43.7	178.1	1
	May	5	100.0%	67.9	172.0	1
	June	5	100.0%	51.1	104.4	0
	July	5	100.0%	22.6	86.0	0
	August	6	100.0%	26.9	35.0	0
	September	5	100.0%	32.9	47.3	0
	October	5	100.0%	18.5	55.3	0
	November	5	100.0%	14.0	31.9	0
	December	5	100.0%	21.0	196.6	1
Annual		61	100.0%	24.9	196.6	3
2013	January	5	100.0%	9.0	24.6	0
	February	4	80.0%	17.8	37.5	0
	March	5	100.0%	30.0	86.0	0
	April	5	100.0%	38.8	92.1	0
	May	5	100.0%	60.1	86.0	0
	June	4	80.0%	37.1	141.4	1
	July	4	80.0%	25.8	73.7	0
	August	5	100.0%	28.6	44.8	0
	September	5	100.0%	18.0	43.0	0
	October	6	100.0%	17.4	92.1	0
	November	5	100.0%	9.1	13.5	0
	December	5	100.0%	23.9	98.3	0
Annual		58	95.1%	22.6	141.4	1

Observations in ug/m^3

4.4 Wabush Mines

In 2013, Wabush Mines initiated a minor revamp of their monitoring network, updating equipment and relocating instruments. The work is expected to be completed in early 2014. As a consequence Wabush Mines closed the Shea Street station and operated monitoring stations at two locations in and around Wabush, namely on Bond Street near the Provincial Building and near the NALCOR substation. These stations are installed to monitor the emissions from Wabush Mines' iron ore mine and concentrator facility and are located on Bond Street and near the NALCOR substation to the north of the town. The locations of these monitoring stations are identified in Figure 4.4.1.

The forest fires in Quebec and western Labrador during late June and early July were the main factors affecting air quality in 2013 throughout the region. For a two week period, the levels of $PM_{2.5}$ and TPM were near or above their associated ambient air quality standard. The forest fires also created sporadic losses in power which resulted in data not being collected on a continuous basis at all sites. It is likely that more exceedances occurred than what it being reported herein.

FIGURE 4.4.1 - WABUSH MINES AMBIENT MONITORING STATIONS

4.4.1 Bond Street

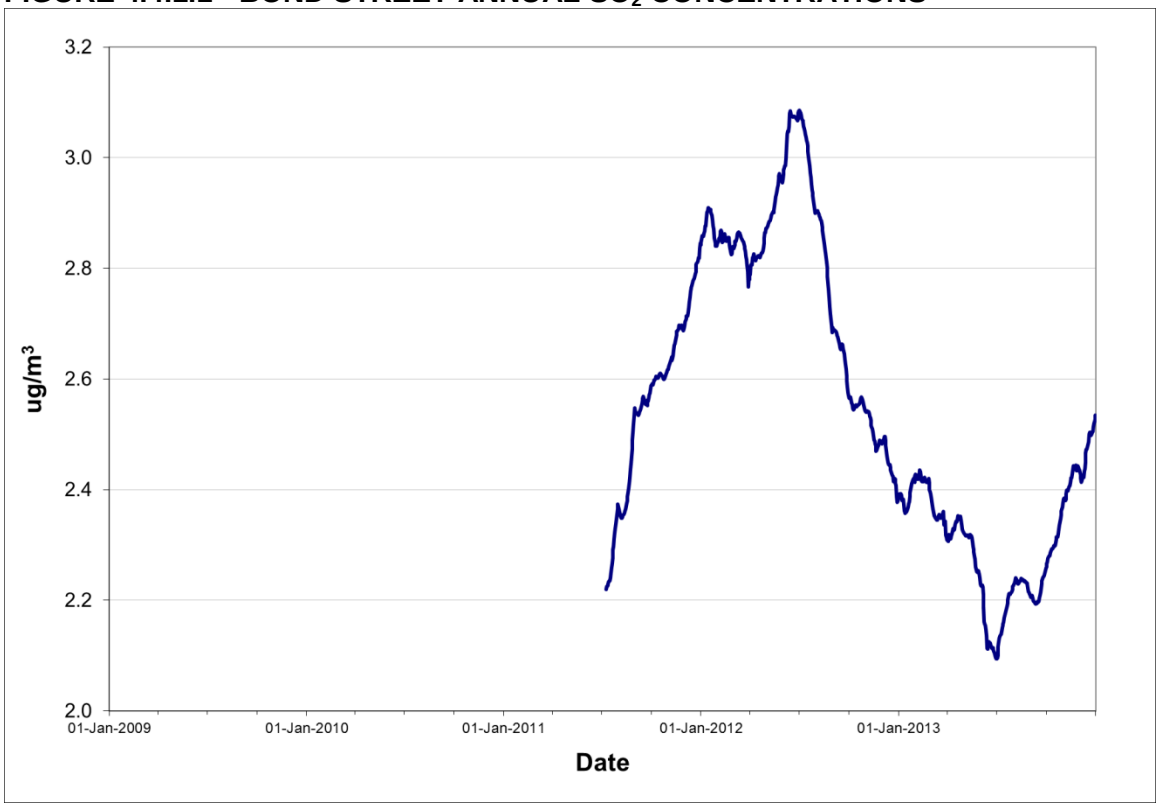
The Bond Street monitoring station is located near the Provincial Building and measures SO_2, $PM_{2.5}$ and TPM on a continuous basis. The SO_2 criteria was not exceeded on any occasion in 2013, however the $PM_{2.5}$ criteria was exceeded on five occasions owing to the forest fires in June and July. The TPM monitor was newly installed in September. 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 and 4.4.1.2 provide a graphical representation of the annual trend of $PM_{2.5}$ and SO_2 respectively. No graphical representation of TPM is presented due to insufficient data being available by the end of the year.

TABLE 4.4.1.1 - BOND STREET SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	704	94.6%	2.5	24.5	13.9	6.1	0	0	0
	February	667	95.8%	2.7	40.7	23.2	6.1	0	0	0
	March	710	95.4%	2.8	73.5	58.7	11.0	0	0	0
	April	691	96.0%	2.4	24.6	17.3	7.1	0	0	0
	May	691	92.9%	3.5	16.4	12.9	8.7	0	0	0
	June	472	65.6%	4.6	13.6	12.4	11.8	0	0	0
	July	709	95.3%	1.6	15.9	6.5	3.2	0	0	0
	August	698	93.8%	1.9	16.1	11.1	4.2	0	0	0
	September	661	91.8%	1.7	8.5	5.1	3.5	0	0	0
	October	711	95.6%	1.4	7.0	4.3	2.9	0	0	0
	November	690	95.8%	2.2	5.5	4.7	4.3	0	0	0
	December	711	95.6%	1.9	22.5	8.5	3.8	0	0	0
Annual		8115	92.4%	2.4	73.5	58.7	11.8	0	0	0
2013	January	708	95.2%	2.9	21.6	11.2	5.2	0	0	0
	February	640	95.2%	2.4	17.3	14.3	5.8	0	0	0
	March	714	96.0%	1.8	17.3	10.0	3.5	0	0	0
	April	668	92.8%	2.5	22.5	9.5	4.2	0	0	0
	May	698	93.8%	2.5	7.0	5.3	4.0	0	0	0
	June	677	94.0%	2.1	14.1	8.1	3.5	0	0	0
	July	712	95.7%	3.2	10.5	9.5	5.9	0	0	0
	August	700	94.1%	1.8	11.6	7.9	3.0	0	0	0
	September	581	80.7%	2.4	6.7	4.6	3.7	0	0	0
	October	681	91.5%	2.7	14.7	6.7	4.5	0	0	0
	November	527	73.2%	3.3	29.2	19.3	5.5	0	0	0
	December	733	98.5%	3.0	18.5	13.0	6.4	0	0	0
Annual		8039	91.8%	2.5	29.2	19.3	6.4	0	0	0

Observations in ug/m^3

FIGURE 4.4.1.1 - BOND STREET ANNUAL SO_2 CONCENTRATIONS



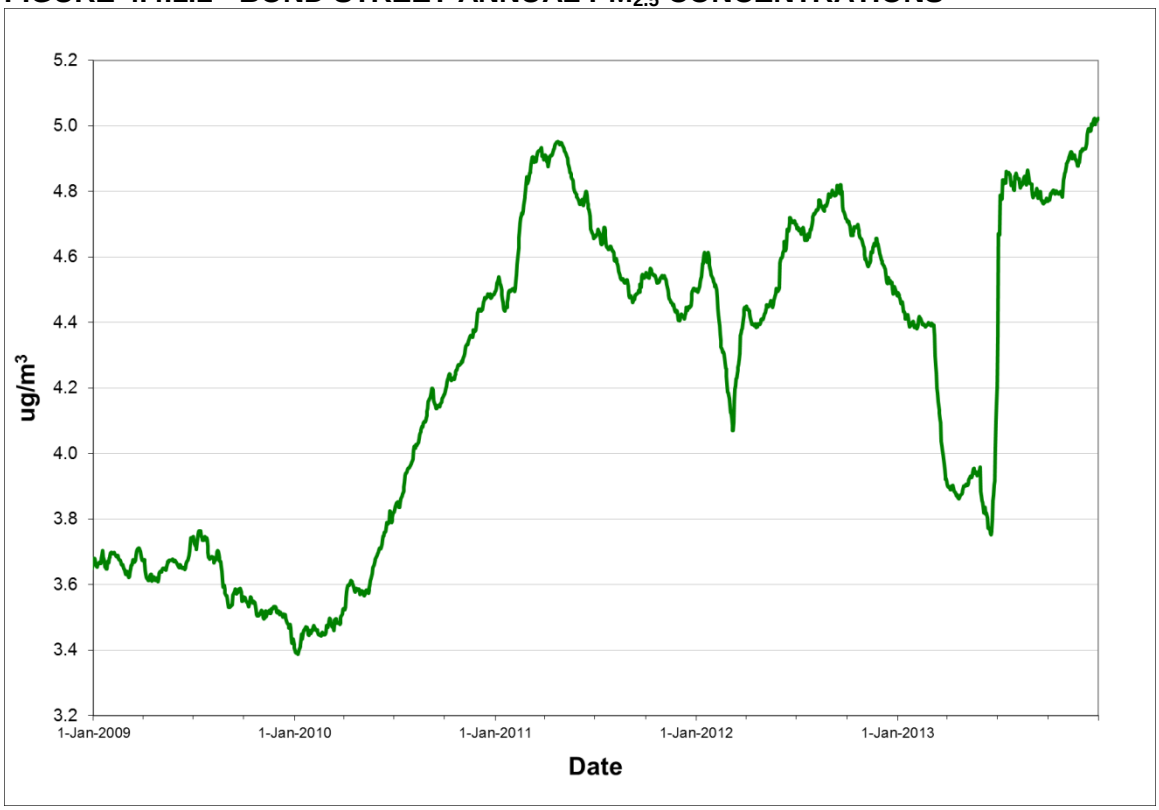
Rolling annual average of daily concentrations

TABLE 4.4.1.2 - BOND STREET $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	5.3	10.5	0
	February	29	100.0%	3.5	7.1	0
	March	31	100.0%	8.4	23.3	0
	April	30	100.0%	4.2	6.0	0
	May	29	93.5%	3.8	8.9	0
	June	26	86.7%	6.2	26.4	1
	July	31	100.0%	5.2	10.0	0
	August	31	100.0%	4.4	8.6	0
	September	29	96.7%	3.7	11.8	0
	October	31	100.0%	2.8	7.3	0
	November	30	100.0%	3.1	7.7	0
	December	31	100.0%	3.3	7.6	0
Annual		359	98.1%	4.5	26.4	1
2013	January	31	100.0%	4.1	6.0	0
	February	28	100.0%	3.7	8.3	0
	March	31	100.0%	2.9	6.0	0
	April	30	100.0%	4.0	6.5	0
	May	31	100.0%	4.5	7.9	0
	June	29	96.7%	9.1	40.5	2
	July	29	93.5%	12.7	119.3	3
	August	30	96.8%	4.7	17.8	0
	September	29	96.7%	3.0	5.8	0
	October	27	87.1%	3.7	11.9	0
	November	25	83.3%	3.6	7.0	0
	December	29	93.5%	4.5	12.9	0
Annual		349	95.6%	5.0	119.3	5

Observations in ug/m^3

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 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2013	January					
	February					
	March					
	April					
	May					
	June					
	July					
	August					
	September	25	83.3%	8.2	24.4	0
	October	31	100.0%	5.8	18.4	0
	November	27	90.0%	7.5	15.6	0
	December	29	93.5%	8.1	18.1	0
Annual		112	30.7%	7.4	24.4	0

Observations in ug/m^3

4.4.2 Substation

The Substation monitoring station is located near the NALCOR substation to the north of the town of Wabush. The station monitors the ambient levels of TPM, PM_{10} and $PM_{2.5}$ on a 1 day in 6 day cycle. There were three exceedances of the 24-hour ambient air criteria for all three pollutants in 2012.

