



**EMISSION SUMMARY AND DISPERSION  
MODELLING REPORT**

**March 31<sup>st</sup>, 2025**

## Executive Summary and Emission Summary Table

Algoma Steel Inc. (Algoma) is a fully integrated steel manufacturing facility located at 105 West Street in Sault Ste. Marie, Ontario (the Facility). The Facility is a producer of hot and cold rolled steel sheet and plate products with a current raw steel production capacity of an estimated 2.8 million tons per year. Algoma supplies into the construction, energy, defense and manufacturing sectors in Canada and internationally.

The North American Industrial Classification System (NAICS) code that best describes the Facility's primary operations is 331110 – Iron and Steel Mills and Ferro-Alloy Manufacturing. Current operations at the Facility include receiving, handling, and storage of raw materials (e.g., coal, iron ore, limestone, scrap metal); coke production from coal, iron production in blast furnaces, steel making in furnaces; finishing (heat treating, pickling, annealing and tempering); and shipping.

Algoma has committed to transition its manufacturing process from integrated basic oxygen steelmaking (BOF) to electric arc furnace (EAF) steelmaking. The transition to EAF steelmaking is characterized by a Current, Interim and Future scenario and is scheduled to occur over the course of up to six years, with full independent operation of the EAF process by 2029.

The timing and duration of each scenario is dependent on various factors, including the timing of availability and quantity of electric power for the facility. The scenarios can be described as follows:

- Current – Oxygen Steelmaking, No.7, 8 & 9 Coke Oven Batteries, No.7 Blast Furnace
- Interim – Electric Arc Steelmaking at a reduced rate, Oxygen Steelmaking, No.7, 8 & 9 Coke Oven Batteries, No.7 Blast Furnace
- Future – Electric Arc Steelmaking at full production
- Alternate Future – Electric Arc Steelmaking with option for addition of alternate iron units from No. 6 Blast Furnace

This ESDM was developed in accordance with Section 26 of Ontario Regulation 419/05 (O. Reg. 419/05) and as such is based on a maximum, worst-case scenario, which includes all Facility processes operating at full production capacity at the same time. In addition, guidance in the MECP publication "*Procedure for Preparing an Emission Summary and Dispersion Modelling Report*" dated March 2018 (ESDM Procedure Document) was followed, as appropriate.

The Facility emission inventory was developed as a process level inventory utilizing information from source testing, engineering calculations, and values reported in published literature (e.g., US EPA AP-42 Compilation of Emission Factors). In order to manage the large number of operations and associated processes, a database system (referred to as "fastEIS") was used to develop the inventory and perform all calculations and reporting.

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The maximum point of impingement (POI) concentrations were calculated based on the operating conditions where significant sources were operating simultaneously at their maximum rate of production for the averaging time. The exception to this is where physical or operational limitations exist, which would exclude two pieces of equipment from operating simultaneously. The maximum emission rates for each compound emitted from the significant sources were calculated in accordance with s.11 of O. Reg. 419/05. A maximum POI concentration for each identified compound emitted from the Facility was determined based on these emission rates and the US EPA AERMOD dispersion model v.22112. The results of the Current, Interim and Future scenarios are presented in the Emission Summary Tables below.

The Facility is currently operating under an Abatement Plan for benzene, benzo(a)pyrene and Sulphur dioxide. Previously, Site-specific Standards (SSSs) were in place for benzene and benzo(a)pyrene. In July 2023, the MECP POI Limit for Sulphur dioxide was updated and an alternate standard (SSS or Technical Standard) was required for this contaminant. Since alternate standards are not yet available, the Abatement Plan was prepared and accepted by the MECP in accordance with O.Reg. 419 for those contaminants that do not meet the MECP's POI Limit. The Abatement Plan will bridge the gap until an alternate standard is available. It is an evolving emissions management plan that aligns with industry best practices and anticipated future requirements of the alternate standards.

Contaminants requiring an alternate standard that are covered by the Abatement Plan were not compared against regulatory limits. The remaining compounds released were compared to the limits that apply to the Facility, as listed in the MECP's publication "*Air Contaminants Benchmark List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants, Version 3.0*" dated April 2023.

The assessment of the site's compliance with the MECP's air quality criteria yields the following:

- Benzene – For the period covering the Current and Interim scenarios (2024-2029), the Facility will operate under its Abatement Plan until an alternate standard becomes available. Once available, the Facility will register to the alternate standard for this compound for the annual averaging period.
- Benzo(a)pyrene – For the period covering the Current and Interim scenarios (2024-2029), the Facility will operate under its Abatement Plan until an alternate standard becomes available. Once available, the Facility will register to the alternate standard for this compound for the annual averaging period.
- Sulphur dioxide – For the period covering the Current and Interim scenarios (2024-2029), the Facility will operate under its Abatement Plan until an alternate standard becomes available. Once available, the Facility will be registering to the alternate standard for this compound for the annual and hourly averaging periods.

For the Future scenario, the predicted maximum POI concentrations for all three compounds - benzene, BaP, and SO<sub>2</sub> are below the applicable Schedule 3

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standards. As the Facility expects to be in full compliance by 2029, alternate standards will no longer be required however, subject to changes in the future operation and source testing the Facility may elect to remain registered to an alternate standard.

Details on the compounds are presented in the following Emission Summary Tables. For compounds not released during all operating scenarios, an emission rate of 0 g/s has been provided in the applicable Emission Summary Table. For example, the compound Arsenic is not released until EAF implementation (Interim and Future scenarios), therefore an emission rate of 0 g/s is presented in the Current scenario Emission Summary Table.

**Note: In the Emission Summary Tables below, “0.00” refers to “less than 0.01”.**

Table E1-A: Emission Summary Table for the Current Scenario (2024)

Contaminant	CAS No.	Total Facility Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration ( $\mu\text{g}/\text{m}^3$ )	Averaging Period (hours)	MECP POI Limit ( $\mu\text{g}/\text{m}^3$ )	Limiting Effect	Category	Percent of MECP Limit (%)
1,2,3-Trimethylbenzene	526-73-8	6.68E-06	AERMOD v.22112	1.02E-02	24	220	Health	B1	0.00%
1,2,4-Trimethylbenzene	95-63-6	2.49E-04	AERMOD v.22112	1.23E-01	24	220	Health	B1	0.06%
1-Butene	106-98-9	2.30E-04	AERMOD v.22112	1.32E-01	24	7000	Health	B2	0.00%
1-Hexene	592-41-6	1.34E-05	AERMOD v.22112	2.03E-02	24	850	Health	B2	0.00%
1-Pentene	109-67-1	1.80E-04	AERMOD v.22112	2.74E-01	24	2050	Health	B2	0.01%
2,2-Dimethylbutane	75-83-2	2.00E-05	AERMOD v.22112	3.05E-02	24	1750	Health	B2	0.00%
2-Methylpentane	107-83-5	1.87E-04	AERMOD v.22112	2.84E-01	24	1750	Health	B2	0.02%
3-Methylpentane	96-14-0	1.07E-04	AERMOD v.22112	1.63E-01	24	1750	Health	B2	0.01%
Aluminum (fumes or dust)	7429-90-5	6.73E-02	AERMOD v.22112	8.13E-01	24	12	Health	B2	6.77%
Aluminum Oxide	1344-28-1	3.10E-02	AERMOD v.22112	7.18E-02	24	120	Particulate	B1	0.06%
Acenaphthene*	83-32-9	9.00E-03	AERMOD v.22112	2.46E-01	24	0.1	-	de minimus	NA
Acetylene	74-86-2	9.15E-03	AERMOD v.22112	1.46E+00	10 min	56000	Odour	B1	0.00%
Ammonia	7664-41-7	9.62E-02	AERMOD v.22112	1.13E+00	24	100	Health	B1	1.13%
Anthracene	0120-12-07	2.79E-06	AERMOD v.22112	8.00E-05	24	0.1	-	de minimus	0.08%
Antimony	7440-36-0	1.24E-04	AERMOD v.22112	2.10E-04	24	25	Health	B1	0.00%
Arsenic	7440-38-2	7.53E-05	AERMOD v.22112	1.70E-04	24	0.3	Health	B1	0.06%
Barium (total water soluble)	7440-39-3	2.04E-04	AERMOD v.22112	5.00E-04	24	10	Health	B1	0.01%
Benzene <sup>1</sup>	71-43-2	9.30E-01	AERMOD v.22112	5.58E+00	Annual	NA	Health	B1	NA
Benzo(a)anthracene	56-55-3	2.54E-03	AERMOD v.22112	6.93E-02	24	0.1	-	de minimus	69.32%
Benzo(a)fluorene	238-84-6	2.53E-03	AERMOD v.22112	6.91E-02	24	0.1	-	de minimus	69.10%
Benzo(a)phenanthrene	0218-01-09	2.21E-03	AERMOD v.22112	6.03E-02	24	0.1	-	de minimus	60.29%
Benzo(a)pyrene <sup>1</sup>	50-32-8	2.35E-03	AERMOD v.22112	1.07E-02	Annual	NA	Health	B1	NA
Benzo(b)fluorene	30777-19-6	1.41E-03	AERMOD v.22112	3.84E-02	24	0.1	-	de minimus	38.35%
Benzo(e)pyrene	192-97-2	2.02E-03	AERMOD v.22112	5.51E-02	24	0.1	-	de minimus	55.10%
Benzo(ghi)perylene	191-24-2	1.41E-03	AERMOD v.22112	3.84E-02	24	0.1	-	de minimus	38.38%
Benzo(k)fluoranthene	0207-08-09	1.65E-03	AERMOD v.22112	4.50E-02	24	0.1	-	de minimus	44.99%
Beryllium (and its compounds)	7440-41-7	7.53E-06	AERMOD v.22112	2.00E-05	24	0.01	Health	B1	0.20%
Bismuth	7440-69-9	4.00E-04	AERMOD v.22112	9.90E-04	24	2.5	Health	B2	0.04%
Cadmium and Cadmium Compounds	7440-43-9	7.19E-04	AERMOD v.22112	1.38E-03	24	0.025	Health	B1	5.52%
Calcium Carbonate	1317-65-3	4.78E+00	AERMOD v.22112	8.06E+00	24	15	Health & Particulate	B2	53.75%
Calcium Magnesium Carbonate	16389-88-1	2.15E-01	AERMOD v.22112	4.25E-01	24	45	Health	B2	0.94%
Calcium oxide	1305-78-8	5.15E-02	AERMOD v.22112	1.82E-01	24	10	Corrosion	B1	1.82%
Calcium silicate	1344-95-2	1.34E-01	AERMOD v.22112	3.58E-01	24	120	Health	B2	0.30%
Calcium sulfate	7778-18-9	1.65E-03	AERMOD v.22112	1.53E-02	24	120	Health	B2	0.01%
Carbon monoxide	630-08-0	7.87E+01	AERMOD v.22112	2.22E+02	30 min	6000	Health	B1	3.70%
Chlorine	7782-50-5	0	AERMOD v.22112	0.00E+00	10 min	230	OdourHealth	B1	0.00%

