DEPARTMENT OF MUNICIPAL AFFAIRS AND ENVIRONMENT

2017 - 2019 AIR ZONE MANAGEMENT REPORT

June 2021

Background

The Air Quality Management System (AQMS) is a comprehensive approach for improving air quality in Canada and is the product of unprecedented collaboration by the federal, provincial and territorial governments and stakeholders. It is comprised of four main elements: Canadian Ambient Air Quality Standards (CAAQS); Airshed and Air Zone-based air quality management; Baseline Industrial Emission Requirements (BLIERs); and actions for the reduction of mobile source emissions. In October 2012, jurisdictions agreed to begin implementing AQMS by 2013.

AQMS is the avenue to meet the CAAQS and to drive continuous improvement in ambient air quality. To achieve this, each jurisdiction has established Air Zones which are meant to serve as the primary arena for air quality management. The goal in all Air Zones is to maintain air quality such that the CAAQS are not exceeded. In the province two Air Zones have been establish, one being the island of Newfoundland and the other as Labrador.

Complementary to the CAAQS, an Air Zone Management Threshold Table has been established for each pollutant to ensure, improve and maintain good air quality. Table 1 provides the thresholds for the CAAQS pollutants.

Disclaimer

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

All data presented herein may be subject to future revision.

Table 1: Air Management Threshold Table

Management level	Ozone (ppb)	$PM_{2.5}$ ($\mu g/m^3$)		SO_2 (ppb)		NO_2 (ppb)	
	8-hour	24-hour	Annual	1-hour	Annual	1-hour	Annual
	Effective 2020	Effective 2020	Effective 2020	Effective 2025	Effective 2025	Effective 2025	Effective 2025
Red Ensure that CAAQS are not exceeded through advanced air management actions	> 62 (CAAQS)	> 27 (CAAQS)	> 8.8 (CAAQS)	> 65 (CAAQS)	> 4.0 (CAAQS)	> 42 (CAAQS)	> 12.0 (CAAQS)
Orange Improve air quality through active air management and prevent exceedance of the CAAQS	> 56 and ≤ 62	> 19 and ≤ 27	> 6.4 and ≤ 8.8	> 50 and ≤ 65	> 3.0 and ≤ 4.0	> 31 and ≤ 42	> 7.0 and ≤ 12.0
Yellow Improve air quality using early and ongoing actions for continuous improvement	> 50 and ≤ 56	> 10 and ≤ 19	> 4.0 and ≤ 6.4	> 30 and ≤ 50	> 2.0 and ≤ 3.0	> 20 and ≤ 31	> 2.0 and ≤ 7.0
Green Maintain good air quality through proactive air management measures to keep clean areas clean	≤ 50	≤ 10	≤ 4.0	≤ 30	≤ 2.0	≤ 20	≤ 2.0

Current Air Quality Status

Table 2 presents the Newfoundland Air Zone and Labrador Air Zone status for $PM_{2.5}$ and ozone for the period 2017 to 2019. The air quality status for each Air Zone is based on the maximum level recorded at any designated monitoring location within the Air Zone. Although the SO_2 and NO_2 Air Zone determination is not required until 2020 and the standard will become more stringent in 2025, the comparison against the 2025 standard is included in Table 3.

Table 4 presents the historical air quality status for the Newfoundland Air Zone for the various pollutants, whereas Table 5 presents the historical air quality status for the Labrador Air Zone.

For interpretation of the colour coding, refer to Table 1.

Table 2: Air Zone Air Quality 2017 to 2019, $PM_{2.5}$ and Ozone

Station Location	Air Zone	Station Type	8-hour Ozone (ppb)	24-hour $PM_{2.5}$ ($\mu g/m^3$)	Annual $PM_{2.5}$ ($\mu g/m^3$)
Water Street St. John's	Newfoundland	NAPS	46	11	5.0
Old Placentia Road Mount Pearl	Newfoundland	NAPS	47	10	4.7
Macpherson Avenue Corner Brook	Newfoundland	NAPS	**49**	**14**	**6.8**
Scott Avenue Grand Falls Windsor	Newfoundland	NAPS	47	10	3.8
Fisher Street Port aux Choix	Newfoundland	NAPS	44	-	-
Main Street Burin	Newfoundland	NAPS	47	11	5.2
Newfoundland Air Zone			**49**	**14**	**6.8**
Hudson Drive Labrador City	Labrador	Industry / NAPS	**55**	**8**	**2.7**
Labrador Air Zone			**55**	**8**	**2.7**