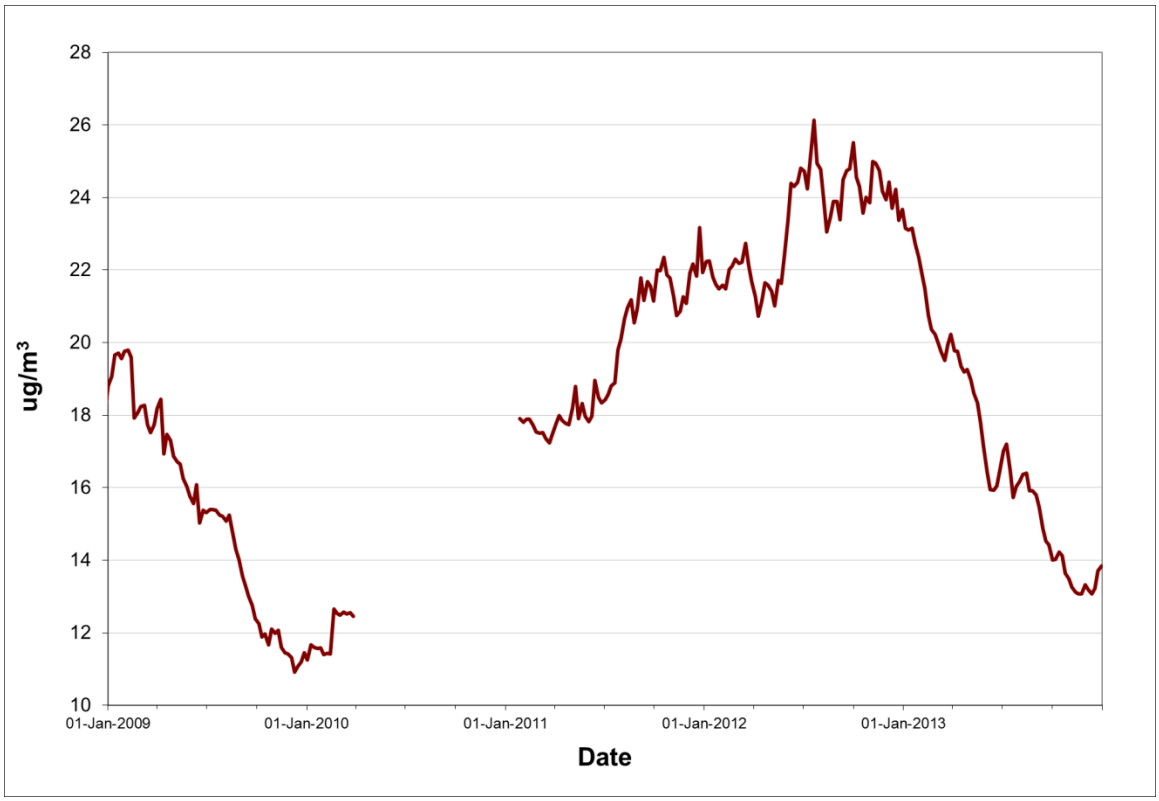
Tables 4.4.2.1 through 4.4.2.3 provide summary information on the level of air contaminants measured at the Substation, while Figures 4.4.2.1 through 4.4.2.3 provide a graphical representation of the annual trend of each air contaminant.

TABLE 4.4.2.1 - SUBSTATION TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2012	January	5	100.0%	11.0	21.0	0
	February	5	100.0%	22.9	78.6	0
	March	5	100.0%	12.0	42.3	0
	April	5	100.0%	22.5	51.7	0
	May	5	100.0%	68.4	168.0	1
	June	4	80.0%	196.1	413.6	3
	July	5	100.0%	68.7	547.0	2
	August	6	100.0%	24.0	110.3	0
	September	5	100.0%	40.8	124.5	1
	October	5	100.0%	13.7	29.8	0
	November	5	100.0%	10.8	33.7	0
	December	5	100.0%	5.1	7.4	0
Annual		60	98.4%	23.7	547.0	7
2013	January	5	100.0%	5.6	8.3	0
	February	5	100.0%	6.9	12.1	0
	March	5	100.0%	12.0	26.9	0
	April	5	100.0%	12.4	32.3	0
	May	5	100.0%	16.9	21.3	0
	June	5	100.0%	74.5	313.2	2
	July	5	100.0%	49.5	202.3	1
	August	5	100.0%	19.2	36.2	0
	September	5	100.0%	10.9	28.8	0
	October	4	66.7%	7.8	31.0	0
	November	5	100.0%	9.3	12.8	0
	December	5	100.0%	8.0	39.1	0
Annual		59	96.7%	13.8	313.2	3

Observations in ug/m^3

FIGURE 4.4.2.1 - SUBSTATION ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

TABLE 4.4.2.2 - SUBSTATION PM_{10} (DICHOT) SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>50 ug/m^3)
2012	January	5	100.0%	3.3	9.4	0
	February	5	100.0%	3.5	8.4	0
	March	4	80.0%	16.9	24.4	0
	April	0	0.0%			
	May	5	100.0%	18.5	30.1	0
	June	4	80.0%	27.9	54.8	1
	July	3	60.0%	25.5	64.2	1
	August	6	100.0%	18.4	33.4	0
	September	4	80.0%	17.9	36.5	0
	October	4	80.0%	4.0	6.8	0
	November	5	100.0%	14.1	31.8	0
	December	5	100.0%	3.2	6.1	0
Annual		50	82.0%	13.3	64.2	2
2013	January	4	80.0%	5.5	8.9	0
	February	5	100.0%	3.3	4.2	0
	March	5	100.0%	11.0	24.0	0
	April	5	100.0%	10.4	16.7	0
	May	5	100.0%	8.3	11.1	0
	June	5	100.0%	39.6	85.9	2
	July	5	100.0%	53.0	153.6	1
	August	4	80.0%	10.0	14.9	0
	September	5	100.0%	11.1	32.2	0
	October	6	100.0%	7.7	12.6	0
	November	5	100.0%	10.9	35.0	0
	December	5	100.0%	4.0	6.2	0
Annual		59	96.7%	14.7	153.6	3

Observations in ug/m^3

FIGURE 4.4.2.2 - SUBSTATION ANNUAL PM_{10} (DICHOT) CONCENTRATIONS

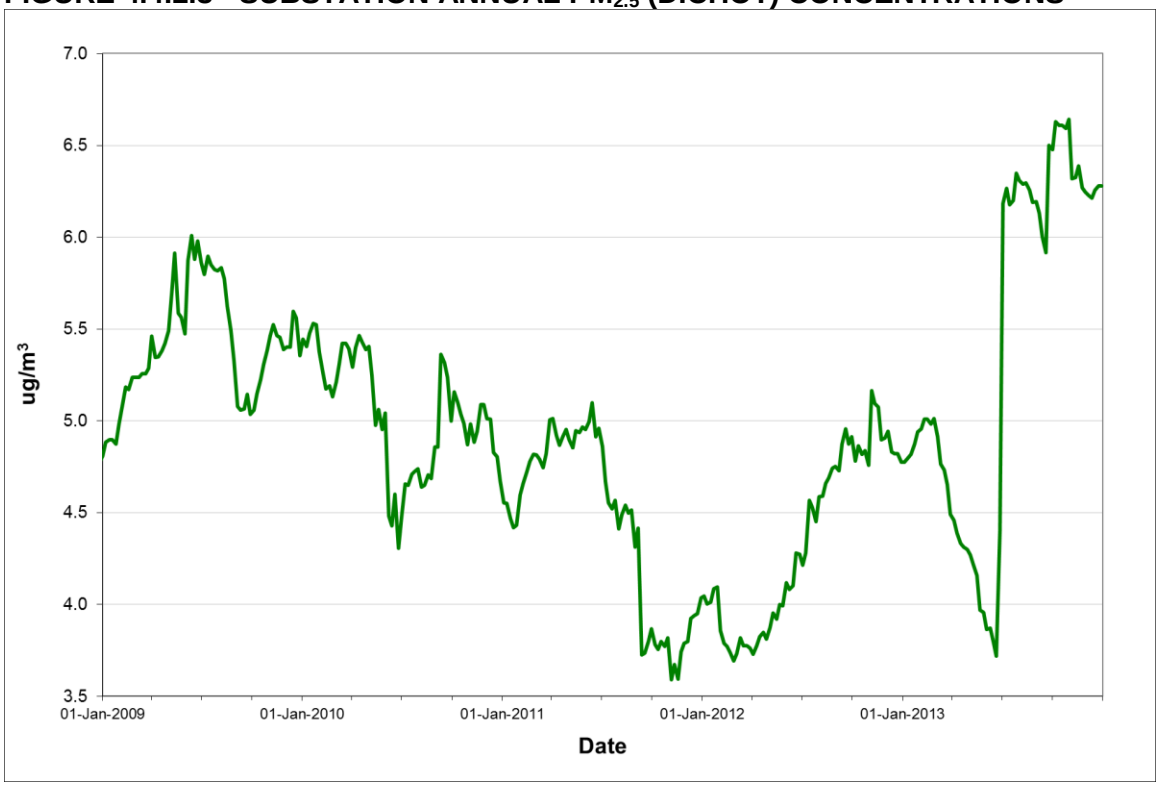
Rolling annual average of daily concentrations

TABLE 4.4.2.3 - SUBSTATION $PM_{2.5}$ (DICHOT) SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 ug/m^3)
2012	January	5	100.0%	1.6	3.9	0
	February	5	100.0%	1.5	3.0	0
	March	4	80.0%	6.9	10.2	0
	April	0	0.0%			
	May	5	100.0%	6.5	12.1	0
	June	4	80.0%	9.2	12.2	0
	July	3	60.0%	7.3	16.4	0
	August	6	100.0%	6.0	8.7	0
	September	4	80.0%	5.1	8.2	0
	October	4	80.0%	1.1	1.8	0
	November	5	100.0%	6.8	21.2	0
	December	5	100.0%	1.9	3.0	0
Annual		50	82.0%	4.8	21.2	0
2013	January	4	80.0%	2.9	6.7	0
	February	5	100.0%	2.2	3.4	0
	March	5	100.0%	1.3	2.1	0
	April	5	100.0%	2.4	3.6	0
	May	5	100.0%	2.7	4.3	0
	June	5	100.0%	13.1	43.2	1
	July	5	100.0%	28.7	101.2	1
	August	4	80.0%	4.8	7.9	0
	September	5	100.0%	7.8	34.9	1
	October	6	100.0%	4.4	9.7	0
	November	5	100.0%	2.1	4.7	0
	December	5	100.0%	2.3	3.5	0
Annual		59	96.7%	6.3	101.2	3

