

2023 Fourth Quarterly Report – Ambient Air Quality Monitoring Program

105 West Street, Sault Ste. Marie, Ontario P6A 7B4

Algoma Steel Inc.

60684010

February 2024

1. Executive Summary

AECOM Canada Ltd. (AECOM) was retained by Algoma Steel Inc. (Algoma) to prepare the 2023 Fourth Quarterly Report (Report) for the months of October to December 2023 for its Ambient Air Quality Monitoring Program (AAQMP) in Sault Ste. Marie, Ontario (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 71042 – Bonney Street Station
- Station 71082 – 4th Ave – David Kyle Park Station
- Station 71083 – West & Cathcart Street Station
- Station 71015 – Spadina Avenue (dustfall only)
- Station 71042 – Bonney Street (dustfall only)
- Station 71043 – Wilding Avenue (dustfall only)
- Station 71045 – Adelaide Street (dustfall only)

This quarterly report includes a summary of the continuous and non-continuous statistical data for the above-noted stations for the Fourth Quarter. The report also highlights the details of the AAQMP, provides a summary of observations such as meteorological data statistics, and occurrence of any excursions following all AAQC, Upper Risk Thresholds (URT), Guideline, and/or Standard excursions as per the MECP's requirements and in accordance with O. Reg. 419/05.

Bonney Street Station (71042)							
Parameter	Units	Maximum	Minimum	Arithmetic Mean (Quarterly)	Standard	Number of Excursions	Guideline, AAQC Criteria
Continuous Parameters (Quarterly)							
Total Reduced Sulphur (TRS) - 24 hour	ppb	13.15	0	4.12	5 ppb (24-hour)	17	5 ppb (24-hour)
Total Reduced Sulphur (TRS) - 10 minute	ppb	240.55	0.01	2.98	10 ppb (10-minute)	703	10 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 10 minute	ppb	168.95	0	1.96	67 ppb (10-minute)	34	67 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 1 hour	ppb	111.87	0.04	1.96	40 ppb (1-hour)	91	40 ppb (1-hour)
Sulfur Dioxide (SO ₂) – 24 hour	ppb	16.29	0.15	4.06	100 ppb (24-hour)	0	100 ppb (24-hour)
Particulate Matter less than 10 microns (PM ₁₀) – 24 Hour	µg/m ³	209.15	2.37	24.58	N/A	15	50 µg/m ³ (AAQC 24-hour)
Non-Continuous Parameters (Quarterly)							
Total Suspended Particulate (TSP)	µg/m ³	292	8	113.74	120 µg/m ³ (24-hour)	6	120 µg/m ³ (24-hour)
Total Suspended Particulate Manganese	µg/m ³	0.96	0.04	0.25	120 µg/m ³ (24-hour)	2	0.4 µg/m ³ (24-hour)
Total Suspended Particulate Metals (TSP Metals except Manganese)	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (VOCs except Benzene)	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (Benzene)	µg/m ³	3.45	0.42	1.65	0.45 (Annual)	1	2.3 µg/m ³ (24-hour)
Poly-cyclic Aromatic Hydrocarbons (Benzo(a)pyrene)	ng/m ³	6.29	0.07	1.69	0.01 ng/m ³ (Annual)	7	0.05 ng/m ³ (24-hour)
Fourth Avenue – David Kyle Park Station (71082)							
Parameter	Units	Maximum	Minimum	Arithmetic Mean (Quarterly)	Standard	Number of Excursions	Guideline, AAQC Criteria
Continuous Parameters (Quarterly)							
Total Reduced Sulphur (TRS) - 24 hour	ppb	6.92	0.14	5.37	5 ppb (24-hour)	10	5 ppb (24-hour)
Total Reduced Sulphur (TRS) - 10 minute	ppb	27.35	0	3.54	10 ppb (10-minute)	96	10 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 10 minute	ppb	51.69	0	4.13	67 ppb (10-minute)	0	67 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 1 hour	ppb	39.02	0.04	4.13	40 ppb (1-hour)	0	40 ppb (1-hour)
Sulfur Dioxide (SO ₂) – 24 hour	ppb	12.55	0.87	12.55	100 ppb (24-hour)	0	100 ppb (24-hour)
Particulate Matter less than 10 microns (PM ₁₀) - 24 hour	µg/m ³	70.77	1.59	16.42	N/A	3	50 µg/m ³ (24-hour)
Non-Continuous Parameters (Quarterly)							
Total Suspended Particulate (TSP)	µg/m ³	101.00	7.10	40.78	120 µg/m ³ (24-hour)	0	120 µg/m ³ (24-hour)
Total Suspended Particulate Metals	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (VOCs except Dichloromethane, and Alpha-Pinene)	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (Dichloromethane)	µg/m ³	690.00	2.74	178.31	220 µg/m ³ (24-hour)	2	220 µg/m ³ (24-hour)
Volatile Organic Compounds (Alpha-Pinene)	µg/m ³	299.14	100	0.14	270 µg/m ³ (24-hour)	3	270 µg/m ³ (24-hour)
Poly-cyclic Aromatic Hydrocarbons (Benzo(a)pyrene)	ng/m ³	0.48	0.01	0.10	0.01 ng/m ³ (Annual)	2	0.05 ng/m ³ (24-hour)

