



Proposed Options for Regulation 350: Lambton Industry
Meteorological Alerts (LIMA)

December 6, 2017

Consequential Amendment - Lambton Industrial Meteorological Alerts (LIMA) Regulation 350












- Regulation 350: Lambton Industry Meteorological Alerts (LIMA) was introduced in 1981. Currently, alerts are triggered if the running daily (24-hr) average sulphur dioxide concentration reaches 0.07 parts per million (2/3 of the current 24-hour standard) at any of the monitoring stations in the LIMA network.
- With the introduction of an updated air standard for sulphur dioxide, the ministry will consider consequential amendments to this regulation.
- As part of the consultation on an updated sulphur dioxide standard, **the ministry is seeking input on potential amendments to Regulation 350.**

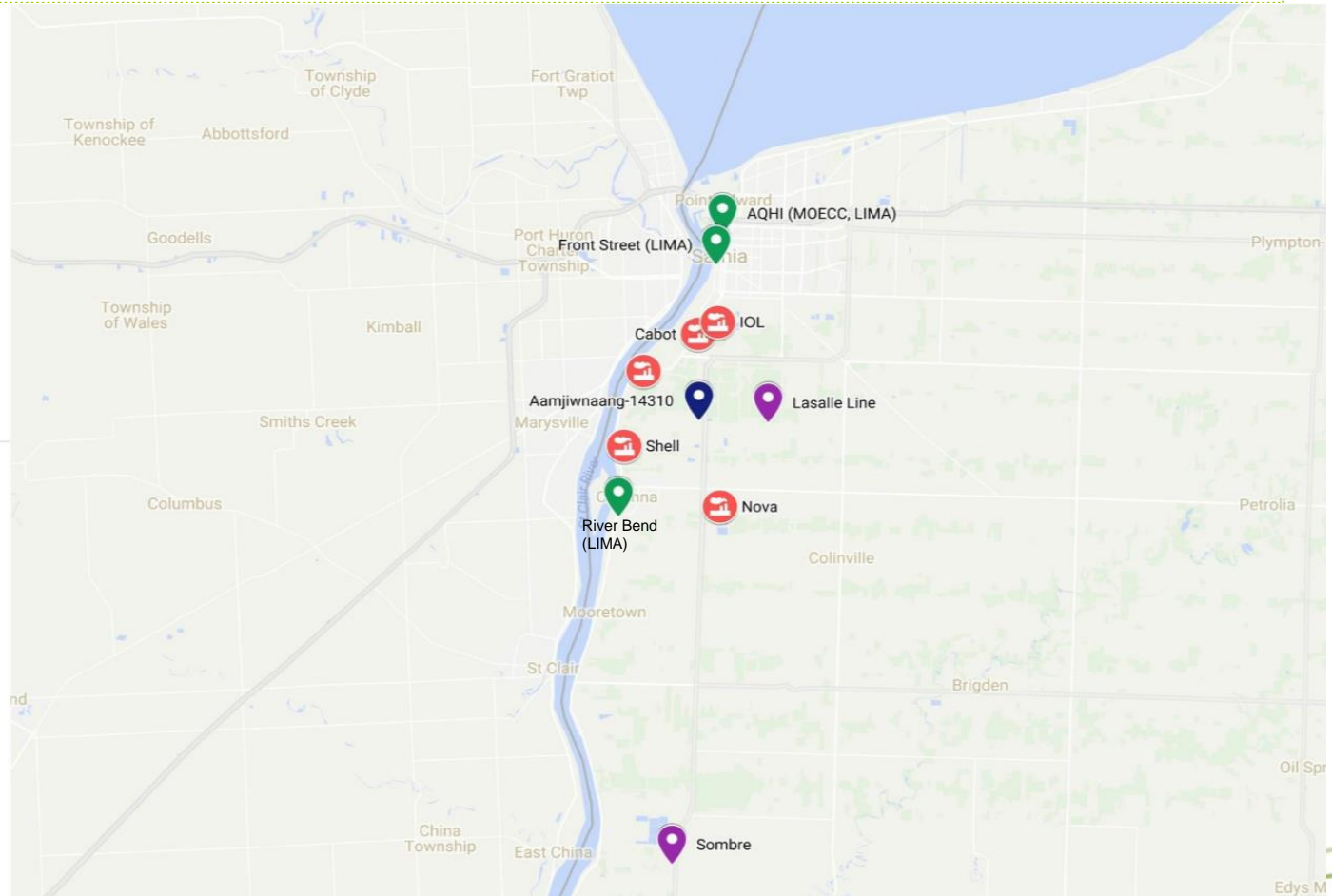
Background – LIMA Regulation 350

- Real-time monitoring of SO₂ and meteorological forecasts.
- Alerts occur when the running 24-hour average SO₂ concentration exceeds 70 parts per billion (ppb) at any monitoring station in the LIMA system.
- The three LIMA system SO₂ monitoring stations include: two stations maintained by the Sarnia Lambton Environmental Association (SLEA) at Front Street and River Bend; and one maintained by the MOECC at Christina Street (AQHI station).
- Alert value is approximately 2/3 of the current O. Reg. 419/05 SO₂ 24-hour standard (275 µg/m³ or ~103 ppb).