Observations in ug/m^3

FIGURE 4.4.2.3 - SUBSTATION ANNUAL $PM_{2.5}$ (DICHOT) CONCENTRATIONS

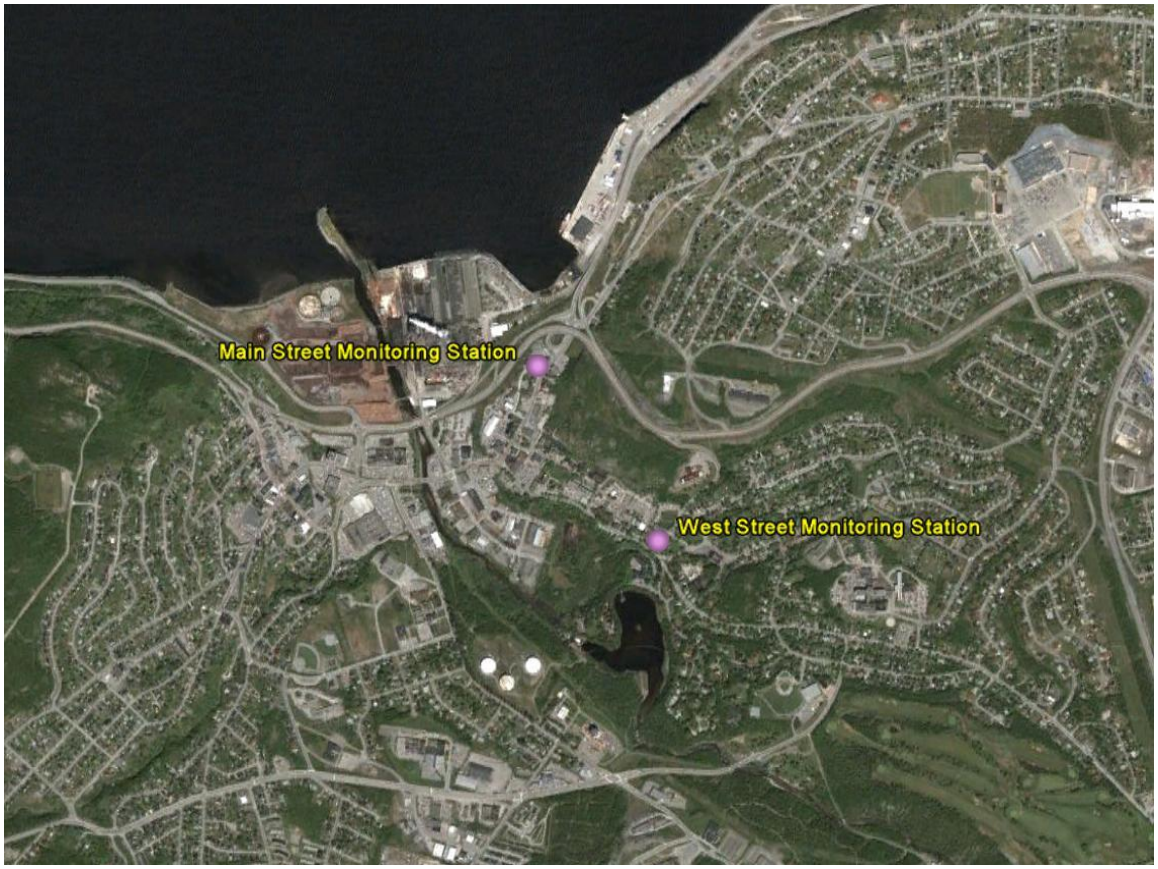


Rolling annual average of daily concentrations

4.5 Corner Brook Pulp and Paper

In 2013, Corner Brook Pulp and Paper (CBPP) operated monitoring stations at two locations in Corner Brook. These stations are installed to monitor the emissions from CBPP's paper mill operation and are located on Main Street and West Street. The locations of these monitoring stations are identified in Figure 4.5.1.

FIGURE 4.5.1 - CBPP AMBIENT MONITORING STATIONS



4.5.1 Main Street

The Main Street monitoring station is located at Hotel Corner Brook. The station monitors ambient levels of SO_2 and $PM_{2.5}$ on a continuous basis and TPM on a 1 day in 6 day cycle. For $PM_{2.5}$ and TPM, the 24-hour ambient air criteria were exceeded on three and one occasion respectively in 2013; the SO_2 criteria were not exceeded during the year.

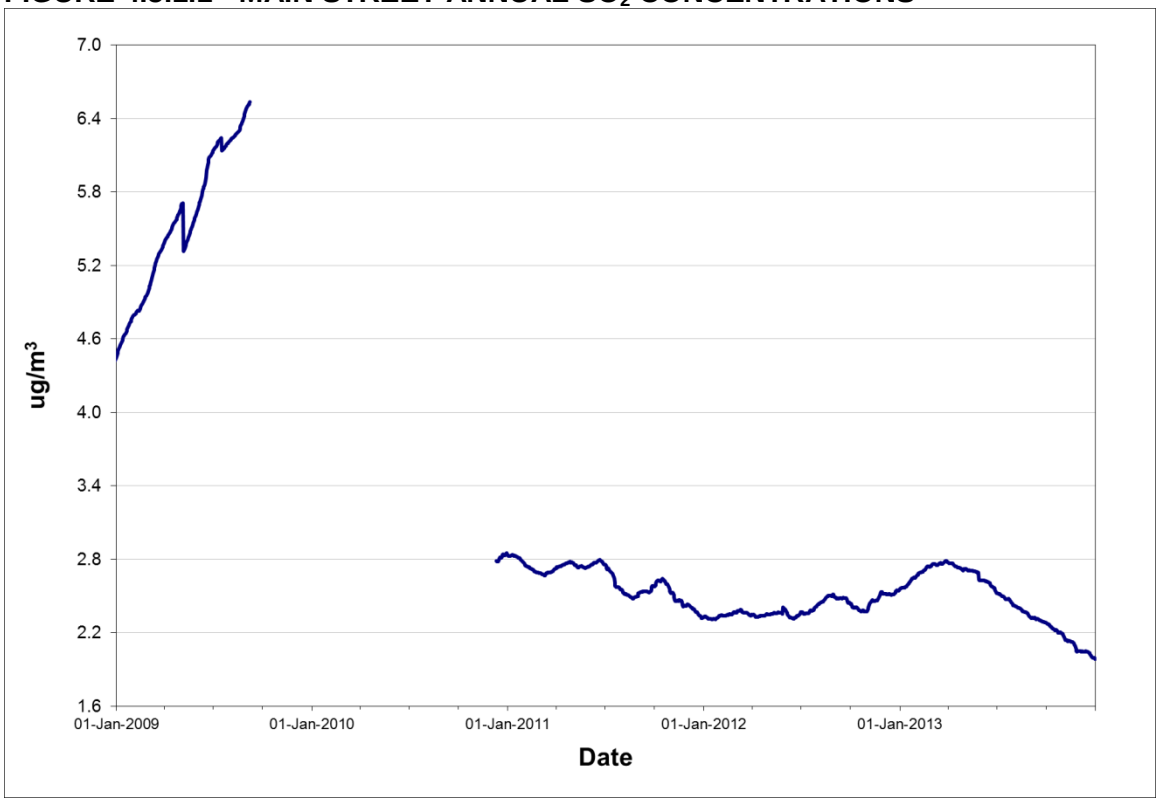
Tables 4.5.1.1 through 4.5.1.3 provide summary information on the level of air contaminants measured at the Main Street Station, while Figures 4.5.1.1 through 4.5.1.3 provide a graphical representation of the annual trend of each pollutant.

TABLE 4.5.1.1 - MAIN STREET SO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average	Maximum 1-Hour	Maximum 3-Hour	Maximum 24-Hour	Regulatory Exceedances 1-Hour (>900)	Regulatory Exceedances 3-Hour (>600)	Regulatory Exceedances 24-Hour (>300)
2012	January	744	100.0%	2.2	4.2	3.9	3.2	0	0	0
	February	696	100.0%	1.9	4.7	4.5	3.2	0	0	0
	March	741	99.6%	2.3	15.1	10.7	4.3	0	0	0
	April	714	99.2%	2.4	27.4	21.4	5.6	0	0	0
	May	742	99.7%	2.4	168.3	81.2	22.0	0	0	0
	June	715	99.3%	2.6	44.0	25.0	7.3	0	0	0
	July	706	94.9%	2.6	27.8	18.3	5.3	0	0	0
	August	707	95.0%	2.9	22.4	18.5	5.1	0	0	0
	September	717	99.6%	2.0	16.9	4.7	3.6	0	0	0
	October	744	100.0%	2.7	7.2	5.4	4.6	0	0	0
	November	711	98.8%	4.2	24.9	11.6	7.7	0	0	0
	December	671	90.2%	2.5	6.6	6.4	4.5	0	0	0
Annual		8608	98.0%	2.6	168.3	81.2	22.0	0	0	0
2013	January	694	93.3%	3.4	6.3	6.0	5.8	0	0	0
	February	670	99.7%	3.0	9.5	7.1	6.4	0	0	0
	March	742	99.7%	2.6	5.3	5.1	4.0	0	0	0
	April	703	97.6%	1.7	5.3	5.2	3.2	0	0	0
	May	740	99.5%	1.4	5.4	4.8	2.8	0	0	0
	June	717	99.6%	1.4	3.5	3.0	2.1	0	0	0
	July	735	98.8%	1.5	6.7	4.2	2.3	0	0	0
	August	744	100.0%	1.8	3.1	2.9	2.5	0	0	0
	September	720	100.0%	1.5	5.3	5.1	2.3	0	0	0
	October	741	99.6%	1.6	6.5	4.7	3.0	0	0	0
	November	712	98.9%	2.5	7.5	5.8	4.3	0	0	0
	December	736	98.9%	1.7	17.4	3.5	3.1	0	0	0
Annual		8654	98.8%	2.0	17.4	7.1	6.4	0	0	0

Observations in ug/m^3

FIGURE 4.5.1.1 - MAIN STREET ANNUAL SO_2 CONCENTRATIONS



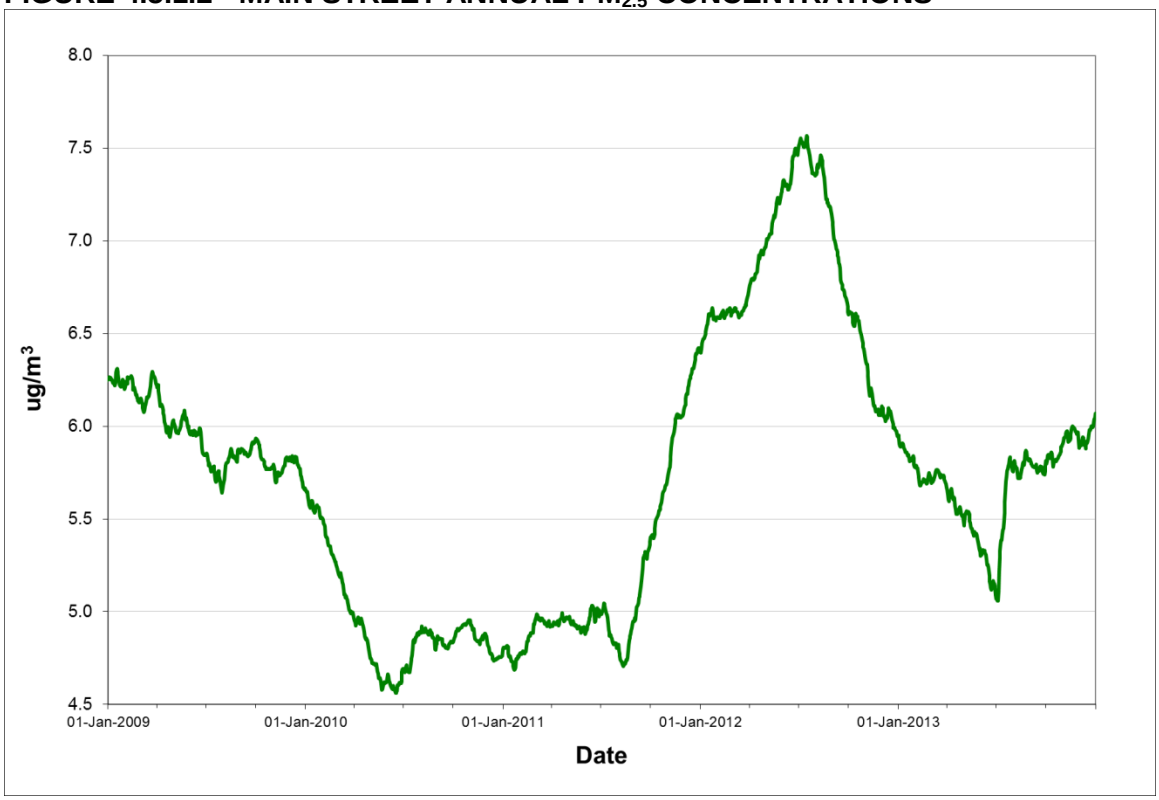
Rolling annual average of hourly concentrations