– indicates that data is not collected at this site

Table 3: Air Zone Air Quality 2017 to 2019, SO_2 and NO_2

Station Location	Air Zone	Station Type	1-hour SO_2 (ppb)	Annual SO_2 (ppb)	1-hour NO_2 (ppb)	Annual NO_2 (ppb)
Water Street St. John's	Newfoundland	NAPS	**8**	0.5	**37**	nd
Old Placentia Road Mount Pearl	Newfoundland	NAPS	5	**0.8**	24	1.2
Macpherson Avenue Corner Brook	Newfoundland	NAPS	3	0.5	21	3.0
Scott Avenue Grand Falls Windsor	Newfoundland	NAPS	1	0.5	16	1.6
Main Street Burin	Newfoundland	NAPS	1	0.1	7	0.5
Newfoundland Air Zone			**8**	**0.8**	**37**	**3.0**
Hudson Drive Labrador City	Labrador	Industry / NAPS	**30**	**0.3**	**33**	**2.2**
Labrador Air Zone			**30**	**0.3**	**33**	**2.2**

nd indicates the data did not comply with data completeness requirements however the annual NO_2 value would have been approximately 4.0 ppb had data completeness requirements been met.

Table 4: Historical Newfoundland Air Zone Air Quality

Data Period	8-hour Ozone (ppb)	24-hour $PM_{2.5}$ ($\mu g/m^3$)	Annual $PM_{2.5}$ ($\mu g/m^3$)	1-hour SO_2 (ppb)	Annual SO_2 (ppb)	1-hour NO_2 (ppb)	Annual NO_2 (ppb)
2012 – 2014	53	15	5.8	10	0.6	41	6.2
2013 – 2015	51	14	6.3	8	0.4	40	4.8
2014 – 2016	50	14	6.6	7	0.5	37	5.4
2015 – 2017	52	13	6.2	8	1.1	36	6.9
2016 – 2018	48	14	6.7	9	0.9	36	5.3
2017 – 2019	49	14	6.8	8	0.8	37	3.0

Table 5: Historical Labrador Air Zone Air Quality

Data Period	8-hour Ozone (ppb)	24-hour $PM_{2.5}$ ($\mu g/m^3$)	Annual $PM_{2.5}$ ($\mu g/m^3$)	1-hour SO_2 (ppb)	Annual SO_2 (ppb)	1-hour NO_2 (ppb)	Annual NO_2 (ppb)
2012 – 2014	nd	17 / 9 *	3.2 / 2.6 *				
2013 – 2015	54	17 / 9 *	3.4 / 2.8 *				
2014 – 2016	ins	ins	ins	ins	0.6	ins	2.9
2015 – 2017	59	8	2.3	31	0.4	34	2.7
2016 – 2018	58	8	3.0	33	0.5	33	2.2
2017 – 2019	55	8	2.7	30	0.3	33	2.2

nd indicates the data did not comply with data completeness requirements
ins indicates metric cannot be determined as the station was moved and had been in operation for less than two years
* indicates that a major forest fire near the monitoring location in 2013 constituted an exceptional event. The larger value is the metric including the exceptional event whereas the lower value is with the effects of the forest fire removed.

Air Zone Management

It is recognized that the air quality in both the Labrador and Newfoundland Air Zones is largely affected by emissions from sources outside the province through long-range transport and as such, limits the number of mitigation measures available to maintain and reduce the impacts in the province. The province supports national and international initiatives that will reduce the effects of air pollution resulting from long range transport and improve air quality globally.

The Province also continues to work with major industrial operations in the province to reduce particulate, sulphur dioxide and nitrogen dioxide emissions and those emissions which are precursors to the formation of ozone. Additionally amendments to the *Air Pollution Control Regulations, 2004* are under consideration which will lower emissions in the province. Should further actions be necessary to reduce ambient levels in both Air Zones, the Province is prepared to take actions as appropriate.

Additional information on AQMS can be found at the Department of Municipal Affairs and Environment website:

https://www.gov.nl.ca/mae/env-protection/science/aqms/

and the Canadian Council of Ministers of the Environment website:

http://www.ccme.ca/en/resources/air/aqms.html