			AERMOD v.22112	0.00E+00	24	10			0.00%
Chromium (and its compounds)	7440-47-3	1.72E-03	AERMOD v.22112	5.47E-03	24	0.5	Health	B1	1.09%
cis-2-Butene	590-18-1	9.35E-05	AERMOD v.22112	1.42E-01	24	2400	Health	B2	0.01%
Cobalt	7440-48-4	5.73E-05	AERMOD v.22112	1.80E-04	24	0.1	Health	B1	0.18%
Copper	7440-50-8	9.74E-04	AERMOD v.22112	2.65E-02	24	50	Health	B1	0.05%
Cyclohexane	110-82-7	7.82E-04	AERMOD v.22112	4.07E-01	24	6100	Health	B1	0.01%
Cyclopentane	287-92-3	3.34E-05	AERMOD v.22112	5.08E-02	24	1700	Health	B2	0.00%
Dioxins and Furans	NA	0	AERMOD v.22112	0	24	0.0000001	Health	B1	0.00%
Dibenz(ah)acridine	226-36-8	4.94E-05	AERMOD v.22112	1.35E-03	24	0.1	-	de minimus	1.35%
Dibenz(a)acridine	224-42-0	1.10E-04	AERMOD v.22112	3.00E-03	24	0.1	-	de minimus	3.00%
Dibenzo(ah)anthracene	53-70-3	1.45E-05	AERMOD v.22112	4.00E-04	24	0.1	-	de minimus	0.40%
Ethane	74-84-0	3.44E-01	AERMOD v.22112	7.56E+00	24	14500	Health	B2	0.05%
Ethyl benzene	100-41-4	9.57E-04	AERMOD v.22112	9.11E-01	10 min	1900	Odour	B1	0.05%
			AERMOD v.22112	1.15E-01	24	1000	Health	B1	
Ethylene	74-85-1	4.81E-01	AERMOD v.22112	1.01E+01	24	40	Vegetation	B1	25.16%
Ferrous oxide	1345-25-1	1.56E-03	AERMOD v.22112	3.08E-03	24	25.0	Health & Soiling	B2	0.01%
Fluoranthene	206-44-0	9.00E-03	AERMOD v.22112	2.46E-01	24	140	Health	B2	0.18%
Fluorene*	86-73-7	4.78E-03	AERMOD v.22112	1.31E-01	24	0.1	-	de minimus	NA
Graphite	7782-42-5	7.75E-02	AERMOD v.22112	3.70E-01	24	10	Health	B2	3.70%
Hydrochloric acid	7647-01-0	4.85E-02	AERMOD v.22112	1.33E+00	24	20	Health	B1	6.63%
Hydrogen cyanide	74-90-8	9.85E-03	AERMOD v.22112	2.69E-01	24	8	Health	B1	3.36%
Hydrogen sulphide	7783-06-4	1.10E+00	AERMOD v.22112	7.69E+00	10 min	13	Health & Odour	B1	59.14%
			AERMOD v.22112	1.16E+00	24	7			16.52%
Indeno(123-cd)pyrene	193-39-5	1.05E-03	AERMOD v.22112	2.87E-02	24	0.1	-	de minimus	28.71%
Iron (metallic)	7439-89-6	4.49E-01	AERMOD v.22112	7.59E-01	24	4	Health & Soiling	B1	18.97%
Iron hydroxide	1310-14-1	4.66E-02	AERMOD v.22112	8.44E-02	24	15.0	Health & Particulate	B2	0.56%
Iron Oxide	1332-37-2	2.81E+00	AERMOD v.22112	7.79E+00	24	25.0	Health & Soiling	B2	31.14%
Isobutane	75-28-5	5.31E-03	AERMOD v.22112	2.43E+00	24	3550	Health	B2	0.07%
Isopentane	78-78-4	1.49E-03	AERMOD v.22112	2.27E+00	24	35500	Health	B2	0.01%
Isopropyl alcohol	67-63-0	1.39E+00	AERMOD v.22112	2.37E+00	24	7300	Health	B1	0.03%
Lead	7439-92-1	2.65E-02	AERMOD v.22112	5.37E-02	24	0.5	Health	B1	10.73%
			AERMOD v.22112	1.73E-02	30 day	0.2	Health	B1	8.67%
Magnesium	7439-95-4	1.04E-04	AERMOD v.22112	7.90E-04	24	72	Health	B2	0.00%
Magnesium carbonate	546-93-0	3.58E-02	AERMOD v.22112	7.91E-01	24	20	Health	B2	3.96%
Magnesium oxide	1309-48-4	2.83E-01	AERMOD v.22112	5.64E-01	24	120	Particulate	B1	0.47%
Magnetite	1309-38-2	2.67E+00	AERMOD v.22112	4.72E+00	24	25	Health & Soiling	B2	18.86%
Manganese	7439-96-5	1.18E-01	AERMOD v.22112	2.49E-01	24	0.4	Health	B1	62.19%
Mercury	7439-97-6	0	AERMOD v.22112	0	24	2	Health	B1	0.00%