TABLE 4.5.1.2 - MAIN STREET $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	30	96.8%	6.4	13.3	0
	February	29	100.0%	5.4	10.3	0
	March	13	41.9%	4.5	11.0	0
	April	30	100.0%	7.0	15.6	0
	May	31	100.0%	7.6	14.2	0
	June	30	100.0%	9.1	19.1	0
	July	24	77.4%	6.3	17.2	0
	August	31	100.0%	6.2	14.3	0
	September	30	100.0%	4.5	11.9	0
	October	27	87.1%	4.1	19.7	0
	November	30	100.0%	4.5	16.1	0
	December	30	96.8%	4.7	17.0	0
Annual		335	91.5%	5.9	19.7	0
2013	January	16	51.6%	3.8	13.3	0
	February	26	92.9%	4.7	11.0	0
	March	23	74.2%	4.1	10.8	0
	April	30	100.0%	5.4	14.5	0
	May	31	100.0%	5.6	12.8	0
	June	30	100.0%	6.5	18.3	0
	July	31	100.0%	13.3	41.7	3
	August	31	100.0%	6.9	21.5	0
	September	30	100.0%	4.0	11.6	0
	October	31	100.0%	5.6	14.2	0
	November	27	90.0%	4.6	11.8	0
	December	31	100.0%	6.3	14.5	0
Annual		337	92.3%	6.1	41.7	3

Observations in ug/m^3

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



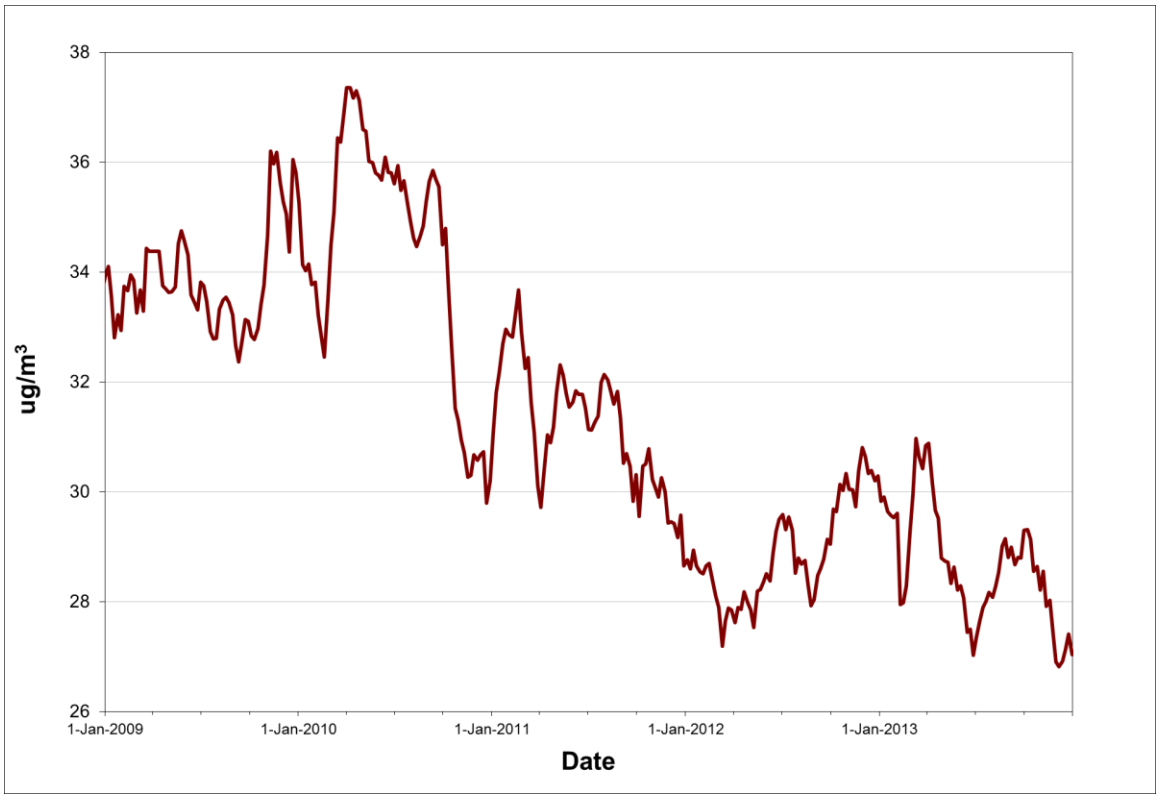
Rolling annual average of daily concentrations

TABLE 4.5.1.3 - MAIN STREET TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2012	January	5	100.0%	20.8	35.4	0
	February	5	100.0%	16.6	22.8	0
	March	5	100.0%	28.4	71.2	0
	April	4	80.0%	104.0	146.3	1
	May	4	80.0%	56.4	89.2	0
	June	5	100.0%	52.1	77.5	0
	July	3	60.0%	24.8	39.8	0
	August	5	83.3%	27.4	69.4	0
	September	4	80.0%	28.1	53.3	0
	October	4	80.0%	23.5	30.8	0
	November	5	100.0%	33.4	61.3	0
	December	5	100.0%	16.6	20.7	0
Annual		54	88.5%	30.3	146.3	1
2013	January	5	100.0%	15.8	18.8	0
	February	5	100.0%	15.0	104.4	0
	March	3	60.0%	69.1	147.0	1
	April	5	100.0%	39.5	85.3	0
	May	5	100.0%	39.5	59.5	0
	June	5	100.0%	32.7	69.6	0
	July	5	100.0%	41.0	63.2	0
	August	5	100.0%	40.0	57.7	0
	September	2	40.0%	23.6	37.4	0
	October	6	100.0%	19.5	51.8	0
	November	5	100.0%	19.6	39.8	0
	December	3	60.0%	13.1	19.2	0
Annual		54	88.5%	27.0	147.0	1

Observations in ug/m^3

FIGURE 4.5.1.3 - MAIN STREET ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.5.2 West Street

The West Street monitoring station is located at the Western Star building. The station monitors ambient levels TPM on a 1 day in 6 day cycle. The ambient air criterion was exceeded on two occasions in 2013.

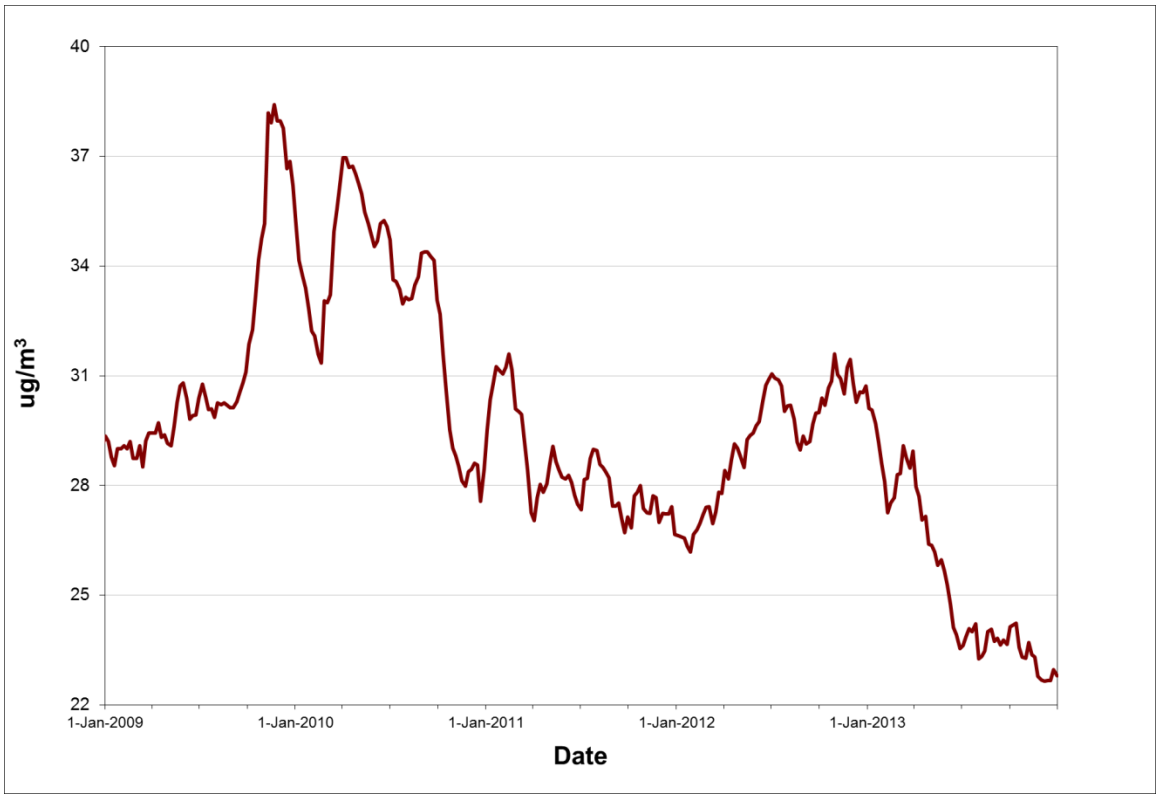
Tables 4.5.2.1 provides summary information on the level of air contaminants measured at the West Street Station, while Figure 4.5.2.1 provides a graphical representation of the annual trend.

TABLE 4.5.2.1 - WEST STREET TPM SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120 ug/m^3)
2012	January	5	100.0%	13.7	25.0	0
	February	4	80.0%	18.3	26.3	0
	March	4	80.0%	35.0	76.4	0
	April	5	100.0%	118.1	245.1	2
	May	4	80.0%	59.5	84.8	0
	June	5	100.0%	55.9	79.7	0
	July	3	60.0%	22.3	33.4	0
	August	6	100.0%	25.6	55.1	0
	September	4	80.0%	26.0	36.0	0
	October	4	80.0%	27.5	36.0	0
	November	5	100.0%	28.0	74.8	0
	December	4	80.0%	13.9	17.6	0
Annual		53	86.9%	30.7	245.1	2
2013	January	5	100.0%	6.4	12.5	0
	February	5	100.0%	17.8	89.1	0
	March	3	60.0%	47.2	135.6	1
	April	5	100.0%	43.7	140.6	1
	May	5	100.0%	37.3	81.6	0
	June	5	100.0%	21.6	42.7	0
	July	5	100.0%	31.5	47.1	0
	August	5	100.0%	21.9	46.5	0
	September	2	40.0%	23.8	31.8	0
	October	6	100.0%	22.1	62.9	0
	November	5	100.0%	20.9	29.5	0
	December	3	60.0%	13.0	16.3	0
Annual		54	88.5%	22.8	140.6	2

Observations in ug/m^3

FIGURE 4.5.2.1 - WEST STREET ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.6 VALE Newfoundland and Labrador Limited - Voisey's Bay

In 2013, VALE Newfoundland and Labrador Limited (VALE) operated monitoring stations at three locations at its Voisey's Bay mine site. These stations are installed to monitor the emissions from VALE's mining operation and port activities and are located at the Accommodation unit, the Crusher and the concentrate storage facility near the Port. The locations of these monitoring stations are identified in Figure 4.6.1.

