



# **2021 Fourth Quarter Summary Report - Ambient Air Quality Monitoring Program**

**Algoma Steel Inc.  
105 West Street  
Sault Ste. Marie, Ontario  
P6A 7B4**

Algoma Steel Inc.  
February 22, 2022

**GHD**



455 Phillip Street, Unit 100A

Waterloo, Ontario N2L 3X2, Canada

T +1 519 884 0510 | F +1 519 884 0525 | E info-northamerica@ghd.com | **ghd.com**

<b>Printed date</b>	2022-02-22 3:55:00 PM
<b>Last saved date</b>	February 22, 2022
<b>File name</b>	037946-RPT-89
<b>Author</b>	Sarah Ackert Ferguson
<b>Project manager</b>	Sarah Ackert Ferguson
<b>Client name</b>	Algoma Steel Inc.
<b>Project name</b>	Algoma Steel
<b>Document title</b>	2021 Fourth Quarter Summary Report - Ambient Air Quality Monitoring Program
<b>Revision version</b>	Rev [00]
<b>Project number</b>	037946-RPT-89

**Document status**

Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S0	DRAFT	Sarah Ackert Ferguson	Kyle Malo		Kyle Malo		February 22, 2022
S4	FINAL	Sarah Ackert Ferguson	Kyle Malo		Kyle Malo		February 22, 2022

© GHD 2022

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

# Executive summary

Algoma Steel Inc. (Algoma) herein presents the 2021 Fourth Quarter Summary Report (Report) for the months of October to December 2021, for its Ambient Air Quality Monitoring Program (AAQMP) in Sault Ste. Marie, Ontario (Site/Facility). Algoma is responsible for the operation and maintenance of the existing monitoring stations and ambient air quality sampling, formerly carried out by the Ontario Ministry of the Environment, Conservation, and Parks (MECP). The AAQMP was operated in general accordance with the MECP Operations Manual for Air Quality Monitoring in Ontario dated February 2018 (Operations Manual). Reporting and/or excursion notification were conducted in general accordance with Ontario Regulation 419/05, "Air Pollution – Local Air Quality" (O. Reg. 419/05), the Ontario Ambient Air Quality Criteria (Ontario AAQC) and are presented within the attached summary table.

The objective of the AAQMP is to perform ongoing data analysis and reporting of both continuous and non-continuous data for the following stations:

Station 71068 – Patrick Street

Station 71090 – Wallace Terrace

Station 71015 – Spadina Avenue (dustfall only)

Station 71042 – Bonney Street (dustfall only)

Station 71043 – Wilding Avenue (dustfall only)

Station 71045 – Adelaide Street (dustfall only)

Algoma operated the monitoring stations in general accordance with the requirements specified within the MECP Operations Manual, O. Reg. 419/05, and the Ontario AAQCs. As per the MECP's requirements and in accordance with O. Reg. 419/05, all AAQC, Upper Risk Thresholds (URT), Guideline, and/or Standard excursions within this Report were reported.

**2021 Fourth Quarter Executive Summary Table  
October to December 2021  
Algoma Ambient Air Quality Monitoring Program  
Sault Ste. Marie, Ontario**