Methane	74-82-8	5.19E+01	AERMOD v.22112	1.09E+02	24	37330	Health	B2	0.29%
Methylcyclohexane	108-87-2	8.10E-05	AERMOD v.22112	3.97E-02	24	8050	Health	B2	0.00%
Methylcyclopentane	96-37-7	7.34E-05	AERMOD v.22112	1.12E-01	24	3500	Health	B2	0.00%
Molybdenum	7439-98-7	6.19E-05	AERMOD v.22112	1.70E-04	24	120	Particulate	B2	0.00%
n-Butane	106-97-8	1.94E-02	AERMOD v.22112	9.30E+00	24	3550	Health	B2	0.26%
n-Heptane	142-82-5	1.07E-03	AERMOD v.22112	5.62E-01	24	11000	Health	B1	0.01%
n-Hexane	110-54-3	3.55E-03	AERMOD v.22112	1.86E+00	24	2500	Health	B1	0.07%
n-Octane	111-65-9	1.26E-04	AERMOD v.22112	1.56E+00	10 min	61800	Odour	B1	0.00%
n-Pentane	109-66-0	5.36E-03	AERMOD v.22112	2.64E+00	24	35500	Health	B1	0.01%
Naphthalene	91-20-3	1.18E-02	AERMOD v.22112	5.37E-01	24	22.5	Health	B1	2.39%
			AERMOD v.22112	5.27E+00	10 min	50	Odour		10.55%
Nickel and Nickel Compounds	7440-02-0	2.30E-04	AERMOD v.22112	9.00E-05	Annual	0.04	Health	B1	0.23%
Nitrogen oxides (expressed as NO2)	10102-44-0	1.47E+02	AERMOD v.22112	2.36E+02	1	400	Health	B1	58.88%
			AERMOD v.22112	9.05E+01	24	200			45.23%
Nitrous oxide	10024-97-2	1.35E+00	AERMOD v.22112	9.58E-01	24	9000	Health	B1	0.01%
Phosphorus (total)	7723-14-0	1.55E-03	AERMOD v.22112	3.29E-03	24	0.5	Health	B2	0.66%
Phosphoric Anhydride	1314-56-3	0.00E+0	AERMOD v.22112	0.00E+0	24	1	Health	B2	0.00%
Total Suspended Particulate Matter (< 44microns)	NA	8.94E+01	AERMOD v.22112	1.11E+02	24	120	Visibility	B1	92.75%
Potassium	7440-09-7	4.97E-02	AERMOD v.22112	1.88E-01	24	10	Health	B2	1.88%
Potassium Chloride	7447-40-7	3.74E-02	AERMOD v.22112	7.39E-02	24	20	Health	B2	0.37%
Propane	74-98-6	4.20E-02	AERMOD v.22112	4.62E+00	24	215000	Health	B2	0.00%
Propylene	115-07-1	9.11E-02	AERMOD v.22112	2.01E+00	24	4000	Health	B1	0.05%
Pyrene*	129-00-0	9.29E-03	AERMOD v.22112	2.53E-01	24	0.1	-	de minimus	NA
Pyrite	1309-36-0	4.67E-04	AERMOD v.22112	3.54E-03	24	120	Health & Particulate	B2	0.00%
Silicon dioxide	7631-86-9	2.01E-01	AERMOD v.22112	2.93E+00	24	5	Health	B2	58.51%
Silver	7440-22-4	1.61E-05	AERMOD v.22112	3.00E-05	24	1	Health	B1	0.00%
Strontium	7440-24-6	1.01E-03	AERMOD v.22112	1.93E-03	24	120	Particulate	B1	0.00%
Styrene	100-42-5	3.37E-04	AERMOD v.22112	1.54E-02	24	400	Health	B1	0.00%
Sulphur dioxide <sup>1</sup>	7446-09-5	3.38E+02	AERMOD v.22112	6.86E+02	1	NA	Health & Vegetation	B1	NA
			AERMOD v.22112	4.14E+01	Annual	NA			NA
Titanium (and its compounds)	7440-32-6	4.44E-03	AERMOD v.22112	4.93E-02	24	120	Particulate	B1	0.04%
Titanium Dioxide	13463-67-7	4.53E-03	AERMOD v.22112	6.90E-03	24	34	Health	B1	0.02%
Toluene	108-88-3	5.83E-02	AERMOD v.22112	1.38E+00	24	2000	Odour	B1	0.07%
Total reduced sulphur (TRS)	NA	1.10E+00	AERMOD v.22112	7.70E+00	10 min	13	Health & Odour	B1	59.21%
trans-2-Butene	624-64-6	7.34E-05	AERMOD v.22112	1.12E-01	24	2400	Health	B2	0.00%
Tungsten (elemental)	7440-33-7	5.98E-04	AERMOD v.22112	1.67E-03	24	5	Health	B2	0.03%
Vanadium (fume or dust)	7440-62-2	8.07E-04	AERMOD v.22112	2.35E-03	24	2	Health	B1	0.12%
Xylene (mixed isomers)	1330-20-7	5.18E-03	AERMOD v.22112	1.32E-01	24	730	Health	B1	0.02%
Zinc	7440-66-6	1.59E-01	AERMOD v.22112	9.35E-01	24	120	Particulate	B1	0.78%

**Notes:**

**Category** – refers to Category B1 and B2 in the Air Contaminants Benchmark (ACB) List Version 3.0, unless noted otherwise.

**de minimus** – POI concentration of 0.1 µg/m<sup>3</sup> (24-hour averaging period) applied for substance without standard or guideline under O. Reg. 419/05, as per MECP's ESDM Procedure Document.

**SSS** – Site-specific Standard

**B1** – (Benchmark 1) - Exceedance of a B1 concentration triggers specific actions under O. Reg. 419/05.

**B2** – (Benchmark 2) - Exceedance of a B2 concentration triggers a toxicological assessment to determine the likelihood of adverse effect

**NA** - Not Applicable

<sup>1</sup> - Algoma is working with the Ministry of Environment, Conservation and Parks on the implementation of an alternate standard, and is operating under an Abatement Plan for this contaminant.

\* - Predicted maximum POI exceeds the 0.1 µg/m<sup>3</sup> de minimus value. Contaminant is a Polycyclic Aromatic Hydrocarbon (PAH). Per MECP guidance, PAHs are assessed using B(a)P as the surrogate provided that Ministry toxicologists confirm the use of B(a)P as a surrogate for the contaminant is appropriate. A Maximum Ground Level Concentration Acceptability Request with no Ministry Point of Impingement form has been submitted for this contaminant.

Table E1-B: Emission Summary Table for the Interim Scenario (2025-2028)

Contaminant	CAS No.	Total Facility Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration (µg/m³)	Averaging Period (hours)	MECP POI Limit (µg/m³)	Limiting Effect	Category	Percent of MECP Limit (%)
1,2,3-Trimethylbenzene	526-73-8	6.68E-06	AERMOD v.22112	1.02E-02	24	220	Health	B1	0.00%
1,2,4-Trimethylbenzene	95-63-6	2.49E-04	AERMOD v.22112	1.23E-01	24	220	Health	B1	0.06%
1-Butene	106-98-9	2.30E-04	AERMOD v.22112	1.32E-01	24	7000	Health	B2	0.00%
1-Hexene	592-41-6	1.34E-05	AERMOD v.22112	2.03E-02	24	850	Health	B2	0.00%
1-Pentene	109-67-1	1.80E-04	AERMOD v.22112	2.74E-01	24	2050	Health	B2	0.01%
2,2-Dimethylbutane	75-83-2	2.00E-05	AERMOD v.22112	3.05E-02	24	1750	Health	B2	0.00%
2-Methylpentane	107-83-5	1.87E-04	AERMOD v.22112	2.84E-01	24	1750	Health	B2	0.02%
3-Methylpentane	96-14-0	1.07E-04	AERMOD v.22112	1.63E-01	24	1750	Health	B2	0.01%
Aluminum (fumes or dust)	7429-90-5	9.48E-02	AERMOD v.22112	8.86E-01	24	12	Health	B2	7.38%
Aluminum Oxide	1344-28-1	5.01E-02	AERMOD v.22112	7.88E-02	24	120	Particulate	B1	0.07%
Acenaphthene*	83-32-9	9.00E-03	AERMOD v.22112	2.46E-01	24	0.1	-	de minimus	NA
Acetylene	74-86-2	9.15E-03	AERMOD v.22112	1.46E+00	10 min	56000	Odour	B1	0.00%
Ammonia	7664-41-7	9.62E-02	AERMOD v.22112	1.13E+00	24	100	Health	B1	1.13%
Anthracene	0120-12-07	2.79E-06	AERMOD v.22112	8.00E-05	24	0.1	-	de minimus	0.08%
Antimony	7440-36-0	1.24E-04	AERMOD v.22112	2.10E-04	24	25	Health	B1	0.00%
Arsenic	7440-38-2	1.35E-03	AERMOD v.22112	1.03E-03	24	0.3	Health	B1	0.34%
Barium (total water soluble)	7440-39-3	2.04E-04	AERMOD v.22112	5.00E-04	24	10	Health	B1	0.01%
Benzene <sup>1</sup>	71-43-2	9.30E-01	AERMOD v.22112	5.58E+00	Annual	NA	Health	B1	NA
Benzo(a)anthracene	56-55-3	2.54E-03	AERMOD v.22112	6.93E-02	24	0.1	-	de minimus	69.32%
Benzo(a)fluorene	238-84-6	2.53E-03	AERMOD v.22112	6.91E-02	24	0.1	-	de minimus	69.10%
Benzo(a)phenanthrene	0218-01-09	2.21E-03	AERMOD v.22112	6.03E-02	24	0.1	-	de minimus	60.29%
Benzo(a)pyrene <sup>1</sup>	50-32-8	2.35E-03	AERMOD v.22112	1.07E-02	Annual	NA	Health	B1	NA
Benzo(b)fluorene	30777-19-6	1.41E-03	AERMOD v.22112	3.84E-02	24	0.1	-	de minimus	38.35%
Benzo(e)pyrene	192-97-2	2.02E-03	AERMOD v.22112	5.51E-02	24	0.1	-	de minimus	55.10%
Benzo(ghi)perylene	191-24-2	1.41E-03	AERMOD v.22112	3.84E-02	24	0.1	-	de minimus	38.38%
Benzo(k)fluoranthene	0207-08-09	1.65E-03	AERMOD v.22112	4.50E-02	24	0.1	-	de minimus	44.99%
Beryllium (and its compounds)	7440-41-7	7.53E-06	AERMOD v.22112	2.00E-05	24	0.01	Health	B1	0.20%
Bismuth	7440-69-9	4.00E-04	AERMOD v.22112	9.90E-04	24	2.5	Health	B2	0.04%
Cadmium and Cadmium Compounds	7440-43-9	1.22E-02	AERMOD v.22112	9.04E-03	24	0.025	Health	B1	36.16%
Calcium Carbonate	1317-65-3	4.81E+00	AERMOD v.22112	8.07E+00	24	15	Health & Particulate	B2	53.77%
Calcium Magnesium Carbonate	16389-88-1	2.17E-01	AERMOD v.22112	4.25E-01	24	45	Health	B2	0.95%
Calcium oxide	1305-78-8	3.29E-01	AERMOD v.22112	1.21E+00	24	10	Corrosion	B1	12.14%
Calcium silicate	1344-95-2	1.34E-01	AERMOD v.22112	3.58E-01	24	120	Health	B2	0.30%
Calcium sulfate	7778-18-9	1.65E-03	AERMOD v.22112	1.53E-02	24	120	Health	B2	0.01%
Carbon monoxide	630-08-0	4.10E+02	AERMOD v.22112	5.78E+02	30 min	6000	Health	B1	9.64%
Chlorine	7782-50-5	3.19E-01	AERMOD v.22112	3.15E+00	10 min	230		B1	1.37%