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

4.6.1 Accommodation Unit

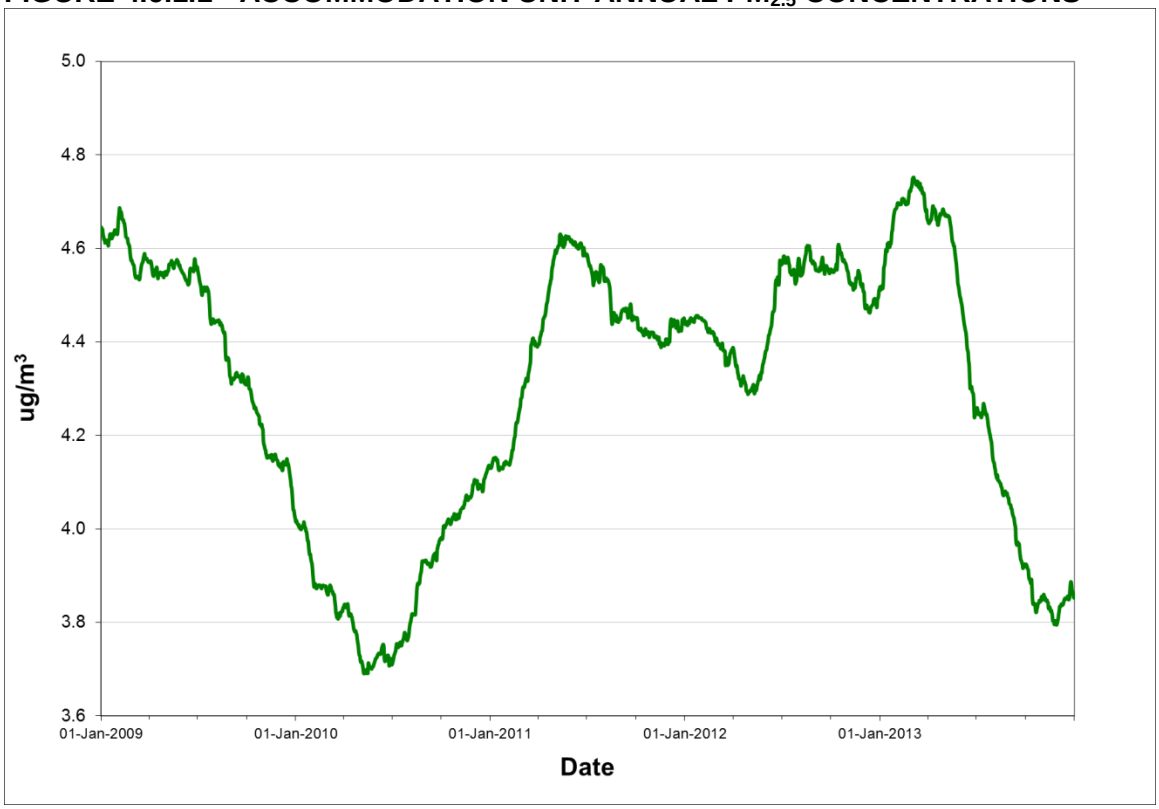
The Accommodation Unit station monitors the ambient levels of $PM_{2.5}$ and NO_x / NO_2 on a continuous basis. For all pollutants, the ambient air criteria were not exceeded on any occasion in 2013. Tables 4.6.1.1 through 4.6.1.2 provide summary information on the level of air contaminants measured 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 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 ug/m^3)
2012	January	22	71.0%	4.6	7.3	0
	February	13	44.8%	4.9	6.3	0
	March	29	93.5%	5.5	11.4	0
	April	30	100.0%	4.5	10.0	0
	May	31	100.0%	5.2	7.1	0
	June	29	96.7%	5.6	13.8	0
	July	31	100.0%	4.1	9.1	0
	August	31	100.0%	4.0	6.2	0
	September	29	96.7%	4.1	11.0	0
	October	27	87.1%	3.3	11.8	0
	November	30	100.0%	3.7	8.2	0
	December	31	100.0%	4.7	8.3	0
Annual		333	91.0%	4.5	13.8	0
2013	January	24	77.4%	7.0	13.1	0
	February	22	78.6%	5.5	7.7	0
	March	31	100.0%	4.7	8.8	0
	April	29	96.7%	4.7	6.8	0
	May	31	100.0%	3.2	6.1	0
	June	30	100.0%	2.7	5.4	0
	July	31	100.0%	3.0	7.9	0
	August	23	74.2%	2.5	6.0	0
	September	30	100.0%	2.6	5.8	0
	October	27	87.1%	2.5	5.1	0
	November	30	100.0%	3.1	6.3	0
	December	29	93.5%	5.4	8.5	0
Annual		337	92.3%	3.9	13.1	0

Observations in ug/m^3

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



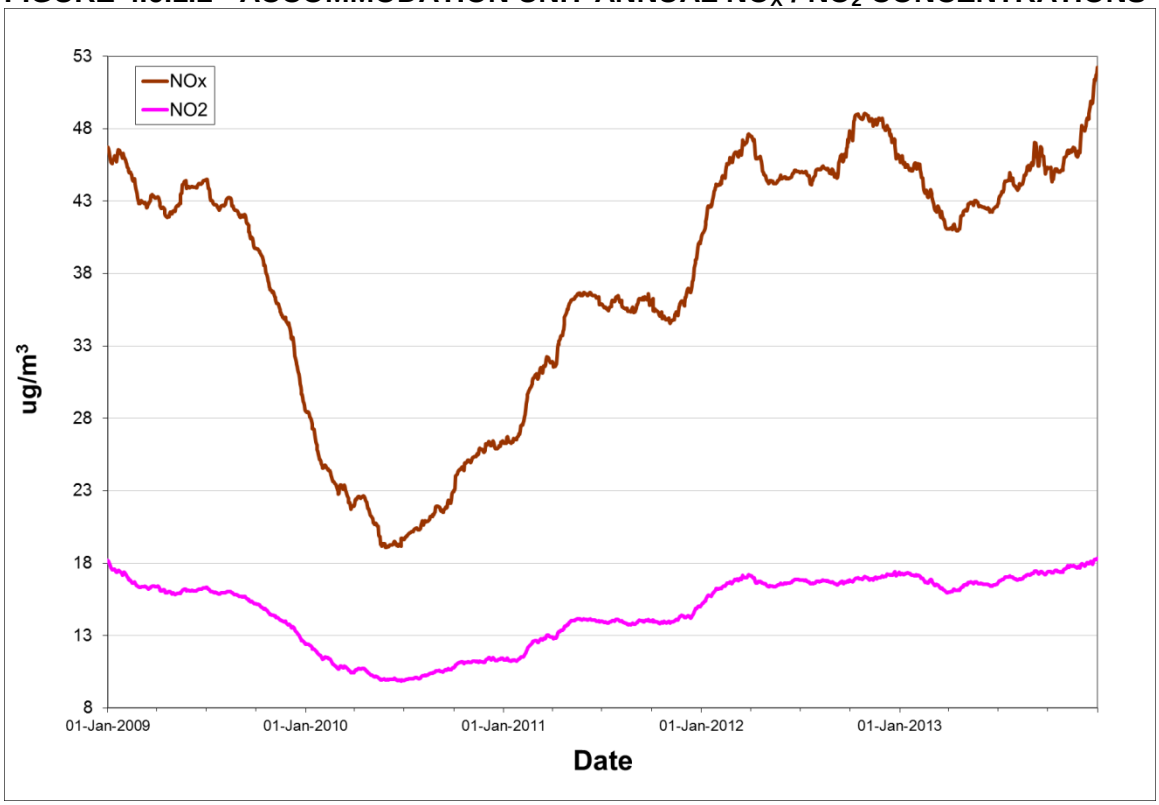
Rolling annual average of daily concentrations

TABLE 4.6.1.2 - ACCOMMODATION UNIT NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	707	95.0%	82.3	30.3	556.3	101.0	184.4	56.9	0	0
	February	668	96.0%	89.0	30.8	787.8	106.2	237.2	48.3	0	0
	March	711	95.6%	62.5	23.7	532.2	90.1	192.2	57.1	0	0
	April	690	95.8%	26.5	12.8	351.2	82.1	112.0	35.3	0	0
	May	708	95.2%	22.9	10.4	374.2	66.8	66.8	25.5	0	0
	June	647	89.9%	13.5	7.9	183.6	59.8	60.1	23.9	0	0
	July	684	91.9%	26.0	7.9	512.3	65.1	162.6	32.9	0	0
	August	684	91.9%	19.7	7.7	466.5	43.6	131.5	25.7	0	0
	September	654	90.8%	75.7	16.3	669.5	94.3	268.3	37.4	0	0
	October	667	89.7%	39.0	13.0	735.2	68.0	270.4	34.1	0	0
	November	691	96.0%	42.9	18.6	740.0	77.8	130.4	36.9	0	0
	December	696	93.5%	51.5	27.4	318.5	78.4	104.9	55.9	0	0
Annual		8207	93.4%	46.0	17.3	787.8	106.2	270.4	57.1	0	0
2013	January	713	95.8%	77.2	29.2	456.7	86.7	180.4	44.7	0	0
	February	448	66.7%	73.2	30.5	462.2	92.3	164.8	41.0	0	0
	March	708	95.2%	35.1	14.2	541.8	75.4	172.6	32.6	0	0
	April	673	93.5%	40.9	18.7	710.4	108.3	189.1	46.9	0	0
	May	710	95.4%	26.4	11.5	533.9	94.9	166.2	49.2	0	0
	June	690	95.8%	17.2	8.6	268.1	90.2	60.7	25.9	0	0
	July	711	95.6%	40.8	11.8	541.4	60.6	162.4	34.7	0	0
	August	720	96.8%	38.3	12.0	498.8	52.1	129.2	25.9	0	0
	September	693	96.3%	69.3	17.8	721.8	73.4	299.0	46.4	0	0
	October	718	96.5%	48.6	15.7	852.6	73.4	207.2	40.5	0	0
	November	707	98.2%	55.6	20.9	911.0	116.6	270.1	50.7	0	0
	December	727	97.7%	109.5	33.2	682.4	99.0	243.8	53.1	0	0
Annual		8218	93.8%	52.2	18.3	911.0	116.6	299.0	53.1	0	0

Observations in ug/m^3

FIGURE 4.6.1.2 - ACCOMMODATION UNIT ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.6.2 Crusher Site

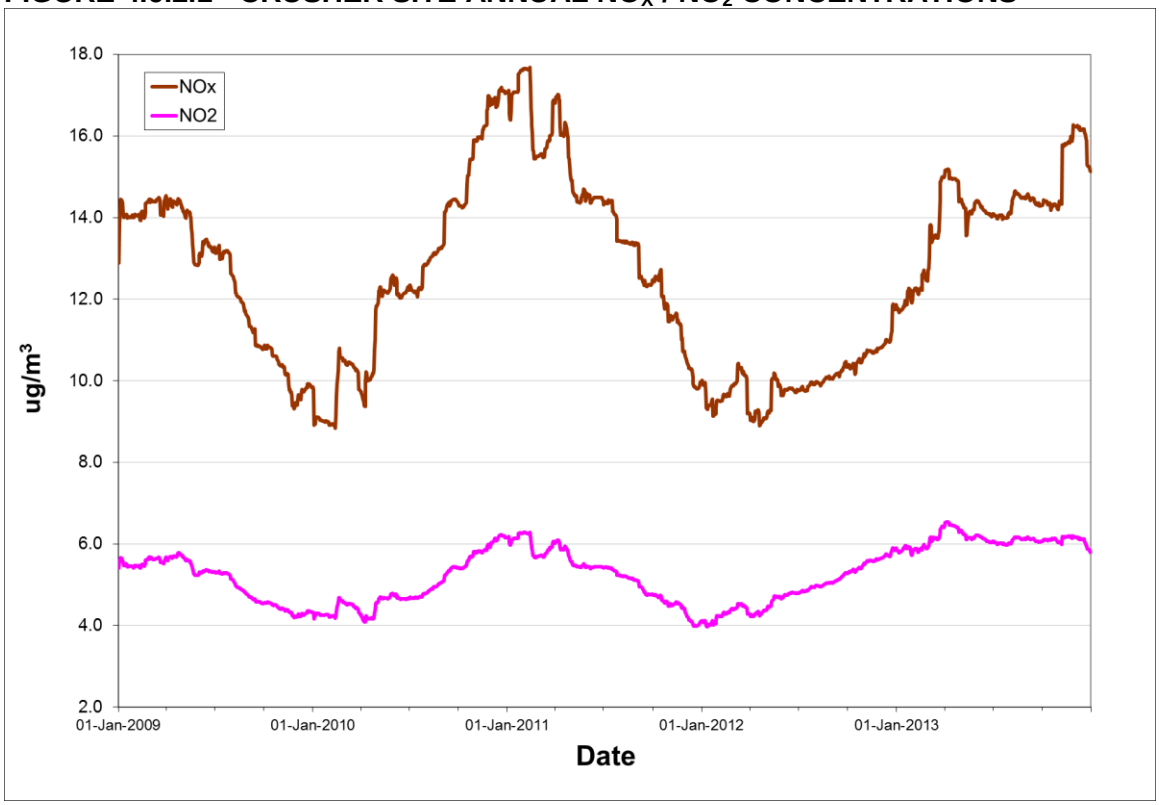
The Crusher Site station monitors the ambient levels of NO_x / NO_2 on a continuous basis. The ambient air criteria were not exceeded on any occasion in 2013. Table 4.6.2.1 provides summary information on the level of air contaminants measured at the Crusher Site, while Figure 4.6.2.1 provides a graphical representation of the annual trend.