Patrick Street Ambient Air Quality Monitoring Station (71068)							
Parameter	Units	Maximum	Minimum	Arithmetic Mean	Standard <sup>(1)</sup>	Number of Excursions <sup>(2)</sup>	Guideline, URT, AAQC Criteria <sup>(1,3,4)</sup>
<b>Continuous Parameters</b>							
Total Reduced Sulphur (TRS) - 24 hour	ppb	2.4	0.0	0.1	5 ppb (24-hour) <sup>(5)</sup>	0	5 ppb (24-hour)
Total Reduced Sulphur (TRS) - 10 minute	ppb	14.5	0.0	0.1	10 ppb (10-minute) <sup>(5)</sup>	1	10 ppb (10-minute)
<b>Non-Continuous Parameters</b>							
Particulate Matter less than 10 microns (PM <sub>10</sub> )	µg/m <sup>3</sup>	98.00	<MDL	37.41	N/A	N/A	50 (24-hour)
Total Suspended Particulate (TSP) <sup>(6)</sup>	µg/m <sup>3</sup>	136.00	17.00	70.63	127 µg/m <sup>3</sup> (24-hr)	1	N/A
Total Suspended Particulate Metals (TSP Metals except Ferric Oxide)	µg/m <sup>3</sup>	VARIOUS PARAMETERS, NO EXCURSIONS TO REPORT UNLESS LISTED BELOW					
Total Suspended Particulate Ferric Oxide <sup>(7)</sup>	µg/m <sup>3</sup>	7.08	0.07	1.38	25 µg/m <sup>3</sup> (24-hour)	0	25 µg/m <sup>3</sup> (24-hour)
Volatile Organic Compounds (VOCs)	µg/m <sup>3</sup>	VARIOUS PARAMETERS, NO EXCURSIONS TO REPORT UNLESS LISTED BELOW					
Volatile Organic Compounds (Benzene) <sup>(8)</sup>	µg/m <sup>3</sup>	0.8900	<MDL	0.3613	N/A	N/A	2.3 µg/m <sup>3</sup> (24 hr)
Volatile Organic Compounds (Dichloromethane)	µg/m <sup>3</sup>	943.0000	5.4200	291.7275	220 µg/m <sup>3</sup> (24-hr)	3	220 µg/m <sup>3</sup> (24-hr)
Poly-cyclic Aromatic Hydrocarbons (Benzo(a)pyrene) <sup>(8)</sup>	ng/m <sup>3</sup>	0.1660	<MDL	0.0430	N/A	N/A	0.05 ng/m <sup>3</sup> (24-hour)

Wallace Terrace Ambient Air Quality Monitoring Station (71090)							
Parameter	Units	Maximum	Minimum	Arithmetic Mean	Standard <sup>(1)</sup>	Number of Excursions <sup>(2)</sup>	Guideline, URT, AAQC Criteria <sup>(1,3,4)</sup>
<b>Continuous Parameters</b>							
Total Reduced Sulphur (TRS) - 24 hour	ppb	1.3	0.0	0.1	5 ppb (24-hour) <sup>(5)</sup>	0	5 ppb (24-hour)
Total Reduced Sulphur (TRS) - 10 minute	ppb	7.9	0.0	0.1	10 ppb (10-minute) <sup>(5)</sup>	0	10 ppb (10-minute)
Particulate Matter less than 10 microns (PM <sub>10</sub> )	µg/m <sup>3</sup>	47	0	12	N/A	NA	50 (24-hour)
<b>Non-Continuous Parameters</b>							
Total Suspended Particulate (TSP) <sup>(6)</sup>	µg/m <sup>3</sup>	141.00	18.00	69.87	127 µg/m <sup>3</sup> (24-hr)	1	N/A
Total Suspended Particulate Metals (TSP Metals except Ferric Oxide)	µg/m <sup>3</sup>	VARIOUS PARAMETERS, NO EXCURSIONS TO REPORT UNLESS LISTED BELOW					
Total Suspended Particulate Ferric Oxide <sup>(7)</sup>	µg/m <sup>3</sup>	4.30	0.14	1.90	25 µg/m <sup>3</sup> (24-hour)	0	25 µg/m <sup>3</sup> (24-hour)
Volatile Organic Compounds (VOCs)	µg/m <sup>3</sup>	VARIOUS PARAMETERS, NO EXCURSIONS TO REPORT UNLESS LISTED BELOW					
Volatile Organic Compounds (Benzene) <sup>(8)</sup>	µg/m <sup>3</sup>	2.8100	<MDL	1.1375	N/A	N/A	2.3 µg/m <sup>3</sup> (24 hr)
Poly-cyclic Aromatic Hydrocarbons (Benzo(a)pyrene) <sup>(8)</sup>	ng/m <sup>3</sup>	7.0400	<MDL	1.1194	N/A	N/A	0.05 ng/m <sup>3</sup> (24-hour)