			AERMOD v.22112	2.50E-01	24	10	Odour Health		2.50%
Chromium (and its compounds)	7440-47-3	1.00E-02	AERMOD v.22112	9.80E-03	24	0.5	Health	B1	1.96%
cis-2-Butene	590-18-1	9.35E-05	AERMOD v.22112	1.42E-01	24	2400	Health	B2	0.01%
Cobalt	7440-48-4	6.95E-04	AERMOD v.22112	5.10E-04	24	0.1	Health	B1	0.51%
Copper	7440-50-8	6.08E-03	AERMOD v.22112	4.42E-03	24	50	Health	B1	0.01%
Cyclohexane	110-82-7	7.82E-04	AERMOD v.22112	4.07E-01	24	6100	Health	B1	0.01%
Cyclopentane	287-92-3	3.34E-05	AERMOD v.22112	5.08E-02	24	1700	Health	B2	0.00%
Dioxins and Furans	NA	1.10E-07	AERMOD v.22112	3.81E-08	24	0.0000001	Health	B1	38.13%
Dibenz(ah)acridine	226-36-8	4.94E-05	AERMOD v.22112	1.35E-03	24	0.1	-	de minimus	1.35%
Dibenz(aj)acridine	224-42-0	1.10E-04	AERMOD v.22112	3.00E-03	24	0.1	-	de minimus	3.00%
Dibenzo(ah)anthracene	53-70-3	1.45E-05	AERMOD v.22112	4.00E-04	24	0.1	-	de minimus	0.40%
Ethane	74-84-0	3.66E-01	AERMOD v.22112	7.59E+00	24	14500	Health	B2	0.05%
Ethyl benzene	100-41-4	9.57E-04	AERMOD v.22112	9.11E-01	10 min	1900	Odour	B1	0.05%
			AERMOD v.22112	1.15E-01	24	1000	Health	B1	0.01%
Ethylene	74-85-1	4.81E-01	AERMOD v.22112	1.01E+01	24	40	Vegetation	B1	25.16%
Ferrous oxide	1345-25-1	1.51E-01	AERMOD v.22112	1.16E+00	24	25.0	Health & Soiling	B2	4.65%
Fluoranthene	206-44-0	9.00E-03	AERMOD v.22112	2.46E-01	24	140	Health	B2	0.18%
Fluorene*	86-73-7	4.78E-03	AERMOD v.22112	1.31E-01	24	0.1	-	de minimus	NA
Fluorine	7782-41-4	5.74E-02	AERMOD v.22112	4.50E-02	24	0.1	-	de minimus	45.04%
Graphite	7782-42-5	7.75E-02	AERMOD v.22112	3.70E-01	24	10	Health	B2	3.70%
Hydrochloric acid	7647-01-0	4.85E-02	AERMOD v.22112	1.33E+00	24	20	Health	B1	6.63%
Hydrogen cyanide	74-90-8	9.85E-03	AERMOD v.22112	2.69E-01	24	8	Health	B1	3.36%
Hydrogen sulphide	7783-06-4	1.10E+00	AERMOD v.22112	7.69E+00	10 min	13	Health & Odour	B1	59.14%
			AERMOD v.22112	1.16E+00	24	7			16.52%
Indeno(123-cd)pyrene	193-39-5	1.05E-03	AERMOD v.22112	2.87E-02	24	0.1	-	de minimus	28.71%
Iron (metallic)	7439-89-6	6.54E-01	AERMOD v.22112	8.80E-01	24	4	Health	B1	22.01%
Iron hydroxide	1310-14-1	4.66E-02	AERMOD v.22112	8.44E-02	24	15.0	Health & Particulate	B2	0.56%
Iron Oxide	1332-37-2	5.43E+00	AERMOD v.22112	7.79E+00	24	25.0	Health & Soiling	B2	31.17%
Isobutane	75-28-5	5.31E-03	AERMOD v.22112	2.43E+00	24	3550	Health	B2	0.07%
Isopentane	78-78-4	1.49E-03	AERMOD v.22112	2.27E+00	24	35500	Health	B2	0.01%
Isopropyl alcohol	67-63-0	1.39E+00	AERMOD v.22112	2.37E+00	24	7300	Health	B1	0.03%
Lead	7439-92-1	5.20E-02	AERMOD v.22112	5.53E-02	24	0.5	Health	B1	11.07%
			AERMOD v.22112	1.88E-02	30 day	0.2	Health	B1	9.40%
Magnesium	7439-95-4	1.04E-04	AERMOD v.22112	7.90E-04	24	72	Health	B2	0.00%
Magnesium carbonate	546-93-0	3.95E-02	AERMOD v.22112	8.34E-01	24	20	Health	B2	4.17%
Magnesium oxide	1309-48-4	2.98E-01	AERMOD v.22112	5.64E-01	24	120	Particulate	B1	0.47%
Magnetite	1309-38-2	2.67E+00	AERMOD v.22112	4.72E+00	24	25	Health & Soiling	B2	18.86%
Manganese	7439-96-5	3.52E-01	AERMOD v.22112	3.52E-01	24	0.4	Health	B1	88.00%
Mercury	7439-97-6	6.38E-06	AERMOD v.22112	1.00E-05	24	2	Health	B1	0.00%