TABLE 4.6.2.1 - CRUSHER SITE NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	692	93.0%	11.5	7.0	206.9	66.9	54.7	31.2	0	0
	February	641	92.1%	8.4	4.6	324.1	58.6	38.8	17.6	0	0
	March	644	86.6%	10.0	4.9	460.0	60.0	133.4	28.1	0	0
	April	657	91.3%	16.0	7.1	584.7	82.3	177.8	36.7	0	0
	May	694	93.3%	17.9	7.8	627.2	66.0	239.8	39.3	0	0
	June	568	78.9%	10.7	6.2	302.6	56.7	35.3	13.5	0	0
	July	682	91.7%	9.2	5.4	109.0	29.6	40.9	11.0	0	0
	August	686	92.2%	9.2	4.7	137.2	47.9	25.8	10.0	0	0
	September	617	85.7%	9.4	4.8	208.9	28.3	32.9	12.1	0	0
	October	651	87.5%	13.3	6.1	472.7	59.6	86.5	15.3	0	0
	November	690	95.8%	8.7	5.2	179.9	55.4	28.0	13.9	0	0
	December	696	93.5%	17.0	6.5	650.5	75.5	216.8	25.9	0	0
Annual		7918	90.1%	11.8	5.9	650.5	82.3	239.8	39.3	0	0
2013	January	681	91.5%	15.4	6.4	493.2	69.7	115.4	27.2	0	0
	February	644	95.8%	11.9	5.3	488.5	66.3	139.2	28.2	0	0
	March	708	95.2%	39.1	11.0	595.7	89.5	274.0	45.9	0	0
	April	686	95.3%	9.2	5.8	139.8	74.1	44.7	31.1	0	0
	May	709	95.3%	17.6	6.6	443.9	78.3	81.7	17.3	0	0
	June	678	94.2%	7.5	4.4	94.3	46.4	21.1	10.1	0	0
	July	712	95.7%	9.7	4.8	122.4	31.1	23.5	10.8	0	0
	August	709	95.3%	13.3	5.9	228.8	36.1	67.8	16.8	0	0
	September	690	95.8%	8.0	4.3	219.5	48.8	26.5	14.5	0	0
	October	713	95.8%	12.1	5.9	159.0	42.8	39.7	13.2	0	0
	November	614	85.3%	35.6	6.9	963.7	391.0	478.5	49.2	0	0
	December	688	92.5%	3.6	2.0	169.3	61.3	29.1	15.8	0	0
Annual		8232	94.0%	15.1	5.8	963.7	391.0	478.5	49.2	0	0

Observations in ug/m^3

FIGURE 4.6.2.1 - CRUSHER SITE ANNUAL NO_X / NO_2 CONCENTRATIONS



Rolling annual average of hourly concentrations

4.6.3 Port Site

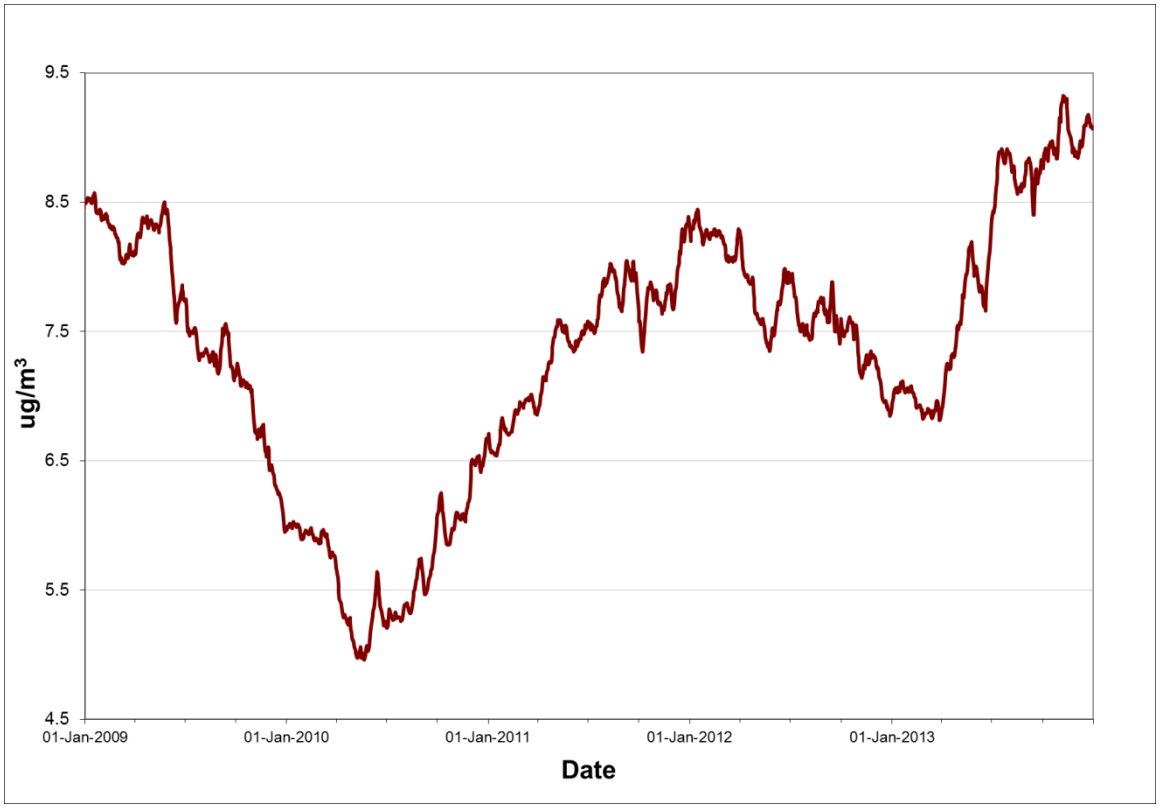
The Port Site station monitors the ambient levels of TPM on a continuous basis. The 24-hour ambient air criterion was exceeded on five occasions in 2013. Owing to technical problems with the BAM, the unit was replaced with a TEOM in March 2013. In November, the monitor was moved to a nearby location to minimize local influences. 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 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>120ug/m^3)
2012	January	31	100.0%	4.5	28.1	0
	February	29	100.0%	5.4	59.7	0
	March	30	96.8%	8.5	33.7	0
	April	30	100.0%	4.2	29.5	0
	May	31	100.0%	4.4	83.2	0
	June	30	100.0%	9.8	84.6	0
	July	29	93.5%	6.4	66.7	0
	August	30	96.8%	11.9	49.2	0
	September	30	100.0%	12.6	273.7	3
	October	28	90.3%	4.7	38.8	0
	November	26	86.7%	11.9	111.5	0
	December	23	74.2%	5.7	27.6	0
Annual		347	94.8%	7.5	273.7	3
2013	January	17	54.8%	4.8	8.3	0
	February	22	78.6%	3.3	7.3	0
	March	18	58.1%	10.5	32.7	0
	April	30	100.0%	11.3	57.4	0
	May	31	100.0%	7.4	35.5	0
	June	30	100.0%	17.1	713.5	2
	July	31	100.0%	11.8	50.0	0
	August	31	100.0%	10.2	102.3	0
	September	30	100.0%	13.0	218.0	1
	October	31	100.0%	7.7	174.5	2
	November	19	63.3%	7.9	50.5	0
	December	30	96.8%	8.0	42.1	0
Annual		320	87.7%	9.8	713.5	5

Observations in ug/m^3

FIGURE 4.6.3.1 - PORT SITE ANNUAL TPM CONCENTRATIONS



Rolling annual average of daily concentrations

4.7 VALE Newfoundland and Labrador - Long Harbour

VALE operates a monitoring network in the Long Harbour / Mt. Arlington Heights area to monitor the background concentrations and the eventual emissions from the Hydromet Nickel Processing facility currently being constructed by VALE. The network monitors levels of NO_x / NO_2 as well as $PM_{2.5}$. In 2013, VALE operated three stations; near the Community Centre in Long Harbour, along the Main Road in Long harbour, and near the Access Road to the Hydromet facility. The location of the stations is shown in Figure 4.7.1.

FIGURE 4.7.1 - VALE / LONG HARBOUR AMBIENT MONITORING STATIONS

4.7.1 Community Centre (AM1)

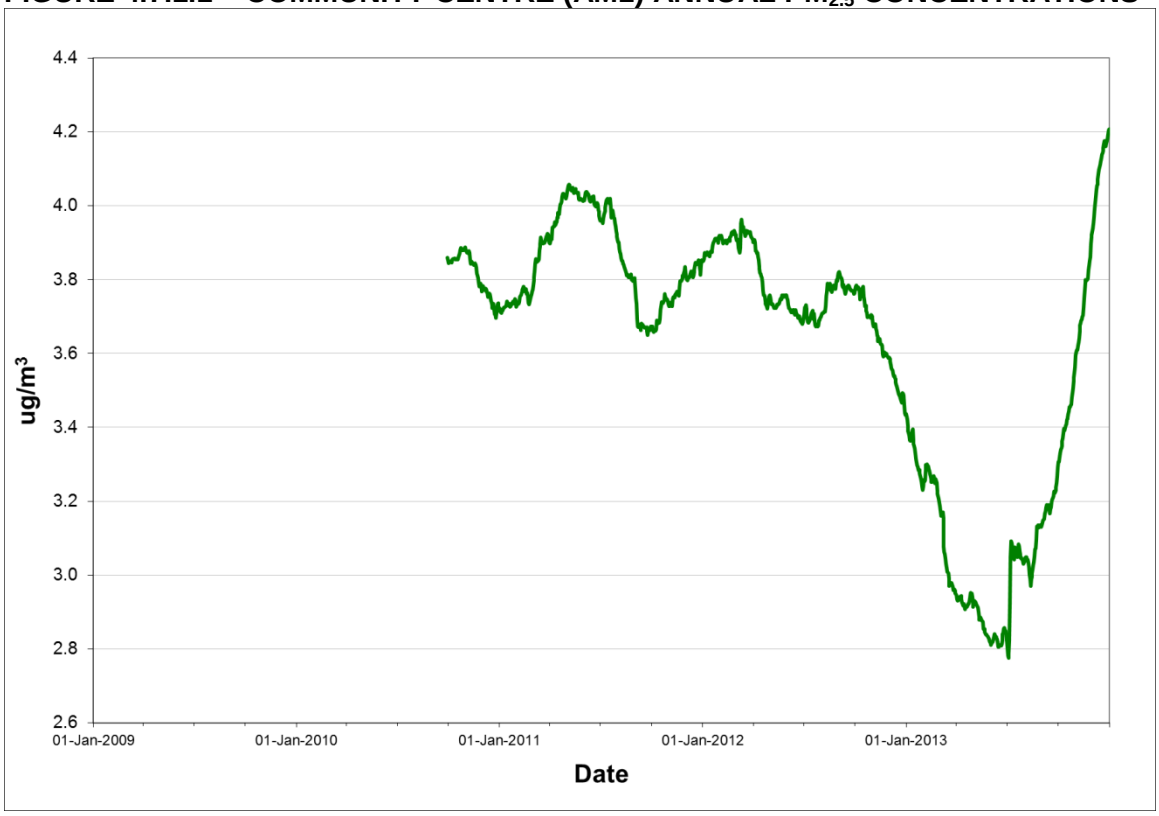
The Community Centre (AM1) station was the first station installed in the area and monitors the ambient levels of $PM_{2.5}$ and NO_x / NO_2 on a continuous basis. The 24-hour ambient air criterion for $PM_{2.5}$ was exceeded on two occasions in 2013, while the ambient air criteria for NO_x / NO_2 was not exceeded in 2013. 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 on the annual trend in $PM_{2.5}$. The NO_x / NO_2 monitor experienced prolonged episodes of baseline shifting in 2010 and 2011, resulting in most of the data being invalidated for both years.