SO2 Monitor Locations in Sarnia

Sarnia_Monitor3.kml

-  Suncor
-  Cabot
-  IOL
-  Shell
-  Nova
-  Aamjiwnaang-14310
-  AQHI (MOECC, LIMA)
-  Riverbend (LIMA)
-  Front Street (LIMA)
-  Sombre
-  Lasalle Line



Background – LIMA Regulation 350

During a LIMA alert:

- Large sources of SO₂ - more than 500 kg/day - are restricted to a Point of Impingement (POI) concentration of 415 µg/m³ (~ 156 ppb) over a half-hour averaging period¹ modelled using the Appendix to Regulation 346.
- Industry can lower production rates, change to fuels with a lower sulphur content, or temporarily shut down production.² (see Q3 – slide 11)

Director may terminate an alert when:

- Weather conditions conducive for elevated SO₂ concentration are forecasted not to return for at least 6 hours.

¹ Note: the modelling done under LIMA is different than the modelling required under O. Reg. 419/05 in that LIMA appears to only require individual sources of emissions that emit >500kg/day SO₂ to be modelled (i.e. one stack as opposed to the entire facility emissions).

² Source: Ambient Air-LISA and LIMA Sulphur Dioxide Notification Protocols, Sarnia Lambton Environmental Association, January 19, 2010

Proposed amendments related to LIMA Regulation 350

1. Question for Consultation:

In light of the proposed amendments to O. Reg. 419/05 to update the SO₂ standards and clarification of operating conditions to be assessed – as well as other work being undertaken by the ministry in the Sarnia Area including a review of monitoring stations, and the introduction in Ontario of an Air Quality Health Index (AQHI) – what role is there for an alert going forward?

Consequential Amendment – LIMA Regulation 350 [Reference to the Air Dispersion Model]

The LIMA regulation currently requires the concentration of sulphur dioxide at a point of impingement to be calculated in accordance with the air dispersion models in the Appendix to Regulation 346. Under O. Reg. 419/05. The air dispersion models in the Appendix to Regulation 346 will be phased out by February 1, 2020.

If there is a role for the LIMA regulation, then this reference to the models in the Appendix to Regulation 346 would be updated to refer to the U.S. EPA AERMOD dispersion model as referenced in subsection 6(1) paragraph 1 of O. Reg. 419/05.

Consequential Amendment – LIMA Regulation 350 [Updating SO₂ Values]

Subsection 2(1) of the LIMA regulation states that “The Director shall declare an Alert when the 24-hour running average sulphur dioxide concentration at any monitoring station in the Lambton Industry Meteorological Alert System reaches 0.07 parts per million (ppm) parts of air”. The current levels in the LIMA regulation are based on the existing 1974 sulphur dioxide air standards:

2. Question for Consultation:

If there is a role for the LIMA regulation, should the sulphur dioxide values in the LIMA regulation also be updated? If so, what should these values be updated to? (see **Options Next Slides**)

Consequential Amendment – LIMA Regulation 350 [Updating SO₂ Values – Options Includes]

- a. A fraction of the newly proposed air standard (the current LIMA value is 2/3 of the current 24 hour sulphur dioxide air standard).
- b. Consideration of a regional approach such as the Canadian Ambient Air Quality Standards (CAAQS) announced by the Canadian Council of Ministers of the Environment in October 2016 (which establishes a 2020 target and a more stringent 2025 target for ambient air).

Consequential Amendment – LIMA Regulation 350 [Updating SO₂ Values – Options Includes]

c. Alternative proposals such as:

- i. The threshold 24-hour running average of sulphur dioxide concentration at any monitoring station in the LIMA System could be changed from 0.07 ppm (or 70 ppb) to 17 ppb. [17 ppb is based on Health Canada's 10 minute Reference Concentration of 67 ppb converted to a 24 hour equivalent value].
- ii. The current LIMA regulation says that during an Alert, the emissions of sulphur dioxide from a "source of contaminant" shall not exceed 415 ug/m³ at a point of impingement for a half hour average. The half-hour value of 415 ug/m³ could be replaced with a 1-hour value of 86 ug/m³. [this value is based on 50% of the 2025 CAAQS value of 65ppb, which is 32.5ppb].

Consequential Amendment – LIMA Regulation 350 [Other Consideration]

3. Question for Consultation:

If the proposed monitoring levels are updated, what if any additional actions can industry consider to reduce the monitoring levels in the community?

What currently required actions should continue to be considered?

Review of different LIMA Values

Station Name	Option	a	b - 2025	b - 2020	c (i)
	Limit (ppb)	27	65	70	17
	Rationale	2/3 of proposed standard	CAAQS		Health Canada Rfc
	Averaging Time	1-Hour ¹	1-Hour ¹	1-Hour ¹	24-hour
Front Street (LIMA)	2014	72	5	5	9
	2015	62	8	3	8
	2016	76	16	12	8
River Bend (LIMA)	2014	58	12	9	7
	2015	49	8	7	5
	2016	37	5	4	2
LaSalle Line	2014	14	1	0	1
	2015	14	0	0	0
	2016	9	0	0	0
Sombre	2014	29	6	4	0
	2015	25	2	1	0
	2016	21	2	2	0

1. 24-Hour Block: Multiple 1-hour exceedances in a 24-hour block are counted as a single incident.

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Aamjiwnaang	2014	28	5	4	3
	2015	29	4	3	3
	2016	23	3	3	3
AQHI (MOECC, LIMA)	2014	66	6	4	8
	2015	64	4	2	10

1. 24-Hour Block: Multiple 1-hour exceedances in a 24-hour block are counted as a single incident

Comments

EBR Registry Number: 013-0903

Title: Regulatory amendments related to air emissions of sulphur dioxide

Comment Period: 45 days: Submissions may be made before December 11, 2017

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