Methane	74-82-8	5.19E+01	AERMOD v.22112	1.09E+02	24	37330	Health	B2	0.29%
Methylcyclohexane	108-87-2	8.10E-05	AERMOD v.22112	3.97E-02	24	8050	Health	B2	0.00%
Methylcyclopentane	96-37-7	7.34E-05	AERMOD v.22112	1.12E-01	24	3500	Health	B2	0.00%
Molybdenum	7439-98-7	6.19E-05	AERMOD v.22112	1.70E-04	24	120	Particulate	B2	0.00%
n-Butane	106-97-8	1.94E-02	AERMOD v.22112	9.30E+00	24	3550	Health	B2	0.26%
n-Heptane	142-82-5	1.07E-03	AERMOD v.22112	5.62E-01	24	11000	Health	B1	0.01%
n-Hexane	110-54-3	3.55E-03	AERMOD v.22112	1.86E+00	24	2500	Health	B1	0.07%
n-Octane	111-65-9	1.26E-04	AERMOD v.22112	1.56E+00	10 min	61800	Odour	B1	0.00%
n-Pentane	109-66-0	5.36E-03	AERMOD v.22112	2.64E+00	24	35500	Health	B1	0.01%
Naphthalene	91-20-3	1.18E-02	AERMOD v.22112	5.37E-01	24	22.5	Health	B1	2.39%
			AERMOD v.22112	5.27E+00	10 min	50	Odour		10.55%
Nickel and Nickel Compounds	7440-02-0	5.13E-02	AERMOD v.22112	5.18E-03	Annual	0.04	Health	B1	12.95%
Nitrogen oxides (expressed as NO2)	10102-44-0	1.86E+02	AERMOD v.22112	2.48E+02	1	400	Health	B1	61.95%
			AERMOD v.22112	9.21E+01	24	200			46.06%
Nitrous oxide	10024-97-2	1.36E+00	AERMOD v.22112	9.61E-01	24	9000	Health	B1	0.01%
Phosphorus (total)	7723-14-0	1.55E-03	AERMOD v.22112	3.29E-03	24	0.5	Health	B2	0.66%
Phosphoric Anhydride	1314-56-3	2.36E-2	AERMOD v.22112	1.85E-2	24	1	Health	B2	1.85%
Total Suspended Particulate Matter (< 44microns)	NA	9.60E+01	AERMOD v.22112	1.17E+02	24	120	Visibility	B1	97.18%
Potassium	7440-09-7	5.04E-02	AERMOD v.22112	1.94E-01	24	10	Health	B2	1.94%
Potassium Chloride	7447-40-7	3.77E-02	AERMOD v.22112	7.40E-02	24	20	Health	B2	0.37%
Propane	74-98-6	6.37E-02	AERMOD v.22112	4.66E+00	24	215000	Health	B2	0.00%
Propylene	115-07-1	9.11E-02	AERMOD v.22112	2.01E+00	24	4000	Health	B1	0.05%
Pyrene*	129-00-0	9.29E-03	AERMOD v.22112	2.53E-01	24	0.1	-	de minimus	NA
Pyrite	1309-36-0	4.67E-04	AERMOD v.22112	3.54E-03	24	120	Health & Particulate	B2	0.00%
Silicon dioxide	7631-86-9	5.97E-01	AERMOD v.22112	3.59E+00	24	5	Health	B2	71.82%
Silver	7440-22-4	1.61E-05	AERMOD v.22112	3.00E-05	24	1	Health	B1	0.00%
Strontium	7440-24-6	1.01E-03	AERMOD v.22112	1.93E-03	24	120	Particulate	B1	0.00%
Styrene	100-42-5	3.37E-04	AERMOD v.22112	1.54E-02	24	400	Health	B1	0.00%
Sulphur dioxide <sup>1</sup>	7446-09-5	3.62E+02	AERMOD v.22112	6.86E+02	1	NA	Health & Vegetation	B1	NA
			AERMOD v.22112	4.17E+01	Annual	NA			NA
Titanium (and its compounds)	7440-32-6	4.66E-03	AERMOD v.22112	5.20E-02	24	120	Particulate	B1	0.04%
Titanium Dioxide	13463-67-7	4.55E-03	AERMOD v.22112	6.96E-03	24	34	Health	B1	0.02%
Toluene	108-88-3	5.83E-02	AERMOD v.22112	1.38E+00	24	2000	Odour	B1	0.07%
Total reduced sulphur (TRS)	NA	1.10E+00	AERMOD v.22112	7.70E+00	10 min	13	Health & Odour	B1	59.21%
trans-2-Butene	624-64-6	7.34E-05	AERMOD v.22112	1.12E-01	24	2400	Health	B2	0.00%
Tungsten (elemental)	7440-33-7	5.98E-04	AERMOD v.22112	1.67E-03	24	5	Health	B2	0.03%
Vanadium (fume or dust)	7440-62-2	1.45E-03	AERMOD v.22112	2.78E-03	24	2	Health	B1	0.14%
Xylene (mixed isomers)	1330-20-7	5.18E-03	AERMOD v.22112	1.32E-01	24	730	Health	B1	0.02%
Zinc	7440-66-6	1.50E+00	AERMOD v.22112	1.33E+00	24	120	Particulate	B1	1.11%

**Notes:**

**Category** – refers to Category B1 and B2 in the Air Contaminants Benchmark (ACB) List Version 3.0, unless noted otherwise.

**de minimus** – POI concentration of 0.1 µg/m<sup>3</sup> (24-hour averaging period) applied for substance without standard or guideline under O. Reg. 419/05, as per MECP's ESDM Procedure Document.

**SSS** – Site-specific Standard

**B1** – (Benchmark 1) - Exceedance of a B1 concentration triggers specific actions under O. Reg. 419/05.

**B2** – (Benchmark 2) - Exceedance of a B2 concentration triggers a toxicological assessment to determine the likelihood of adverse effect

**NA** - Not Applicable

<sup>1</sup> - Algoma is working with the Ministry of Environment, Conservation and Parks on the implementation of an alternate standard, and is operating under an Abatement Plan for this contaminant.

\* - Predicted maximum POI exceeds the 0.1 µg/m<sup>3</sup> de minimus value. Contaminant is a Polycyclic Aromatic Hydrocarbon (PAH). Per MECP guidance, PAHs are assessed using B(a)P as the surrogate provided that Ministry toxicologists confirm the use of B(a)P as a surrogate for the contaminant is appropriate. A Maximum Ground Level Concentration Acceptability Request with no Ministry Point of Impingement form has been submitted for this contaminant.

Table E1-C: Emission Summary Table for the Future Scenario (2029-onwards)

Contaminant	CAS No.	Total Facility Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration ( $\mu\text{g}/\text{m}^3$ )	Averaging Period (hours)	MECP POI Limit ( $\mu\text{g}/\text{m}^3$ )	Limiting Effect	Category	Percent of MECP Limit (%)
1,2,3-Trimethylbenzene	526-73-8	6.68E-06	AERMOD v.22112	1.02E-02	24	220	Health	B1	0.00%
1,2,4-Trimethylbenzene	95-63-6	2.49E-04	AERMOD v.22112	1.23E-01	24	220	Health	B1	0.06%
1-Butene	106-98-9	8.68E-05	AERMOD v.22112	1.32E-01	24	7000	Health	B2	0.00%
1-Hexene	592-41-6	1.34E-05	AERMOD v.22112	2.03E-02	24	850	Health	B2	0.00%
1-Pentene	109-67-1	1.80E-04	AERMOD v.22112	2.74E-01	24	2050	Health	B2	0.01%
2,2-Dimethylbutane	75-83-2	2.00E-05	AERMOD v.22112	3.05E-02	24	1750	Health	B2	0.00%
2-Methylpentane	107-83-5	1.87E-04	AERMOD v.22112	2.84E-01	24	1750	Health	B2	0.02%
3-Methylpentane	96-14-0	1.07E-04	AERMOD v.22112	1.63E-01	24	1750	Health	B2	0.01%
Aluminum (fumes or dust)	7429-90-5	5.24E-02	AERMOD v.22112	7.70E-01	24	12	Health	B2	6.42%
Aluminum Oxide	1344-28-1	5.28E-02	AERMOD v.22112	8.50E-02	24	120	Particulate	B1	0.07%
Acenaphthene	83-32-9	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Acetylene	74-86-2	0.00E+00	AERMOD v.22112	0.00E+00	10 min	56000	Odour	B1	0.00%
Ammonia	7664-41-7	0.00E+00	AERMOD v.22112	0.00E+00	24	100	Health	B1	0.00%
Anthracene	0120-12-07	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Antimony	7440-36-0	2.20E-08	AERMOD v.22112	0.00E+00	24	25	Health	B1	0.00%
Arsenic	7440-38-2	1.53E-03	AERMOD v.22112	1.94E-03	24	0.3	Health	B1	0.65%
Barium (total water soluble)	7440-39-3	0.00E+00	AERMOD v.22112	0.00E+00	24	10	Health	B1	0.00%
Benzene	71-43-2	1.64E-03	AERMOD v.22112	1.07E-01	Annual	0.5	Health	B1	23.73%
Benzo(a)anthracene	56-55-3	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(a)fluorene	238-84-6	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(a)phenanthrene	0218-01-09	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(a)pyrene	50-32-8	0.00E+00	AERMOD v.22112	0.00E+00	Annual	0.000	Health	B1	0.00%
Benzo(b)fluorene	30777-19-6	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(e)pyrene	192-97-2	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(ghi)perylene	191-24-2	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(k)fluoranthene	0207-08-09	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Beryllium (and its compounds)	7440-41-7	0.00E+00	AERMOD v.22112	0.00E+00	24	0.01	Health	B1	0.00%
Bismuth	7440-69-9	0.00E+00	AERMOD v.22112	0.00E+00	24	2.5	Health	B2	0.00%
Cadmium and Cadmium Compounds	7440-43-9	1.31E-02	AERMOD v.22112	1.75E-02	24	0.025	Health	B1	69.92%
Calcium Carbonate	1317-65-3	4.32E-01	AERMOD v.22112	4.98E+00	24	15	Health & Particulate	B2	33.22%
Calcium Magnesium Carbonate	16389-88-1	2.17E-01	AERMOD v.22112	4.25E-01	24	45	Health	B2	0.95%
Calcium oxide	1305-78-8	3.54E-01	AERMOD v.22112	1.94E+00	24	10	Corrosion	B1	19.43%
Calcium silicate	1344-95-2	0.00E+00	AERMOD v.22112	0.00E+00	24	120	Health	B2	0.00%
Calcium sulfate	7778-18-9	0.00E+00	AERMOD v.22112	0.00E+00	24	120	Health	B2	0.00%
Carbon monoxide	630-08-0	3.67E+02	AERMOD v.22112	4.96E+02	30 min	6000	Health	B1	8.27%
Chlorine	7782-50-5	3.63E-01	AERMOD v.22112	6.31E+00	10 min	230	OdourHealth	B1	2.74%
			AERMOD v.22112	4.85E-01	24	10			4.85%