TABLE 4.7.1.1 - COMMUNITY CENTRE (AM1) $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	4.8	11.0	0
	February	29	100.0%	3.9	10.1	0
	March	31	100.0%	5.1	28.8	1
	April	30	100.0%	3.6	6.8	0
	May	29	93.5%	3.3	7.6	0
	June	30	100.0%	2.3	5.6	0
	July	31	100.0%	4.4	11.0	0
	August	31	100.0%	4.2	10.8	0
	September	28	93.3%	2.8	6.3	0
	October	30	96.8%	2.4	6.9	0
	November	25	83.3%	2.6	5.4	0
	December	31	100.0%	1.8	8.0	0
Annual		356	97.3%	3.4	28.8	1
2013	January	31	100.0%	2.5	13.0	0
	February	28	100.0%	3.5	12.5	0
	March	31	100.0%	2.1	7.0	0
	April	30	100.0%	3.3	6.8	0
	May	28	90.3%	2.0	5.2	0
	June	29	96.7%	2.3	8.9	0
	July	24	77.4%	7.8	48.2	2
	August	25	80.6%	5.8	17.0	0
	September	27	90.0%	4.8	9.8	0
	October	31	100.0%	5.4	8.0	0
	November	27	90.0%	7.2	16.1	0
	December	10	32.3%	6.4	8.5	0
Annual		321	87.9%	4.2	48.2	2

Observations in ug/m^3

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



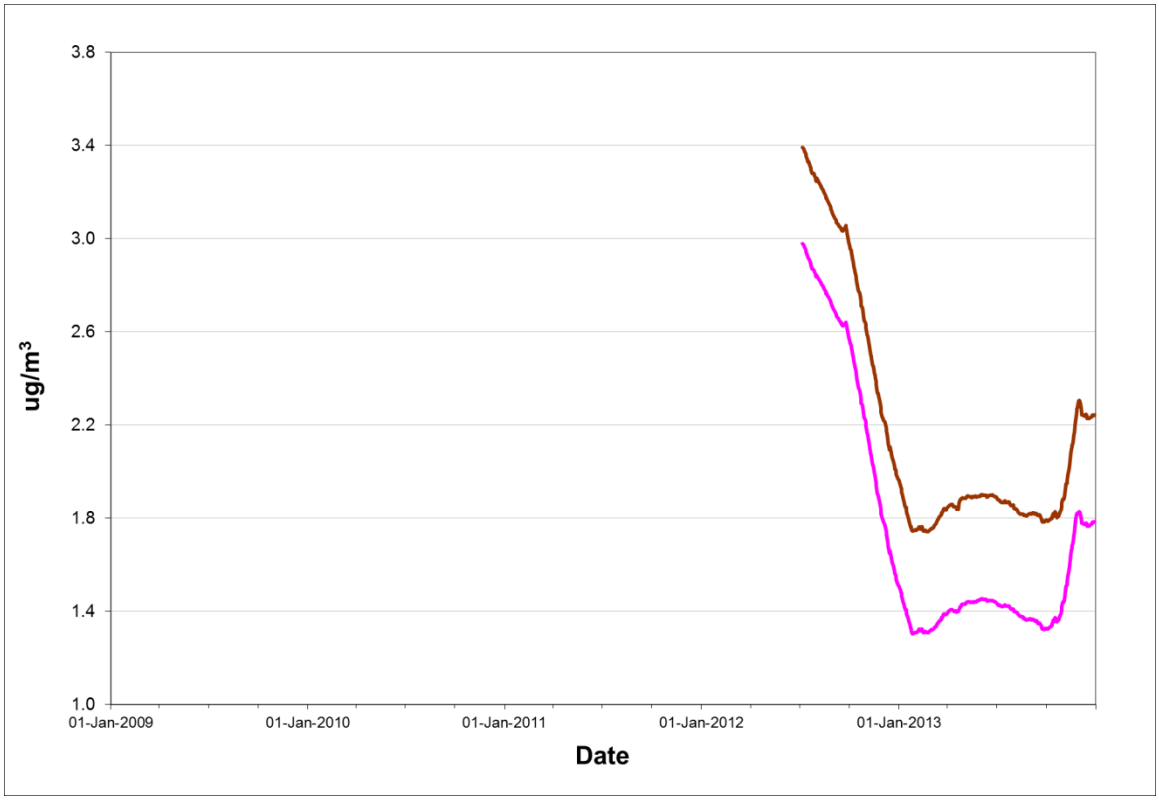
Rolling annual average of daily concentrations

TABLE 4.7.1.2 - COMMUNITY CENTRE (AM1) NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	703	94.5%	4.3	3.7	18.2	13.5	7.5	6.6	0	0
	February	663	95.3%	1.6	1.2	14.3	11.7	5.8	5.1	0	0
	March	712	95.7%	1.4	1.1	13.9	12.2	3.1	2.6	0	0
	April	686	95.3%	1.7	1.3	13.4	11.9	3.2	2.4	0	0
	May	709	95.3%	1.3	0.9	10.5	9.0	2.7	2.1	0	0
	June	689	95.7%	1.4	1.1	15.4	10.9	3.3	2.6	0	0
	July	715	96.1%	1.7	1.3	14.2	10.2	3.6	2.5	0	0
	August	707	95.0%	1.6	1.4	27.8	15.2	6.7	4.6	0	0
	September	680	94.4%	2.1	1.5	15.9	10.5	5.3	4.2	0	0
	October	687	92.3%	2.6	1.8	25.6	15.0	5.7	4.2	0	0
	November	684	95.0%	1.7	1.3	16.8	14.0	3.8	3.2	0	0
	December	713	95.8%	2.2	1.6	30.0	33.3	8.7	7.1	0	0
Annual		8348	95.0%	2.0	1.5	30.0	33.3	8.7	7.1	0	0
2013	January	714	96.0%	1.7	1.3	29.1	20.2	7.0	5.4	0	0
	February	643	95.7%	1.6	1.4	23.7	21.5	3.7	3.3	0	0
	March	740	99.5%	2.5	1.9	47.2	23.3	3.7	3.2	0	0
	April	553	76.8%	2.3	1.8	96.7	28.7	10.7	4.7	0	0
	May	723	97.2%	1.5	1.1	12.9	12.2	2.3	2.1	0	0
	June	692	96.1%	1.3	1.0	30.9	10.9	3.2	1.9	0	0
	July	705	94.8%	1.3	1.0	10.6	7.8	2.5	2.2	0	0
	August	691	92.9%	1.2	0.8	10.1	7.0	2.0	1.7	0	0
	September	717	99.6%	1.8	1.1	10.3	7.0	3.8	2.8	0	0
	October	743	99.9%	3.4	2.9	14.6	12.7	7.9	7.2	0	0
	November	716	99.4%	6.6	5.8	21.0	19.1	13.0	12.8	0	0
	December	742	99.7%	1.5	1.1	24.8	15.3	3.6	2.5	0	0
Annual		8379	95.7%	2.2	1.8	96.7	28.7	13.0	12.8	0	0

Observations in ug/m^3

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



Rolling annual average of hourly concentrations

4.7.2 Main Road (AM2)

The Main Road (AM2) station was installed in 2010 and monitors the ambient levels of $PM_{2.5}$ and NO_x / NO_2 on a continuous basis. The $PM_{2.5}$ ambient air criterion was exceeded on four occasions in 2013 while there were no exceedances of the NO_x / NO_2 criteria. Tables 4.7.2.1 and 4.7.2.2 provide summary information on the level of air contaminants measured at the Main Road (AM2) site, while Figures 4.7.2.1 and 4.7.2.2 provide a graphical representation of the annual trend for pollutants.

TABLE 4.7.2.1 - MAIN ROAD (AM2) $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	5.3	10.1	0
	February	29	100.0%	4.0	9.4	0
	March	31	100.0%	4.8	20.3	0
	April	30	100.0%	3.2	6.7	0
	May	31	100.0%	3.3	8.0	0
	June	30	100.0%	2.6	6.4	0
	July	31	100.0%	5.0	11.5	0
	August	31	100.0%	5.0	11.6	0
	September	30	100.0%	2.9	7.0	0
	October	26	83.9%	2.8	6.1	0
	November	26	86.7%	3.8	11.7	0
	December	31	100.0%	4.4	12.7	0
Annual		357	97.5%	3.9	20.3	0
2013	January	31	100.0%	5.6	11.4	0
	February	28	100.0%	6.7	16.9	0
	March	31	100.0%	5.5	10.9	0
	April	30	100.0%	6.7	13.1	0
	May	31	100.0%	4.6	9.3	0
	June	30	100.0%	5.4	14.4	0
	July	27	87.1%	10.2	53.0	2
	August	31	100.0%	6.4	18.2	0
	September	30	100.0%	4.0	8.7	0
	October	31	100.0%	3.9	6.9	0
	November	25	83.3%	7.3	16.7	0
	December	31	100.0%	9.9	46.4	2
Annual		356	97.5%	6.3	53.0	4

Observations in ug/m^3

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

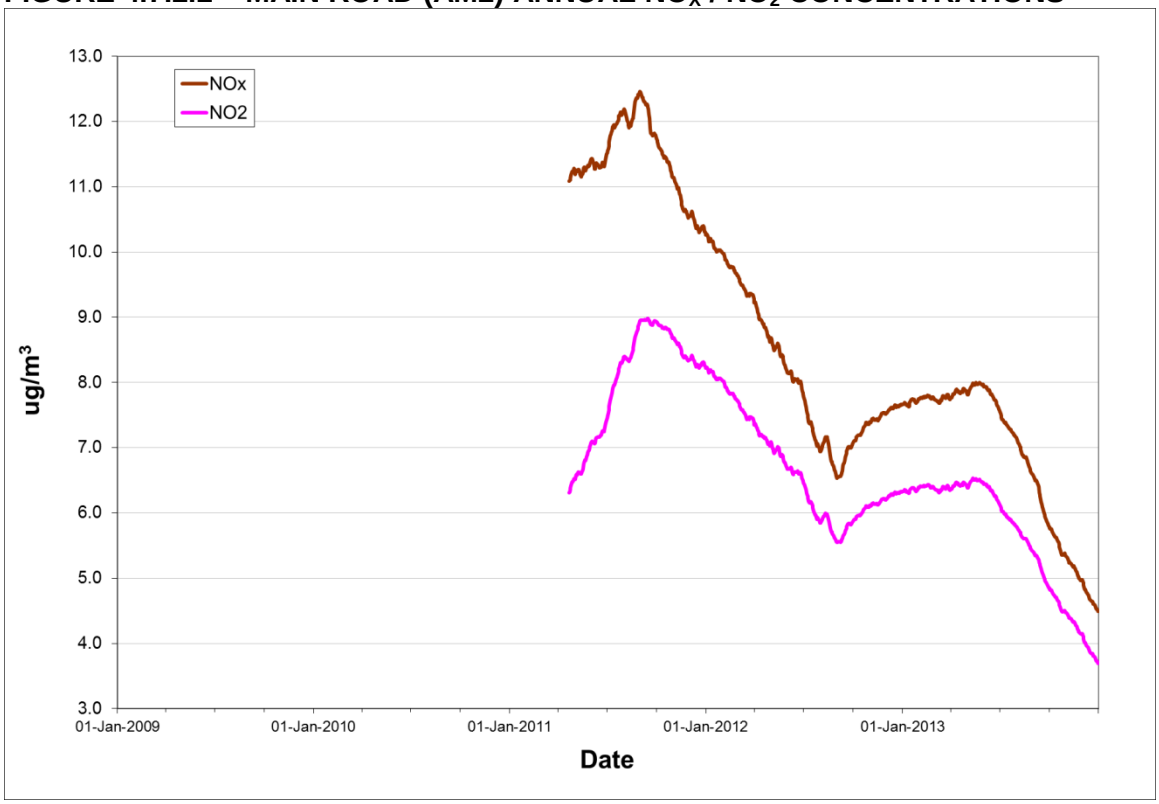
Rolling annual average of daily concentrations