West & Cathcart Station (71083)							
Parameter	Units	Maximum	Minimum	Arithmetic Mean (Quarterly)	Standard	Number of Excursions	Guideline, AAQC Criteria
Continuous Parameters (Quarterly)							
Total Reduced Sulphur (TRS) - 24 hour	ppb	5.38	0.39	2.58	5 ppb (24-hour)	2	5 ppb (24-hour)
Total Reduced Sulphur (TRS) - 10 minute	ppb	20.00	0.05	1.71	10 ppb (10-minute)	22	10 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 10 minute	ppb	363.22	1.36	10.48	67 ppb (10-minute)	32	67 ppb (10-minute)
Sulfur Dioxide (SO ₂) – 1 hour	ppb	273.61	1.36	10.48	40 ppb (1-hour)	157	40 ppb (1-hour)
Sulfur Dioxide (SO ₂) – 24 hour	ppb	27.49	5.78	27.49	100 ppb (24-hour)	0	100 ppb (24-hour)
Particulate Matter less than 10 microns (PM ₁₀) - 24 hour	µg/m ³	72.07	4.05	19.67	N/A	7	50 µg/m ³ (AAQC 24-hour)
Non-Continuous Parameters (Quarterly)							
Total Suspended Particulate (TSP)	µg/m ³	200.00	6.60	43.97	120 µg/m ³ (24-hour)	1	120 µg/m ³ (24-hour)
Total Suspended Particulate Metals (TSP Metals)	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds	µg/m ³	Various Parameters - No Excursions to Report					
Volatile Organic Compounds (Alpha-Pinene)	µg/m ³	326.00	0.14	83.45	270 µg/m ³ (24-hour)	1	270 µg/m ³ (24-hour)
Poly-cyclic Aromatic Hydrocarbons (Benzo(a)pyrene)	ng/m ³	1.73	0.01	0.25	0.01 ng/m ³ (Annual)	3	0.05 ng/m ³ (24-hour)
Dustfall Monitoring Stations							
Parameter	Units	Maximum	Minimum	Arithmetic Mean (Quarterly)	Standard	Number of Excursions	Guideline, AAQC Criteria
Non-Continuous Parameters (Quarterly)							
Bonney Street Dustfall Station (71042)*	g/m ² /30day	9.88	6.45	8.67	7.00	2	7.00
Adelaide Street Dustfall Station (71045)*	g/m ² /30day	2.76	1.09	1.83	7.00	0	7.00
Spadina Street Dustfall Station (71015)*	g/m ² /30day	6.29	3.91	5.08	7.00	0	7.00
Wilding Avenue Dustfall Station (71043)*	g/m ² /30day	4.50	3.05	3.76	7.00	0	7.00

*Dustfall values are after optical characterization.