Chromium (and its compounds)	7440-47-3	1.01E-02	AERMOD v.22112	1.35E-02	24	0.5	Health	B1	2.70%
cis-2-Butene	590-18-1	9.35E-05	AERMOD v.22112	1.42E-01	24	2400	Health	B2	0.01%
Cobalt	7440-48-4	7.30E-04	AERMOD v.22112	9.70E-04	24	0.1	Health	B1	0.97%
Copper	7440-50-8	5.83E-03	AERMOD v.22112	7.77E-03	24	50	Health	B1	0.02%
Cyclohexane	110-82-7	7.82E-04	AERMOD v.22112	4.07E-01	24	6100	Health	B1	0.01%
Cyclopentane	287-92-3	3.34E-05	AERMOD v.22112	5.08E-02	24	1700	Health	B2	0.00%
Dioxins and Furans	NA	1.10E-07	AERMOD v.22112	3.81E-08	24	0.0000001	Health	B1	38.13%
Dibenz(ah)acridine	226-36-8	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Dibenz(aj)acridine	224-42-0	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Dibenzo(ah)anthracene	53-70-3	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Ethane	74-84-0	2.30E-02	AERMOD v.22112	7.46E-01	24	14500	Health	B2	0.01%
Ethyl benzene	100-41-4	1.98E-04	AERMOD v.22112	8.82E-01	10 min	1900	Odour	B1	0.05%
			AERMOD v.22112	1.06E-01	24	1000	Health	B1	0.01%
Ethylene	74-85-1	0.00E+00	AERMOD v.22112	0.00E+00	24	40	Vegetation	B1	0.00%
Ferrous oxide	1345-25-1	1.71E-01	AERMOD v.22112	1.99E+00	24	25.0	Health & Soiling	B2	7.96%
Fluoranthene	206-44-0	0.00E+00	AERMOD v.22112	0.00E+00	24	140	Health	B2	0.00%
Fluorene	86-73-7	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Fluorine	7782-41-4	6.53E-02	AERMOD v.22112	8.74E-02	24	0.1	-	de minimus	87.39%
Graphite	7782-42-5	0.00E+00	AERMOD v.22112	0.00E+00	24	10	Health	B2	0.00%
Hydrochloric acid	7647-01-0	4.85E-02	AERMOD v.22112	1.33E+00	24	20	Health	B1	6.63%
Hydrogen cyanide	74-90-8	0.00E+00	AERMOD v.22112	0.00E+00	24	8	Health	B1	0.00%
Hydrogen sulphide	7783-06-4	0.00E+00	AERMOD v.22112	0.00E+00	10 min	13	Health & Odour	B1	0.00%
			AERMOD v.22112	0.00E+00	24	7			0.00%
Indeno(123-cd)pyrene	193-39-5	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Iron (metallic)	7439-89-6	4.78E-01	AERMOD v.22112	7.16E-01	24	4	Health	B1	17.91%
Iron hydroxide	1310-14-1	0.00E+00	AERMOD v.22112	0.00E+00	24	15.0	Health & Particulate	B2	0.00%
Iron Oxide	1332-37-2	3.39E+00	AERMOD v.22112	4.48E+00	24	25.0	Health & Soiling	B2	17.93%
Isobutane	75-28-5	5.31E-03	AERMOD v.22112	2.43E+00	24	3550	Health	B2	0.07%
Isopentane	78-78-4	1.49E-03	AERMOD v.22112	2.27E+00	24	35500	Health	B2	0.01%
Isopropyl alcohol	67-63-0	1.39E+00	AERMOD v.22112	2.37E+00	24	7300	Health	B1	0.03%
Lead	7439-92-1	2.90E-02	AERMOD v.22112	3.88E-02	24	0.5	Health	B1	7.77%
			AERMOD v.22112	8.76E-03	30 day	0.2	Health	B1	4.38%
Magnesium	7439-95-4	0.00E+00	AERMOD v.22112	0.00E+00	24	72	Health	B2	0.00%
Magnesium carbonate	546-93-0	2.88E-02	AERMOD v.22112	7.40E-01	24	20	Health	B2	3.70%
Magnesium oxide	1309-48-4	2.37E-02	AERMOD v.22112	3.32E-01	24	120	Particulate	B1	0.28%
Magnetite	1309-38-2	0.00E+00	AERMOD v.22112	0.00E+00	24	25	Health & Soiling	B2	0.00%
Manganese	7439-96-5	2.72E-01	AERMOD v.22112	3.62E-01	24	0.4	Health	B1	90.48%
Mercury	7439-97-6	7.26E-06	AERMOD v.22112	1.00E-05	24	2	Health	B1	0.00%
Methane	74-82-8	7.51E-01	AERMOD v.22112	6.44E-01	24	37330	Health	B2	0.00%

Methylcyclohexane	108-87-2	8.10E-05	AERMOD v.22112	3.97E-02	24	8050	Health	B2	0.00%
Methylcyclopentane	96-37-7	7.34E-05	AERMOD v.22112	1.12E-01	24	3500	Health	B2	0.00%
Molybdenum	7439-98-7	0.00E+00	AERMOD v.22112	0.00E+00	24	120	Particulate	B2	0.00%
n-Butane	106-97-8	1.94E-02	AERMOD v.22112	9.30E+00	24	3550	Health	B2	0.26%
n-Heptane	142-82-5	1.07E-03	AERMOD v.22112	5.62E-01	24	11000	Health	B1	0.01%
n-Hexane	110-54-3	3.55E-03	AERMOD v.22112	1.86E+00	24	2500	Health	B1	0.07%
n-Octane	111-65-9	1.26E-04	AERMOD v.22112	1.56E+00	10 min	61800	Odour	B1	0.00%
n-Pentane	109-66-0	5.36E-03	AERMOD v.22112	2.64E+00	24	35500	Health	B1	0.01%
Naphthalene	91-20-3	0.00E+00	AERMOD v.22112	0.00E+00	24	22.5	Health	B1	0.00%
			AERMOD v.22112	0.00E+00	10 min	50	Odour		0.00%
Nickel and Nickel Compounds	7440-02-0	5.82E-02	AERMOD v.22112	9.99E-03	Annual	0.04	Health	B1	24.98%
Nitrogen oxides (expressed as NO2)	10102-44-0	1.38E+02	AERMOD v.22112	1.69E+02	1	400	Health	B1	42.28%
			AERMOD v.22112	7.39E+01	24	200			36.96%
Nitrous oxide	10024-97-2	6.25E-02	AERMOD v.22112	5.36E-02	24	9000	Health	B1	0.00%
Phosphorus (total)	7723-14-0	1.57E-06	AERMOD v.22112	7.00E-05	24	0.5	Health	B2	0.01%
Phosphoric Anhydride	1314-56-3	2.69E-2	AERMOD v.22112	3.59E-2	24	1	Health	B2	3.59%
Total Suspended Particulate Matter (< 44microns)	NA	1.36E+01	AERMOD v.22112	2.24E+01	24	120	Visibility	B1	18.65%
Potassium	7440-09-7	9.97E-03	AERMOD v.22112	1.49E-01	24	10	Health	B2	1.49%
Potassium Chloride	7447-40-7	3.77E-02	AERMOD v.22112	7.40E-02	24	20	Health	B2	0.37%
Propane	74-98-6	2.97E-02	AERMOD v.22112	4.24E+00	24	215000	Health	B2	0.00%
Propylene	115-07-1	0.00E+00	AERMOD v.22112	0.00E+00	24	4000	Health	B1	0.00%
Pyrene	129-00-0	0.00E+00	AERMOD v.22112	0.00E+00	24	0.1	-	de minimus	0.00%
Pyrite	1309-36-0	0.00E+00	AERMOD v.22112	0.00E+00	24	120	Health & Particulate	B2	0.00%
Silicon dioxide	7631-86-9	6.01E-01	AERMOD v.22112	2.77E+00	24	5	Health	B2	55.37%
Silver	7440-22-4	2.00E-09	AERMOD v.22112	1.00E-05	24	1	Health	B1	0.00%
Strontium	7440-24-6	0.00E+00	AERMOD v.22112	0.00E+00	24	120	Particulate	B1	0.00%
Styrene	100-42-5	0.00E+00	AERMOD v.22112	0.00E+00	24	400	Health	B1	0.00%
Sulphur dioxide	7446-09-5	2.50E+01	AERMOD v.22112	2.74E+01	1	100	Health & Vegetation	B1	27.41%
			AERMOD v.22112	8.88E-01	Annual	10			8.88%
Titanium (and its compounds)	7440-32-6	1.54E-03	AERMOD v.22112	4.40E-02	24	120	Particulate	B1	0.04%
Titanium Dioxide	13463-67-7	4.55E-03	AERMOD v.22112	6.96E-03	24	34	Health	B1	0.02%
Toluene	108-88-3	1.32E-03	AERMOD v.22112	6.82E-01	24	2000	Odour	B1	0.03%
Total reduced sulphur (TRS)	NA	0.00E+00	AERMOD v.22112	0.00E+00	10 min	13	Health & Odour	B1	0.00%
trans-2-Butene	624-64-6	7.34E-05	AERMOD v.22112	1.12E-01	24	2400	Health	B2	0.00%
Tungsten (elemental)	7440-33-7	0.00E+00	AERMOD v.22112	0.00E+00	24	5	Health	B2	0.00%
Vanadium (fume or dust)	7440-62-2	7.93E-04	AERMOD v.22112	2.09E-03	24	2	Health	B1	0.10%
Xylene (mixed isomers)	1330-20-7	8.05E-05	AERMOD v.22112	4.30E-02	24	730	Health	B1	0.01%
Zinc	7440-66-6	1.53E+00	AERMOD v.22112	2.04E+00	24	120	Particulate	B1	1.70%