TABLE 4.7.2.2 - MAIN ROAD (AM2) NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	714	96.0%	6.8	6.0	38.5	33.5	14.1	11.9	0	0
	February	664	95.4%	5.3	4.8	26.3	22.5	9.3	8.3	0	0
	March	712	95.7%	6.1	5.5	31.7	29.3	15.6	14.2	0	0
	April	673	93.5%	8.3	7.5	29.0	24.9	13.8	12.6	0	0
	May	707	95.0%	6.1	5.6	34.7	29.9	14.4	12.8	0	0
	June	689	95.7%	6.8	5.7	35.1	26.2	13.5	11.0	0	0
	July	710	95.4%	8.7	6.8	22.5	18.0	14.3	11.4	0	0
	August	710	95.4%	8.8	6.1	25.2	14.4	16.4	10.1	0	0
	September	676	93.9%	12.4	8.8	84.0	37.2	36.8	19.2	0	0
	October	714	96.0%	7.9	6.4	39.4	23.6	18.1	13.6	0	0
	November	687	95.4%	6.9	5.9	28.1	25.4	15.7	13.5	0	0
	December	713	95.8%	7.6	6.8	31.5	28.7	15.3	13.8	0	0
Annual		8369	95.3%	7.6	6.3	84.0	37.2	36.8	19.2	0	0
2013	January	714	96.0%	7.9	6.9	47.8	38.1	24.7	18.4	0	0
	February	644	95.8%	5.4	4.8	27.7	24.6	14.3	12.9	0	0
	March	710	95.4%	6.0	5.2	23.9	19.6	16.2	13.3	0	0
	April	712	98.9%	9.1	8.0	47.2	32.1	17.7	14.7	0	0
	May	728	97.8%	7.8	6.4	88.0	26.3	17.0	12.4	0	0
	June	692	96.1%	2.0	1.6	12.5	9.3	4.0	3.2	0	0
	July	639	85.9%	3.5	2.4	39.0	23.2	15.0	9.3	0	0
	August	735	98.8%	2.3	1.6	11.8	6.9	4.4	2.8	0	0
	September	717	99.6%	2.8	1.9	11.4	7.2	4.9	3.0	0	0
	October	744	100.0%	2.8	2.2	14.5	6.7	4.4	3.6	0	0
	November	711	98.8%	2.4	1.9	9.3	8.0	4.3	3.7	0	0
	December	742	99.7%	2.1	1.6	17.3	12.7	5.0	4.1	0	0
Annual		8488	96.9%	4.5	3.7	88.0	38.1	24.7	18.4	0	0

Observations in ug/m^3

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



Rolling annual average of hourly concentrations

4.7.3 Access Road (AM3)

The Access Road (AM3) station was installed in June 2011 near the VALE Inco security gate and monitors the ambient levels of $PM_{2.5}$ and NO_x / NO_2 on a continuous basis. The $PM_{2.5}$ ambient air criterion was exceeded on two occasions in 2013 while there were no exceedances of the NO_x / NO_2 standards. Tables 4.7.3.1 and 4.7.3.2 provide summary information on the level of air contaminants measured at the Access Road (AM3) site while Figures 4.7.3.1 and 4.7.3.2 provide a graphical representation of the annual trend in the data.

TABLE 4.7.3.1 - ACCESS ROAD (AM3) $PM_{2.5}$ SUMMARY 2012 & 2013

Year	Month	# Valid Days	% Valid Days	Average	Maximum 24-Hour	Regulatory Exceedances (>25 µg/m^3)
2012	January	31	100.0%	5.6	11.5	0
	February	29	100.0%	4.7	10.2	0
	March	31	100.0%	5.0	11.8	0
	April	30	100.0%	4.8	12.5	0
	May	25	80.6%	3.8	7.9	0
	June	30	100.0%	2.5	5.1	0
	July	31	100.0%	2.9	11.2	0
	August	29	93.5%	2.2	7.0	0
	September	25	83.3%	1.4	3.5	0
	October	25	80.6%	1.6	4.5	0
	November	29	96.7%	1.8	4.5	0
	December	25	80.6%	2.3	6.6	0
Annual		340	92.9%	3.3	12.5	0
2013	January	31	100.0%	2.8	6.3	0
	February	27	96.4%	3.5	9.2	0
	March	31	100.0%	3.1	7.5	0
	April	30	100.0%	4.6	8.2	0
	May	31	100.0%	3.3	9.4	0
	June	29	96.7%	2.5	8.2	0
	July	31	100.0%	7.8	50.0	2
	August	23	74.2%	4.6	14.0	0
	September	29	96.7%	2.7	7.4	0
	October	31	100.0%	2.3	6.8	0
	November	30	100.0%	2.9	7.3	0
	December	31	100.0%	2.8	6.6	0
Annual		354	97.0%	3.6	50.0	2

Observations in ug/m^3

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

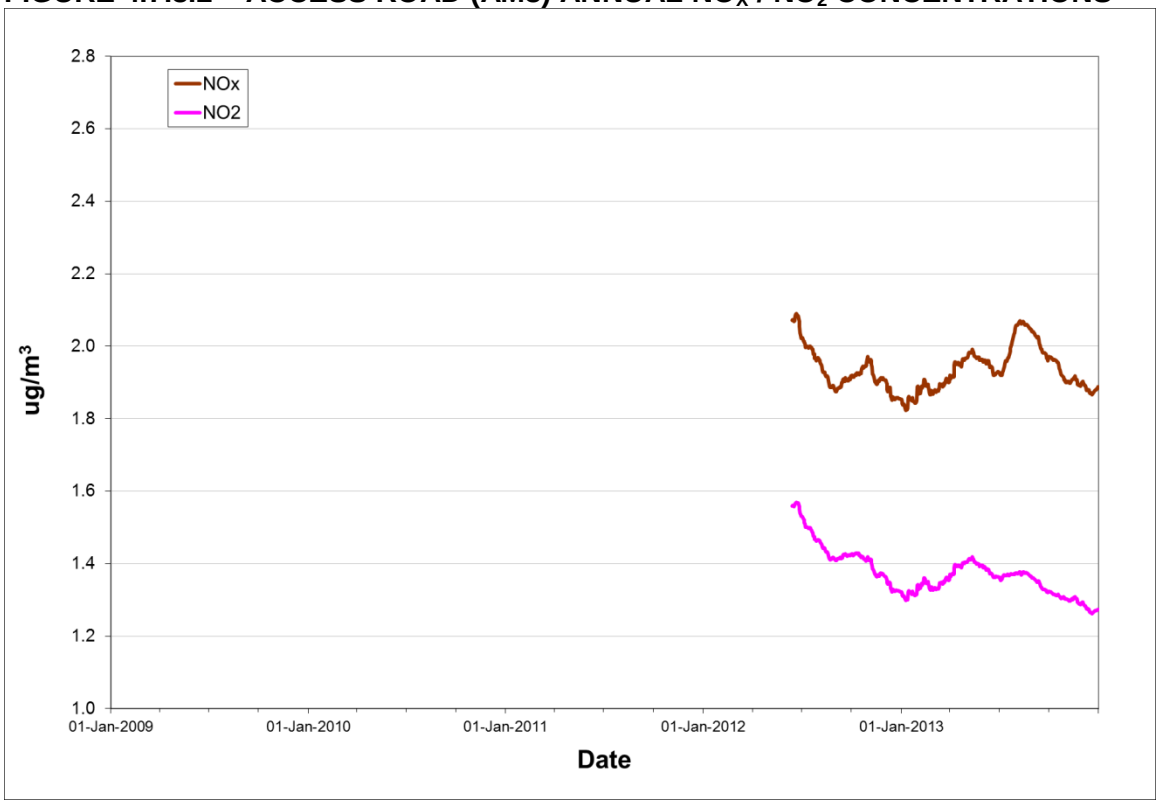
Rolling annual average of daily concentrations

TABLE 4.7.3.2 - ACCESS ROAD (AM3) NO_X / NO_2 SUMMARY 2012 & 2013

Year	Month	# Valid Hours	% Valid Hours	Average NO_x	Average NO_2	Maximums 1-Hour NO_x	Maximums 1-Hour NO_2	Maximums 24-Hour NO_x	Maximums 24-Hour NO_2	Exceedances 1-Hour (>400)	Exceedances 24-Hour (>200)
2012	January	713	95.8%	2.1	1.6	32.8	25.1	5.5	4.2	0	0
	February	663	95.3%	2.5	1.9	55.9	33.0	7.5	5.2	0	0
	March	711	95.6%	2.0	1.4	34.3	24.2	4.6	3.4	0	0
	April	684	95.0%	1.8	1.4	26.2	19.2	5.0	3.8	0	0
	May	708	95.2%	1.5	1.2	41.5	14.9	5.0	2.7	0	0
	June	689	95.7%	2.0	1.6	40.4	22.8	7.7	4.4	0	0
	July	686	92.2%	1.5	0.9	28.4	6.7	3.4	2.5	0	0
	August	701	94.2%	1.5	1.1	12.3	8.9	3.0	2.1	0	0
	September	688	95.6%	2.1	1.3	40.7	8.5	5.9	3.1	0	0
	October	511	68.7%	2.5	1.2	29.3	9.6	5.4	2.2	0	0
	November	688	95.6%	1.6	1.2	55.8	24.6	4.7	3.3	0	0
	December	712	95.7%	1.3	1.0	33.7	18.1	4.1	3.2	0	0
Annual		8154	92.8%	1.9	1.3	55.9	33.0	7.7	5.2	0	0
2013	January	715	96.1%	2.5	1.8	69.8	35.7	15.5	10.2	0	0
	February	636	94.6%	2.3	1.8	54.9	33.8	8.8	7.2	0	0
	March	735	98.8%	2.4	1.7	22.6	17.1	6.3	4.9	0	0
	April	705	97.9%	2.5	1.9	180.7	61.1	14.6	7.6	0	0
	May	716	96.2%	1.5	1.1	42.0	13.7	3.7	2.3	0	0
	June	688	95.6%	1.6	1.2	39.1	8.5	4.0	2.4	0	0
	July	709	95.3%	3.0	1.1	28.9	9.2	6.2	2.6	0	0
	August	732	98.4%	1.3	1.0	19.7	9.5	2.3	2.0	0	0
	September	717	99.6%	1.3	0.9	20.0	9.2	4.0	1.8	0	0
	October	744	100.0%	1.6	1.0	19.2	9.3	3.4	2.1	0	0
	November	705	97.9%	1.6	1.1	18.0	10.5	2.8	1.9	0	0
	December	668	89.8%	1.2	0.8	15.2	11.7	3.0	2.3	0	0
Annual		8470	96.7%	1.9	1.3	180.7	61.1	15.5	10.2	0	0

Observations in ug/m^3

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



Rolling annual average of hourly concentrations