Dustfall Ambient Air Quality Monitoring Stations							
Parameter	Units	Maximum	Minimum	Arithmetic Mean	Standard <sup>(1)</sup>	Number of Excursions <sup>(2,9)</sup>	Guideline, URT, AAQC Criteria <sup>(1,3,4)</sup>
<b>Non-Continuous Parameters</b>							
Bonney Street Dustfall Station (71042)	g/m <sup>2</sup> /30day	6.61	4.37	5.31	7	0	N/A
Adelaide Street Dustfall Station (71045)	g/m <sup>2</sup> /30day	3.10	0.77	1.98	7	0	N/A
Spadina Avenue Dustfall Station (71015)	g/m <sup>2</sup> /30day	2.51	2.32	2.40	7	0	N/A
Wilding Avenue Dustfall Station (71043)	g/m <sup>2</sup> /30day	1.62	0.86	1.29	7	0	N/A

Notes:

N/A - Not Applicable due to no applicable Standard, Guideline, Upper Risk Threshold, or Ambient Air Quality Criteria.

- Standard/Guideline/Upper Risk Threshold refers to Ontario Regulation 419/05.
- Sample results presented herein may be affected by urban activities, wood burning appliances immediately adjacent to the samplers and also by several other heavy industrial facilities, main city roadways bridge traffic, main rail yard and rail traffic, tractor trailer truck marshalling and marine shipping routes immediately adjacent to and in the vicinity of the sampling equipment.
- AAQC refers to the Ontario Ambient Air Quality Criteria.
- URT refers to the Upper Risk Threshold
- Total Reduced Sulphur (TRS) standards came into effect on January 1, 2019.
- The standard for Suspended Particulate Matter (TSP) is based on Suspended particulate matter less than 44 micrometers (PM<sub>44</sub>) in size. The TSP sampling method used allows for the collection of particulate sizes of less than 100 micrometers (PM<sub>100</sub>). Therefore the sampled result of PM<sub>100</sub> may be greater than a PM<sub>44</sub> result when compared against the PM<sub>44</sub> standard. Algoma has a MECP-approved, site-specific standard for TSP as PM<sub>44</sub> of 127 mg/m<sup>3</sup> based on an 24-hour averaging period.
- The AAQC for iron is based on the elemental form and does account for the various iron compounds (i.e. Fe<sub>2</sub>O<sub>3</sub>, Fe<sub>3</sub>O<sub>4</sub>, etc.) attributed to the steelmaking process. Based on a report prepared for Algoma Steel Inc. by SGS Lakefield Research Ltd. entitled "Fe Department Study of Three Slag Samples and Seven Dust Samples", elemental iron (Fe) represents approximately only one percent while ferric oxide represents approximately twenty-five percent of the iron compounds detected within the samples. As such, it is anticipated that ferric oxide is the main contributor to iron concentrations at the Site and the ferric oxide (Fe<sub>2</sub>O<sub>3</sub>) standard (i.e. 25 mg/m<sup>3</sup>) is more appropriate for comparison.
- Algoma has MECP-approved site-specific standards for benzene (2.2 µg/m<sup>3</sup>) and benzo(a)pyrene (4 ng/m<sup>3</sup>) that are based on an annual averaging period and should be compared to the annual average concentration for these parameters.
- The MECP approved dustfall stations located at Bonney Street, Spadina Avenue, Wilding Avenue, and Adelaide Street are historical sites, selected to meet MECP siting criteria as closely as possible, however some sites may not meet the siting criteria perfectly. As such, dustfall results may be influenced by nearby structures. Any deviations from the siting criteria are recognized by the MECP following practical rationale including a combination of best fit and a long history of consistent data collection at each monitoring location.