**Notes:**

**Category** – refers to Category B1 and B2 in the Air Contaminants Benchmark (ACB) List Version 3.0, unless noted otherwise

**de minimus** – POI concentration of 0.1 µg/m<sup>3</sup> (24-hour averaging period) applied for substance without standard or guideline under O. Reg. 419/05, as per MECP's ESDM Procedure Document.

**SSS** – Site-specific Standard

**B1** – (Benchmark 1) - Exceedance of a B1 concentration triggers specific actions under O. Reg. 419/05.

**B2** – (Benchmark 2) - Exceedance of a B2 concentration triggers a toxicological assessment to determine the likelihood of adverse effect

**NA** - Not Applicable

Table E1-D: Emission Summary Table for the Alternate Future Scenario (2029-onwards)

Contaminant	CAS No.	Total Facility Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration ( $\mu\text{g}/\text{m}^3$ )	Averaging Period (hours)	MECP POI Limit ( $\mu\text{g}/\text{m}^3$ )	Limiting Effect	Category	Percent of MECP Limit (%)
1,2,3-Trimethylbenzene	526-73-8	6.68E-06	AERMOD v.22112	1.02E-02	24	220	Health	B1	0.00%
1,2,4-Trimethylbenzene	95-63-6	2.49E-04	AERMOD v.22112	1.23E-01	24	220	Health	B1	0.06%
1-Butene	106-98-9	8.68E-05	AERMOD v.22112	1.32E-01	24	7000	Health	B2	0.00%
1-Hexene	592-41-6	1.34E-05	AERMOD v.22112	2.03E-02	24	850	Health	B2	0.00%
1-Pentene	109-67-1	1.80E-04	AERMOD v.22112	2.74E-01	24	2050	Health	B2	0.01%
2,2-Dimethylbutane	75-83-2	2.00E-05	AERMOD v.22112	3.05E-02	24	1750	Health	B2	0.00%
2-Methylpentane	107-83-5	1.87E-04	AERMOD v.22112	2.84E-01	24	1750	Health	B2	0.02%
3-Methylpentane	96-14-0	1.07E-04	AERMOD v.22112	1.63E-01	24	1750	Health	B2	0.01%
Aluminum (fumes or dust)	7429-90-5	5.42E-02	AERMOD v.22112	7.76E-01	24	12	Health	B2	6.47%
Aluminum Oxide	1344-28-1	5.28E-02	AERMOD v.22112	8.50E-02	24	120	Particulate	B1	0.07%
Acenaphthene	83-32-9	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Acetylene	74-86-2	0.00E+00	AERMOD v.19191	0.00E+00	10 min	56000	Odour	B1	0.00%
Ammonia	7664-41-7	0.00E+00	AERMOD v.19191	0.00E+00	24	100	Health	B1	0.00%
Anthracene	0120-12-07	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Antimony	7440-36-0	2.20E-08	AERMOD v.22112	0.00E+00	24	25	Health	B1	0.00%
Arsenic	7440-38-2	1.53E-03	AERMOD v.22112	1.94E-03	24	0.3	Health	B1	0.65%
Barium (total water soluble)	7440-39-3	5.90E-06	AERMOD v.22112	4.00E-05	24	10	Health	B1	0.00%
Benzene	71-43-2	1.64E-03	AERMOD v.22112	1.07E-01	Annual	0.5	Health	B1	23.73%
Benzo(a)anthracene	56-55-3	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(a)fluorene	238-84-6	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(a)phenanthrene	0218-01-09	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(a)pyrene	50-32-8	0.00E+00	AERMOD v.19191	0.00E+00	Annual	0.00001	Health	B1	0.00%
Benzo(b)fluorene	30777-19-6	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(e)pyrene	192-97-2	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(ghi)perylene	191-24-2	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Benzo(k)fluoranthene	0207-08-09	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Beryllium (and its compounds)	7440-41-7	0.00E+00	AERMOD v.19191	0.00E+00	24	0.01	Health	B1	0.00%
Bismuth	7440-69-9	2.86E-05	AERMOD v.22112	2.16E-04	24	2.5	Health	B2	0.01%
Cadmium and Cadmium Compounds	7440-43-9	1.31E-02	AERMOD v.22112	1.75E-02	24	0.025	Health	B1	69.92%
Calcium Carbonate	1317-65-3	4.98E-01	AERMOD v.22112	5.26E+00	24	15	Health & Particulate	B2	35.04%
Calcium Magnesium Carbonate	16389-88-1	2.17E-01	AERMOD v.22112	4.25E-01	24	45	Health	B2	0.95%
Calcium oxide	1305-78-8	3.66E-01	AERMOD v.22112	2.04E+00	24	10	Corrosion	B1	20.37%
Calcium silicate	1344-95-2	1.25E-03	AERMOD v.22112	1.27E-02	24	120	Health	B2	0.01%
Calcium sulfate	7778-18-9	1.65E-03	AERMOD v.22112	1.53E-02	24	120	Health	B2	0.01%
Carbon monoxide	630-08-0	3.91E+02	AERMOD v.22112	5.22E+02	30 min	6000	Health	B1	8.71%

Chlorine	7782-50-5	3.63E-01	AERMOD v.22112	6.31E+00	10 min	230	OdourHealth	B1	2.74%
			AERMOD v.22112	4.85E-01	24	10			4.85%
Chromium (and its compounds)	7440-47-3	1.02E-02	AERMOD v.22112	1.35E-02	24	0.5	Health	B1	2.70%
cis-2-Butene	590-18-1	9.35E-05	AERMOD v.22112	1.42E-01	24	2400	Health	B2	0.01%
Cobalt	7440-48-4	7.38E-04	AERMOD v.22112	9.70E-04	24	0.1	Health	B1	0.97%
Copper	7440-50-8	5.83E-03	AERMOD v.22112	7.77E-03	24	50	Health	B1	0.02%
Cyclohexane	110-82-7	7.82E-04	AERMOD v.22112	4.07E-01	24	6100	Health	B1	0.01%
Cyclopentane	287-92-3	3.34E-05	AERMOD v.22112	5.08E-02	24	1700	Health	B2	0.00%
Dioxins and Furans	NA	1.10E-07	AERMOD v.22112	3.81E-08	24	0.0000001	Health	B1	38.13%
Dibenz(ah)acridine	226-36-8	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Dibenz(aj)acridine	224-42-0	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Dibenzo(ah)anthracene	53-70-3	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Ethane	74-84-0	2.30E-02	AERMOD v.22112	7.64E-01	24	14500	Health	B2	0.01%
Ethyl benzene	100-41-4	1.98E-04	AERMOD v.22112	8.82E-01	10 min	1900	Odour	B1	0.05%
			AERMOD v.22112	1.06E-01	24	1000	Health	B1	0.01%
Ethylene	74-85-1	0.00E+00	AERMOD v.19191	0.00E+00	24	40	Vegetation	B1	0.00%
Ferrous oxide	1345-25-1	1.71E-01	AERMOD v.22112	1.99E+00	24	25.0	Health & Soiling	B2	7.96%
Fluoranthene	206-44-0	0.00E+00	AERMOD v.19191	0.00E+00	24	140	Health	B2	0.00%
Fluorene	86-73-7	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Fluorine	7782-41-4	6.53E-02	AERMOD v.22112	8.74E-02	24	0.1	-	de minimus	87.39%
Graphite	7782-42-5	4.38E-02	AERMOD v.22112	3.33E-01	24	10	Health	B2	3.33%
Hydrochloric acid	7647-01-0	4.85E-02	AERMOD v.22112	1.33E+00	24	20	Health	B1	6.63%
Hydrogen cyanide	74-90-8	0.00E+00	AERMOD v.19191	0.00E+00	24	8	Health	B1	0.00%
Hydrogen sulphide	7783-06-4	1.47E+00	AERMOD v.22112	1.07E+01	10 min	13	Health & Odour	B1	82.69%
			AERMOD v.22112	9.39E-01	24	7			13.42%
Indeno(123-cd)pyrene	193-39-5	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Iron (metallic)	7439-89-6	5.64E-01	AERMOD v.22112	8.94E-01	24	4	Health	B1	22.35%
Iron hydroxide	1310-14-1	1.64E-02	AERMOD v.22112	7.27E-02	24	15.0	Health & Particulate	B2	0.48%
Iron Oxide	1332-37-2	4.07E+00	AERMOD v.22112	6.43E+00	24	25.0	Health & Soiling	B2	25.73%
Isobutane	75-28-5	5.31E-03	AERMOD v.22112	2.43E+00	24	3550	Health	B2	0.07%
Isopentane	78-78-4	1.49E-03	AERMOD v.22112	2.27E+00	24	35500	Health	B2	0.01%
Isopropyl alcohol	67-63-0	1.39E+00	AERMOD v.22112	2.37E+00	24	7300	Health	B1	0.03%
Lead	7439-92-1	2.91E-02	AERMOD v.22112	3.89E-02	24	0.5	Health	B1	7.77%
			AERMOD v.22112	8.77E-03	30 day	0.2	Health	B1	4.39%
Magnesium	7439-95-4	0.00E+00	AERMOD v.19191	0.00E+00	24	72	Health	B2	0.00%
Magnesium carbonate	546-93-0	3.17E-02	AERMOD v.22112	7.54E-01	24	20	Health	B2	3.77%
Magnesium oxide	1309-48-4	4.44E-02	AERMOD v.22112	3.83E-01	24	120	Particulate	B1	0.32%
Magnetite	1309-38-2	6.81E-01	AERMOD v.22112	3.29E+00	24	25	Health & Soiling	B2	13.14%
Manganese	7439-96-5	2.74E-01	AERMOD v.22112	3.69E-01	24	0.4	Health	B1	92.13%

Mercury	7439-97-6	7.26E-06	AERMOD v.22112	1.00E-05	24	2	Health	B1	0.00%
Methane	74-82-8	1.71E+01	AERMOD v.22112	1.54E+01	24	37330	Health	B2	0.04%
Methylcyclohexane	108-87-2	8.10E-05	AERMOD v.22112	3.97E-02	24	8050	Health	B2	0.00%
Methylcyclopentane	96-37-7	7.34E-05	AERMOD v.22112	1.12E-01	24	3500	Health	B2	0.00%
Molybdenum	7439-98-7	5.20E-07	AERMOD v.22112	1.00E-05	24	120	Particulate	B2	0.00%
n-Butane	106-97-8	1.94E-02	AERMOD v.22112	9.30E+00	24	3550	Health	B2	0.26%
n-Heptane	142-82-5	1.07E-03	AERMOD v.22112	5.62E-01	24	11000	Health	B1	0.01%
n-Hexane	110-54-3	3.55E-03	AERMOD v.22112	1.86E+00	24	2500	Health	B1	0.07%
n-Octane	111-65-9	1.26E-04	AERMOD v.22112	1.56E+00	10 min	61800	Odour	B1	0.00%
n-Pentane	109-66-0	5.36E-03	AERMOD v.22112	2.64E+00	24	35500	Health	B1	0.01%
Naphthalene	91-20-3	0.00E+00	AERMOD v.19191	0.00E+00	24	22.5	Health	B1	0.00%
			AERMOD v.22112	0.00E+00	10 min	50	Odour		0.00%
Nickel and Nickel Compounds	7440-02-0	5.82E-02	AERMOD v.22112	9.99E-03	Annual	0.04	Health	B1	24.98%
Nitrogen oxides (expressed as NO2)	10102-44-0	1.69E+02	AERMOD v.22112	2.46E+02	1	400	Health	B1	61.61%
			AERMOD v.22112	9.34E+01	24	200			46.68%
Nitrous oxide	10024-97-2	4.28E-01	AERMOD v.22112	3.80E-01	24	9000	Health	B1	0.00%
Phosphorus (total)	7723-14-0	1.57E-06	AERMOD v.22112	7.00E-04	24	0.5	Health	B2	0.14%
Phosphoric Anhydride	1314-56-3	2.69E-2	AERMOD v.22112	3.59E-2	24	1	Health	B2	3.59%
Total Suspended Particulate Matter (< 44microns)	NA	1.76E+01	AERMOD v.22112	2.84E+01	24	120	Visibility	B1	23.64%
Potassium	7440-09-7	1.08E-02	AERMOD v.22112	1.50E-01	24	10	Health	B2	1.50%
Potassium Chloride	7447-40-7	3.77E-02	AERMOD v.22112	7.40E-02	24	20	Health	B2	0.37%
Propane	74-98-6	2.97E-02	AERMOD v.22112	4.24E+00	24	215000	Health	B2	0.00%
Propylene	115-07-1	0.00E+00	AERMOD v.19191	0.00E+00	24	4000	Health	B1	0.00%
Pyrene	129-00-0	0.00E+00	AERMOD v.19191	0.00E+00	24	0.1	-	de minimus	0.00%
Pyrite	1309-36-0	0.00E+00	AERMOD v.19191	0.00E+00	24	120	Health & Particulate	B2	0.00%
Silicon dioxide	7631-86-9	6.08E-01	AERMOD v.22112	2.80E+00	24	5	Health	B2	55.90%
Silver	7440-22-4	1.84E-06	AERMOD v.22112	0.00E+00	24	1	Health	B1	0.00%
Strontium	7440-24-6	1.12E-05	AERMOD v.22112	1.00E-04	24	120	Particulate	B1	0.00%
Styrene	100-42-5	0.00E+00	AERMOD v.19191	0.00E+00	24	400	Health	B1	0.00%
Sulphur dioxide	7446-09-5	5.56E+01	AERMOD v.22112	8.35E+01	1	100	Health & Vegetation	B1	83.51%
			AERMOD v.22112	5.64E+00	Annual	10			56.36%
Titanium (and its compounds)	7440-32-6	1.80E-03	AERMOD v.22112	4.34E-02	24	120	Particulate	B1	0.04%
Titanium Dioxide	13463-67-7	1.64E-03	AERMOD v.22112	4.43E-02	24	34	Health	B1	0.13%
Toluene	108-88-3	1.32E-03	AERMOD v.22112	6.82E-01	24	2000	Odour	B1	0.03%
Total reduced sulphur (TRS)	NA	1.47E+00	AERMOD v.22112	1.07E+01	10 min	13	Health & Odour	B1	82.69%
trans-2-Butene	624-64-6	7.34E-05	AERMOD v.22112	1.12E-01	24	2400	Health	B2	0.00%
Tungsten (elemental)	7440-33-7	1.15E-06	AERMOD v.22112	1.00E-05	24	5	Health	B2	0.00%
Vanadium (fume or dust)	7440-62-2	8.13E-04	AERMOD v.22112	2.11E-03	24	2	Health	B1	0.11%
Xylene (mixed isomers)	1330-20-7	8.05E-05	AERMOD v.22112	4.30E-02	24	730	Health	B1	0.01%
Zinc	7440-66-6	1.54E+00	AERMOD v.22112	2.04E+00	24	120	Particulate	B1	1.70%

**Notes:**

**Category** – refers to Category B1 and B2 in the Air Contaminants Benchmark (ACB) List Version 3.0, unless noted otherwise.

**de minimus** – POI concentration of 0.1 µg/m<sup>3</sup> (24-hour averaging period) applied for substance without standard or guideline under O. Reg. 419/05, as per MECP's ESDM Procedure Document.

**SSS** – Site-specific Standard

**B1** – (Benchmark 1) - Exceedance of a B1 concentration triggers specific actions under O. Reg. 419/05.

**B2** – (Benchmark 2) - Exceedance of a B2 concentration triggers a toxicological assessment to determine the likelihood of adverse effect

**NA** - Not Applicable